THE TOOL SELECTION FOR SLIDING HEAD MACHINES

TOTAL TOOLING = QUALITY x SERVICE ^{2}

GX16
BH12

Welcome to WNT

Placing your order is quick and easy

The WNT Customer Service Centre

Freephone Number
0800 073 2 073

Freefax Number
0800 073 2 074

E-mail
wnt-uk@wnt.com

It couldn't be easier

Ordering via the WNT Online Shop

www.wnt.com

Competent advice on call too

Application engineers with know-how

Use our Service² by telephone Monday to Friday from 8:00am – 6:30pm.

WNT TOOL-XPRESS

Order by 6:30 pm and get free, guaranteed before 12 noon, next day delivery, or £10 back*

* Orders over £50.00 are FREE delivery, for orders under £50 a delivery charge of £5 will be applied. If your order is not delivered by the guaranteed delivery time, then £10 will be credited to your account upon request. A small number of postcodes and heavy shipments over 70kgs are excluded. A possible surcharge may be applied for heavy shipments.

Your Local Technical Sales Engineer
On-site technical support

Your customer number

TOTAL TOOLING = QUALITY x SERVICE²

The WNT Group is a sales organisation supplying precision cutting tools to the metalcutting industry. TOTAL TOOLING = QUALITY x SERVICE² – this is the formula for total customer satisfaction. Through optimal service and an unbeatable product quality WNT is the ideal purchasing solution for the metal cutting industry.

For more information about the company, please visit www.wnt.com

WNT (UK) Ltd.

Our staff in Sheffield are entirely engaged in ensuring the quality of products and service for our customers.

WNT is a member of the CERATIZIT group.

TOTAL TOOLING = QUALITY x SERVICE²

Drilling

HSS drilling

Solid carbide drilling

Reamers

Threading

HSS taps

Circular and Thread Milling

Thread turning

Turning

Turning Tools

EcoCut

Grooving Tools

Miniature turning tools

Milling

Solid Carbide milling cutters

Clamping

Material examples and article no. index

Cutting Tools

High quality tools exclusively for sliding head

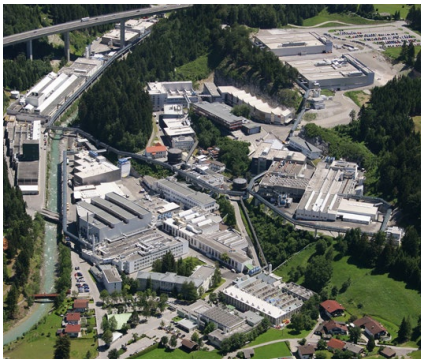
For every application the right solution

With 11,000 high quality products exclusively for metal cutting WNT leads the market with the most comprehensive product range available. For every application the ideal tooling solution. WNT, your specialist for metal cutting offers, everything between the machine spindle and the table.

Present right from the start

95 years of experience in powder metallurgy

As a member of a worldwide operating company group WNT profits from an expertise in powder metallurgy that has been acquired over decades. This knowledge encompasses all steps in the manufacture of carbide, from powder production through to the finished product.



Just ONE Name

MASTERTOOL from WNT stands for quality

WNT MASTERTOOL

All Mastertool products are of a consistently high quality. Depending on the application, choose between premium tools from the Mastertool Performance range and quality tools from the Mastertool Standard range. In both cases you will receive top functionality that will optimize your productivity. Every tool is rigorously tested and carefully selected according to our strict quality standards before we include it in our product range. One part number guarantees delivery of the identical product every time, all produced in Europe. This is guaranteed by one name – WNT MASTERTOOL.

WNT MASTERTOOL
PERFORMANCE

Premium quality tools for high performance.

The premium quality tools from the **WNT Mastertool Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

WNT MASTERTOOL
STANDARD

Quality tools for standard applications.

The quality tools of the **WNT Mastertool Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

WNT RESTART

New for old

WNT Restart – regrind instead of buying new

We know what to do with your used precision tool, you will receive it back with the original finish, original coating and original geometry. As good as new and ready to be used in the machine again.
Use this Service² from WNT.

WNT RECYCLING

We come full circle

WNT Recycling – our recycling service

Our joint contribution for the good of the environment: we take back your carbide and process it appropriately. You receive a credit from us that you can redeem with your next tool purchase.
Use this Service² from WNT.

TOTAL TOOLING = QUALITY x SERVICE²

Support & Know-How

Your competent partner on-site

Technical advice from your WNT Technical Sales engineer

There is a simple reason why we like to support our customers: we want the best for them. And the best solutions are developed when we work together. Thanks to many years of practical experience our experts are able to quickly recognize your individual needs and assist you in optimizing your productivity. Use this Service² from WNT.

Competent advice on call too

Application engineers with know-how

An application engineer is always available by phone to answer your application-specific questions. Even if they are not on-site with you, our experts are always ready to listen to your concerns. Use our Service² by telephone Monday to Friday from 8:00am, 6:30pm.
The Freephone number is 0800 073 2 073.

Unique in metal cutting

THE WNT Catalogue – the tool for your daily work

Know-how for the technician both in printed form as well as online: with 55,000 articles WNT offers the largest product range for the metal cutting industry available from one source. WNT provides all relevant data for metal cutting, comprehensive and detailed.

Always up to date

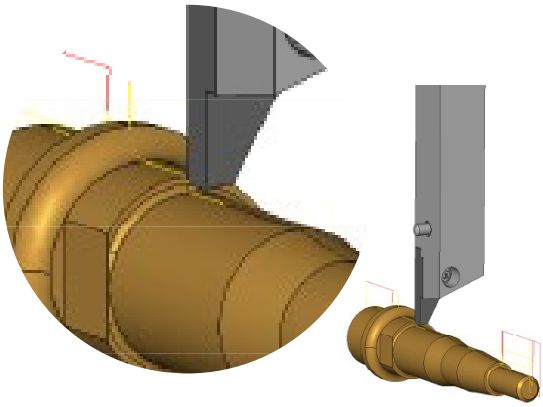
Current information for the technician

We keep you regularly informed about trends and innovations in metal cutting through our publications about the latest products, technical information and useful application tips.

Tool data always at your fingertips

Cutting data and CAD models for day-to-day assistance

In addition to detailed cutting data we also offer 2D and 3D models to assist you with your tool management or for simulating an operation. All data for this Service² is available for you in our Online Shop.



Stay in touch with the latest technology together with us

The WNT Technical Training

Our engineers are provided with constant training to keep them up to speed on all technical matters. We will gladly share this knowledge with you. Use our Service² for the further education of your metal cutting technicians in the WNT Technical Centre.

WNT TECHNICAL TRAINING

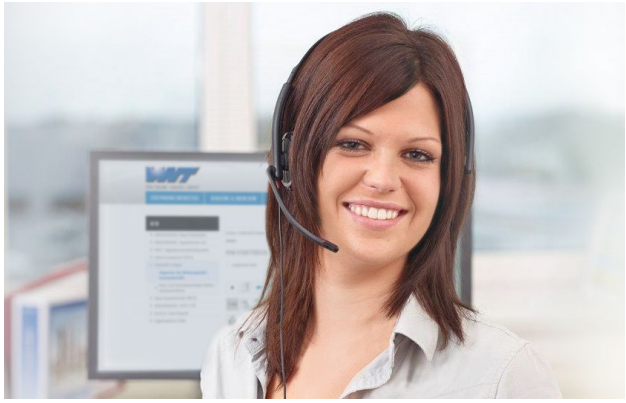
TOTAL TOOLING = QUALITY x SERVICE²

Availability

Placing your order is quick and easy

The WNT Customer Service Centre

You can reach our Customer Service Centre Monday to Friday from 8:00am – 6:30pm. Just call and you will be helped immediately by one competent person with no holding time, who will directly answer your questions and get your order processed, that's what we mean by Service².



It couldn't be easier

Ordering via the WNT Online Shop

In the WNT Online Shop you can select and order your tool with a mouse click, 24 hours a day, 7 days a week. All your transactions including those in the past can be viewed clearly and easily in the online shop.
Register and use our Service².
www.wnt.com

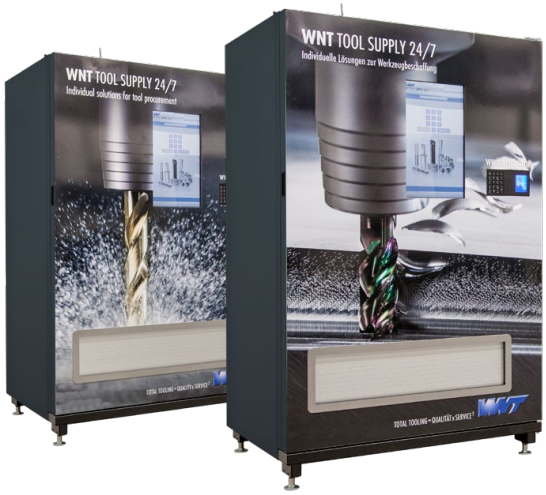
WNT rewards its customers with the loyalty program

Customers who use the WNT online shop will not only benefit from the many advantages of online ordering, but will automatically benefit from the bonus points program. Once registered, customers have the opportunity to gather points with any online purchase that can be redeemed against a subsequent order for cutting tools. A separate application for the bonus points program is not necessary.

Stock around the clock

WNT Tool Supply 24/7

If you install a Tool-O-Mat it means that we take on all the procurement and stocking costs for you. You have 100 % availability of all tools at all times and without expenditure. Machine downtime due to lack of tooling, not with our Service² possibilities.



WNT TOOL-XPRESS

We have 55,000 articles in stock – for you!

Availability of 99 % thanks to the most modern logistics

Why would you want to keep your own stock? We can do it for you! With the most modern logistics centre in the metal cutting industry we guarantee you delivery the next day. And we mean that for 55,000 products with an availability of 99 %.

Minimum order quantity? Not from us!

WNT does not have minimum order quantities

No matter which tool you need, we promise you quick and uncomplicated delivery. Even if you only order one item! We do not have minimum order quantities. That is Service².

Where is my order right now?

WNT order tracking

For all those, who want to keep an eye on their package: With your tracking number your can follow the progress of your delivery online. In the Online Shop you can always track the current status, by the way it makes no difference how you placed your order.

Delivery next day not some day

WNT Tool-Xpress – order up to 6:30pm, receive it tomorrow

Our Service² promise: what you order today (Mon.–Fri.) up to 6:30pm you will have at your machine tomorrow. Test our Service² for yourself.

TOTAL TOOLING = QUALITY x SERVICE²

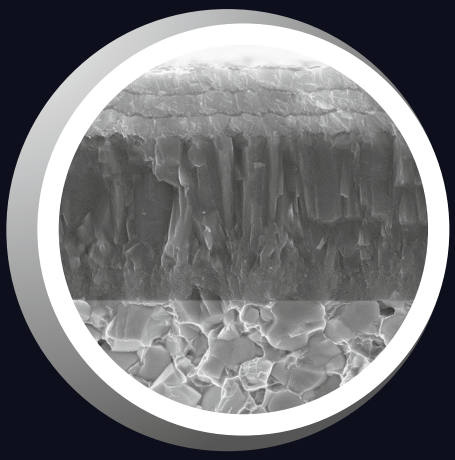
Legendary Performance

Dragonskin

Dragonskin – the next generation of coating technology

Decades of experience and consistent and continuous development of new and unique coating processes are behind the development of the new Dragonskin coating technology. Above all, and through our innovation and expertise in powder metallurgy, we can achieve an unprecedented level of performance in machining.
As with the invulnerability of Dragonskin, the new WNT Dragonskin coating technology offers maximum protection against wear, and has been developed with an almost impenetrable layer for the toughest requirements. Emerging from this is an elegant, satin coating with an extremely hard and indestructible surface that sets new standards.

The perfect combination of ultra modern high performance substrates and novel coating structures allow high cutting speeds and increased process security. Unlimited application possibilities puts everything that has gone before in the shade! A proven, up to 80 %, increase in performance with the new Dragonskin coating technology offers a significant competitive advantage.



New Dragonskin Coating

Dragonskin – the right Dragon for every material type

The Dragonskin product category Dragonskin ensures that tools with the WNT high performance coating technology are quickly recognizable, and easy to identify. All products that have these special properties are confirmed by the Dragonskin symbol and the corresponding colour code.

The first choice for machining non, low and high alloyed steels

The first choice for machining austenitic, ferritic and martensitic stainless steels

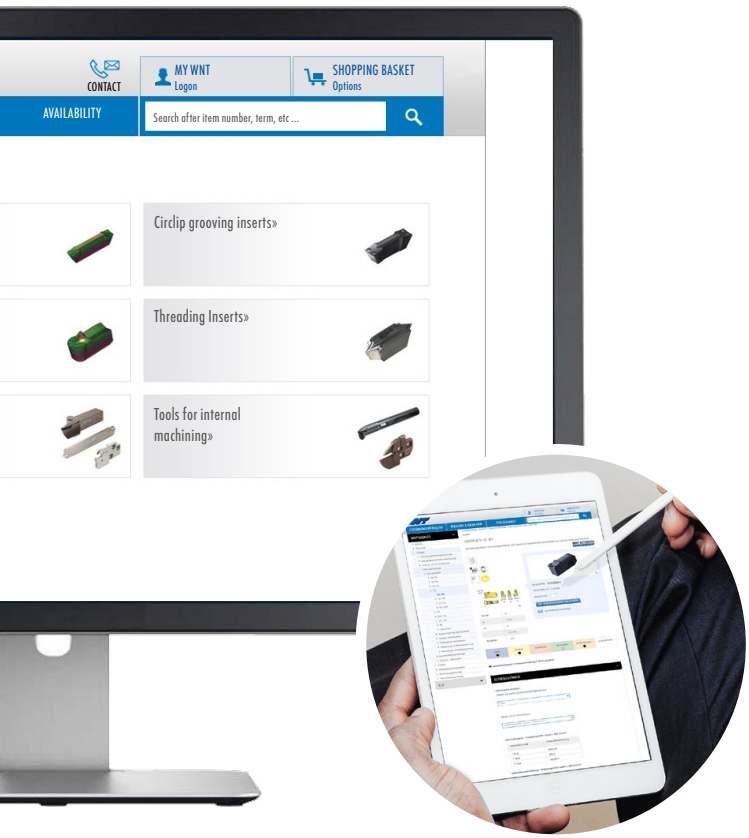
The first choice for machining heat resistant alloys based on nickel, chromium, cobalt and titanium

TOTAL TOOLING = QUALITY x SERVICE ^{2}

Tool data for stable production processes in an interconnected world

From the tool management system via the CAD / CAM system to the simulation software and the machine itself, all systems involved in the production process can and want more and more to deal with digital data. To meet this demand, WNT is able to provide you with all the necessary and available production data which your production systems require for a smooth process. The product tables contain tool dimensions according to ISO 13399, which will pave the way into the digital future.

Comprehensive tool data available for almost all WNT tools



Technology Data

- Recommended use: Secure tool planning information on selecting the ideal tools for the relevant application
- Cutting data: optimal starting values for the machining of different materials

CAD Data

- All tool data is created in accordance with the current standards ISO 13399 / DIN 4003
- 3D solid models in STEP and STL formats
- 2D drawings as DXF
- Usable in all major CAD / CAM systems
- Perfect for integration in tool management systems
- Compatible with the CNC machine simulation to avoid collisions, tool breakage and damage to machinery

Direct and Free of Charge

- Recommended use and cutting data can be found in detail in the catalogue
- All information in digital form can be found on the website to download: www.wnt.com
- Password protected customer area „My WNT“ for unrestricted access to all data on the website

TOTAL TOOLING = QUALITY x SERVICE ^{2}

Tool attributes to ISO 13399

With strict global parameters and definitions for tool data in accordance with ISO 13399, a common language has been found to permit the interaction with each other of the different systems. In addition to the specific dimensions of WNT tools, we also provide the ISO dimensions in the tool tables.

ISO dimensions

	l INSL mm	s CW mm	$r_{+/-0,05}$ RER mm	l_2 PDPT mm		99 999 ...
XX 16-2 XX.50 X	16	3	1,5	1,5	X 16-2	**999**
XX 16-3 XX.50 X	16	4	2,0	2,0	X 16-3	**999**

Example table from the WNT catalogue

Advantages

- The standardized and most valid form of Product Data Descriptionserves to ensure that a system-independent data exchange of tool data can take place between different systems involved in the production process.
- The standard provides data that is no longer purely vendor specific.
- Thus, the quality of information exchanged is improved. Use of a system according to ISO 13399 is time-saving, as it is no longer necessary to manually enter product data from the tool supplier.

Drilling

HSS drilling

Solid carbide drilling

Reamers

1

Threading

HSS taps

Circular and Thread Milling

Thread turning

2

Turning

Turning Tools

EcoCut

Grooving Tools

Miniature turning tools

3

Milling

Solid Carbide milling cutters

4

Clamping

5

Material examples and article no. index

6

Drilling

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Solid Carbide Drilling	14-15
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WNT MASTERTOOL PERFORMANCE

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Quality tools for standard applications.

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Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Overview

HSS Drilling

- Drill for universal application up to 10xD

Solid Carbide Drilling

- Selection of solid carbide drills and WTX drills
- High performance for universal application

Reaming

- HSS and solid carbide reaming from Ø 0.59 - 12 mm

Symbol explanation – HSS drills

Shank

DIN 1835 A

Point angle

130°

functional length

≤ 10xD

- ● = **Main Application**
- ○ = Extended application

Symbol explanation – solid carbide drills

Shank

DIN 6535 HA

Version

Int. coolant supply

self-centering

Point angle

140°

functional length

≤ 8xD

- ● = **Main Application**
- ○ = Extended application

Symbol explanation – reamers

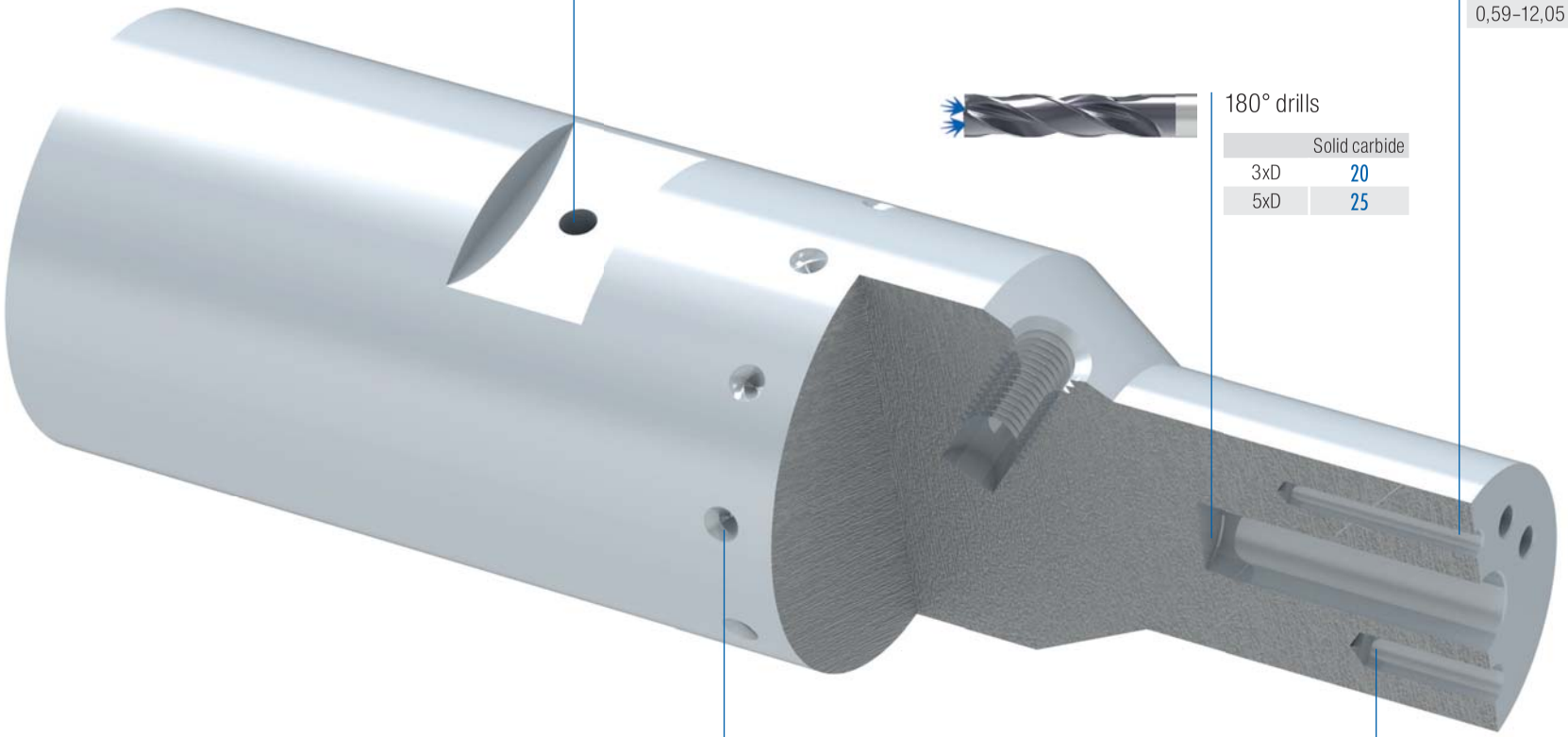
Shank

DIN 1835 A

DIN 6535 HA

- ● = **Main Application**
- ○ = Extended application

WNT Toolfinder



Micro drills

	HSS	Solid carbide
Factory standard	9	
5xD		28+29
8xD		29

Reamers

	HSS	Solid carbide
0,95–12,00	45-47	
0,59–12,05		50

180° drills

	Solid carbide
3xD	20
5xD	25

Standard drills

	HSS	Solid carbide
3xD	6	16-19
5xD	7	21-24
8xD		26+27
10xD	8	

NC Spot Drill

	HSS	Solid carbide
90°	9	30
120°	9	30

Highlights

- HSS-PM powder metallurgical HSS-E-PM drills
- Improved flexural strength
- Ideal for applications with transverse holes, for example
- Optimized core design
- Can be used in all materials
- Excellent cutting edge stability
- High cutting speeds

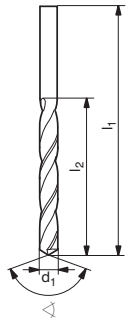
HSS Drills Overview

	Tool type	Material I Coating	Point angle	Diameter in mm Ø d_1	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	coated	uncoated	Pages
3xD without thro' coolant													
	UNI	HSS-E TiN	118°	1–12	●	●	●	●	○		■		6
	UNI	HSS-E PM TiN	130°	1–12	●	○	●		○		■		6
5xD without thro' coolant													
	UNI	HSS-E TiN	118°	0,9–12	●	●	●	●	○		■		7
	UNI	HSS-E PM TiN	130°	1–12	●	○	●		○		■		7
up to 10xD without thro' coolant													
	UNI	HSS-E TiN	118°	1–12	●	○	●	○			■		8
Mini-drill													
	N	HSS-E PM	118°	0,15–1,45	●	●	●	●	○			□	9
NC Spot Drill													
	NC-A	HSS TiN	90°	3–12	●	○	●	○			■		9
	NC-A	HSS TiN	120°	3–12	●	○	●	○			■		9

Further dimensions and drills can be found in our → **main catalogue in Chapter 1 HSS drills**

High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD



UNI | TiN | ∢ 118° | HSS-E

UNI | TiN | ∢ 130° | HSS-E-PM

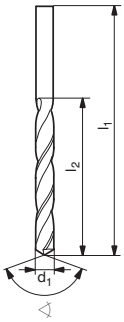
$d_{1\ h8}$ DC mm	d_1 DC inch	l_1 OAL mm	l_2 LCF mm	T2 Article no. 10 107 ... £		NEW T2 Article no. 10 113 ... £	
1.00		26	6	4.48	010	6.97	010
1.10		28	7	4.48	011	6.97	011
1.20		30	8	4.22	012	7.14	012
1.30		30	8	4.48	013	7.49	013
1.40		32	9	4.36	014	6.90	014
1.50		32	9	4.05	015	6.48	015
1.60		34	10	4.05	016	6.79	016
1.70		34	10	3.83	017	6.90	017
1.80		36	11	4.05	018	6.79	018
1.90		36	11	4.05	019	6.79	019
2.00		38	12	3.56	020	5.71	020
2.10		38	12	3.83	021	6.97	021
2.20		40	13	4.22	022	6.97	022
2.30		40	13	4.10	023	5.88	023
2.38	3/32	43	14	4.10	238	6.44	238
2.40		43	14	4.22	024	7.00	024
2.50		43	14	3.83	025	6.13	025
2.60		43	14	4.22	026	7.25	026
2.70		46	16	4.48	027	7.67	027
2.78	7/64	46	16	4.48	278	7.46	278
2.80		46	16	4.48	028	7.14	028
2.90		46	16	4.48	029	7.60	029
3.00		46	16	4.05	030	6.44	030
3.10		49	18	4.36	031	6.90	031
3.17	1/8	49	18	4.22	317	6.79	317
3.20		49	18	4.10	032	6.48	032
3.30		49	18	4.48	033	6.48	033
3.40		52	20	4.62	034	7.49	034
3.50		52	20	4.48	035	6.48	035
3.57	9/64	52	20	4.62	357	7.35	357
3.60		52	20	4.62	036	8.61	036
3.70		52	20	4.86	037	7.46	037
3.80		55	22	4.76	038	7.95	038
3.90		55	22	5.38	039	9.00	039
3.97	5/32	55	22	5.12	397	8.12	397
4.00		55	22	4.76	040	7.35	040
4.10		55	22	5.02	041	8.44	041
4.20		55	22	4.86	042	7.35	042
4.30		58	24	5.15	043	8.37	043
4.37	11/64	58	24	6.87	437	11.24	437
4.40		58	24	5.81	044	9.00	044
4.50		58	24	5.15	045	8.37	045
4.60		58	24	5.64	046	8.44	046
4.70		58	24	5.94	047	9.38	047
4.76	3/16	62	26	5.94	476	9.38	476
4.80		62	26	6.02	048	9.56	048
4.90		62	26	6.66	049	9.63	049
5.00		62	26	5.26	050	8.12	050
5.10		62	26	7.04	051	8.93	051
5.16	13/64	62	26	9.10	516	10.64	516
5.20		62	26	8.71	052	9.63	052
5.30		62	26	9.22	053	10.89	053
5.40		66	28	9.10	054	10.68	054
5.50		66	28	6.79	055	9.14	055
5.56	7/32	66	28	7.56	556	10.01	556
5.60		66	28	11.14	056	10.89	056
5.70		66	28	11.27	057	11.69	057
5.80		66	28	11.90	058	11.17	058
5.90		66	28	12.05	059	12.32	059
5.95	15/64	66	28	13.20	595	18.66	595
6.00		66	28	6.79	060	9.84	060
6.10		70	31	12.81	061	11.55	061
6.20		70	31	13.05	062	11.55	062
6.30		70	31	14.20	063	13.23	063
6.35	1/4	70	31	14.09	635	12.15	635
6.40		70	31	14.47	064	12.25	064
6.50		70	31	7.94	065	11.55	065
6.60		70	31	14.97	066	12.74	066
6.70		70	31	15.24	067	14.04	067
6.75		74	34	11.67	675	17.26	675
6.80		74	34	15.62	068	14.07	068
6.90		74	34	15.74	069	13.90	069
7.00		74	34	9.10	070	12.88	070
7.10		74	34	16.38	071	15.61	071
7.14	9/32	74	34	16.77	714	20.72	714
7.20		74	34	16.52	072	16.07	072
7.30		74	34	16.64	073	17.26	073
7.40		74	34	16.52	074	16.17	074
7.50		74	34	10.37	075	13.44	075
7.60		79	37	15.49	076	20.97	076
7.70		79	37	19.20	077	22.72	077
7.80		79	37	18.56	078	17.33	078
7.90		79	37	20.35	079	24.26	079
7.94	5/16	79	37	10.49	794	16.63	794
8.00		79	37	10.02	080	16.07	080
8.10		79	37	20.87	081	20.51	081
8.20		79	37	21.77	082	21.35	082
8.30		79	37	23.41	083	22.40	083
8.40		79	37	24.06	084	21.49	084
8.50		79	37	11.90	085	18.66	085
8.60		84	40	14.31	086		
8.70		84	40	16.47	087		
8.73	11/32	84	40	18.85	873	29.51	873
8.80		84	40	15.49	088	23.42	088
8.90		84	40	20.36	089		
9.00		84	40	12.54	090	18.94	090
9.10		84	40	17.16	091		
9.20		84	40	17.27	092		
9.30		84	40	30.46	093	21.49	093
9.40		84	40	20.03	094		
9.50		84	40	13.43	095	20.97	095
9.60		89	43	20.95	096		
9.70		89	43	20.36	097		
9.80		89	43	31.36	098	24.99	098
9.90		89	43	21.75	099		
10.00		89	43	15.62	100	20.65	100
10.10		89	43	20.95	101		
10.20		89	43	24.83	102	26.15	102
10.30		89	43	19.46	103		
10.40		89	43	22.78	104		
10.50		89	43	26.88	105	24.78	105
11.00		95	47	28.66	110	27.55	110
11.11	7/16	95	47	33.79	111	32.34	111
11.50		95	47	32.51	115	31.75	115
12.00		102	51	38.26	120	31.08	120

Steel	●	●
Stainless steel	●	○
Cast iron	●	●
Non ferrous metals	●	
Heat resistant alloys	○	○

→ v_c Page 11

Twist drill to DIN 338, short

≤ 5xD



UNI
TiN

118°
HSS-E

UNI
TiN

130°
HSS-E-PM

$d_{1\ h8}$ DC mm	d_1 DC inch	l_1 OAL mm	l_2 LCF mm	T2 Article no. 10 171 ... £		NEW T2 Article no. 10 173 ... £	
0.90		32	11	3.84	009		
1.00		34	12	3.84	010	5.53	010
1.10		36	14	3.84	011	5.99	011
1.20		38	16	4.36	012	5.88	012
1.25		38	16	4.10	125		
1.30		38	16	4.10	013	5.99	013
1.40		40	18	3.84	014	6.06	014
1.45		40	18	3.84	145		
1.50		40	18	3.59	015	5.71	015
1.55		43	20	3.84	155		
1.60		43	20	3.84	016	5.71	016
1.65		43	20	3.97	165		
1.70		43	20	3.97	017	6.13	017
1.80		46	22	3.84	018	6.06	018
1.90		46	22	3.97	019	6.06	019
2.00		49	24	3.56	020	5.88	020
2.10		49	24	4.36	021	6.13	021
2.20		53	27	4.36	022	6.44	022
2.30		53	27	4.36	023	6.23	023
2.38	3/32	57	30	4.36	238	6.23	238
2.40		57	30	4.36	024	5.88	024
2.50		57	30	3.68	025	5.99	025
2.55		57	30	4.36	255		
2.60		57	30	4.36	026	6.23	026
2.70		61	33	4.36	027	6.62	027
2.78	7/64	61	33	5.15	278	8.09	278
2.80		61	33	4.36	028	6.48	028
2.90		61	33	4.48	029	6.62	029
3.00		61	33	3.68	030	6.30	030
3.10		65	36	4.48	031	7.00	031
3.17	1/8	65	36	4.22	317	6.97	317
3.20		65	36	4.05	032	6.90	032
3.25		65	36	4.61	325		
3.30		65	36	4.05	033	7.00	033
3.40		70	39	4.74	034	7.49	034
3.50		70	39	4.05	035	7.60	035
3.57	9/64	70	39	4.86	357	7.60	357
3.60		70	39	4.86	036	7.67	036
3.70		70	39	4.86	037	7.67	037
3.80		75	43	5.15	038	8.12	038
3.90		75	43	5.38	039	8.30	039
3.97	5/32	75	43	5.64	397	8.44	397
4.00		75	43	4.22	040	7.95	040
4.10		75	43	5.12	041	8.12	041
4.20		75	43	5.12	042	8.12	042
4.25		75	43	5.40	425		
4.30		80	47	5.38	043	8.65	043
4.37	11/64	80	47	5.76	437	8.75	437
4.40		80	47	5.40	044	8.65	044
4.50		80	47	5.38	045	8.44	045
4.60		80	47	5.76	046	8.93	046
4.65		80	47	5.89	465		
4.70		80	47	5.94	047	10.82	047
4.76	3/16	86	52	5.89	476	9.14	476
4.80		86	52	5.76	048	9.14	048
4.90		86	52	5.89	049	9.28	049
4.95		86	52	5.89	495		
5.00		86	52	5.15	050	9.35	050
5.05		86	52	5.89	505		
5.10		86	52	5.89	051	9.35	051
5.16	7/32	86	52			10.19	516
5.16	13/64	86	52	6.46	516		
5.20		86	52	6.33	052	9.63	052
5.30		86	52	6.33	053	10.19	053
5.40		93	57	6.87	054	12.50	054
5.50		93	57	7.04	055	10.78	055
5.55		93	57	8.03	555		
5.56	7/32	93	57	8.03	556		
5.56		93	57			12.67	556
5.60		93	57	6.99	056	11.48	056
5.70		93	57	6.99	057	11.34	057
5.75		93	57	6.99	575		
5.80		93	57	6.99	058	11.34	058
5.90		93	57	6.99	059	12.04	059
5.95	15/64	93	57	8.95	595	14.74	595
6.00		93	57	6.87	060	10.89	060
6.10		101	63	7.77	061	12.32	061
6.20		101	63	7.77	062	12.15	062
6.30		101	63	7.77	063	13.41	063
6.35	1/4	101	63	8.30	635	14.18	635
6.40		101	63	8.30	064	14.21	064
6.50		101	63	7.67	065	13.09	065
6.60		101	63	8.30	066	14.39	066
6.70		101	63	8.30	067	14.35	067
6.75		109	69	11.39	675	19.39	675
6.80		109	69	9.42	068	14.74	068
6.90		109	69	9.42	069	15.05	069
7.00		109	69	8.03	070	14.74	070
7.10		109	69	10.68	071	16.98	071
7.14	9/32	109	69	15.95	714	25.41	714
7.20		109	69	10.68	072	16.94	072
7.30		109	69	10.68	073	17.54	073
7.40		109	69	10.68	074	17.15	074
7.45		109	69	8.58	745		
7.50		109	69	8.58	075	15.61	075
7.60		117	75	12.54	076	18.94	076
7.70		117	75	12.91	077	21.56	077
7.80		117	75	12.54	078	18.52	078
7.90		117	75	12.91	079	22.16	079
7.94	5/16	117	75	12.54	794	19.85	794
8.00		117	75	10.42	080	17.61	080
8.10		117	75	12.54	081	19.29	081
8.20		117	75	13.43	082	18.94	082
8.30		117	75	13.43	083	21.04	083
8.40		117	75	14.09	084	21.18	084
8.50		117	75	10.28	085	18.13	085
8.60		125	81	22.99	086		
8.70		125	81	22.99	087		
8.73	11/32	125	81	15.11	873	19.64	873
8.80		125	81	16.00	088	21.18	088
8.90		125	81	19.76	089		
9.00		125	81	12.93	090	19.95	090
9.10		125	81	21.49	091		
9.20		125	81	22.05	092		
9.30		125	81	19.58	093	23.03	093
9.35		125	81	15.24	935		
9.40		125	81	24.19	094		
9.50		125	81	15.24	095	20.97	095
9.60		133	87	21.88	096		
9.70		133	87	25.70	097		
9.80		133	87	21.88	098	24.99	098
9.90		133	87	20.15	099		
10.00		133	87	15.32	100	23.70	100
10.10		133	87	19.79	101		
10.20		133	87	20.73	102	27.37	102
10.30		133	87	17.27	103		
10.40		133	87	21.39	104		
10.50		133	87	21.50	105	27.55	105
10.55		133	87	23.56	955		
11.00		142	94	23.56	110	28.46	110
11.11	7/16	142	94	45.44	111	35.67	111
11.20		142	94	45.44	112		
11.30		142	94	45.68	113		
11.40		142	94	45.68	114		
11.50		142	94	30.08	115	31.57	115
11.60		142	94	52.34	116		
12.00		151	101	33.53	120	33.74	120

	T2	NEW T2
Steel	●	●
Stainless steel	●	○
Cast iron	●	●
Non ferrous metals	●	
Heat resistant alloys	○	○

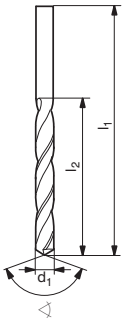
→ v_c Page 11

Twist drills, DIN 340, long

≤ 10xD

UNI

TiN



118°
HSS-E

$d_{1\ h8}$ DC mm	l_1 OAL mm	l_2 LCF mm	T2 Article no. 10 270 ... £	
1.0	56	33	6.96	010
1.1	60	37	7.78	011
1.2	65	41	8.68	012
1.3	65	41	8.55	013
1.4	70	45	8.46	014
1.5	70	45	7.35	015
1.6	76	50	8.68	016
1.7	76	50	9.49	017
1.8	80	53	9.06	018
1.9	80	53	9.68	019
2.0	85	56	7.18	020
2.1	85	56	8.29	021
2.2	90	59	8.46	022
2.3	90	59	8.29	023
2.4	95	62	7.68	024
2.5	95	62	7.35	025
2.6	95	62	8.46	026
2.7	100	66	8.94	027
2.8	100	66	8.55	028
2.9	100	66	8.94	029
3.0	100	66	7.92	030
3.1	106	69	9.49	031
3.2	106	69	8.79	032
3.3	106	69	9.32	033
3.4	112	73	9.68	034
3.5	112	73	9.49	035
3.6	112	73	9.83	036
3.7	112	73	9.55	037
3.8	119	78	9.18	038
3.9	119	78	10.29	039
4.0	119	78	10.05	040
4.1	119	78	10.23	041
4.2	119	78	9.83	042
4.3	126	82	10.96	043
4.4	126	82	9.68	044
4.5	126	82	10.29	045
4.6	126	82	9.92	046
4.7	126	82	11.49	047
4.8	132	87	11.18	048
4.9	132	87	11.33	049
5.0	132	87	11.49	050
5.1	132	87	12.70	051
5.2	132	87	12.46	052
5.3	132	87	13.71	053
5.4	139	91	14.97	054
5.5	139	91	11.93	055
5.6	139	91	15.60	056
5.7	139	91	17.23	057
5.8	139	91	15.13	058
5.9	139	91	16.86	059
6.0	139	91	14.33	060
6.1	148	97	17.01	061
6.2	148	97	15.25	062
6.3	148	97	17.01	063
6.4	148	97	15.47	064
6.5	148	97	14.86	065
6.6	148	97	17.13	066
6.7	148	97	17.57	067
6.8	156	102	18.85	068
6.9	156	102	19.54	069
7.0	156	102	17.74	070
7.1	156	102	17.13	071
7.2	156	102	19.61	072
7.3	156	102	20.50	073
7.4	156	102	21.24	074
7.5	156	102	21.61	075
7.6	165	109	23.19	076
7.7	165	109	21.91	077
7.8	165	109	24.14	078
7.9	165	109	23.28	079
8.0	165	109	19.77	080
8.1	165	109	21.78	081
8.2	165	109	23.76	082
8.3	165	109	25.18	083
8.4	165	109	27.07	084
8.5	165	109	23.19	085
8.6	175	115	23.03	086
8.7	175	115	23.28	087
8.8	175	115	23.65	088
8.9	175	115	24.04	089
9.0	175	115	24.37	090
9.1	175	115	24.37	091
9.2	175	115	24.37	092
9.3	175	115	24.37	093
9.4	175	115	24.37	094
9.5	175	115	24.37	095
9.6	184	121	25.81	096
9.7	184	121	27.07	097
9.8	184	121	28.92	098
9.9	184	121	31.43	099
10.0	184	121	33.98	100
10.1	184	121	37.12	101
10.2	184	121	39.65	102
10.3	184	121	42.78	103
10.4	184	121	42.78	104
10.5	184	121	43.42	105
11.0	195	128	51.54	110
11.5	195	128	52.21	115
12.0	205	134	52.82	120

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	

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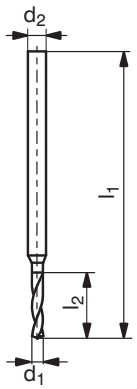
Twist drills, DIN 1899

- 4 facet
- With reinforced shank

Scope of supply:

- Pack quantity 5 pieces
- price per piece

N



∢ 118°
HSS-E-PM
T2

$d_{1\ -0,004}$ DC mm	l_1 OAL mm	l_2 LCF mm	$d_{2\ h8}$ DCONMS mm	Article no. 10 103 ... £	
0.15	25	0.8	1.0	4.93	00150
0.20	25	1.5	1.0	4.05	00200
0.25	25	1.9	1.0	2.76	00250
0.30	25	1.9	1.0	3.09	00300
0.35	25	2.4	1.0	2.84	00350
0.40	25	3.0	1.0	2.84	00400
0.45	25	3.0	1.0	2.84	00450
0.50	25	3.4	1.0	2.84	00500
0.55	25	3.9	1.0	2.84	00550
0.60	25	3.9	1.0	2.84	00600
0.65	25	4.2	1.0	2.84	00650
0.70	25	4.8	1.0	2.76	00700
0.75	25	4.8	1.0	2.76	00750
0.80	25	5.3	1.5	2.84	00800
0.85	25	5.3	1.5	2.97	00850
0.90	25	6.0	1.5	2.97	00900
0.95	25	6.0	1.5	2.97	00950
1.00	25	6.8	1.5	2.97	01000
1.05	25	6.8	1.5	2.97	01050
1.10	25	7.6	1.5	2.97	01100
1.15	25	7.6	1.5	2.97	01150
1.20	25	8.5	1.5	2.97	01200
1.25	25	8.5	1.5	2.97	01250
1.30	25	8.5	1.5	3.04	01300
1.35	25	9.5	1.5	2.97	01350
1.40	25	9.5	1.5	2.97	01400
1.45	25	9.5	1.5	2.97	01450

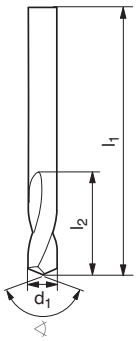
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○

→ v_c Page 12

NC spot drills, factory standard

- helical flutes

NC-A TiN | NC-A TiN



∢ 90° HSS T2 | ∢ 120° HSS T2

$d_{1\ h6}$ DC mm	l_1 OAL mm	l_2 LCF mm	Article no. 10 522 ... £		Article no. 10 512 ... £	
3	46	12	15.62	030	15.62	030
4	55	12	15.88	040	15.88	040
5	62	14	16.90	050	16.90	050
6	66	16	17.79	060	17.79	060
8	79	21	28.66	080	28.66	080
10	89	25	31.61	100	31.61	100
12	102	30	46.20	120	46.20	120

Steel	25-55	25-55
Stainless steel	20-25	20-25
Cast iron	30-55	30-55
Non ferrous metals	65-85	65-85
Heat resistant alloys		

Suitable only for spot drilling!

Material examples referring to the WNT cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5% Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0,5 - 10% Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10 - 15% Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15% Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data appoximate values

	Drilling depth 3xD				Drilling depth 5xD				Hole depth 10xD	
	Type UNI-TiN 10 107 ...		Type UNI-PM-TiN 10 113 ...		Type UNI-TiN 10 171 ...		Type UNI-PM-TiN 10 173 ...		Type UNI-TiN 10 270 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
1.1	**33–38**	5–6	**37-42**	**5-6**	**33–38**	5–6	**37-42**	**5-6**	**25–32**	5–6
1.2	**40–44**	6	**44-47**	**6-7**	**40–44**	6	**44-47**	**6-7**	**28–35**	6
1.3	**44**	6	**47**	**4**	**44**	6	**47**	**4**	**28**	6
1.4	**18–22**	3–4	**20-25**	**4-5**	**18–22**	3–4	**20-25**	**4-5**	**12–14**	3–4
1.5	**40–44**	6	**47**	**6**	**40–44**	6	**47**	**6**	**25–28**	6
1.6	**26**	5	**44**	**5**	**26**	5	**44**	**5**	**15**	5
1.7	**27**	4	**30**	**4**	**27**	4	**30**	**4**	**13**	4
1.8	**22**	3	**25**	**3**	**22**	3	**25**	**3**	**12**	3
1.9	**20**	4	**22**	**4**	**20**	4	**22**	**4**	**13**	4
1.10	**22**	4	**25**	**4**	**22**	4	**25**	**4**	**13**	4
1.11	**16**	3	**20**	**4**	**16**	3	**20**	**4**	**8**	3
1.12	**20**	4	**25**	**4**	**20**	4	**25**	**4**		
1.13	**9**	2	**10**	**2**	**9**	2	**10**	**2**		
1.14	**13**	3	**16**	**3**	**13**	3	**16**	**3**	**10**	3
1.15	**15–20**	3–4	**17-22**	**4-5**	**15–20**	3–4	**17-22**	**4-5**	**10–13**	3–4
1.16	**15–20**	3–4	**17-22**	**4-5**	**15–20**	3–4	**17-22**	**4-5**	**10–13**	3–4
2.1	**20**	4	19	4	**20**	4	19	4	13	4
2.2	**18**	4	17	4	**18**	4	17	4		
2.3	**18**	4	16	4	**18**	4	16	4	12	4
2.4	**18**	4	15	4	**18**	4	15	4		
2.5	**15**	3	14	3	**15**	3	14	3		
2.6	**16**	3	15	3	**16**	3	15	3	8–13	3–4
2.7	**12**	3	13	3	**12**	3	13	3		
3.1	**45**	6	**50**	**6**	**45**	6	**50**	**6**	**32**	6
3.2	**40**	6	**44**	**6**	**40**	6	**44**	**6**	**26**	6
3.3	**40**	6	**44**	**6**	**40**	6	**44**	**6**	**28**	6
3.4	**30**	6	**33**	**6**	**30**	6	**33**	**6**	**20**	6
3.5	**42**	6	**44**	**6**	**42**	6	**44**	**6**	**28**	6
3.6	**35**	6	**33**	**6**	**35**	6	**33**	**6**	**20**	6
3.7	**32**	6	**44**	**6**	**32**	6	**44**	**6**	**28**	6
3.8	**30**	6	**33**	**6**	**30**	6	**33**	**6**	**20**	6
4.1	**70**	7			**70**	7			50	7
4.2	**70**	7			**70**	7			60	7
4.3	**85**	7			**85**	7			60	7
4.4	**70**	7			**70**	7			50	6
4.5	**70**	6			**70**	6			50	6
4.6	**88**	5	88	5	**88**	5	88	5	**24**	5
4.7	**44**	5	50	5	**44**	5	50	5		
4.8	**50**	4	33	5	**50**	4	33	5		
4.9	**45**	4	29	5	**45**	4	29	5		
4.10	**40**	4	28	5	**40**	4	28	5		
4.11	**77**	5	84	5	**77**	5	84	5	**35–50**	4–5
4.12	**44**	5	46	5	**44**	5	46	5	**28**	5
4.13	**15**	4	27	5	**15**	4	27	5	**12**	4
4.14	**25**	4	22	4	**25**	4	22	4	**18**	4
4.15										
4.16	**70**	6			**70**	6			**50**	6
4.17										
4.18	**14**	3			**14**	3				
4.19	**18**	4			**18**	4				
5.1	8	2			8	2				
5.2	10	2			10	2				
5.3	8	1			8	1				
5.4	8	1	5	2	8	1	5	2		
5.5	8	2			8	2				
5.6	8	2			8	2				
5.7	10	2	10	2	10	2	10	2		
5.8	8	1			8	1				
5.9	8	1			8	1				
5.10	12	2			12	2				
5.11	8	2			8	2				
6.1	8	1			8	1				
6.2										
6.3										
6.4										
6.5										

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

When drilling tough materials which tend to jam, chips should be removed at drilling depth ≥ 4xD and the cutting speed v_c should be reduced as follows: at drilling depths > 4xD by 10%, at drilling depths > 6xD by 15–20%.
It is also recommended to use an emulsion for cooling.

Cutting data standard values – micro drills 10 103 ...

		Nominal Ø in mm						
		Ø 0,15	Ø 0,20–0,25	Ø 0,30–0,35	Ø 0,40–0,55	Ø 0,60–0,75	Ø 0,80–0,95	Ø 1,00–1,45
Index	v_c in m/min	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
1.1	**18**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
1.2	**18**	0,007	0,009	0,011	0,014	0,020	0,024	0,041
1.3	**18**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
1.4	**14**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.5	**18**	0,007	0,009	0,011	0,014	0,020	0,024	0,041
1.6	**14**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.7	**14**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.8	**12**	0,004	0,005	0,007	0,009	0,012	0,016	0,029
1.9	**12**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
1.10	**14**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.11	**12**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
1.12	**14**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.13	**8**	0,003	0,004	0,005	0,007	0,009	0,013	0,024
1.14	**14**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
1.15	**12–14**	0,004	0,006	0,008	0,007	0,010	0,014	0,026
1.16	**12–14**	0,004	0,006	0,008	0,007	0,010	0,014	0,026
2.1	**12**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
2.2	**10**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
2.3	**6**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
2.4	**6**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
2.5	**6**	0,004	0,006	0,008	0,007	0,010	0,014	0,026
2.6	**6**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
2.7	**6**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
3.1	**25**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.2	**22**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.3	**18**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.4	**22**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.5	**22**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.6	**20**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.7	**22**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
3.8	**20**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
4.1								
4.2								
4.3	**26**	0,012	0,014	0,019	0,024	0,034	0,038	0,060
4.4	**24**	0,012	0,014	0,019	0,024	0,034	0,038	0,060
4.5	**18**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
4.6	**42**	0,007	0,009	0,011	0,014	0,020	0,024	0,041
4.7	**38**	0,007	0,009	0,011	0,014	0,020	0,024	0,041
4.8	**45**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
4.9	**35**	0,007	0,009	0,011	0,014	0,020	0,024	0,041
4.10	**30**	0,007	0,009	0,011	0,014	0,02	0,024	0,041
4.11								
4.12	**22**	0,007	0,009	0,011	0,014	0,020	0,024	0,041
4.13	**18**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
4.14	**16**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
4.15								
4.16	**75**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
4.17								
4.18	**6**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
4.19	**6**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.1	5	0,004	,0,005	0,007	0,008	0,012	0,016	0,029
5.2	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.3	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.4	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.5	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.6	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.7	6	0,005	0,007	0,009	0,011	0,015	0,020	0,035
5.8	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.9	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.10	4	0,003	0,004	0,005	0,007	0,009	0,013	0,024
5.11	4	0,003	0,004	0,005	0,007	0,009	0,013	0,024
6.1	3	0,002	0,003	0,004	0,005	0,007	0,010	0,020
6.2								
6.3								
6.4								
6.5								

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Feed rate guide values for HSS twist drills

Factor F	Drill diameter in mm															
	0,5	1	2	3	4	5	6	8	10	12	14	16	18	20	26	30
	Feed rate f in mm/rev.															
1	0,004	0,006	0,02	0,03	0,04	0,04	0,05	0,06	0,08	0,08	0,09	0,1	0,12	0,15	0,18	0,19
2	0,006	0,008	0,02	0,03	0,05	0,05	0,05	0,08	0,1	0,1	0,1	0,12	0,12	0,2	0,2	0,2
3	0,007	0,012	0,03	0,05	0,06	0,069	0,08	0,1	0,12	0,13	0,13	0,16	0,16	0,25	0,25	0,25
4	0,008	0,014	0,04	0,06	0,08	0,09	0,1	0,14	0,16	0,16	0,16	0,2	0,2	0,3	0,3	0,3
5	0,01	0,016	0,06	0,08	0,1	0,12	0,13	0,16	0,2	0,2	0,22	0,25	0,25	0,4	0,4	0,4
6	0,012	0,018	0,06	0,1	0,12	0,14	0,16	0,2	0,25	0,25	0,25	0,3	0,3	0,5	0,5	0,5
7	0,014	0,02	0,08	0,13	0,16	0,18	0,2	0,25	0,35	0,35	0,35	0,4	0,4	0,6	0,6	0,6
8	0,016	0,023	0,1	0,16	0,2	0,2	0,25	0,35	0,4	0,4	0,4	0,4	0,5	0,6	0,7	0,8
9	0,019	0,025	0,13	0,17	0,2	0,23	0,32	0,4	0,4	0,5	0,5	0,5	0,6	0,8	0,9	0,9

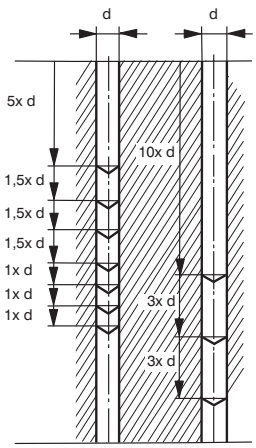
All the indicated data are guide values only and represent average values.

Speed for HSS drills

v_c in m/min	Drill diameter in mm																
	2,0	2,5	3,15	4,0	5,0	6,3	8,0	10,0	12,5	16,0	20,0	25,0	31,5	40,0	50,0	63,0	80,0
	Speed in U/min																
80	12500	10000	8000	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320
63	10000	8000	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250
50	8000	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200
40	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160
32	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125
25	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100
20	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80
16	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63
12	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63	50
10	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63	50	40
8	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32
6	1000	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25
5	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20
4	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20	16
3	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20	16	12

Peck frequency for deep drilling

- Drill must be sufficiently cooled
- By use of a drill with flat chip gullet profile (type WTL) chip transport is substantially improved
- Drills with coolant holes and an internal coolant supply are recommended for extremely deep holes or horizontal drilling applications



Type UNI N Type WTL

Highlights

- Universal application
- For drilling very tough materials
- Optimised chip gullets
- WTX UNI is the first choice for all materials
- WTX MINI Ø 0.1 – 2.9 mm
- Drilling with 180°

DPX 74S

- Special TiAlN nanolayer coating
- Maximum application temperature 1000°C
- Latest generation Dragonskin coating

Solid carbide drills overview

	Product name	Tool type	Length	Diameter in mm Ø d_1	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Special feature	coated ■	uncoated □	WNT MASTERTOOL PERFORMANCE Pages	WNT MASTERTOOL STANDARD Pages
3xD without thro' coolant															
	WTX	UNI	≤ 3xD	3 – 12	● HA		●	○		○	DPX 74S	■		16	
	WPC	UNI	≤ 3xD	1 – 12	● HA		●	○				■			17
3xD with thro' coolant															
	WTX	UNI	≤ 3xD	3 – 12	● HA	○	●	○		○	DPX 74S	■		18	
	WPC	UNI	≤ 3xD	1 – 12	● HA	○	●	○				■			19
	WTX	180	≤ 3xD	3 – 12	● HA	○	●			○		■		20	
5xD without thro' coolant															
	WTX	UNI	≤ 5xD	3 – 12	● HA		●	○			DPX 74S	■		21	
	WPC	UNI	≤ 5xD	3 – 12	● HA		●					■			22

Solid carbide drills overview

	Product name	Tool type	Length	Diameter in mm Ø d_1	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Special feature	coated	uncoated	WNT MASTERTOOL PERFORMANCE Pages	WNT MASTERTOOL STANDARD Pages
5xD with thro' coolant															
	WTX	UNI	≤ 5xD	3 – 12	● HA	○	●	○			DPX 74S	■		23	
	WPC	UNI	≤ 5xD	1 – 12	● HA	○	●	○				■			24
	WTX	180	≤ 5xD	3 – 12	● HA	○	●			○		■		25	
8xD with thro' coolant															
	WTX	UNI	≤ 8xD	3 – 12	● HA		●	○			DPX 74S	■		26	
	WPC	UNI	≤ 8xD	3 – 12	● HA	○	●	○				■			27
5xD micro drill without thro' coolant															
	WTX	MINI	≤ 5xD	0,1 – 2,9	● HA		●	○	○			■		28	
5xD micro drill with thro' coolant															
	WTX	MINI	≤ 5xD	1,0 – 2,9	● HA	●	●	●	●			■		29	
8xD micro drill with thro' coolant															
	WTX	MINI	≤ 8xD	1,0 – 2,9	● HA	●	●	●	●			■		29	
NC Spot Drill															
		NC-A	◁ 90° ◁ 120°	2 – 12	● HA		●	●					□		30

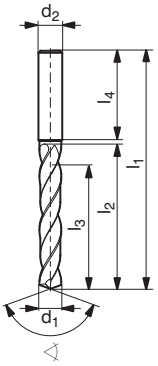
Further dimensions and drills can be found in our → **main catalogue in Chapter 2 Solid carbide drills**

WTX – High Performance Drill, DIN 6537

≤ 3xD

UNI

DPX 74S



HA

140°
Solid carbide

d_1 m7 DC mm	d_2 h6 DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	l_4 LS mm	NEW T7 Article no. 11 777 ... £	
3.00	6	62	20	14	36	26.64	03000
3.10	6	62	20	14	36	26.64	03100
3.15	6	62	20	14	36	26.64	03150
3.20	6	62	20	14	36	26.64	03200
3.22	6	62	20	14	36	26.64	03220
3.25	6	62	20	14	36	26.64	03250
3.30	6	62	20	14	36	26.64	03300
3.40	6	62	20	14	36	26.64	03400
3.50	6	62	20	14	36	26.64	03500
3.60	6	62	20	14	36	26.64	03600
3.70	6	62	20	14	36	26.64	03700
3.80	6	66	24	17	36	26.64	03800
3.85	6	66	24	17	36	26.64	03850
3.90	6	66	24	17	36	26.64	03900
4.00	6	66	24	17	36	26.64	04000
4.10	6	66	24	17	36	26.64	04100
4.20	6	66	24	17	36	26.64	04200
4.25	6	66	24	17	36	26.64	04250
4.30	6	66	24	17	36	26.64	04300
4.35	6	66	24	17	36	26.64	04350
4.40	6	66	24	17	36	26.64	04400
4.45	6	66	24	17	36	26.64	04450
4.50	6	66	24	17	36	26.64	04500
4.60	6	66	24	17	36	26.64	04600
4.65	6	66	24	17	36	26.64	04650
4.70	6	66	24	17	36	26.64	04700
4.80	6	66	28	20	36	26.64	04800
4.90	6	66	28	20	36	26.64	04900
4.95	6	66	28	20	36	26.64	04950
5.00	6	66	28	20	36	26.64	05000
5.05	6	66	28	20	36	26.64	05050
5.10	6	66	28	20	36	26.64	05100
5.20	6	66	28	20	36	26.64	05200
5.30	6	66	28	20	36	26.64	05300
5.40	6	66	28	20	36	26.64	05400
5.50	6	66	28	20	36	26.64	05500
5.55	6	66	28	20	36	26.64	05550
5.60	6	66	28	20	36	26.64	05600
5.70	6	66	28	20	36	26.64	05700
5.75	6	66	28	20	36	26.64	05750
5.80	6	66	28	20	36	26.64	05800
5.90	6	66	28	20	36	26.64	05900
5.95	6	66	28	20	36	26.64	05950
6.00	6	66	28	20	36	26.64	06000
6.10	8	79	34	24	36	28.75	06100
6.20	8	79	34	24	36	28.75	06200
6.30	8	79	34	24	36	28.75	06300
6.40	8	79	34	24	36	28.75	06400
6.50	8	79	34	24	36	28.75	06500
6.60	8	79	34	24	36	28.75	06600
6.70	8	79	34	24	36	28.75	06700
6.80	8	79	34	24	36	28.75	06800
6.90	8	79	34	24	36	28.75	06900
7.00	8	79	34	24	36	28.75	07000
7.10	8	79	41	29	36	28.75	07100
7.20	8	79	41	29	36	28.75	07200
7.30	8	79	41	29	36	28.75	07300
7.40	8	79	41	29	36	28.75	07400
7.45	8	79	41	29	36	28.75	07450
7.50	8	79	41	29	36	28.75	07500
7.60	8	79	41	29	36	28.75	07600
7.70	8	79	41	29	36	28.75	07700
7.80	8	79	41	29	36	28.75	07800
7.90	8	79	41	29	36	28.75	07900
8.00	8	79	41	29	36	28.75	08000
8.10	10	89	47	35	40	31.52	08100
8.20	10	89	47	35	40	31.52	08200
8.30	10	89	47	35	40	31.52	08300
8.40	10	89	47	35	40	31.52	08400
8.50	10	89	47	35	40	31.52	08500
8.60	10	89	47	35	40	31.52	08600
8.70	10	89	47	35	40	31.52	08700
8.80	10	89	47	35	40	31.52	08800
8.90	10	89	47	35	40	31.52	08900
9.00	10	89	47	35	40	31.52	09000
9.10	10	89	47	35	40	31.52	09100
9.20	10	89	47	35	40	31.52	09200
9.30	10	89	47	35	40	31.52	09300
9.35	10	89	47	35	40	31.52	09350
9.40	10	89	47	35	40	31.52	09400
9.45	10	89	47	35	40	31.52	09450
9.50	10	89	47	35	40	31.52	09500
9.60	10	89	47	35	40	31.52	09600
9.70	10	89	47	35	40	31.52	09700
9.80	10	89	47	35	40	31.52	09800
9.90	10	89	47	35	40	31.52	09900
10.00	10	89	47	35	40	31.52	10000
10.10	12	102	55	40	45	45.68	10100
10.20	12	102	55	40	45	45.68	10200
10.30	12	102	55	40	45	45.68	10300
10.40	12	102	55	40	45	45.68	10400
10.50	12	102	55	40	45	45.68	10500
10.55	12	102	55	40	45	45.68	10550
10.60	12	102	55	40	45	45.68	10600
10.70	12	102	55	40	45	45.68	10700
10.75	12	102	55	40	45	45.68	10750
10.80	12	102	55	40	45	45.68	10800
10.90	12	102	55	40	45	45.68	10900
11.00	12	102	55	40	45	45.68	11000
11.10	12	102	55	40	45	45.68	11100
11.20	12	102	55	40	45	45.68	11200
11.25	12	102	55	40	45	45.68	11250
11.30	12	102	55	40	45	45.68	11300
11.35	12	102	55	40	45	45.68	11350
11.40	12	102	55	40	45	45.68	11400
11.45	12	102	55	40	45	45.68	11450
11.50	12	102	55	40	45	45.68	11500
11.60	12	102	55	40	45	45.68	11600
11.70	12	102	55	40	45	45.68	11700
11.80	12	102	55	40	45	45.68	11800
11.90	12	102	55	40	45	45.68	11900
12.00	12	102	55	40	45	45.68	12000

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	○

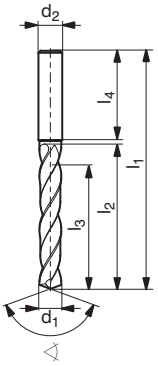
→ v_c Page 32

WPC – High Performance Drill, DIN 6537

≤ 3xD

UNI

TiAlN



HA

140°
Solid carbide

$d_{1\ m7}$ DC mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	l_4 LS mm	T1 Article no. 11 600 ... £	
1.00	4	45	6.0	4.5	32.0	18.82	010
1.10	4	45	6.6	5.0	31.5	18.82	011
1.20	4	45	7.2	5.4	31.0	18.82	012
1.30	4	45	7.8	5.9	31.5	18.82	013
1.40	4	45	8.4	6.3	30.0	18.82	014
1.50	4	50	9.0	6.8	35.0	18.82	015
1.60	4	50	9.6	7.2	34.5	18.82	016
1.70	4	50	10.2	7.7	34.0	18.82	017
1.80	4	50	10.8	8.1	33.5	18.82	018
1.90	4	50	11.4	8.6	33.0	18.82	019
2.00	6	58	16.0	11.0	36.0	18.82	020
2.10	6	58	16.0	11.0	36.0	18.82	021
2.20	6	58	16.0	11.0	36.0	18.82	022
2.30	6	58	16.0	11.0	36.0	18.82	023
2.40	6	58	16.0	11.0	36.0	18.82	024
2.50	6	58	16.0	11.0	36.0	18.82	025
2.60	6	58	16.0	11.0	36.0	18.82	026
2.70	6	58	16.0	11.0	36.0	18.82	027
2.80	6	58	16.0	11.0	36.0	18.82	028
2.90	6	58	16.0	11.0	36.0	18.82	029
3.00	6	62	20.0	14.0	36.0	18.30	030
3.10	6	62	20.0	14.0	36.0	18.30	031
3.20	6	62	20.0	14.0	36.0	18.30	032
3.30	6	62	20.0	14.0	36.0	18.30	033
3.40	6	62	20.0	14.0	36.0	18.30	034
3.50	6	62	20.0	14.0	36.0	18.30	035
3.60	6	62	20.0	14.0	36.0	18.30	036
3.70	6	62	20.0	14.0	36.0	18.30	037
3.80	6	66	24.0	17.0	36.0	18.30	038
3.90	6	66	24.0	17.0	36.0	18.30	039
4.00	6	66	24.0	17.0	36.0	18.30	040
4.10	6	66	24.0	17.0	36.0	18.30	041
4.20	6	66	24.0	17.0	36.0	18.30	042
4.30	6	66	24.0	17.0	36.0	18.30	043
4.40	6	66	24.0	17.0	36.0	18.30	044
4.50	6	66	24.0	17.0	36.0	18.30	045
4.60	6	66	24.0	17.0	36.0	18.30	046
4.65	6	66	24.0	17.0	36.0	18.30	900
4.70	6	66	24.0	17.0	36.0	18.30	047
4.80	6	66	28.0	20.0	36.0	18.30	048
4.90	6	66	28.0	20.0	36.0	18.30	049
5.00	6	66	28.0	20.0	36.0	18.30	050
5.10	6	66	28.0	20.0	36.0	18.30	051
5.20	6	66	28.0	20.0	36.0	18.30	052
5.30	6	66	28.0	20.0	36.0	18.30	053
5.40	6	66	28.0	20.0	36.0	18.30	054
5.50	6	66	28.0	20.0	36.0	18.30	055
5.55	6	66	28.0	20.0	36.0	18.30	902
5.60	6	66	28.0	20.0	36.0	18.30	056
5.70	6	66	28.0	20.0	36.0	18.30	057
5.80	6	66	28.0	20.0	36.0	18.30	058
5.90	6	66	28.0	20.0	36.0	18.30	059
6.00	6	66	28.0	20.0	36.0	18.30	060
6.10	8	79	34.0	24.0	36.0	18.82	061
6.20	8	79	34.0	24.0	36.0	18.82	062
6.30	8	79	34.0	24.0	36.0	18.82	063
6.40	8	79	34.0	24.0	36.0	18.82	064
6.50	8	79	34.0	24.0	36.0	18.82	065
6.60	8	79	34.0	24.0	36.0	18.82	066
6.70	8	79	34.0	24.0	36.0	18.82	067
6.80	8	79	34.0	24.0	36.0	18.82	068
6.90	8	79	34.0	24.0	36.0	18.82	069
7.00	8	79	34.0	24.0	36.0	18.82	070
7.10	8	79	41.0	29.0	36.0	18.82	071
7.20	8	79	41.0	29.0	36.0	18.82	072
7.30	8	79	41.0	29.0	36.0	18.82	073
7.40	8	79	41.0	29.0	36.0	18.82	074
7.50	8	79	41.0	29.0	36.0	18.82	075
7.55	8	79	41.0	29.0	36.0	18.82	975
7.60	8	79	41.0	29.0	36.0	18.82	076
7.70	8	79	41.0	29.0	36.0	18.82	077
7.80	8	79	41.0	29.0	36.0	18.82	078
7.90	8	79	41.0	29.0	36.0	18.82	079
8.00	8	79	41.0	29.0	36.0	18.82	080
8.10	10	89	47.0	35.0	40.0	20.15	081
8.20	10	89	47.0	35.0	40.0	20.15	082
8.30	10	89	47.0	35.0	40.0	20.15	083
8.40	10	89	47.0	35.0	40.0	20.15	084
8.50	10	89	47.0	35.0	40.0	20.15	085
8.60	10	89	47.0	35.0	40.0	20.15	086
8.70	10	89	47.0	35.0	40.0	20.15	087
8.80	10	89	47.0	35.0	40.0	20.15	088
8.90	10	89	47.0	35.0	40.0	20.15	089
9.00	10	89	47.0	35.0	40.0	20.15	090
9.10	10	89	47.0	35.0	40.0	20.15	091
9.20	10	89	47.0	35.0	40.0	20.15	092
9.25	10	89	47.0	35.0	40.0	20.15	925
9.30	10	89	47.0	35.0	40.0	20.15	093
9.40	10	89	47.0	35.0	40.0	20.15	094
9.50	10	89	47.0	35.0	40.0	20.15	095
9.60	10	89	47.0	35.0	40.0	20.15	096
9.70	10	89	47.0	35.0	40.0	20.15	097
9.80	10	89	47.0	35.0	40.0	20.15	098
9.90	10	89	47.0	35.0	40.0	20.15	099
10.00	10	89	47.0	35.0	40.0	20.15	100
10.10	12	102	55.0	40.0	45.0	30.89	101
10.20	12	102	55.0	40.0	45.0	30.89	102
10.30	12	102	55.0	40.0	45.0	30.89	103
10.40	12	102	55.0	40.0	45.0	30.89	104
10.50	12	102	55.0	40.0	45.0	30.89	105
10.60	12	102	55.0	40.0	45.0	30.89	106
10.70	12	102	55.0	40.0	45.0	30.89	107
10.80	12	102	55.0	40.0	45.0	30.89	108
10.90	12	102	55.0	40.0	45.0	30.89	109
11.00	12	102	55.0	40.0	45.0	30.89	110
11.10	12	102	55.0	40.0	45.0	30.89	111
11.20	12	102	55.0	40.0	45.0	30.89	112
11.30	12	102	55.0	40.0	45.0	30.89	113
11.40	12	102	55.0	40.0	45.0	30.89	114
11.50	12	102	55.0	40.0	45.0	30.89	115
11.60	12	102	55.0	40.0	45.0	30.89	116
11.70	12	102	55.0	40.0	45.0	30.89	117
11.80	12	102	55.0	40.0	45.0	30.89	118
11.90	12	102	55.0	40.0	45.0	30.89	119
12.00	12	102	55.0	40.0	45.0	30.89	120

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	

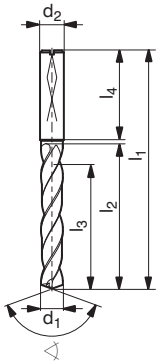
→ v_c Page 37

WTX – High Performance Drill, DIN 6537

≤ 3xD

UNI

DPX 74S



HA

140°
Solid carbide

$d_{1\ m7}$ DC mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	l_4 LS mm	NEW T7 Article no. 11 780 ... £	
3.00	6	62	20	14	36	39.91	03000
3.10	6	62	20	14	36	39.91	03100
3.15	6	62	20	14	36	39.91	03150
3.20	6	62	20	14	36	39.91	03200
3.22	6	62	20	14	36	39.91	03220
3.25	6	62	20	14	36	39.91	03250
3.30	6	62	20	14	36	39.91	03300
3.40	6	62	20	14	36	39.91	03400
3.50	6	62	20	14	36	39.91	03500
3.60	6	62	20	14	36	39.91	03600
3.70	6	62	20	14	36	39.91	03700
3.80	6	66	24	17	36	39.91	03800
3.85	6	66	24	17	36	39.91	03850
3.90	6	66	24	17	36	39.91	03900
4.00	6	66	24	17	36	39.91	04000
4.10	6	66	24	17	36	39.91	04100
4.20	6	66	24	17	36	39.91	04200
4.25	6	66	24	17	36	39.91	04250
4.30	6	66	24	17	36	39.91	04300
4.35	6	66	24	17	36	39.91	04350
4.40	6	66	24	17	36	39.91	04400
4.45	6	66	24	17	36	39.91	04450
4.50	6	66	24	17	36	39.91	04500
4.60	6	66	24	17	36	39.91	04600
4.65	6	66	24	17	36	39.91	04650
4.70	6	66	24	17	36	39.91	04700
4.80	6	66	28	20	36	39.91	04800
4.90	6	66	28	20	36	39.91	04900
4.95	6	66	28	20	36	39.91	04950
5.00	6	66	28	20	36	39.91	05000
5.05	6	66	28	20	36	39.91	05050
5.10	6	66	28	20	36	39.91	05100
5.20	6	66	28	20	36	39.91	05200
5.30	6	66	28	20	36	39.91	05300
5.40	6	66	28	20	36	39.91	05400
5.50	6	66	28	20	36	39.91	05500
5.55	6	66	28	20	36	39.91	05550
5.60	6	66	28	20	36	39.91	05600
5.70	6	66	28	20	36	39.91	05700
5.75	6	66	28	20	36	39.91	05750
5.80	6	66	28	20	36	39.91	05800
5.90	6	66	28	20	36	39.91	05900
5.95	6	66	28	20	36	39.91	05950
6.00	6	66	28	20	36	39.91	06000
6.10	8	79	34	24	36	52.14	06100
6.20	8	79	34	24	36	52.14	06200
6.30	8	79	34	24	36	52.14	06300
6.40	8	79	34	24	36	52.14	06400
6.50	8	79	34	24	36	52.14	06500
6.60	8	79	34	24	36	52.14	06600
6.70	8	79	34	24	36	52.14	06700
6.80	8	79	34	24	36	52.14	06800
6.90	8	79	34	24	36	52.14	06900
7.00	8	79	34	24	36	52.14	07000
7.10	8	79	41	29	36	52.14	07100
7.20	8	79	41	29	36	52.14	07200
7.30	8	79	41	29	36	52.14	07300
7.40	8	79	41	29	36	52.14	07400
7.45	8	79	41	29	36	52.14	07450
7.50	8	79	41	29	36	52.14	07500
7.60	8	79	41	29	36	52.14	07600
7.70	8	79	41	29	36	52.14	07700
7.80	8	79	41	29	36	52.14	07800
7.90	8	79	41	29	36	52.14	07900
8.00	8	79	41	29	36	52.14	08000
8.10	10	89	47	35	40	59.57	08100
8.20	10	89	47	35	40	59.57	08200
8.30	10	89	47	35	40	59.57	08300
8.40	10	89	47	35	40	59.57	08400
8.50	10	89	47	35	40	59.57	08500
8.60	10	89	47	35	40	59.57	08600
8.70	10	89	47	35	40	59.57	08700
8.80	10	89	47	35	40	59.57	08800
8.90	10	89	47	35	40	59.57	08900
9.00	10	89	47	35	40	59.57	09000
9.10	10	89	47	35	40	59.57	09100
9.20	10	89	47	35	40	59.57	09200
9.30	10	89	47	35	40	59.57	09300
9.35	10	89	47	35	40	59.57	09350
9.40	10	89	47	35	40	59.57	09400
9.45	10	89	47	35	40	59.57	09450
9.50	10	89	47	35	40	59.57	09500
9.60	10	89	47	35	40	59.57	09600
9.70	10	89	47	35	40	59.57	09700
9.80	10	89	47	35	40	59.57	09800
9.90	10	89	47	35	40	59.57	09900
10.00	10	89	47	35	40	59.57	10000
10.10	12	102	55	40	45	83.17	10100
10.20	12	102	55	40	45	83.17	10200
10.30	12	102	55	40	45	83.17	10300
10.40	12	102	55	40	45	83.17	10400
10.50	12	102	55	40	45	83.17	10500
10.55	12	102	55	40	45	83.17	10550
10.60	12	102	55	40	45	83.17	10600
10.70	12	102	55	40	45	83.17	10700
10.75	12	102	55	40	45	83.17	10750
10.80	12	102	55	40	45	83.17	10800
10.90	12	102	55	40	45	83.17	10900
11.00	12	102	55	40	45	83.17	11000
11.10	12	102	55	40	45	83.17	11100
11.20	12	102	55	40	45	83.17	11200
11.25	12	102	55	40	45	83.17	11250
11.30	12	102	55	40	45	83.17	11300
11.35	12	102	55	40	45	83.17	11350
11.40	12	102	55	40	45	83.17	11400
11.45	12	102	55	40	45	83.17	11450
11.50	12	102	55	40	45	83.17	11500
11.60	12	102	55	40	45	83.17	11600
11.70	12	102	55	40	45	83.17	11700
11.80	12	102	55	40	45	83.17	11800
11.90	12	102	55	40	45	83.17	11900
12.00	12	102	55	40	45	83.17	12000

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	○

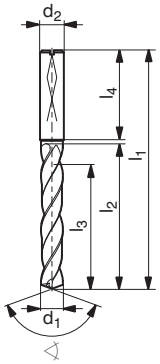
→ v_c Page 32

WPC – High Performance Drill, DIN 6537

≤ 3xD

UNI

TiAlN



HA

140°
Solid carbide

$d_{1\ m7}$ DC mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	l_4 LS mm	T1 Article no. 11 603 ... £	
1.00	4	45	6.0	4.5	32.0	23.94	010
1.10	4	45	6.6	5.0	31.5	23.94	011
1.20	4	45	7.2	5.4	31.0	23.94	012
1.30	4	45	7.8	5.9	31.5	23.94	013
1.40	4	45	8.4	6.3	30.0	23.94	014
1.50	4	50	9.0	6.8	35.0	23.94	015
1.60	4	50	9.6	7.2	34.5	23.94	016
1.70	4	50	10.2	7.7	34.0	23.94	017
1.80	4	50	10.8	8.1	33.5	23.94	018
1.90	4	50	11.4	8.6	33.0	23.94	019
2.00	4	50	12.0	9.0	33.0	23.94	020
2.10	4	55	12.6	9.5	37.5	23.94	021
2.20	4	55	13.2	9.9	37.0	23.94	022
2.30	4	55	13.8	10.4	36.5	23.94	023
2.40	4	55	14.4	10.8	36.0	23.94	024
2.50	4	55	15.0	11.3	35.5	23.94	025
2.60	4	55	15.6	11.7	35.5	23.94	026
2.70	4	55	16.2	12.2	35.0	23.94	027
2.80	4	55	16.8	12.6	34.0	23.94	028
2.90	4	55	17.4	13.1	34.0	23.94	029
3.00	6	62	20.0	14.0	36.0	23.94	030
3.10	6	62	20.0	14.0	36.0	23.94	031
3.20	6	62	20.0	14.0	36.0	23.94	032
3.25	6	62	20.0	14.0	36.0	24.19	890
3.30	6	62	20.0	14.0	36.0	23.94	033
3.40	6	62	20.0	14.0	36.0	23.94	034
3.50	6	62	20.0	14.0	36.0	23.94	035
3.60	6	62	20.0	14.0	36.0	23.94	036
3.70	6	62	20.0	14.0	36.0	23.94	037
3.80	6	66	24.0	17.0	36.0	23.94	038
3.90	6	66	24.0	17.0	36.0	23.94	039
4.00	6	66	24.0	17.0	36.0	24.19	040
4.10	6	66	24.0	17.0	36.0	24.19	041
4.20	6	66	24.0	17.0	36.0	24.19	042
4.30	6	66	24.0	17.0	36.0	24.19	043
4.40	6	66	24.0	17.0	36.0	24.19	044
4.50	6	66	24.0	17.0	36.0	24.19	045
4.60	6	66	24.0	17.0	36.0	24.19	046
4.65	6	66	24.0	17.0	36.0	24.19	900
4.70	6	66	24.0	17.0	36.0	24.19	047
4.80	6	66	28.0	20.0	36.0	24.19	048
4.90	6	66	28.0	20.0	36.0	24.19	049
5.00	6	66	28.0	20.0	36.0	24.19	050
5.10	6	66	28.0	20.0	36.0	24.19	051
5.20	6	66	28.0	20.0	36.0	24.19	052
5.30	6	66	28.0	20.0	36.0	24.19	053
5.40	6	66	28.0	20.0	36.0	24.19	054
5.50	6	66	28.0	20.0	36.0	24.19	055
5.55	6	66	28.0	20.0	36.0	24.19	902
5.60	6	66	28.0	20.0	36.0	24.19	056
5.70	6	66	28.0	20.0	36.0	24.19	057
5.80	6	66	28.0	20.0	36.0	24.19	058
5.90	6	66	28.0	20.0	36.0	24.19	059
6.00	6	66	28.0	20.0	36.0	24.19	060
6.10	8	79	34.0	24.0	36.0	33.60	061
6.20	8	79	34.0	24.0	36.0	33.60	062
6.30	8	79	34.0	24.0	36.0	33.60	063
6.40	8	79	34.0	24.0	36.0	33.60	064
6.50	8	79	34.0	24.0	36.0	33.60	065
6.60	8	79	34.0	24.0	36.0	33.60	066
6.70	8	79	34.0	24.0	36.0	33.60	067
6.80	8	79	34.0	24.0	36.0	33.60	068
6.90	8	79	34.0	24.0	36.0	33.60	069
7.00	8	79	34.0	24.0	36.0	33.60	070
7.10	8	79	41.0	29.0	36.0	33.60	071
7.20	8	79	41.0	29.0	36.0	33.60	072
7.30	8	79	41.0	29.0	36.0	33.60	073
7.40	8	79	41.0	29.0	36.0	33.60	074
7.45	8	79	41.0	29.0	36.0	33.60	924
7.50	8	79	41.0	29.0	36.0	33.60	075
7.55	8	79	41.0	29.0	36.0	33.60	975
7.60	8	79	41.0	29.0	36.0	33.60	076
7.70	8	79	41.0	29.0	36.0	33.60	077
7.80	8	79	41.0	29.0	36.0	33.60	078
7.90	8	79	41.0	29.0	36.0	33.60	079
8.00	8	79	41.0	29.0	36.0	33.60	080
8.10	10	89	47.0	35.0	40.0	38.96	081
8.20	10	89	47.0	35.0	40.0	38.96	082
8.30	10	89	47.0	35.0	40.0	38.96	083
8.40	10	89	47.0	35.0	40.0	38.96	084
8.50	10	89	47.0	35.0	40.0	38.96	085
8.60	10	89	47.0	35.0	40.0	38.96	086
8.70	10	89	47.0	35.0	40.0	38.96	087
8.80	10	89	47.0	35.0	40.0	38.96	088
8.90	10	89	47.0	35.0	40.0	38.96	089
9.00	10	89	47.0	35.0	40.0	38.96	090
9.10	10	89	47.0	35.0	40.0	38.96	091
9.20	10	89	47.0	35.0	40.0	38.96	092
9.25	10	89	47.0	35.0	40.0	38.96	925
9.30	10	89	47.0	35.0	40.0	38.96	093
9.35	10	89	47.0	35.0	40.0	38.96	930
9.40	10	89	47.0	35.0	40.0	38.96	094
9.50	10	89	47.0	35.0	40.0	38.96	095
9.60	10	89	47.0	35.0	40.0	38.96	096
9.70	10	89	47.0	35.0	40.0	38.96	097
9.80	10	89	47.0	35.0	40.0	38.96	098
9.90	10	89	47.0	35.0	40.0	38.96	099
10.00	10	89	47.0	35.0	40.0	38.96	100
10.10	12	102	55.0	40.0	45.0	55.07	101
10.20	12	102	55.0	40.0	45.0	55.07	102
10.30	12	102	55.0	40.0	45.0	55.07	103
10.40	12	102	55.0	40.0	45.0	55.07	104
10.50	12	102	55.0	40.0	45.0	55.07	105
10.60	12	102	55.0	40.0	45.0	55.07	106
10.70	12	102	55.0	40.0	45.0	55.07	107
10.75	12	102	55.0	40.0	45.0	55.07	904
10.80	12	102	55.0	40.0	45.0	55.07	108
10.90	12	102	55.0	40.0	45.0	55.07	109
11.00	12	102	55.0	40.0	45.0	55.07	110
11.10	12	102	55.0	40.0	45.0	55.07	111
11.20	12	102	55.0	40.0	45.0	55.07	112
11.25	12	102	55.0	40.0	45.0	55.07	912
11.30	12	102	55.0	40.0	45.0	55.07	113
11.40	12	102	55.0	40.0	45.0	55.07	114
11.50	12	102	55.0	40.0	45.0	55.07	115
11.60	12	102	55.0	40.0	45.0	55.07	116
11.70	12	102	55.0	40.0	45.0	55.07	117
11.80	12	102	55.0	40.0	45.0	55.07	118
11.90	12	102	55.0	40.0	45.0	55.07	119
12.00	12	102	55.0	40.0	45.0	55.07	120

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	

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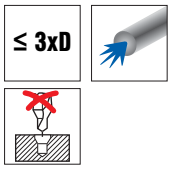
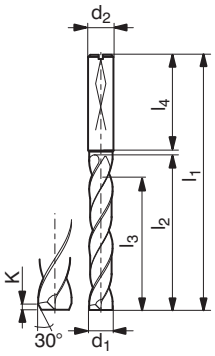
WTX – High Performance Drill, DIN 6537

- universal application
- four guidance lands
- polished chip flutes
- Type ALU 3xD (10 722 ...) on request
- K = corner chamfers

≤ 3xD





180

Ti 800

HA

180°
Solid carbide

$d_{1\ m7}$ DC mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	l_4 LS mm	K PL mm	T4 Article no. 10 720 ... £	
3.00	6	62	20	14	36	0.15	68.33	030
3.10	6	62	20	14	36	0.16	68.33	031
3.20	6	62	20	14	36	0.16	68.33	032
3.30	6	62	20	14	36	0.17	68.33	033
3.40	6	62	20	14	36	0.17	68.33	034
3.50	6	62	20	14	36	0.18	68.33	035
3.60	6	62	20	14	36	0.18	68.33	036
3.70	6	62	20	14	36	0.19	68.33	037
3.80	6	66	24	17	36	0.19	68.33	038
3.90	6	66	24	17	36	0.20	68.33	039
4.00	6	66	24	17	36	0.20	68.33	040
4.10	6	66	24	17	36	0.21	68.33	041
4.20	6	66	24	17	36	0.21	68.33	042
4.30	6	66	24	17	36	0.22	68.33	043
4.40	6	66	24	17	36	0.22	68.33	044
4.50	6	66	24	17	36	0.23	68.33	045
4.60	6	66	24	17	36	0.23	68.33	046
4.65	6	66	24	17	36	0.23	68.33	900
4.70	6	66	24	17	36	0.24	68.33	047
4.80	6	66	28	20	36	0.24	68.33	048
4.90	6	66	28	20	36	0.25	68.33	049
5.00	6	66	28	20	36	0.25	68.33	050
5.10	6	66	28	20	36	0.26	68.33	051
5.20	6	66	28	20	36	0.26	68.33	052
5.30	6	66	28	20	36	0.27	68.33	053
5.40	6	66	28	20	36	0.27	68.33	054
5.50	6	66	28	20	36	0.28	68.33	055
5.55	6	66	28	20	36	0.28	68.33	902
5.60	6	66	28	20	36	0.28	68.33	056
5.70	6	66	28	20	36	0.29	68.33	057
5.80	6	66	28	20	36	0.29	68.33	058
5.90	6	66	28	20	36	0.30	68.33	059
6.00	6	66	28	20	36	0.30	68.33	060
6.10	8	79	34	24	36	0.31	83.81	061
6.20	8	79	34	24	36	0.31	83.81	062
6.30	8	79	34	24	36	0.32	83.81	063
6.40	8	79	34	24	36	0.32	83.81	064
6.50	8	79	34	24	36	0.33	83.81	065
6.60	8	79	34	24	36	0.33	83.81	066
6.70	8	79	34	24	36	0.34	83.81	067
6.80	8	79	34	24	36	0.34	83.81	068
6.90	8	79	34	24	36	0.35	83.81	069
7.00	8	79	34	24	36	0.35	83.81	070
7.10	8	79	41	29	36	0.36	83.81	071
7.20	8	79	41	29	36	0.36	83.81	072
7.30	8	79	41	29	36	0.37	83.81	073
7.40	8	79	41	29	36	0.37	83.81	074
7.50	8	79	41	29	36	0.38	83.81	075
7.60	8	79	41	29	36	0.38	83.81	076
7.70	8	79	41	29	36	0.39	83.81	077
7.80	8	79	41	29	36	0.39	83.81	078
7.90	8	79	41	29	36	0.40	83.81	079
8.00	8	79	41	29	36	0.40	83.81	080
8.10	10	89	47	35	40	0.41	115.81	081
8.20	10	89	47	35	40	0.41	115.81	082
8.30	10	89	47	35	40	0.42	115.81	083
8.40	10	89	47	35	40	0.42	115.81	084
8.50	10	89	47	35	40	0.43	115.81	085
8.60	10	89	47	35	40	0.43	115.81	086
8.70	10	89	47	35	40	0.44	115.81	087
8.80	10	89	47	35	40	0.44	115.81	088
8.90	10	89	47	35	40	0.45	115.81	089
9.00	10	89	47	35	40	0.45	115.81	090
9.10	10	89	47	35	40	0.46	115.81	091
9.20	10	89	47	35	40	0.46	115.81	092
9.30	10	89	47	35	40	0.47	115.81	093
9.40	10	89	47	35	40	0.47	115.81	094
9.50	10	89	47	35	40	0.48	115.81	095
9.60	10	89	47	35	40	0.48	115.81	096
9.70	10	89	47	35	40	0.49	115.81	097
9.80	10	89	47	35	40	0.49	115.81	098
9.90	10	89	47	35	40	0.50	115.81	099
10.00	10	89	47	35	40	0.50	115.81	100
10.10	12	100	53	38	45	0.51	115.81	101
10.20	12	100	53	38	45	0.51	145.86	102
10.30	12	100	53	38	45	0.52	145.86	103
10.40	12	100	53	38	45	0.52	145.86	104
10.50	12	100	53	38	45	0.53	145.86	105
10.60	12	100	53	38	45	0.53	145.86	106
10.70	12	100	53	38	45	0.54	145.86	107
10.80	12	100	53	38	45	0.54	145.86	108
10.90	12	100	53	38	45	0.55	145.86	109
11.00	12	100	53	38	45	0.55	145.86	110
11.10	12	100	53	38	45	0.56	145.86	111
11.20	12	100	53	38	45	0.56	145.86	112
11.30	12	100	53	38	45	0.57	145.86	113
11.40	12	100	53	38	45	0.57	145.86	114
11.50	12	100	53	38	45	0.58	145.86	115
11.60	12	100	53	38	45	0.58	145.86	116
11.70	12	100	53	38	45	0.59	145.86	117
11.80	12	100	53	38	45	0.59	145.86	118
11.90	12	100	53	38	45	0.60	145.86	119
12.00	12	100	53	38	45	0.60	145.86	120

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	
hardened materials	○

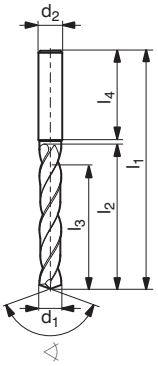
→ v_c Page 35

WTX – High Performance Drill, DIN 6537

≤ 5xD

UNI

DPX 74S



HA

∢ 140°
Solid carbide

d_1 m7 DC mm	d_2 h6 DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	l_4 LS mm	NEW T7 Article no. 11 783 ... £	
3.00	6	66	28	23	36	33.26	03000
3.10	6	66	28	23	36	33.26	03100
3.15	6	66	28	23	36	33.26	03150
3.20	6	66	28	23	36	33.26	03200
3.22	6	66	28	23	36	33.26	03220
3.25	6	66	28	23	36	33.26	03250
3.30	6	66	28	23	36	33.26	03300
3.40	6	66	28	23	36	33.26	03400
3.50	6	66	28	23	36	33.26	03500
3.60	6	66	28	23	36	33.26	03600
3.70	6	66	28	23	36	33.26	03700
3.80	6	74	36	29	36	33.26	03800
3.85	6	74	36	29	36	33.26	03850
3.90	6	74	36	29	36	33.26	03900
4.00	6	74	36	29	36	33.26	04000
4.10	6	74	36	29	36	33.26	04100
4.20	6	74	36	29	36	33.26	04200
4.25	6	74	36	29	36	33.26	04250
4.30	6	74	36	29	36	33.26	04300
4.35	6	74	36	29	36	33.26	04350
4.40	6	74	36	29	36	33.26	04400
4.45	6	74	36	29	36	33.26	04450
4.50	6	74	36	29	36	33.26	04500
4.60	6	74	36	29	36	33.26	04600
4.65	6	74	36	29	36	33.26	04650
4.70	6	74	36	29	36	33.26	04700
4.80	6	82	44	35	36	33.26	04800
4.90	6	82	44	35	36	33.26	04900
4.95	6	82	44	35	36	33.26	04950
5.00	6	82	44	35	36	33.26	05000
5.05	6	82	44	35	36	33.26	05050
5.10	6	82	44	35	36	33.26	05100
5.20	6	82	44	35	36	33.26	05200
5.30	6	82	44	35	36	33.26	05300
5.40	6	82	44	35	36	33.26	05400
5.50	6	82	44	35	36	33.26	05500
5.55	6	82	44	35	36	33.26	05550
5.60	6	82	44	35	36	33.26	05600
5.70	6	82	44	35	36	33.26	05700
5.75	6	82	44	35	36	33.26	05750
5.80	6	82	44	35	36	33.26	05800
5.90	6	82	44	35	36	33.26	05900
5.95	6	82	44	35	36	33.26	05950
6.00	6	82	44	35	36	33.26	06000
6.10	8	91	53	43	36	36.15	06100
6.20	8	91	53	43	36	36.15	06200
6.30	8	91	53	43	36	36.15	06300
6.40	8	91	53	43	36	36.15	06400
6.50	8	91	53	43	36	36.15	06500
6.60	8	91	53	43	36	36.15	06600
6.70	8	91	53	43	36	36.15	06700
6.80	8	91	53	43	36	36.15	06800
6.90	8	91	53	43	36	36.15	06900
7.00	8	91	53	43	36	36.15	07000
7.10	8	91	53	43	36	36.15	07100
7.20	8	91	53	43	36	36.15	07200
7.30	8	91	53	43	36	36.15	07300
7.40	8	91	53	43	36	36.15	07400
7.45	8	91	53	43	36	36.15	07450
7.50	8	91	53	43	36	36.15	07500
7.60	8	91	53	43	36	36.15	07600
7.70	8	91	53	43	36	36.15	07700
7.80	8	91	53	43	36	36.15	07800
7.90	8	91	53	43	36	36.15	07900
8.00	8	91	53	43	36	36.15	08000
8.10	10	103	61	49	40	38.85	08100
8.20	10	103	61	49	40	38.85	08200
8.30	10	103	61	49	40	38.85	08300
8.40	10	103	61	49	40	38.85	08400
8.50	10	103	61	49	40	38.85	08500
8.60	10	103	61	49	40	38.85	08600
8.70	10	103	61	49	40	38.85	08700
8.80	10	103	61	49	40	38.85	08800
8.90	10	103	61	49	40	38.85	08900
9.00	10	103	61	49	40	38.85	09000
9.10	10	103	61	49	40	38.85	09100
9.20	10	103	61	49	40	38.85	09200
9.30	10	103	61	49	40	38.85	09300
9.35	10	103	61	49	40	38.85	09350
9.40	10	103	61	49	40	38.85	09400
9.45	10	103	61	49	40	38.85	09450
9.50	10	103	61	49	40	38.85	09500
9.60	10	103	61	49	40	38.85	09600
9.70	10	103	61	49	40	38.85	09700
9.80	10	103	61	49	40	38.85	09800
9.90	10	103	61	49	40	38.85	09900
10.00	10	103	61	49	40	38.85	10000
10.10	12	118	71	56	45	56.39	10100
10.20	12	118	71	56	45	56.39	10200
10.30	12	118	71	56	45	56.39	10300
10.40	12	118	71	56	45	56.39	10400
10.50	12	118	71	56	45	56.39	10500
10.55	12	118	71	56	45	56.39	10550
10.60	12	118	71	56	45	56.39	10600
10.70	12	118	71	56	45	56.39	10700
10.75	12	118	71	56	45	56.39	10750
10.80	12	118	71	56	45	56.39	10800
10.90	12	118	71	56	45	56.39	10900
11.00	12	118	71	56	45	56.39	11000
11.10	12	118	71	56	45	56.39	11100
11.20	12	118	71	56	45	56.39	11200
11.25	12	118	71	56	45	56.39	11250
11.30	12	118	71	56	45	56.39	11300
11.35	12	118	71	56	45	56.39	11350
11.40	12	118	71	56	45	56.39	11400
11.45	12	118	71	56	45	56.39	11450
11.50	12	118	71	56	45	56.39	11500
11.60	12	118	71	56	45	56.39	11600
11.70	12	118	71	56	45	56.39	11700
11.80	12	118	71	56	45	56.39	11800
11.90	12	118	71	56	45	56.39	11900
12.00	12	118	71	56	45	56.39	12000

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	

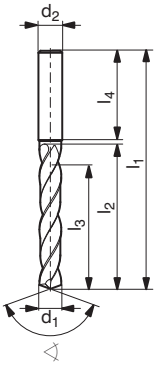
→ v_c Page 32

WPC – High Performance Drill, DIN 6537

≤ 5xD

UNI

TiAlN



HA

∢ 140°
Solid carbide

$d_{1\ m7}$ DC mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	l_4 LS mm	T1 Article no. 11 606 ... £	
3.00	6	66	28	23	36	21.50	030
3.10	6	66	28	23	36	21.50	031
3.20	6	66	28	23	36	21.50	032
3.30	6	66	28	23	36	21.50	033
3.40	6	66	28	23	36	21.50	034
3.50	6	66	28	23	36	21.50	035
3.60	6	66	28	23	36	21.50	036
3.70	6	66	28	23	36	21.50	037
3.80	6	74	36	29	36	21.50	038
3.90	6	74	36	29	36	21.50	039
4.00	6	74	36	29	36	21.50	040
4.10	6	74	36	29	36	21.50	041
4.20	6	74	36	29	36	21.50	042
4.30	6	74	36	29	36	21.50	043
4.40	6	74	36	29	36	21.50	044
4.50	6	74	36	29	36	21.50	045
4.60	6	74	36	29	36	21.50	046
4.65	6	74	36	29	36	21.50	900
4.70	6	74	36	29	36	21.50	047
4.80	6	82	44	35	36	21.50	048
4.90	6	82	44	35	36	21.50	049
5.00	6	82	44	35	36	21.50	050
5.10	6	82	44	35	36	21.50	051
5.20	6	82	44	35	36	21.50	052
5.30	6	82	44	35	36	21.50	053
5.40	6	82	44	35	36	21.50	054
5.50	6	82	44	35	36	21.50	055
5.55	6	82	44	35	36	21.50	902
5.60	6	82	44	35	36	21.50	056
5.70	6	82	44	35	36	21.50	057
5.80	6	82	44	35	36	21.50	058
5.90	6	82	44	35	36	21.50	059
6.00	6	82	44	35	36	21.50	060
6.10	8	91	53	43	36	21.50	061
6.20	8	91	53	43	36	21.50	062
6.30	8	91	53	43	36	21.50	063
6.40	8	91	53	43	36	21.50	064
6.50	8	91	53	43	36	21.50	065
6.60	8	91	53	43	36	21.50	066
6.70	8	91	53	43	36	21.50	067
6.80	8	91	53	43	36	21.50	068
6.90	8	91	53	43	36	21.50	069
7.00	8	91	53	43	36	21.50	070
7.10	8	91	53	43	36	21.50	071
7.20	8	91	53	43	36	21.50	072
7.30	8	91	53	43	36	21.50	073
7.40	8	91	53	43	36	21.50	074
7.50	8	91	53	43	36	21.50	075
7.55	8	91	53	43	36	21.50	975
7.60	8	91	53	43	36	21.50	076
7.70	8	91	53	43	36	21.50	077
7.80	8	91	53	43	36	21.50	078
7.90	8	91	53	43	36	21.50	079
8.00	8	91	53	43	36	21.50	080
8.10	10	103	61	49	40	24.19	081
8.20	10	103	61	49	40	24.19	082
8.30	10	103	61	49	40	24.19	083
8.40	10	103	61	49	40	24.19	084
8.50	10	103	61	49	40	24.19	085
8.60	10	103	61	49	40	24.19	086
8.70	10	103	61	49	40	24.19	087
8.80	10	103	61	49	40	24.19	088
8.90	10	103	61	49	40	24.19	089
9.00	10	103	61	49	40	24.19	090
9.10	10	103	61	49	40	24.19	091
9.20	10	103	61	49	40	24.19	092
9.25	10	103	61	49	40	24.19	925
9.30	10	103	61	49	40	24.19	093
9.40	10	103	61	49	40	24.19	094
9.50	10	103	61	49	40	24.19	095
9.60	10	103	61	49	40	24.19	096
9.70	10	103	61	49	40	24.19	097
9.80	10	103	61	49	40	24.19	098
9.90	10	103	61	49	40	24.19	099
10.00	10	103	61	49	40	24.19	100
10.10	12	118	71	56	45	36.28	101
10.20	12	118	71	56	45	36.28	102
10.30	12	118	71	56	45	36.28	103
10.40	12	118	71	56	45	36.28	104
10.50	12	118	71	56	45	36.28	105
10.60	12	118	71	56	45	36.28	106
10.70	12	118	71	56	45	36.28	107
10.80	12	118	71	56	45	36.28	108
10.90	12	118	71	56	45	36.28	109
11.00	12	118	71	56	45	36.28	110
11.10	12	118	71	56	45	36.28	111
11.20	12	118	71	56	45	36.28	112
11.30	12	118	71	56	45	36.28	113
11.40	12	118	71	56	45	36.28	114
11.50	12	118	71	56	45	36.28	115
11.60	12	118	71	56	45	36.28	116
11.70	12	118	71	56	45	36.28	117
11.80	12	118	71	56	45	36.28	118
11.90	12	118	71	56	45	36.28	119
12.00	12	118	71	56	45	36.28	120

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	

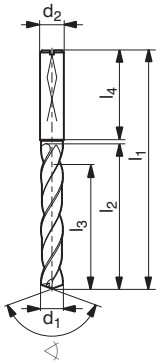
→ v_c Page 38

WTX – High Performance Drill, DIN 6537

≤ 5xD

UNI

DPX 74S



HA

∢ 140°
Solid carbide

$d_{1\ m7}$ DC mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	l_4 LS mm	NEW T7 Article no. 11 786 ... £	
3.00	6	66	28	23	36	52.35	03000
3.10	6	66	28	23	36	52.35	03100
3.15	6	66	28	23	36	52.35	03150
3.20	6	66	28	23	36	52.35	03200
3.22	6	66	28	23	36	52.35	03220
3.25	6	66	28	23	36	52.35	03250
3.30	6	66	28	23	36	52.35	03300
3.40	6	66	28	23	36	52.35	03400
3.50	6	66	28	23	36	52.35	03500
3.60	6	66	28	23	36	52.35	03600
3.70	6	66	28	23	36	52.35	03700
3.80	6	74	36	29	36	52.35	03800
3.85	6	74	36	29	36	52.35	03850
3.90	6	74	36	29	36	52.35	03900
4.00	6	74	36	29	36	52.35	04000
4.10	6	74	36	29	36	52.35	04100
4.20	6	74	36	29	36	52.35	04200
4.25	6	74	36	29	36	52.35	04250
4.30	6	74	36	29	36	52.35	04300
4.35	6	74	36	29	36	52.35	04350
4.40	6	74	36	29	36	52.35	04400
4.45	6	74	36	29	36	52.35	04450
4.50	6	74	36	29	36	52.35	04500
4.60	6	74	36	29	36	52.35	04600
4.65	6	74	36	29	36	52.35	04650
4.70	6	74	36	29	36	52.35	04700
4.80	6	82	44	35	36	52.35	04800
4.90	6	82	44	35	36	52.35	04900
4.95	6	82	44	35	36	52.35	04950
5.00	6	82	44	35	36	52.35	05000
5.05	6	82	44	35	36	52.35	05050
5.10	6	82	44	35	36	52.35	05100
5.20	6	82	44	35	36	52.35	05200
5.30	6	82	44	35	36	52.35	05300
5.40	6	82	44	35	36	52.35	05400
5.50	6	82	44	35	36	52.35	05500
5.55	6	82	44	35	36	61.30	05550
5.60	6	82	44	35	36	52.35	05600
5.70	6	82	44	35	36	52.35	05700
5.75	6	82	44	35	36	52.35	05750
5.80	6	82	44	35	36	52.35	05800
5.90	6	82	44	35	36	52.35	05900
5.95	6	82	44	35	36	52.35	05950
6.00	6	82	44	35	36	52.35	06000
6.10	8	91	53	43	36	59.02	06100
6.20	8	91	53	43	36	59.02	06200
6.30	8	91	53	43	36	59.02	06300
6.40	8	91	53	43	36	59.02	06400
6.50	8	91	53	43	36	59.02	06500
6.60	8	91	53	43	36	59.02	06600
6.70	8	91	53	43	36	59.02	06700
6.80	8	91	53	43	36	59.02	06800
6.90	8	91	53	43	36	59.02	06900
7.00	8	91	53	43	36	59.02	07000
7.10	8	91	53	43	36	59.02	07100
7.20	8	91	53	43	36	59.02	07200
7.30	8	91	53	43	36	59.02	07300
7.40	8	91	53	43	36	59.02	07400
7.45	8	91	53	43	36	59.02	07450
7.50	8	91	53	43	36	59.02	07500
7.60	8	91	53	43	36	59.02	07600
7.70	8	91	53	43	36	59.02	07700
7.80	8	91	53	43	36	59.02	07800
7.90	8	91	53	43	36	59.02	07900
8.00	8	91	53	43	36	59.02	08000
8.10	10	103	61	49	40	68.41	08100
8.20	10	103	61	49	40	68.41	08200
8.30	10	103	61	49	40	68.41	08300
8.40	10	103	61	49	40	68.41	08400
8.50	10	103	61	49	40	68.41	08500
8.60	10	103	61	49	40	68.41	08600
8.70	10	103	61	49	40	68.41	08700
8.80	10	103	61	49	40	68.41	08800
8.90	10	103	61	49	40	68.41	08900
9.00	10	103	61	49	40	68.41	09000
9.10	10	103	61	49	40	68.41	09100
9.20	10	103	61	49	40	68.41	09200
9.30	10	103	61	49	40	68.41	09300
9.35	10	103	61	49	40	68.41	09350
9.40	10	103	61	49	40	68.41	09400
9.45	10	103	61	49	40	68.41	09450
9.50	10	103	61	49	40	68.41	09500
9.60	10	103	61	49	40	68.41	09600
9.70	10	103	61	49	40	68.41	09700
9.80	10	103	61	49	40	68.41	09800
9.90	10	103	61	49	40	68.41	09900
10.00	10	103	61	49	40	68.41	10000
10.10	12	118	71	56	45	96.88	10100
10.20	12	118	71	56	45	96.88	10200
10.30	12	118	71	56	45	96.88	10300
10.40	12	118	71	56	45	96.88	10400
10.50	12	118	71	56	45	96.88	10500
10.55	12	118	71	56	45	96.88	10550
10.60	12	118	71	56	45	96.88	10600
10.70	12	118	71	56	45	96.88	10700
10.75	12	118	71	56	45	96.88	10750
10.80	12	118	71	56	45	96.88	10800
10.90	12	118	71	56	45	96.88	10900
11.00	12	118	71	56	45	96.88	11000
11.10	12	118	71	56	45	96.88	11100
11.20	12	118	71	56	45	96.88	11200
11.25	12	118	71	56	45	96.88	11250
11.30	12	118	71	56	45	96.88	11300
11.35	12	118	71	56	45	96.88	11350
11.40	12	118	71	56	45	96.88	11400
11.45	12	118	71	56	45	96.88	11450
11.50	12	118	71	56	45	96.88	11500
11.60	12	118	71	56	45	96.88	11600
11.70	12	118	71	56	45	96.88	11700
11.80	12	118	71	56	45	96.88	11800
11.90	12	118	71	56	45	96.88	11900
12.00	12	118	71	56	45	96.88	12000

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	○

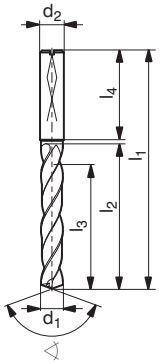
→ v_c Page 32

WPC – High Performance Drill, DIN 6537

≤ 5xD

UNI

TiAlN



HA

∢ 140°
Solid carbide

$d_{1\ m7}$ DC mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	l_4 LS mm	T1 Article no. 11 609 ... £	
1.00	4	45	8.0	6.5	30.0	31.81	010
1.10	4	45	8.8	7.2	29.0	31.81	011
1.20	4	45	9.6	7.8	29.0	31.81	012
1.30	4	45	10.4	8.5	28.5	31.81	013
1.40	4	45	11.2	9.1	28.0	31.81	014
1.50	4	50	12.0	9.8	32.0	31.81	015
1.60	4	50	12.8	10.4	31.0	31.81	016
1.70	4	50	13.6	11.1	30.5	31.81	017
1.80	4	50	14.4	11.7	30.0	31.81	018
1.90	4	50	15.2	12.4	29.5	31.81	019
2.00	4	50	16.0	13.0	29.0	31.81	020
2.10	4	55	16.8	13.7	33.0	31.81	021
2.20	4	55	17.6	14.3	32.5	31.81	022
2.30	4	55	18.4	15.0	32.0	31.81	023
2.40	4	55	19.2	15.6	31.5	31.81	024
2.50	4	55	20.0	16.3	30.5	31.81	025
2.60	4	55	20.8	16.9	30.0	31.81	026
2.70	4	55	21.6	17.6	29.0	31.81	027
2.80	4	55	22.4	18.2	29.0	31.81	028
2.90	4	55	23.2	18.9	28.5	31.81	029
3.00	6	66	28.0	23.0	36.0	31.81	030
3.10	6	66	28.0	23.0	36.0	31.81	031
3.20	6	66	28.0	23.0	36.0	31.81	032
3.25	6	66	28.0	23.0	36.0	32.25	890
3.30	6	66	28.0	23.0	36.0	31.81	033
3.40	6	66	28.0	23.0	36.0	31.81	034
3.50	6	66	28.0	23.0	36.0	31.81	035
3.60	6	66	28.0	23.0	36.0	31.81	036
3.70	6	66	28.0	23.0	36.0	31.81	037
3.80	6	74	36.0	29.0	36.0	31.81	038
3.90	6	74	36.0	29.0	36.0	31.81	039
4.00	6	74	36.0	29.0	36.0	32.25	040
4.10	6	74	36.0	29.0	36.0	32.25	041
4.20	6	74	36.0	29.0	36.0	32.25	042
4.30	6	74	36.0	29.0	36.0	32.25	043
4.40	6	74	36.0	29.0	36.0	32.25	044
4.50	6	74	36.0	29.0	36.0	32.25	045
4.60	6	74	36.0	29.0	36.0	32.25	046
4.65	6	74	36.0	29.0	36.0	32.25	900
4.70	6	74	36.0	29.0	36.0	32.25	047
4.80	6	82	44.0	35.0	36.0	32.25	048
4.90	6	82	44.0	35.0	36.0	32.25	049
5.00	6	82	44.0	35.0	36.0	32.25	050
5.10	6	82	44.0	35.0	36.0	32.25	051
5.20	6	82	44.0	35.0	36.0	32.25	052
5.30	6	82	44.0	35.0	36.0	32.25	053
5.40	6	82	44.0	35.0	36.0	32.25	054
5.50	6	82	44.0	35.0	36.0	32.25	055
5.55	6	82	44.0	35.0	36.0	32.25	902
5.60	6	82	44.0	35.0	36.0	32.25	056
5.70	6	82	44.0	35.0	36.0	32.25	057
5.80	6	82	44.0	35.0	36.0	32.25	058
5.90	6	82	44.0	35.0	36.0	32.25	059
6.00	6	82	44.0	35.0	36.0	32.25	060
6.10	8	91	53.0	43.0	36.0	36.28	061
6.20	8	91	53.0	43.0	36.0	36.28	062
6.30	8	91	53.0	43.0	36.0	36.28	063
6.40	8	91	53.0	43.0	36.0	36.28	064
6.50	8	91	53.0	43.0	36.0	36.28	065
6.60	8	91	53.0	43.0	36.0	36.28	066
6.70	8	91	53.0	43.0	36.0	36.28	067
6.80	8	91	53.0	43.0	36.0	36.28	068
6.90	8	91	53.0	43.0	36.0	36.28	069
7.00	8	91	53.0	43.0	36.0	36.28	070
7.10	8	91	53.0	43.0	36.0	36.28	071
7.20	8	91	53.0	43.0	36.0	36.28	072
7.30	8	91	53.0	43.0	36.0	36.28	073
7.40	8	91	53.0	43.0	36.0	36.28	074
7.45	8	91	53.0	43.0	36.0	36.28	924
7.50	8	91	53.0	43.0	36.0	36.28	075
7.55	8	91	53.0	43.0	36.0	36.28	975
7.60	8	91	53.0	43.0	36.0	36.28	076
7.70	8	91	53.0	43.0	36.0	36.28	077
7.80	8	91	53.0	43.0	36.0	36.28	078
7.90	8	91	53.0	43.0	36.0	36.28	079
8.00	8	91	53.0	43.0	36.0	36.28	080
8.10	10	103	61.0	49.0	40.0	41.66	081
8.20	10	103	61.0	49.0	40.0	41.66	082
8.30	10	103	61.0	49.0	40.0	41.66	083
8.40	10	103	61.0	49.0	40.0	41.66	084
8.50	10	103	61.0	49.0	40.0	41.66	085
8.60	10	103	61.0	49.0	40.0	41.66	086
8.70	10	103	61.0	49.0	40.0	41.66	087
8.80	10	103	61.0	49.0	40.0	41.66	088
8.90	10	103	61.0	49.0	40.0	41.66	089
9.00	10	103	61.0	49.0	40.0	41.66	090
9.10	10	103	61.0	49.0	40.0	41.66	091
9.20	10	103	61.0	49.0	40.0	41.66	092
9.25	10	103	61.0	49.0	40.0	41.66	925
9.30	10	103	61.0	49.0	40.0	41.66	093
9.35	10	103	61.0	49.0	40.0	41.66	930
9.40	10	103	61.0	49.0	40.0	41.66	094
9.50	10	103	61.0	49.0	40.0	41.66	095
9.60	10	103	61.0	49.0	40.0	41.66	096
9.70	10	103	61.0	49.0	40.0	41.66	097
9.80	10	103	61.0	49.0	40.0	41.66	098
9.90	10	103	61.0	49.0	40.0	41.66	099
10.00	10	103	61.0	49.0	40.0	41.66	100
10.10	12	118	71.0	56.0	45.0	60.45	101
10.20	12	118	71.0	56.0	45.0	60.45	102
10.30	12	118	71.0	56.0	45.0	60.45	103
10.40	12	118	71.0	56.0	45.0	60.45	104
10.50	12	118	71.0	56.0	45.0	60.45	105
10.60	12	118	71.0	56.0	45.0	60.45	106
10.70	12	118	71.0	56.0	45.0	60.45	107
10.75	12	118	71.0	56.0	45.0	60.45	904
10.80	12	118	71.0	56.0	45.0	60.45	108
10.90	12	118	71.0	56.0	45.0	60.45	109
11.00	12	118	71.0	56.0	45.0	60.45	110
11.10	12	118	71.0	56.0	45.0	60.45	111
11.20	12	118	71.0	56.0	45.0	60.45	112
11.25	12	118	71.0	56.0	45.0	60.45	912
11.30	12	118	71.0	56.0	45.0	60.45	113
11.40	12	118	71.0	56.0	45.0	60.45	114
11.50	12	118	71.0	56.0	45.0	60.45	115
11.60	12	118	71.0	56.0	45.0	60.45	116
11.70	12	118	71.0	56.0	45.0	60.45	117
11.80	12	118	71.0	56.0	45.0	60.45	118
11.90	12	118	71.0	56.0	45.0	60.45	119
12.00	12	118	71.0	56.0	45.0	60.45	120

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	

→ v_c Page 38

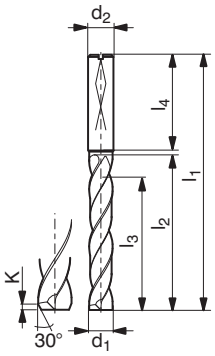
WTX – High Performance Drill, DIN 6537

- universal application
- four guidance lands
- polished chip flutes
- Type ALU 5xD (10 723 ...) on request
- K = corner chamfers

≤ 5xD

180

Ti 800



HA

180°
Solid carbide

$d_{1\ m7}$ DC mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	l_4 LS mm	K PL mm	T4 Article no. 10 721 ... £	
3.00	6	66	28	23	36	0.15	83.94	030
3.10	6	66	28	23	36	0.16	83.94	031
3.20	6	66	28	23	36	0.16	83.94	032
3.30	6	66	28	23	36	0.17	83.94	033
3.40	6	66	28	23	36	0.17	83.94	034
3.50	6	66	28	23	36	0.18	83.94	035
3.60	6	66	28	23	36	0.18	83.94	036
3.70	6	66	28	23	36	0.19	83.94	037
3.80	6	74	36	29	36	0.19	83.94	038
3.90	6	74	36	29	36	0.20	83.94	039
4.00	6	74	36	29	36	0.20	83.94	040
4.10	6	74	36	29	36	0.21	83.94	041
4.20	6	74	36	29	36	0.21	83.94	042
4.30	6	74	36	29	36	0.22	83.94	043
4.40	6	74	36	29	36	0.22	83.94	044
4.50	6	74	36	29	36	0.23	83.94	045
4.60	6	74	36	29	36	0.23	83.94	046
4.65	6	74	36	29	36	0.23	83.94	900
4.70	6	74	36	29	36	0.24	83.94	047
4.80	6	82	44	35	36	0.24	83.94	048
4.90	6	82	44	35	36	0.25	83.94	049
5.00	6	82	44	35	36	0.25	83.94	050
5.10	6	82	44	35	36	0.26	83.94	051
5.20	6	82	44	35	36	0.26	83.94	052
5.30	6	82	44	35	36	0.27	83.94	053
5.40	6	82	44	35	36	0.27	83.94	054
5.50	6	82	44	35	36	0.28	83.94	055
5.55	6	82	44	35	36	0.28	83.94	902
5.60	6	82	44	35	36	0.28	83.94	056
5.70	6	82	44	35	36	0.29	83.94	057
5.80	6	82	44	35	36	0.29	83.94	058
5.90	6	82	44	35	36	0.30	83.94	059
6.00	6	82	44	35	36	0.30	83.94	060
6.10	8	91	53	43	36	0.31	93.92	061
6.20	8	91	53	43	36	0.31	93.92	062
6.30	8	91	53	43	36	0.32	93.92	063
6.40	8	91	53	43	36	0.32	93.92	064
6.50	8	91	53	43	36	0.33	93.92	065
6.60	8	91	53	43	36	0.33	93.92	066
6.70	8	91	53	43	36	0.34	93.92	067
6.80	8	91	53	43	36	0.34	93.92	068
6.90	8	91	53	43	36	0.35	93.92	069
7.00	8	91	53	43	36	0.35	93.92	070
7.10	8	91	53	43	36	0.36	93.92	071
7.20	8	91	53	43	36	0.36	93.92	072
7.30	8	91	53	43	36	0.37	93.92	073
7.40	8	91	53	43	36	0.37	93.92	074
7.50	8	91	53	43	36	0.38	93.92	075
7.60	8	91	53	43	36	0.38	93.92	076
7.70	8	91	53	43	36	0.39	93.92	077
7.80	8	91	53	43	36	0.39	93.92	078
7.90	8	91	53	43	36	0.40	93.92	079
8.00	8	91	53	43	36	0.40	93.92	080
8.10	10	103	61	49	40	0.41	135.77	081
8.20	10	103	61	49	40	0.41	135.77	082
8.30	10	103	61	49	40	0.42	135.77	083
8.40	10	103	61	49	40	0.42	135.77	084
8.50	10	103	61	49	40	0.43	135.77	085
8.60	10	103	61	49	40	0.43	135.77	086
8.70	10	103	61	49	40	0.44	135.77	087
8.80	10	103	61	49	40	0.44	135.77	088
8.90	10	103	61	49	40	0.45	135.77	089
9.00	10	103	61	49	40	0.45	135.77	090
9.10	10	103	61	49	40	0.46	135.77	091
9.20	10	103	61	49	40	0.46	135.77	092
9.30	10	103	61	49	40	0.47	135.77	093
9.40	10	103	61	49	40	0.47	135.77	094
9.50	10	103	61	49	40	0.48	135.77	095
9.60	10	103	61	49	40	0.48	135.77	096
9.70	10	103	61	49	40	0.49	135.77	097
9.80	10	103	61	49	40	0.49	135.77	098
9.90	10	103	61	49	40	0.50	135.77	099
10.00	10	103	61	49	40	0.50	135.77	100
10.10	12	116	69	54	45	0.51	189.87	101
10.20	12	116	69	54	45	0.51	189.87	102
10.30	12	116	69	54	45	0.52	189.87	103
10.40	12	116	69	54	45	0.52	189.87	104
10.50	12	116	69	54	45	0.53	189.87	105
10.60	12	116	69	54	45	0.53	189.87	106
10.70	12	116	69	54	45	0.54	189.87	107
10.80	12	116	69	54	45	0.54	189.87	108
10.90	12	116	69	54	45	0.55	189.87	109
11.00	12	116	69	54	45	0.55	189.87	110
11.10	12	116	69	54	45	0.56	189.87	111
11.20	12	116	69	54	45	0.56	189.87	112
11.30	12	116	69	54	45	0.57	189.87	113
11.40	12	116	69	54	45	0.57	189.87	114
11.50	12	116	69	54	45	0.58	189.87	115
11.60	12	116	69	54	45	0.58	189.87	116
11.70	12	116	69	54	45	0.59	189.87	117
11.80	12	116	69	54	45	0.59	189.87	118
11.90	12	116	69	54	45	0.60	189.87	119
12.00	12	116	69	54	45	0.60	189.87	120

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	
hardened materials	○

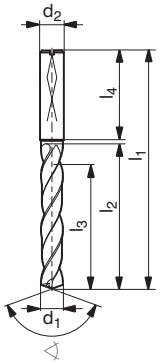
→ v_c Page 36

WTX – High Performance Drill, factory standard

≤ 8xD

UNI

DPX 74S



HA

135°
Solid carbide

$d_{1\ m7}$ DC mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	l_4 LS mm	NEW T7 Article no. 11 789 ... £	
3.0	6	72	34	29	36	114.34	030
3.1	6	72	34	29	36	114.34	031
3.2	6	72	34	29	36	114.34	032
3.3	6	72	34	29	36	114.34	033
3.4	6	72	34	29	36	114.34	034
3.5	6	72	34	29	36	114.34	035
3.6	6	72	34	29	36	114.34	036
3.7	6	72	34	29	36	114.34	037
3.8	6	81	43	36	36	114.34	038
3.9	6	81	43	36	36	114.34	039
4.0	6	81	43	36	36	114.34	040
4.1	6	81	43	36	36	114.34	041
4.2	6	81	43	36	36	114.34	042
4.3	6	81	43	36	36	114.34	043
4.4	6	81	43	36	36	114.34	044
4.5	6	81	43	36	36	114.34	045
4.6	6	81	43	36	36	114.34	046
4.7	6	81	43	36	36	114.34	047
4.8	6	95	57	48	36	114.34	048
4.9	6	95	57	48	36	114.34	049
5.0	6	95	57	48	36	114.34	050
5.1	6	95	57	48	36	114.34	051
5.2	6	95	57	48	36	114.34	052
5.3	6	95	57	48	36	114.34	053
5.4	6	95	57	48	36	114.34	054
5.5	6	95	57	48	36	114.34	055
5.6	6	95	57	48	36	114.34	056
5.7	6	95	57	48	36	114.34	057
5.8	6	95	57	48	36	114.34	058
5.9	6	95	57	48	36	114.34	059
6.0	6	95	57	48	36	114.34	060
6.1	8	114	76	64	36	138.65	061
6.2	8	114	76	64	36	138.65	062
6.3	8	114	76	64	36	138.65	063
6.4	8	114	76	64	36	138.65	064
6.5	8	114	76	64	36	138.65	065
6.6	8	114	76	64	36	138.65	066
6.7	8	114	76	64	36	138.65	067
6.8	8	114	76	64	36	138.65	068
6.9	8	114	76	64	36	138.65	069
7.0	8	114	76	64	36	138.65	070
7.1	8	114	76	64	36	138.65	071
7.2	8	114	76	64	36	138.65	072
7.3	8	114	76	64	36	138.65	073
7.4	8	114	76	64	36	138.65	074
7.5	8	114	76	64	36	138.65	075
7.6	8	114	76	64	36	138.65	076
7.7	8	114	76	64	36	138.65	077
7.8	8	114	76	64	36	138.65	078
7.9	8	114	76	64	36	138.65	079
8.0	8	114	76	64	36	138.65	080
8.1	10	142	95	80	40	167.93	081
8.2	10	142	95	80	40	167.93	082
8.3	10	142	95	80	40	167.93	083
8.4	10	142	95	80	40	167.93	084
8.5	10	142	95	80	40	167.93	085
8.6	10	142	95	80	40	167.93	086
8.7	10	142	95	80	40	167.93	087
8.8	10	142	95	80	40	167.93	088
8.9	10	142	95	80	40	167.93	089
9.0	10	142	95	80	40	167.93	090
9.1	10	142	95	80	40	167.93	091
9.2	10	142	95	80	40	167.93	092
9.3	10	142	95	80	40	167.93	093
9.4	10	142	95	80	40	167.93	094
9.5	10	142	95	80	40	167.93	095
9.6	10	142	95	80	40	167.93	096
9.7	10	142	95	80	40	167.93	097
9.8	10	142	95	80	40	167.93	098
9.9	10	142	95	80	40	167.93	099
10.0	10	142	95	80	40	167.93	100
10.1	12	162	114	96	45	221.67	101
10.2	12	162	114	96	45	221.67	102
10.3	12	162	114	96	45	221.67	103
10.4	12	162	114	96	45	221.67	104
10.5	12	162	114	96	45	221.67	105
10.6	12	162	114	96	45	221.67	106
10.7	12	162	114	96	45	221.67	107
10.8	12	162	114	96	45	221.67	108
10.9	12	162	114	96	45	221.67	109
11.0	12	162	114	96	45	221.67	110
11.1	12	162	114	96	45	221.67	111
11.2	12	162	114	96	45	221.67	112
11.3	12	162	114	96	45	221.67	113
11.4	12	162	114	96	45	221.67	114
11.5	12	162	114	96	45	221.67	115
11.6	12	162	114	96	45	221.67	116
11.7	12	162	114	96	45	221.67	117
11.8	12	162	114	96	45	221.67	118
11.9	12	162	114	96	45	221.67	119
12.0	12	162	114	96	45	221.67	120

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	

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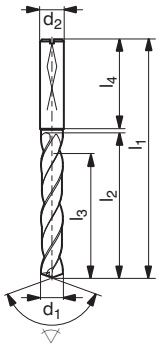
WPC – High Performance Drill, factory standard

≤ 8xD



UNI

TiAlN

HA

135°
Solid carbide

$d_{1\ h7}$ DC mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	l_4 LS mm	T1 Article no. 11 612 ... £	
3.0	6	72	34	29	36	81.12	030
3.1	6	72	34	29	36	81.12	031
3.2	6	72	34	29	36	81.12	032
3.3	6	72	34	29	36	81.12	033
3.4	6	72	34	29	36	81.12	034
3.5	6	72	34	29	36	81.12	035
3.6	6	72	34	29	36	81.12	036
3.7	6	72	34	29	36	81.12	037
3.8	6	81	43	36	36	81.12	038
3.9	6	81	43	36	36	81.12	039
4.0	6	81	43	36	36	81.12	040
4.1	6	81	43	36	36	81.12	041
4.2	6	81	43	36	36	81.12	042
4.3	6	81	43	36	36	81.12	043
4.4	6	81	43	36	36	81.12	044
4.5	6	81	43	36	36	81.12	045
4.6	6	81	43	36	36	81.12	046
4.7	6	81	43	36	36	81.12	047
4.8	6	95	57	48	36	81.12	048
4.9	6	95	57	48	36	81.12	049
5.0	6	95	57	48	36	81.12	050
5.1	6	95	57	48	36	81.12	051
5.2	6	95	57	48	36	81.12	052
5.3	6	95	57	48	36	81.12	053
5.5	6	95	57	48	36	81.12	055
5.8	6	95	57	48	36	81.12	058
5.9	6	95	57	48	36	81.12	059
6.0	6	95	57	48	36	81.12	060
6.1	8	114	76	64	36	104.01	061
6.2	8	114	76	64	36	104.01	062
6.3	8	114	76	64	36	104.01	063
6.5	8	114	76	64	36	104.01	065
6.6	8	114	76	64	36	104.01	066
6.8	8	114	76	64	36	104.01	068
7.0	8	114	76	64	36	104.01	070
7.4	8	114	76	64	36	104.01	074
7.5	8	114	76	64	36	104.01	075
7.7	8	114	76	64	36	104.01	077
7.8	8	114	76	64	36	104.01	078
7.9	8	114	76	64	36	104.01	079
8.0	8	114	76	64	36	104.01	080
8.1	10	142	95	80	36	130.77	081
8.2	10	142	95	80	36	130.77	082
8.3	10	142	95	80	36	130.77	083
8.5	10	142	95	80	36	130.77	085
8.6	10	142	95	80	36	130.77	086
8.7	10	142	95	80	36	130.77	087
8.8	10	142	95	80	36	130.77	088
9.0	10	142	95	80	36	130.77	090
9.1	10	142	95	80	36	130.77	091
9.2	10	142	95	80	36	130.77	092
9.3	10	142	95	80	36	130.77	093
9.4	10	142	95	80	36	130.77	094
9.5	10	142	95	80	36	130.77	095
9.7	10	142	95	80	36	130.77	097
9.8	10	142	95	80	36	130.77	098
9.9	10	142	95	80	36	130.77	099
10.0	10	142	95	80	36	130.77	100
10.2	12	162	114	96	36	174.02	102
10.5	12	162	114	96	36	174.02	105
10.8	12	162	114	96	36	174.02	108
11.0	12	162	114	96	36	174.02	110
11.2	12	162	114	96	36	174.02	112
11.5	12	162	114	96	36	174.02	115
11.8	12	162	114	96	36	174.02	118
12.0	12	162	114	96	36	174.02	120

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	

→ v_c Page 39

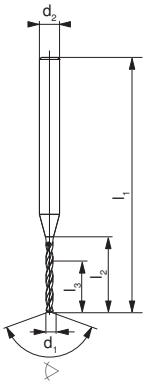
WTX – High Performance Drills

- Nominal size Ø +0.004
- Standard shank Ø 3 mm h6

≤ 5xD

MINI

TiAlN



140°
Solid carbide

$d_{1\ +0,004}$ DC mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	l_2 LCF mm	l_3 LU mm	T7 Article no. 11 770 ... £	
0.10	3	38	1.2	1.0	35.11	00100
0.15	3	38	2.0	1.7	31.00	00150
0.20	3	38	3.5	3.0	27.11	00200
0.25	3	38	3.5	3.0	23.10	00250
0.30	3	38	5.5	5.0	18.99	00300
0.35	3	38	5.5	5.0	18.99	00350
0.40	3	38	7.0	6.0	18.99	00400
0.45	3	38	7.0	6.0	18.99	00450
0.50	3	38	7.0	6.0	18.99	00500
0.55	3	38	7.0	6.0	18.99	00550
0.60	3	38	7.0	6.0	18.99	00600
0.65	3	38	7.0	6.0	18.99	00650
0.70	3	38	10.5	8.0	18.99	00700
0.75	3	38	10.5	8.0	18.99	00750
0.80	3	38	10.5	8.0	18.99	00800
0.85	3	38	10.5	8.0	18.99	00850
0.90	3	38	10.5	8.0	18.99	00900
0.95	3	38	10.5	8.0	18.99	00950
0.97	3	38	10.5	8.0	18.99	00970
0.98	3	38	10.5	8.0	18.99	00980
0.99	3	38	10.5	8.0	18.99	00990
1.00	3	38	10.5	8.0	18.99	01000
1.01	3	38	10.5	8.0	18.99	01010
1.02	3	38	10.5	8.0	18.99	01020
1.03	3	38	10.5	8.0	18.99	01030
1.05	3	38	10.5	8.0	18.99	01050
1.10	3	38	10.5	8.0	18.99	01100
1.15	3	38	10.5	8.0	18.99	01150
1.20	3	38	10.5	8.0	18.99	01200
1.25	3	38	10.5	8.0	18.99	01250
1.30	3	38	10.5	8.0	18.99	01300
1.35	3	38	10.5	8.0	18.99	01350
1.40	3	38	10.5	8.0	18.99	01400
1.45	3	38	10.5	8.0	18.99	01450
1.47	3	38	10.5	8.0	18.99	01470
1.48	3	38	10.5	8.0	18.99	01480
1.49	3	38	10.5	8.0	18.99	01490
1.50	3	38	10.5	8.0	18.99	01500
1.51	3	38	10.5	8.0	18.99	01510
1.52	3	38	10.5	8.0	18.99	01520
1.53	3	38	10.5	8.0	18.99	01530
1.55	3	38	10.5	8.0	18.99	01550
1.60	3	38	10.5	8.0	18.99	01600
1.65	3	38	10.5	8.0	18.99	01650
1.70	3	38	10.5	8.0	18.99	01700
1.75	3	38	10.5	8.0	18.99	01750
1.80	3	38	10.5	8.0	18.99	01800
1.85	3	38	12.0	8.0	18.99	01850
1.90	3	38	12.0	8.0	18.99	01900
1.95	3	38	12.0	8.0	18.99	01950
1.97	3	38	12.0	8.0	18.99	01970
1.98	3	38	12.0	8.0	18.99	01980
1.99	3	38	12.0	8.0	18.99	01990
2.00	3	42	13.0	9.0	27.22	02000
2.01	3	42	13.0	9.0	27.22	02010
2.02	3	42	13.0	9.0	27.22	02020
2.03	3	42	13.0	9.0	27.22	02030
2.05	3	42	13.0	9.0	27.22	02050
2.10	3	42	13.0	9.0	27.22	02100
2.15	3	42	13.0	9.0	27.22	02150
2.20	3	46	15.0	10.0	30.66	02200
2.25	3	46	15.0	10.0	30.66	02250
2.30	3	46	15.0	10.0	30.66	02300
2.35	3	46	15.0	10.0	30.66	02350
2.40	3	46	15.0	10.0	30.66	02400
2.45	3	46	15.0	10.0	30.66	02450
2.47	3	46	15.0	10.0	30.66	02470
2.48	3	46	15.0	10.0	30.66	02480
2.49	3	46	15.0	10.0	30.66	02490
2.50	3	46	15.0	10.0	30.66	02500
2.51	3	46	15.0	10.0	30.66	02510
2.52	3	46	15.0	10.0	30.66	02520
2.53	3	46	15.0	10.0	30.66	02530
2.60	3	46	15.0	10.0	30.66	02600
2.70	3	46	15.0	10.0	30.66	02700
2.80	3	46	15.0	10.0	30.66	02800
2.90	3	46	15.0	10.0	30.66	02900

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

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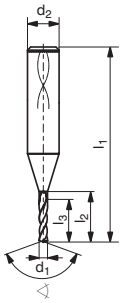
WTX – High Performance Drill, factory standard

- WTX flute geometry, optimises swarf control and chip evacuation
- All diameters with standard shank 3 mm

≤ 5xD

MINI

Ti 700



140°
Solid carbide
T4

d_1 +0,004 DC mm	l_2 LCF mm	l_3 LU mm	d_2 -0,002/-0,005 DCONMS mm	l_1 OAL mm	Article no. 10 775 ... £	
1.0	8	5	3	55	119.98	010
1.1	12	8	3	55	119.98	011
1.2	12	8	3	55	119.98	012
1.3	12	8	3	55	119.98	013
1.4	12	8	3	55	119.98	014
1.5	12	8	3	55	119.98	015
1.6	16	11	3	68	127.89	016
1.7	16	11	3	68	127.89	017
1.8	16	11	3	68	127.89	018
1.9	16	11	3	68	127.89	019
2.0	16	11	3	68	127.89	020
2.1	20	14	3	74	131.12	021
2.2	20	14	3	74	131.12	022
2.3	20	14	3	74	131.12	023
2.4	20	14	3	74	131.12	024
2.5	20	14	3	74	131.12	025
2.6	23	16	3	81	135.95	026
2.7	23	16	3	81	135.95	027
2.8	23	16	3	81	135.95	028
2.9	23	16	3	81	135.95	029

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●

→ v_c Page 33

Coolant pressure 20–50 bar

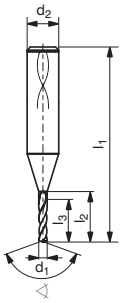
WTX – High Performance Drill, factory standard

- WTX flute geometry, optimises swarf control and chip evacuation
- All diameters with standard shank 3 mm

≤ 8xD

MINI

Ti 700



140°
Solid carbide
T4

d_1 +0,004 DC mm	l_2 LCF mm	l_3 LU mm	d_2 -0,002/-0,005 DCONMS mm	l_1 OAL mm	Article no. 10 778 ... £	
1.0	11	8	3	55	127.89	010
1.1	17	13	3	55	127.89	011
1.2	17	13	3	55	127.89	012
1.3	17	13	3	55	127.89	013
1.4	17	13	3	55	127.89	014
1.5	17	13	3	55	127.89	015
1.6	22	17	3	68	135.95	016
1.7	22	17	3	68	135.95	017
1.8	22	17	3	68	135.95	018
1.9	22	17	3	68	135.95	019
2.0	22	17	3	68	135.95	020
2.1	28	22	3	74	139.06	021
2.2	28	22	3	74	139.06	022
2.3	28	22	3	74	139.06	023
2.4	28	22	3	74	139.06	024
2.5	28	22	3	74	139.06	025
2.6	32	25	3	81	143.75	026
2.7	32	25	3	81	143.75	027
2.8	32	25	3	81	143.75	028
2.9	32	25	3	81	143.75	029

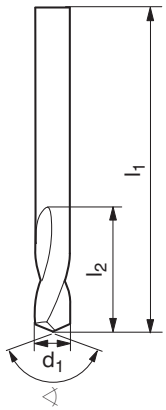
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●

→ v_c Page 33

Coolant pressure 20–50 bar

NC Spot Drill, factory standard

- Spiral flutes



$d_{1\ h5}$ DC mm	l_1 OAL mm	l_2 LCF mm	90° Solid carbide T3 Article no. 10 702 ... £		120° Solid carbide T3 Article no. 10 703 ... £	
2	32	6	20.35	002	20.35	002
3	32	8	20.35	003	20.35	003
4	40	10	15.95	004	15.95	004
5	50	13	18.33	005	18.33	005
6	50	13	20.45	006	20.45	006
8	60	23	31.43	008	31.43	008
10	70	24	44.08	010	44.08	010
12	70	24	63.56	012	63.56	012

Steel	●	●
Stainless steel		
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

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Material examples referring to the WNT cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5% Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0,5 - 10% Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10 - 15% Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15% Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data standard values – WTX – UNI

Index	Drilling depth 3xD UNI Art. No. 11 777 ..., 11 780 ...					Drilling depth 5xD UNI Art. No. 11 783 ..., 11 786 ...					Drilling depth 8xD UNI Art. No. 11 789 ...			
	v_c in m/min without through coolant	v_c in m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	v_c in m/min without through coolant	v_c in m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	v_c in m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.
1.1	**110**	**125**	0,14	0,17	0,22	**90**	**125**	0,13	0,17	0,22	**110**	0,13	0,17	0,22
1.2	**130**	**150**	0,23	0,28	0,35	**110**	**150**	0,21	0,28	0,35	**130**	0,21	0,28	0,35
1.3	**110**	**125**	0,18	0,21	0,28	**90**	**125**	0,16	0,21	0,28	**110**	0,16	0,21	0,28
1.4	**90**	**100**	0,15	0,19	0,24	**75**	**100**	0,14	0,19	0,24	**90**	0,14	0,19	0,24
1.5	**100**	**115**	0,18	0,21	0,28	**80**	**115**	0,16	0,21	0,28	**100**	0,16	0,21	0,28
1.6	**90**	**100**	0,15	0,19	0,24	**75**	**100**	0,14	0,19	0,24	**90**	0,14	0,19	0,24
1.7	**90**	**100**	0,15	0,19	0,24	**75**	**100**	0,14	0,19	0,24	**90**	0,14	0,19	0,24
1.8	**65**	**75**	0,12	0,15	0,20	**55**	**75**	0,12	0,15	0,20	**65**	0,12	0,15	0,20
1.9	**100**	**115**	0,18	0,21	0,28	**80**	**115**	0,16	0,21	0,28	**100**	0,16	0,21	0,28
1.10	**65**	**75**	0,12	0,15	0,20	**55**	**75**	0,12	0,15	0,20	**65**	0,12	0,15	0,20
1.11	**55**	**65**	0,11	0,14	0,18	**45**	**65**	0,10	0,14	0,18	**55**	0,10	0,14	0,18
1.12	**65**	**75**	0,12	0,15	0,20	**55**	**75**	0,12	0,15	0,20	**65**	0,12	0,15	0,20
1.13	**65**	**75**	0,12	0,15	0,20	**55**	**75**	0,12	0,15	0,20	**65**	0,12	0,15	0,20
1.14	**55**	**65**	0,11	0,14	0,18	**45**	**65**	0,10	0,14	0,18	**55**	0,10	0,14	0,18
1.15	**55**	**65**	0,12	0,15	0,20	**45**	**65**	0,12	0,15	0,20	**55**	0,12	0,15	0,20
1.16	**55**	**65**	0,12	0,15	0,20	**45**	65	0,12	0,15	0,20	**55**	0,12	0,15	0,20
2.1		50	0,10	0,12	0,15		50	0,09	0,12	0,15				
2.2		45	0,08	0,10	0,13		45	0,08	0,10	0,13				
2.3		45	0,07	0,09	0,12		45	0,07	0,09	0,12				
2.4		35	0,07	0,09	0,12		35	0,07	0,09	0,12				
2.5		35	0,07	0,09	0,12		35	0,07	0,09	0,12				
2.6		50	0,08	0,10	0,13		50	0,08	0,10	0,13				
2.7		35	0,07	0,08	0,11		35	0,06	0,08	0,11				
3.1	**70**	**90**	0,20	0,24	0,31	**75**	**90**	0,17	0,22	0,28	**80**	0,17	0,22	0,28
3.2	**50**	**60**	0,18	0,21	0,28	**55**	**60**	0,15	0,20	0,25	**55**	0,15	0,20	0,25
3.3	**60**	**80**	0,23	0,28	0,35	**70**	**80**	0,19	0,25	0,32	**70**	0,19	0,25	0,32
3.4	**45**	**55**	0,18	0,21	0,28	**45**	**55**	0,15	0,20	0,25	**50**	0,15	0,20	0,25
3.5	**90**	**110**	0,25	0,30	0,39	**90**	**110**	0,22	0,28	0,35	**95**	0,22	0,28	0,35
3.6	**75**	**90**	0,23	0,28	0,35	**75**	**90**	0,19	0,25	0,32	**80**	0,19	0,25	0,32
3.7	**90**	**110**	0,23	0,28	0,35	**90**	**110**	0,19	0,25	0,32	**95**	0,19	0,25	0,32
3.8	**75**	**90**	0,18	0,21	0,28	**75**	**90**	0,15	0,20	0,25	**80**	0,15	0,20	0,25
4.1														
4.2														
4.3														
4.4														
4.5														
4.6														
4.7														
4.8														
4.9														
4.10														
4.11	120	200	0,18	0,22	0,28	100	200	0,17	0,22	0,28	200	0,17	0,22	0,28
4.12	120	200	0,16	0,20	0,25	100	200	0,15	0,20	0,25	200	0,15	0,20	0,25
4.13														
4.14														
4.15														
4.16														
4.17	240		0,12	0,15	0,20									
4.18														
4.19														
5.1														
5.2														
5.3														
5.4														
5.5														
5.6														
5.7														
5.8														
5.9														
5.10														
5.11														
6.1	40	55	0,09	0,11	0,14		55	0,08	0,11	0,14				
6.2	25	35	0,06	0,08	0,10									
6.3														
6.4														
6.5														

The cutting data depends extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced according to the application conditions.

Cutting data standard values – WTX – MINI

Index	Drilling depth 5xD MINI Art. No. 10 775 ...				Drilling depth 8xD MINI Art. No. 10 778 ...			
	v_c in m/min with through coolant	Ø 1,0–1,5 f mm/rev.	Ø 1,6–2,0 f mm/rev.	Ø 2,1–2,9 f mm/rev.	v_c in m/min with through coolant	Ø 1,0–1,5 f mm/rev.	Ø 1,6–2,0 f mm/rev.	Ø 2,1–2,9 f mm/rev.
1.1	80	0,07	0,08	0,09	80	0,06	0,07	0,08
1.2	95	0,12	0,14	0,16	95	0,11	0,12	0,14
1.3	90	0,09	0,10	0,12	90	0,08	0,09	0,11
1.4	65	0,08	0,09	0,10	65	0,07	0,08	0,09
1.5	70	0,09	0,10	0,12	70	0,08	0,09	0,11
1.6	65	0,08	0,09	0,10	65	0,07	0,08	0,09
1.7	65	0,08	0,09	0,10	65	0,07	0,08	0,09
1.8	50	0,06	0,07	0,08	50	0,06	0,06	0,07
1.9	70	0,09	0,10	0,12	70	0,08	0,09	0,11
1.10	50	0,06	0,07	0,08	50	0,06	0,06	0,07
1.11	40	0,06	0,06	0,07	40	0,05	0,06	0,07
1.12	50	0,06	0,07	0,08	50	0,06	0,06	0,07
1.13	50	0,06	0,07	0,08	50	0,06	0,06	0,07
1.14	40	0,06	0,06	0,07	40	0,05	0,06	0,07
1.15	40	0,06	0,07	0,08	40	0,06	0,06	0,07
1.16	40	0,06	0,07	0,08	40	0,06	0,06	0,07
2.1	50	0,05	0,06	0,06	50	0,04	0,05	0,06
2.2	40	0,04	0,05	0,06	40	0,04	0,04	0,05
2.3	50	0,04	0,04	0,05	50	0,03	0,04	0,05
2.4	32	0,04	0,04	0,05	32	0,03	0,04	0,05
2.5	28	0,04	0,04	0,05	28	0,03	0,04	0,05
2.6	40	0,04	0,05	0,06	40	0,04	0,04	0,05
2.7	28	0,03	0,04	0,05	28	0,03	0,04	0,04
3.1	90	0,11	0,12	0,14	90	0,10	0,11	0,13
3.2	65	0,09	0,10	0,12	65	0,08	0,09	0,11
3.3	80	0,12	0,14	0,16	80	0,11	0,12	0,14
3.4	55	0,09	0,10	0,12	55	0,08	0,09	0,11
3.5	100	0,14	0,16	0,18	100	0,13	0,14	0,16
3.6	90	0,12	0,14	0,16	90	0,11	0,12	0,14
3.7	105	0,12	0,14	0,16	105	0,11	0,12	0,14
3.8	90	0,09	0,10	0,12	90	0,08	0,09	0,11
4.1								
4.2	180	0,07	0,08	0,09	180	0,06	0,07	0,08
4.3	150	0,09	0,10	0,12	150	0,08	0,09	0,11
4.4	120	0,07	0,08	0,09	120	0,06	0,07	0,08
4.5	90	0,06	0,07	0,08	90	0,06	0,06	0,07
4.6								
4.7								
4.8	120	0,06	0,07	0,08	120	0,06	0,06	0,07
4.9	150	0,06	0,07	0,08	150	0,06	0,06	0,07
4.10	120	0,06	0,07	0,08	120	0,06	0,06	0,07
4.11	120	0,11	0,12	0,14	120	0,10	0,11	0,13
4.12	120	0,09	0,10	0,12	120	0,08	0,09	0,11
4.13	100	0,03	0,04	0,05	100	0,03	0,04	0,04
4.14	125	0,06	0,06	0,07	125	0,05	0,06	0,07
4.15	120	0,06	0,06	0,07	110	0,05	0,06	0,07
4.16	180	0,07	0,08	0,09	180	0,06	0,07	0,08
4.17								
4.18	30	0,04	0,05	0,06	30	0,04	0,04	0,05
4.19	32	0,03	0,04	0,05	32	0,03	0,04	0,04
5.1	35	0,03	0,04	0,05	35	0,03	0,04	0,04
5.2	16	0,03	0,04	0,05	16	0,03	0,04	0,04
5.3	16	0,03	0,04	0,05	16	0,03	0,04	0,04
5.4	16	0,03	0,04	0,05	16	0,03	0,04	0,04
5.5	16	0,03	0,04	0,05	16	0,03	0,04	0,04
5.6	15	0,03	0,04	0,05	15	0,03	0,04	0,04
5.7	12	0,03	0,04	0,05	12	0,03	0,04	0,04
5.8	8	0,03	0,04	0,05	8	0,03	0,04	0,04
5.9	16	0,03	0,04	0,05	16	0,03	0,04	0,04
5.10	20	0,03	0,04	0,05	20	0,03	0,04	0,04
5.11	16	0,03	0,04	0,05	16	0,03	0,04	0,04
6.1								
6.2								
6.3								
6.4								
6.5								

Coolant pressure 20-50 bar. High coolant pressure can lead to stiffening of the tool and may result in tool breakage with minimum radial. The coolant system should be operated with a filter of 20-25 microns, in order to avoid a possible blockage of the coolant channels. The cutting values are highly dependent on the external conditions, the material and the machine. The values shown represent possible cutting data which may have to be corrected up or down depending on application.

Cutting data standard values – WTX – MINI

	Drilling depth 5xD Mini Art. No. 11 770 ...				
Index	v_c in m/min	< Ø 1,0 mm	> Ø 1,0–1,5 mm	> Ø 1,5–2,0 mm	> Ø 2,0–2,9 mm
		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
1.1	70	0,01	0,015	0,03	0,05
1.2	70	0,01	0,015	0,03	0,05
1.3	75	0,01	0,015	0,03	0,05
1.4	65	0,01	0,015	0,03	0,05
1.5	65	0,02	0,03	0,04	0,06
1.6	65	0,01	0,015	0,03	0,05
1.7	65	0,02	0,03	0,04	0,06
1.8	50	0,01	0,015	0,03	0,05
1.9					
1.10	65	0,01	0,015	0,03	0,05
1.11	65	0,01	0,015	0,03	0,05
1.12	50	0,01	0,015	0,03	0,05
1.13					
1.14					
1.15	50	0,01	0,015	0,03	0,05
1.16	50	0,01	0,015	0,03	0,05
2.1					
2.2					
2.3					
2.4					
2.5					
2.6					
2.7					
3.1	70	0,01	0,015	0,03	0,05
3.2	70	0,01	0,015	0,03	0,05
3.3	70	0,01	0,015	0,03	0,05
3.4	70	0,01	0,015	0,03	0,05
3.5	70	0,01	0,015	0,03	0,05
3.6	70	0,01	0,015	0,03	0,05
3.7	70	0,01	0,015	0,03	0,05
3.8	70	0,01	0,015	0,03	0,05
4.1	200	0,01	0,015	0,03	0,05
4.2	200	0,01	0,015	0,03	0,05
4.3	160	0,01	0,015	0,03	0,05
4.4	130	0,01	0,015	0,03	0,05
4.5	130	0,01	0,015	0,03	0,05
4.6	100	0,01	0,015	0,03	0,05
4.7	100	0,01	0,015	0,03	0,05
4.8					
4.9					
4.10					
4.11	70	0,01	0,015	0,03	0,05
4.12	120	0,01	0,015	0,03	0,05
4.13					
4.14					
4.15					
4.16	200	0,01	0,015	0,03	0,05
4.17					
4.18					
4.19					
5.1					
5.2					
5.3					
5.4					
5.5					
5.6					
5.7					
5.8					
5.9	30	0,01	0,015	0,03	0,05
5.10	20	0,01	0,015	0,03	0,05
5.11	20	0,01	0,015	0,03	0,05
6.1					
6.2					
6.3					
6.4					
6.5					

The cutting data depends extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced according to the application conditions.

Cutting data, WTX-180

Index	Drilling depth 3xD Type 180 Art. No. 10 720 ...			
	v_c in m/min	Ø 3–5	Ø 5–8	Ø 8–12
	with through coolant	f mm/rev.	f mm/rev.	f mm/rev.
1.1	**100**	0,12	0,15	0,20
1.2	**120**	0,21	0,25	0,32
1.3	**100**	0,16	0,20	0,25
1.4	**80**	0,14	0,17	0,22
1.5	**90**	0,16	0,20	0,25
1.6	**80**	0,14	0,17	0,22
1.7	**80**	0,14	0,17	0,22
1.8	**60**	0,11	0,14	0,18
1.9	**90**	0,16	0,20	0,25
1.10	**60**	0,11	0,14	0,18
1.11	**50**	0,10	0,12	0,16
1.12	**60**	0,11	0,14	0,18
1.13	**60**	0,11	0,14	0,18
1.14	**50**	0,10	0,12	0,16
1.15	**50**	0,11	0,14	0,18
1.16	**50**	0,11	0,14	0,18
2.1	60	0,09	0,11	0,14
2.2	50	0,07	0,09	0,12
2.3	60	0,07	0,08	0,11
2.4	40	0,07	0,08	0,11
2.5	35	0,07	0,08	0,11
2.6	50	0,07	0,09	0,12
2.7	35	0,06	0,08	0,10
3.1	**90**	0,18	0,22	0,28
3.2	**65**	0,16	0,20	0,25
3.3	**80**	0,21	0,25	0,32
3.4	**55**	0,16	0,20	0,25
3.5	**110**	0,23	0,28	0,35
3.6	**90**	0,21	0,25	0,32
3.7	**110**	0,21	0,25	0,32
3.8	**90**	0,16	0,20	0,25
4.1				
4.2				
4.3				
4.4				
4.5				
4.6				
4.7				
4.8				
4.9				
4.10				
4.11				
4.12				
4.13				
4.14				
4.15				
4.16				
4.17				
4.18				
4.19				
5.1				
5.2				
5.3				
5.4				
5.5				
5.6				
5.7				
5.8				
5.9				
5.10				
5.11				
6.1	50	0,07	0,09	0,11
6.2	30	0,05	0,06	0,08
6.3				
6.4				
6.5				

Cutting data, WTX-180

Index	Drilling depth 5xD Type 180 Art. No. 10 721 ...			
	v_c in m/min	Ø 3–5	Ø 5–8	Ø 8–12
	with through coolant	f mm/rev.	f mm/rev.	f mm/rev.
1.1	**90**	0,09	0,12	0,16
1.2	**110**	0,16	0,20	0,26
1.3	**90**	0,12	0,16	0,20
1.4	**75**	0,10	0,14	0,18
1.5	**80**	0,12	0,16	0,20
1.6	**75**	0,10	0,14	0,18
1.7	**75**	0,10	0,14	0,18
1.8	**55**	0,08	0,11	0,14
1.9	**85**	0,12	0,16	0,20
1.10	**60**	0,08	0,11	0,14
1.11	**50**	0,07	0,10	0,13
1.12	**60**	0,08	0,11	0,14
1.13	**60**	0,08	0,11	0,14
1.14	**50**	0,07	0,10	0,13
1.15	**50**	0,08	0,11	0,14
1.16	**50**	0,08	0,11	0,14
2.1	60	0,07	0,09	0,11
2.2	50	0,06	0,07	0,10
2.3	60	0,05	0,07	0,09
2.4	40	0,05	0,07	0,09
2.5	35	0,05	0,07	0,09
2.6	50	0,06	0,07	0,10
2.7	35	0,05	0,06	0,08
3.1	**90**	0,14	0,18	0,22
3.2	**65**	0,12	0,16	0,20
3.3	**80**	0,16	0,20	0,26
3.4	**55**	0,12	0,16	0,20
3.5	**110**	0,17	0,22	0,28
3.6	**90**	0,16	0,20	0,26
3.7	**110**	0,16	0,20	0,26
3.8	**90**	0,12	0,16	0,20
4.1				
4.2				
4.3				
4.4				
4.5				
4.6				
4.7				
4.8				
4.9				
4.10				
4.11				
4.12				
4.13				
4.14				
4.15				
4.16				
4.17				
4.18				
4.19				
5.1				
5.2				
5.3				
5.4				
5.5				
5.6				
5.7				
5.8				
5.9				
5.10				
5.11				
6.1	50	0,06	0,08	0,10
6.2	30	0,04	0,05	0,07
6.3				
6.4				
6.5				

Application Note:

Spot drilling with reduced feedrate

1. Feedrate f [mm/U] should be multiplied by correction factor A_k
2. Drill with reduced feed rate until tool is fully engaged in workpiece by approximately 0.25 x D
3. Retract from the hole at double the feed rate f in mm/U - only with inclined surfaces

   This operation is necessary in order to achieve maximum performance of the drill!
4. Drill the hole with feed rate f [mm/U] without pecking for chip evacuation

Correction factor A_k for f [mm/U] when spot drilling		
Inclination workpiece surface	A_k to 3xD (10 720 ...)	A_k to 5xD (10 721 ...)
15°	0,5	0,25
30°	0,4	not recommended
45°	0,25	not recommended

For drilling on flat surfaces (inclination 0 °) with the WTX-180 5xD, we recommend the use of a pilot drill. (WTX UNI 3xD)

Cutting data standard values – WPC - UNI

Index	Drilling depth 3xD UNI Art. No. 11 600 ..., 11 603 ...							
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 1–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.
1.1	**100**	**100**	0,05	0,06	0,08	0,12	0,17	0,22
1.2	**120**	**120**	0,10	0,11	0,14	0,19	0,27	0,35
1.3	**100**	**100**	0,07	0,09	0,11	0,15	0,21	0,28
1.4	**80**	**80**	0,05	0,07	0,09	0,13	0,18	0,24
1.5	**90**	**90**	0,07	0,09	0,11	0,15	0,21	0,28
1.6	**80**	**80**	0,05	0,07	0,09	0,13	0,18	0,24
1.7	**80**	**80**	0,05	0,07	0,09	0,13	0,18	0,24
1.8	**60**	**60**	0,04	0,06	0,07	0,10	0,15	0,20
1.9	**90**	**90**	0,07	0,09	0,11	0,15	0,21	0,28
1.10	**60**	**60**	0,04	0,06	0,07	0,10	0,15	0,20
1.11	**50**	**50**	0,04	0,05	0,06	0,09	0,13	0,18
1.12	**60**	**60**	0,04	0,06	0,07	0,10	0,15	0,20
1.13	**60**	**60**	0,04	0,06	0,07	0,10	0,15	0,20
1.14	**50**	**50**	0,04	0,05	0,06	0,09	0,13	0,18
1.15	**50**	**50**	0,04	0,06	0,07	0,10	0,15	0,20
1.16	**50**	**50**	0,04	0,06	0,07	0,10	0,15	0,20
2.1		45	0,04	0,04	0,06	0,08	0,12	0,16
2.2		40	0,03	0,04	0,05	0,07	0,10	0,13
2.3		45	0,03	0,03	0,04	0,06	0,09	0,12
2.4		30	0,03	0,03	0,04	0,06	0,09	0,12
2.5		25	0,03	0,03	0,04	0,06	0,09	0,12
2.6		40	0,03	0,04	0,05	0,07	0,10	0,13
2.7		25	0,02	0,03	0,04	0,06	0,08	0,11
3.1	**70**	**80**	0,09	0,10	0,13	0,17	0,24	0,31
3.2	**50**	**55**	0,07	0,09	0,11	0,15	0,21	0,28
3.3	**60**	**70**	0,10	0,11	0,14	0,19	0,27	0,35
3.4	**45**	**50**	0,07	0,09	0,11	0,15	0,21	0,28
3.5	**90**	**95**	0,11	0,13	0,16	0,21	0,30	0,39
3.6	**75**	**80**	0,10	0,11	0,14	0,19	0,27	0,35
3.7	**90**	**95**	0,10	0,11	0,14	0,19	0,27	0,35
3.8	**75**	**80**	0,07	0,09	0,11	0,15	0,21	0,28
4.1								
4.2								
4.3								
4.4								
4.5								
4.6								
4.7								
4.8								
4.9								
4.10								
4.11	120	200	0,09	0,10	0,13	0,17	0,24	0,31
4.12	120	200	0,07	0,09	0,11	0,15	0,21	0,28
4.13								
4.14								
4.15								
4.16								
4.17	240		0,05	0,06	0,08	0,12	0,17	0,22
4.18								
4.19								
5.1								
5.2								
5.3								
5.4								
5.5								
5.6								
5.7								
5.8								
5.9								
5.10								
5.11								
6.1								
6.2								
6.3								
6.4								
6.5								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that must be corrected according to the usage conditions.

Cutting data standard values – WPC - UNI

Index	Drilling depth 5xD UNI Art. No. 11 606 ..., 11 609 ...							
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 1–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.
1.1	**80**	**100**	0,05	0,06	0,08	0,12	0,17	0,22
1.2	**96**	**120**	0,10	0,11	0,14	0,19	0,27	0,35
1.3	**80**	**100**	0,07	0,09	0,11	0,15	0,21	0,28
1.4	**64**	**80**	0,05	0,07	0,09	0,13	0,18	0,24
1.5	**72**	**90**	0,07	0,09	0,11	0,15	0,21	0,28
1.6	**64**	**80**	0,05	0,07	0,09	0,13	0,18	0,24
1.7	**64**	**80**	0,05	0,07	0,09	0,13	0,18	0,24
1.8	**48**	**60**	0,04	0,06	0,07	0,10	0,15	0,20
1.9	**72**	**90**	0,07	0,09	0,11	0,15	0,21	0,28
1.10	**48**	**60**	0,04	0,06	0,07	0,10	0,15	0,20
1.11	**40**	**50**	0,04	0,05	0,06	0,09	0,13	0,18
1.12	**48**	**60**	0,04	0,06	0,07	0,10	0,15	0,20
1.13	**48**	**60**	0,04	0,06	0,07	0,10	0,15	0,20
1.14	**40**	**50**	0,04	0,05	0,06	0,09	0,13	0,18
1.15	**40**	**50**	0,04	0,06	0,07	0,10	0,15	0,20
1.16	**40**	**50**	0,04	0,06	0,07	0,10	0,15	0,20
2.1		45	0,04	0,04	0,06	0,08	0,12	0,16
2.2		40	0,03	0,04	0,05	0,07	0,10	0,13
2.3		45	0,03	0,03	0,04	0,06	0,09	0,12
2.4		30	0,03	0,03	0,04	0,06	0,09	0,12
2.5		25	0,03	0,03	0,04	0,06	0,09	0,12
2.6		40	0,03	0,04	0,05	0,07	0,10	0,13
2.7		25	0,02	0,03	0,04	0,06	0,08	0,11
3.1	**65**	**80**	0,09	0,10	0,13	0,17	0,24	0,31
3.2	**46**	**55**	0,07	0,09	0,11	0,15	0,21	0,28
3.3	**59**	**70**	0,10	0,11	0,14	0,19	0,27	0,35
3.4	**40**	**50**	0,07	0,09	0,11	0,15	0,21	0,28
3.5	**78**	**95**	0,11	0,13	0,16	0,21	0,30	0,39
3.6	**65**	**80**	0,10	0,11	0,14	0,19	0,27	0,35
3.7	**78**	**95**	0,10	0,11	0,14	0,19	0,27	0,35
3.8	**65**	**80**	0,07	0,09	0,11	0,15	0,21	0,28
4.1								
4.2								
4.3								
4.4								
4.5								
4.6								
4.7								
4.8								
4.9								
4.10								
4.11	100	200	0,09	0,10	0,13	0,17	0,24	0,31
4.12	100	200	0,07	0,09	0,11	0,15	0,21	0,28
4.13								
4.14								
4.15								
4.16								
4.17	240		0,05	0,06	0,08	0,12	0,17	0,22
4.18								
4.19								
5.1								
5.2								
5.3								
5.4								
5.5								
5.6								
5.7								
5.8								
5.9								
5.10								
5.11								
6.1								
6.2								
6.3								
6.4								
6.5								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that must be corrected according to the usage conditions.

Cutting data standard values – WPC - UNI

Index	Drilling depth 8xD UNI Art. No. 11 612 ...			
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.
1.1	90	0,10	0,14	0,18
1.2	110	0,17	0,23	0,29
1.3	90	0,13	0,18	0,23
1.4	70	0,12	0,15	0,20
1.5	80	0,13	0,18	0,23
1.6	70	0,12	0,15	0,20
1.7	70	0,12	0,15	0,20
1.8	55	0,09	0,13	0,16
1.9	80	0,13	0,18	0,23
1.10	55	0,09	0,13	0,16
1.11	45	0,08	0,11	0,14
1.12	55	0,09	0,13	0,16
1.13	55	0,09	0,13	0,16
1.14	45	0,08	0,11	0,14
1.15	45	0,09	0,13	0,16
1.16	45	0,09	0,13	0,16
2.1	45	0,07	0,10	0,13
2.2	40	0,06	0,08	0,11
2.3	45	0,06	0,08	0,10
2.4	30	0,06	0,08	0,10
2.5	25	0,06	0,08	0,10
2.6	40	0,06	0,08	0,11
2.7	25	0,05	0,07	0,09
3.1	80	0,15	0,20	0,25
3.2	55	0,13	0,18	0,23
3.3	70	0,17	0,23	0,29
3.4	50	0,13	0,18	0,23
3.5	95	0,19	0,25	0,32
3.6	80	0,17	0,23	0,29
3.7	95	0,17	0,23	0,29
3.8	80	0,13	0,18	0,23
4.1				
4.2				
4.3				
4.4				
4.5				
4.6				
4.7				
4.8				
4.9				
4.10				
4.11	200	0,17	0,22	0,28
4.12	200	0,15	0,20	0,25
4.13				
4.14				
4.15				
4.16				
4.17				
4.18				
4.19				
5.1				
5.2				
5.3				
5.4				
5.5				
5.6				
5.7				
5.8				
5.9				
5.10				
5.11				
6.1				
6.2				
6.3				
6.4				
6.5				

Recommended application for WPC 8xD

The following application notes should be observed for optimum machining results.

1. For 8xD tools a pilot hole is recommended. The pilot hole can be drilled with the WPC 3xD drills. The tolerance of the 3xD drill (m7) and the tolerance of the 8xD drill (h7) are matched accordingly.

2. Alternatively, with cutting speed and feedrate both reduced by 50% the 8xD tool can drill to a depth of 1×D. Then, with normal feed and speed values continue drilling.
   Note: when accelerating to normal speed, the spindle must not stop for gear changes!

3. The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type! The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Cutting data standard values – solid carbide NC spot drills

	Solid Carbide NC Spot Drills NC-A Art. No. 10 702 ..., 10 703 ...			
Index	v_c in m/min without through coolant	Ø 2–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.
1.1	**80**	0,14	0,2	0,27
1.2	**80**	0,14	0,2	0,27
1.3	**75**	0,14	0,2	0,27
1.4	**70**	0,14	0,2	0,27
1.5	**65**	0,14	0,2	0,27
1.6	**65**	0,1	0,15	0,2
1.7	**65**	0,14	0,2	0,27
1.8	**65**	0,1	0,15	0,2
1.9				
1.10	**65**	0,1	0,15	0,2
1.11	**65**	0,1	0,15	0,2
1.12				
1.13				
1.14				
1.15	**50**	0,1	0,15	0,2
1.16	**50**	0,1	0,15	0,2
2.1	45	0,08	0,13	0,18
2.2	40	0,08	0,13	0,18
2.3	45	0,08	0,13	0,18
2.4	35	0,08	0,13	0,18
2.5	30	0,07	0,10	0,15
2.6	40	0,08	0,13	0,18
2.7	30	0,07	0,10	0,15
3.1	**70**	0,12	0,17	0,22
3.2	**70**	0,1	0,15	0,2
3.3	**70**	0,1	0,15	0,2
3.4	**70**	0,1	0,15	0,2
3.5	**70**	0,1	0,15	0,2
3.6	**70**	0,1	0,15	0,2
3.7	**70**	0,1	0,15	0,2
3.8	**70**	0,1	0,15	0,2
4.1	**200**	0,03	0,07	0,11
4.2	**200**	0,03	0,07	0,11
4.3	**180**	0,03	0,07	0,11
4.4	**160**	0,03	0,07	0,11
4.5	**130**	0,03	0,07	0,11
4.6	**100**	0,02	0,06	0,11
4.7	**120**	0,02	0,06	0,11
4.8				
4.9				
4.10				
4.11	**160**	0,02	0,06	0,11
4.12	**120**	0,02	0,06	0,11
4.13				
4.14				
4.15				
4.16				
4.17				
4.18				
4.19				
5.1				
5.2				
5.3				
5.4				
5.5				
5.6				
5.7				
5.8				
5.9				
5.10				
5.11				
6.1				
6.2				
6.3				
6.4				
6.5				

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type! The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Feed rate f in mm/rev.

Axial offset

The axial run-out of the axis between a rotating work piece and a stationary tool must not exceed 0.04 mm. A larger run-out reduces tool life and drilling quality and can lead to tool breakage.

Run-out

The concentricity error when the tool is rotating should not exceed 0.015 mm.

With internally cooled tools the coolant pressure should be min. 20 bar - see diagram bottom right.
High-quality semi-synthetic or emulsion coolants with min. 10% oil content and EP additives are recommended. This allows better life, and achieves higher tolerance accuracy and better surface quality.
A fine filter system is recommended to prevent possible clogging of the coolant channels.

Drilling into solid

Due to the geometric design of the solid carbide drills, they are suitable for drilling into solid material.
With solid carbide drills ≤ 12xD drilling can be carried out in solid material without the need for centering and spot drilling operations.

Flute run-out

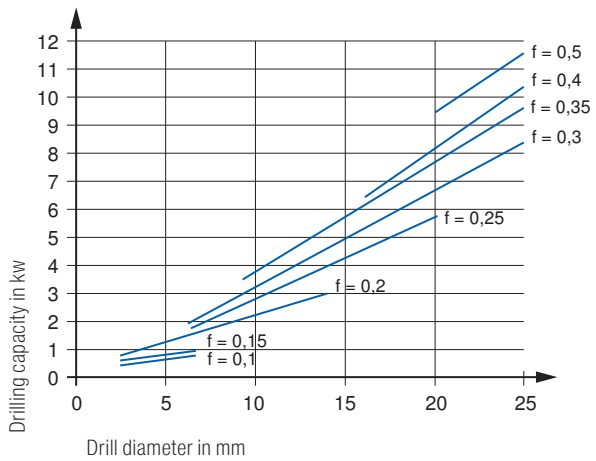
When using WTX drills a safety margin of at least 1 to 1.5xD must be maintained between the work piece and the flute outlet groove of the drill to ensure optimum chip evacuation and prevent chip clogging and tool fracture.

Peck drilling

Pecking should be avoided as there is a very high risk of fracture caused by chips left behind or flushed into the hole.

Important application criteria for WTX drills

Drilling capacity relative to the diameter: v_c = 80 m/min.
Tensile strength of the material = 600 N/mm²



Secondary tools

If a smaller diameter WTX drill is used as a following tool in the same hole, it should have a smaller drill point angle to ensure that it centres properly.

Interrupted Cuts

Reduce the feedrate on entry to and from cross holes.

Drill exit

To avoid severe burr formation, reduce v_c and f.

Workpiece clamping

To avoid tool breakages, care must be taken to ensure a proper workpiece clamping without vibration or workpiece deflection.

Tool holding

With optimum clamping high alignment accuracy and tolerances (IT7-8) are possible.
Due to the high surface quality reaming operations can often be dispensed with.

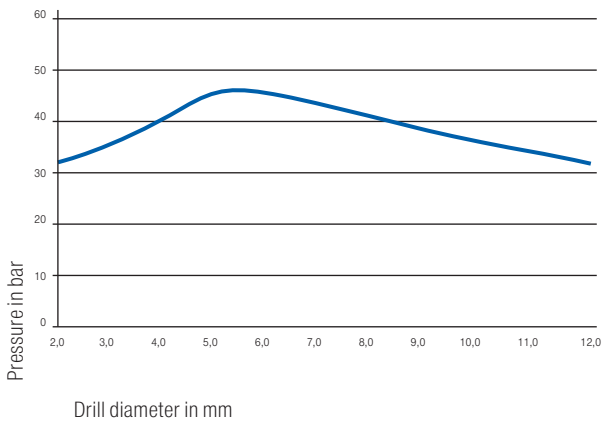
Machine Requirements

Please note the performance diagram (below left).

Cutting data table

To control the chip length (comma chip) the feed rates should be no lower than the lower limits quoted in the cutting data table.

Coolant pressure



Recommendations for solid carbide drilling operations

Reasons for ...	Solutions ...
... Built-up edge	
v_c too low Too much material taken off at main cutting edge Uncoated cutting edge	Increase v_c Reduce cut Coating
... Corners broken off	
Unstable conditions Run out too high Interrupted cut	Change clamping Optimize radial run-out Reduce feed rate
... Heavy flank wear	
v_c too low Feed rate too low Clearance angle too small	Reduce v_c Increase feed rate Increase clearance angle
... Scoring on the tool flanks	
Unstable conditions Run out too high Interrupted cut Abrasive materials	Change clamping Correct radial run-out Reduce feed rate Thicker emulsion or oil
... Round chamfer wear	
Unstable conditions Run out too high Back taper too small Wrong emulsion or too thin emulsion	More stable clamping Check radial run-out Increase back taper Thicker emulsion or oil
... Material broken off at main cutting edge	
Unstable conditions Interrupted cut Wrong type of tool Max. tool life has been exceeded	More stable clamping Reduce feed rate Optimize tool Change tool earlier
... Heavy wear at chisel edge	
v_c too low Feed rate too high Too much material taken off at main cutting edge	Increase v_c Reduce feed rate Optimize cutting edge
... Material broken off at intersections, drill point and main cutting edge	
Clearance angle too small Too much material taken off at main cutting edge Wrong tool	Increase clearance angle Optimize cutting edge Other tool
... Plastic deformation of cutting corner	
v_c too high Insufficient emulsion Wrong or no corner chamfer	Reduce v_c Increase amount of coolant Correct corner chamfer
... Poor surface quality	
Run out too high Insufficient cooling Unstable conditions	Check radial run-out More emulsion Change toolholding
... Heavy burring on hole exit	
Feed rate too high Excessive honing of main cutting edge	Reduce feed rate Reduce cutting edge

Type overview – WTX High performance drilling tools

- Good self-centring
- Optimum swarf control
- Precise radial run-out
- Excellent alignment precision
- High-quality surface finish
- Close drilling tolerances
- Limited hardening of peripheral zones of the material
- Good chip evacuation even with large drilling depths

For all products that are marked with the video icon, a relevant product video can be viewed at **www.wnt.com/uk/type-overview-wtx/**

UNI

- High-performance solid carbide drill for universal application, for all materials up to 1200 N/mm²

180

- for inclined surfaces up to 45 ° and flat bottom holes

MINI

- solid carbide micro drill for the precise manufacture of very small holes from Ø 0.1 to 2.9 mm

Highlights

- Universal reamers for flexible production
- HSS-E ideal for adverse conditions
- Solid carbide reamers for large and medium volume production
- Extremely irregular pitch
- Excellent surface finish

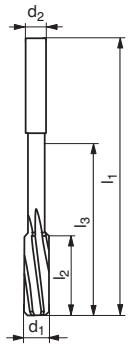
Reamers overview

	Tool steel	Material I Coating	Diameter in mm Ø d_1	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	coated ■	uncoated □	WNT MASTERTOOL PERFORMANCE	WNT MASTERTOOL STANDARD	Pages
HSS – Reamers														
≤ Ø 3,75 / ≥ Ø 3,76	NC 100		0,95–12,0	●	○	●	●	○			□			45
≤ Ø 3,75 / ≥ Ø 3,76	N 100		0,95–12,0	●	○	●	●	○			□			46+47
	AR		4,0–12,0	●	○	●	●	○			□			48
	AR 100		3,76–12,0	●	○	●	●	○			□			49
Solid carbide – Reamers														
< Ø 0,95 / ≤ Ø 3,75	NC 100		0,59–12,05	●		●					□			50
> Ø 3,75	NC 100	TiAlN	1,0–12,05	●		○	●	○		■				50

NC machine reamers, DIN 212-3-B

- 0.01 mm steps
- Preferred diameter from Ø 1.0–5.50 mm
  +0.004 / -0.000 mm from Ø 5.51–12.00 mm
  +0.005 / –0.000 mm

NC 100



A
Left Hand Helix
HSS-E

d_1 DC mm	l_1 OAL mm	l_2 L mm	l_3 LU mm	$d_{2\ h6}$ DCONMS mm	Z ZEFP	U2 Article no. 40 115 ... £	
0,95 - 0,99	34	5.5	12.5	1	3	15.64	xxxxx 1)
1,00	34	5.5	12.5	1	3	23.00	01000
1,01	34	5.5	12.5	1	3	23.00	01010
1,02	34	5.5	12.5	1	3	23.00	01020
1,03 - 1,06	34	5.5	12.5	1	3	23.96	xxxxx 1)
1,07 - 1,18	36	6.5	13.0	1	3	23.96	xxxxx 1)
1,19 - 1,32	38	7.5	14.0	2	3	23.96	xxxxx 1)
1,33 - 1,41	40	8.0	15.5	2	3	15.64	xxxxx 1)
1,42 - 1,49	40	8.0	15.5	2	3	23.96	xxxxx 1)
1,50	40	8.0	15.5	2	3	20.20	01500
1,51	43	9.0	16.0	2	3	20.20	01510
1,52	43	9.0	16.0	2	3	20.20	01520
1,53 - 1,70	43	9.0	16.0	2	3	23.96	xxxxx 1)
1,71 - 1,90	46	10.0	19.0	2	4	23.96	xxxxx 1)
1,91 - 1,96	49	11.0	21.0	2	4	23.96	xxxxx 1)
1,97	49	11.0	21.0	2	4	20.20	01970
1,98	49	11.0	21.0	2	4	20.20	01980
1,99	49	11.0	21.0	2	4	20.20	01990
2,00	49	11.0	21.0	2	4	18.97	02000
2,01	49	11.0	21.0	2	4	18.97	02010
2,02	49	11.0	21.0	2	4	18.97	02020
2,03 - 2,12	49	11.0	21.0	2	4	23.96	xxxxx 1)
2,13 - 2,36	53	12.0	22.0	3	4	23.96	xxxxx 1)
2,37 - 2,47	57	14.0	26.0	3	4	23.96	xxxxx 1)
2,48	57	14.0	26.0	3	4	21.74	02480
2,49	57	14.0	26.0	3	4	21.74	02490
2,50	57	14.0	26.0	3	4	18.63	02500
2,51	57	14.0	26.0	3	4	18.63	02510
2,52	57	14.0	26.0	3	4	18.63	02520
2,53 - 2,65	57	14.0	26.0	3	4	23.96	xxxxx 1)
2,66 - 2,96	61	15.0	30.0	3	6	15.64	xxxxx 1)
2,97	61	15.0	30.0	3	6	22.26	02970
2,98	61	15.0	30.0	3	6	22.26	02980
2,99	61	15.0	30.0	3	6	22.26	02990
3,00	61	15.0	30.0	3	6	16.55	03000
3,01	61	15.0	30.0	3	6	16.55	03010
3,02	61	15.0	30.0	3	6	16.55	03020
3,03	61	15.0	30.0	3	6	23.96	03030 1)
3,04 - 3,35	65	16.0	34.0	4	6	23.96	xxxxx 1)
3,36 - 3,75	70	18.0	39.0	4	6	23.96	xxxxx 1)
3,76 - 3,96	75	19.0	44.0	4	6	23.96	xxxxx 1)
3,97	75	19.0	44.0	4	6	18.16	03970
3,98	75	19.0	44.0	4	6	18.16	03980
3,99	75	19.0	44.0	4	6	18.16	03990
4,00	75	19.0	44.0	4	6	18.16	04000
4,01	75	19.0	44.0	4	6	18.16	04010
4,02	75	19.0	44.0	4	6	18.16	04020
4,03 - 4,25	75	19.0	44.0	4	6	23.96	xxxxx 1)
4,26 - 4,75	80	21.0	48.0	5	6	15.64	xxxxx 1)
4,76 - 4,96	86	23.0	54.0	5	6	23.96	xxxxx 1)
4,97	86	23.0	54.0	5	6	19.71	04970
4,98	86	23.0	54.0	5	6	19.71	04980
4,99	86	23.0	54.0	5	6	19.71	04990
5,00	86	23.0	54.0	5	6	19.71	05000
5,01	86	23.0	54.0	5	6	19.71	05010
5,02	86	23.0	54.0	5	6	19.71	05020
5,03 - 5,30	86	23.0	54.0	5	6	23.96	xxxxx 1)
5,31 - 5,60	93	26.0	53.0	6	6	23.96	xxxxx 1)
5,61 - 5,96	93	26.0	53.0	6	6	15.64	xxxxx 1)
5,97	93	26.0	53.0	6	6	21.74	05970
5,98	93	26.0	53.0	6	6	21.74	05980
5,99	93	26.0	53.0	6	6	21.74	05990
6,00	93	26.0	53.0	6	6	21.74	06000
6,01	93	26.0	53.0	6	6	21.74	06010
6,02	93	26.0	53.0	6	6	21.74	06020
6,03	93	26.0	53.0	6	6	23.96	06030 1)
6,04 - 6,70	101	28.0	61.0	6	6	23.96	xxxxx 1)
6,71 - 7,20	109	31.0	69.0	8	6	23.96	xxxxx 1)
7,21 - 7,50	109	31.0	69.0	8	6	15.64	xxxxx 1)
7,51 - 7,96	117	33.0	77.0	8	6	23.96	xxxxx 1)
7,97	117	33.0	77.0	8	6	23.50	07970
7,98	117	33.0	77.0	8	6	23.50	07980
7,99	117	33.0	77.0	8	6	23.50	07990
8,00	117	33.0	77.0	8	6	23.50	08000
8,01	117	33.0	77.0	8	6	23.50	08010
8,02	117	33.0	77.0	8	6	23.50	08020
8,03 - 8,20	117	33.0	77.0	8	6	31.91	xxxxx 1)
8,21 - 8,50	117	33.0	77.0	8	6	31.91	xxxxx 1)
8,51 - 8,99	125	36.0	81.0	10	6	31.91	xxxxx 1)
9,00	125	36.0	81.0	10	6	29.68	09000
9,01	125	36.0	81.0	10	6	29.68	09010
9,02	125	36.0	81.0	10	6	29.68	09020
9,03 - 9,20	125	36.0	81.0	10	6	31.91	xxxxx 1)
9,21 - 9,50	125	36.0	81.0	10	6	21.03	xxxxx 1)
9,51 - 9,96	133	38.0	89.0	10	6	31.91	xxxxx 1)
9,97	133	38.0	89.0	10	6	29.68	09970
9,98	133	38.0	89.0	10	6	29.68	09980
9,99	133	38.0	89.0	10	6	29.68	09990
10,00	133	38.0	89.0	10	6	29.68	10000
10,01	133	38.0	89.0	10	6	29.68	10010
10,02	133	38.0	89.0	10	6	29.68	10020
10,03 - 10,20	133	38.0	89.0	10	6	47.83	xxxxx 1)
10,21 - 10,60	133	38.0	89.0	10	6	47.83	xxxxx 1)
10,61 - 11,20	142	41.0	98.0	10	6	31.06	xxxxx 1)
11,21 - 11,80	142	41.0	98.0	10	6	47.83	xxxxx 1)
11,81 - 11,96	151	44.0	106.0	10	6	31.06	xxxxx 1)
11,97	151	44.0	106.0	10	6	42.62	11970
11,98	151	44.0	106.0	10	6	42.62	11980
11,99	151	44.0	106.0	10	6	42.62	11990
12,00	151	44.0	106.0	10	6	42.62	12000

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

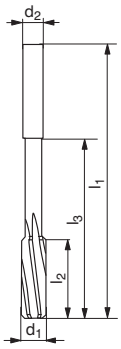
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days / Minimum order 5 pieces

This tool concept permits numerous tolerances.
Please refer to the table on → **page 54** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.02 mm – Article No. 40 115 08020)!

Machine reamers, DIN 212-B

- Manufacturing tolerances:
  Ø 0.95–5.50 mm +0.004 / -0 mm Ø 5.51–12.00 mm +0.005 / –0 mm
- 0.01 mm steps

N 100



Left Hand Helix
HSS-E

d_1 DC mm	l_1 OAL mm	l_2 L mm	l_3 LU mm	$d_{2\ h9}$ DCONMS mm	Z ZEFP	U2 Article no. 40 140 ... £	
0,95 - 1,06	34	5.5	15.0	1.0	3	22.08	xxxxx 1)
1,07 - 1,18	36	6.5	15.5	1.1	3	22.08	xxxxx 1)
1,19 - 1,32	38	7.5	16.5	1.2	3	22.08	xxxxx 1)
1,33 - 1,39	40	8.0	18.0	1.4	3	22.08	xxxxx 1)
1,40 - 1,47	40	8.0	18.0	1.4	3	20.23	xxxxx 1)
1,48	40	8.0	18.0	1.4	3	20.23	01480
1,49	40	8.0	18.0	1.4	3	20.23	01490
1,50	40	8.0	18.0	1.4	3	19.12	01500
1,51 - 1,70	43	9.0	20.0	1.6	3	19.12	xxxxx 1)
1,71 - 1,90	46	10.0	22.0	1.8	4	19.12	xxxxx 1)
1,91 - 1,97	49	11.0	24.0	2.0	4	19.12	xxxxx 1)
1,98	49	11.0	24.0	2.0	4	19.12	01980
1,99	49	11.0	24.0	2.0	4	19.12	01990
2,00	49	11.0	24.0	2.0	4	17.93	02000
2,01	49	11.0	24.0	2.0	4	17.93	02010
2,02	49	11.0	24.0	2.0	4	17.93	02020
2,03	49	11.0	24.0	2.0	4	17.93	02030
2,04	49	11.0	24.0	2.0	4	17.93	02040
2,05	49	11.0	24.0	2.0	4	17.93	02050
2,06 - 2,09	49	11.0	24.0	2.0	4	17.93	xxxxx 1)
2,10 - 2,12	49	11.0	24.0	2.0	4	20.53	xxxxx 1)
2,13 - 2,36	53	12.0	25.0	2.2	4	20.53	xxxxx 1)
2,37 - 2,49	57	14.0	29.0	2.5	4	20.53	xxxxx 1)
2,50 - 2,59	57	14.0	29.0	2.5	4	17.57	xxxxx 1)
2,60 - 2,65	57	14.0	29.0	2.5	4	21.34	xxxxx 1)
2,66 - 2,80	61	15.0	33.0	2.8	6	21.34	xxxxx 1)
2,81 - 2,94	61	15.0	36.0	3.0	6	21.34	xxxxx 1)
2,95	61	15.0	36.0	3.0	6	21.34	02950
2,96	61	15.0	36.0	3.0	6	21.34	02960
2,97	61	15.0	36.0	3.0	6	21.34	02970
2,98	61	15.0	36.0	3.0	6	21.34	02980
2,99	61	15.0	36.0	3.0	6	21.34	02990
3,00	61	15.0	36.0	3.0	6	16.01	03000
3,01	65	16.0	36.0	3.2	6	16.01	03010
3,02	65	16.0	36.0	3.2	6	16.01	03020
3,03	65	16.0	36.0	3.2	6	16.01	03030
3,04	65	16.0	36.0	3.2	6	16.01	03040
3,05	65	16.0	36.0	3.2	6	16.01	03050
3,06	65	16.0	36.0	3.2	6	16.01	03060
3,07	65	16.0	36.0	3.2	6	16.01	03070
3,08 - 3,09	65	16.0	36.0	3.2	6	16.01	xxxxx 1)
3,10 - 3,35	65	16.0	36.0	3.2	6	20.23	xxxxx 1)
3,36 - 3,49	70	18.0	41.0	3.5	6	20.23	xxxxx 1)
3,50 - 3,59	70	18.0	41.0	3.5	6	17.57	xxxxx 1)
3,60 - 3,75	70	18.0	41.0	3.5	6	22.50	xxxxx 1)
3,76 - 3,81	75	19.0	44.0	4.0	6	22.50	xxxxx 1)
3,82 - 3,94	75	19.0	44.0	4.0	6	17.13	xxxxx 1)
3,95	75	19.0	44.0	4.0	6	17.13	03950
3,96	75	19.0	44.0	4.0	6	17.13	03960
3,97	75	19.0	44.0	4.0	6	17.13	03970
3,98	75	19.0	44.0	4.0	6	17.13	03980
3,99	75	19.0	44.0	4.0	6	17.13	03990
4,00	75	19.0	44.0	4.0	6	17.13	04000
4,01	75	19.0	44.0	4.0	6	17.13	04010
4,02	75	19.0	44.0	4.0	6	17.13	04020
4,03	75	19.0	44.0	4.0	6	17.13	04030
4,04	75	19.0	44.0	4.0	6	17.13	04040
4,05	75	19.0	44.0	4.0	6	17.13	04050
4,06	75	19.0	44.0	4.0	6	17.13	04060
4,07	75	19.0	44.0	4.0	6	17.13	04070
4,08	75	19.0	44.0	4.0	6	17.13	04080
4,09 - 4,20	75	19.0	44.0	4.0	6	17.13	xxxxx 1)
4,21 - 4,25	75	19.0	44.0	4.0	6	21.00	xxxxx 1)
4,26 - 4,75	80	21.0	48.0	4.5	5	21.00	xxxxx 1)
4,76 - 4,95	86	23.0	53.0	5.0	6	18.66	xxxxx 1)
4,96	86	23.0	53.0	5.0	6	18.66	04960
4,97	86	23.0	53.0	5.0	6	18.66	04970
4,98	86	23.0	53.0	5.0	6	18.66	04980
4,99	86	23.0	53.0	5.0	6	18.66	04990
5,00	86	23.0	53.0	5.0	6	18.66	05000
5,01	86	23.0	53.0	5.0	6	18.66	05010
5,02	86	23.0	53.0	5.0	6	18.66	05020
5,03	86	23.0	53.0	5.0	6	18.66	05030
5,04	86	23.0	53.0	5.0	6	18.66	05040
5,05	86	23.0	53.0	5.0	6	18.66	05050
5,06	86	23.0	53.0	5.0	6	18.66	05060
5,07	86	23.0	53.0	5.0	6	18.66	05070
5,08 - 5,20	86	23.0	53.0	5.0	6	18.66	xxxxx 1)
5,21 - 5,30	86	23.0	53.0	5.0	6	20.53	xxxxx 1)
5,31 - 5,94	93	26.0	58.0	5.6	6	20.53	xxxxx 1)
5,95	93	26.0	58.0	5.6	6	20.53	05950
5,96	93	26.0	58.0	5.6	6	20.53	05960
5,97	93	26.0	58.0	5.6	6	20.53	05970
5,98	93	26.0	58.0	5.6	6	20.53	05980
5,99	93	26.0	58.0	5.6	6	20.53	05990

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

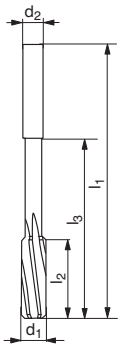
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 54**.
For xxxxx please indicate requested Ø in the order
(e.g. Ø 10.03 mm – Article No. 40 140 10030)!

Machine reamers, DIN 212-B

- Manufacturing tolerances:
  Ø 0.95–5.50 mm +0.004 / -0 mm Ø 5.51–12.00 mm +0.005 / –0 mm
- 0.01 mm steps

N 100



Left Hand Helix
HSS-E

d_1 DC mm	l_1 OAL mm	l_2 L mm	l_3 LU mm	$d_{2\ h9}$ DCONMS mm	Z ZEFP	U2 Article no. 40 140 ... £	
6,00	93	26	58	5.6	6	20.53	06000
6,01	101	28	64	6.3	6	20.53	06010
6,02	101	28	64	6.3	6	20.53	06020
6,03	101	28	64	6.3	6	20.53	06030
6,04	101	28	64	6.3	6	20.53	06040
6,05	101	28	64	6.3	6	20.53	06050
6,06 - 6,11	101	28	64	6.3	6	20.53	xxxxx 1)
6,12 - 6,34	101	28	64	6.3	6	22.50	xxxxx 1)
6,35	101	28	64	6.3	6	22.50	06350
6,36	101	28	64	6.3	6	22.50	06360 1)
6,71 - 6,94	109	31	70	7.1	6	22.50	xxxxx 1)
6,95	109	31	70	7.1	6	22.50	06950
6,96	109	31	70	7.1	6	22.50	06960
6,97	109	31	70	7.1	6	22.50	06970
6,98	109	31	70	7.1	6	22.50	06980
6,99	109	31	70	7.1	6	22.50	06990
7,00	109	31	70	7.1	6	22.50	07000
7,01	109	31	70	7.1	6	22.50	07010
7,02	109	31	70	7.1	6	22.50	07020
7,03	109	31	70	7.1	6	22.50	07030
7,04 - 7,50	109	31	70	7.1	6	22.50	xxxxx 1)
7,51 - 7,63	109	31	76	7.1	6	22.50	xxxxx 1)
7,64 - 7,94	117	33	76	8.0	6	22.50	xxxxx 1)
7,95	117	33	76	8.0	6	22.50	07950
7,96	117	33	76	8.0	6	22.50	07960
7,97	117	33	76	8.0	6	22.50	07970
7,98	117	33	76	8.0	6	22.50	07980
7,99	117	33	76	8.0	6	22.50	07990
8,00	117	33	76	8.0	6	22.50	08000
8,01	117	33	76	8.0	6	22.50	08010
8,02	117	33	76	8.0	6	22.50	08020
8,03	117	33	76	8.0	6	22.50	08030
8,04	117	33	76	8.0	6	22.50	08040
8,05	117	33	76	8.0	6	22.50	08050
8,06 - 8,20	117	33	76	8.0	6	22.50	xxxxx 1)
8,21 - 8,50	117	33	76	8.0	6	28.18	xxxxx 1)
8,51 - 8,63	117	33	82	8.0	6	28.18	xxxxx 1)
8,64 - 8,95	125	36	82	9.0	6	28.18	xxxxx 1)
8,96	125	36	82	9.0	6	28.18	08960
8,97	125	36	82	9.0	6	28.18	08970
8,98	125	36	82	9.0	6	28.18	08980
8,99	125	36	82	9.0	6	28.18	08990
9,00	125	36	82	9.0	6	28.18	09000
9,01	125	36	82	9.0	6	28.18	09010
9,02	125	36	82	9.0	6	28.18	09020
9,03 - 9,50	125	36	82	9.0	6	28.18	xxxxx 1)
9,51 - 9,63	125	36	88	9.0	6	28.18	xxxxx 1)
9,64 - 9,95	133	38	88	10.0	6	28.18	xxxxx 1)
9,96	133	38	88	10.0	6	28.18	09960
9,97	133	38	88	10.0	6	28.18	09970
9,98	133	38	88	10.0	6	28.18	09980
9,99	133	38	88	10.0	6	28.18	09990
10,00	133	38	88	10.0	6	28.18	10000
10,01	133	38	88	10.0	6	28.18	10010
10,02	133	38	88	10.0	6	28.18	10020
10,03	133	38	88	10.0	6	28.18	10030
10,04	133	38	88	10.0	6	28.18	10040
10,05	133	38	88	10.0	6	28.18	10050
10,06 - 10,09	133	38	88	10.0	6	28.18	xxxxx 1)
10,10	133	38	88	10.0	6	28.18	10100
10,11 - 10,19	133	38	88	10.0	6	28.18	xxxxx 1)
10,20	133	38	88	10.0	6	28.18	10200
10,21 - 10,69	133	38	88	10.0	6	35.36	xxxxx 1)
10,70 - 11,20	142	41	97	10.0	6	35.36	xxxxx 1)
11,21 - 11,80	142	41	97	10.0	6	40.35	xxxxx 1)
11,81 - 11,95	151	44	106	10.0	6	40.35	xxxxx 1)
11,96	151	44	106	10.0	6	40.35	11960
11,97	151	44	106	10.0	6	40.35	11970
11,98	151	44	106	10.0	6	40.35	11980
11,99	151	44	106	10.0	6	40.35	11990
12,00	151	44	106	10.0	6	40.35	12000

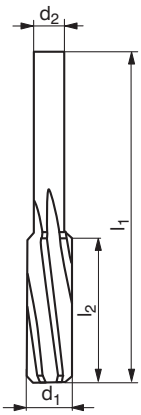
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 54**.
For xxxxx please indicate requested Ø in the order
(e.g. Ø 10.03 mm – Article No. 40 140 10030)!

Stib reamers, DIN 8089-B

AR



Left Hand Helix
HSS-E
Through hole

$d_{1\ H7}$ DC mm	l_1 OAL mm	l_2 L mm	$d_{2\ h8}$ DCONMS mm	Z ZEFP	U2 Article no. 40 145 ... £	
4.0	56	20	3.55	6	17.05	**040**
4.5	63	22	4.00	6	19.43	**045**
5.0	63	22	4.00	6	18.66	**050**
5.5	63	22	5.00	6	21.50	**055**
6.0	63	22	5.00	6	18.66	**060**
6.5	63	22	5.00	6	22.74	**065**
7.0	71	25	6.30	6	22.74	**070**
8.0	71	25	6.30	6	22.29	**080**
9.0	71	25	8.00	6	26.34	**090**
10.0	71	25	8.00	6	27.14	**100**
11.0	80	28	10.00	6	37.28	**110**
12.0	80	28	10.00	6	39.69	**120**

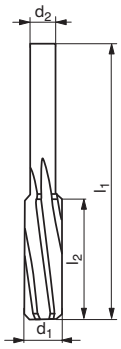
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c Page 53

Stib reamers, DIN 8089-B

- Manufacturing tolerances: from Ø 3.76–5.50 mm +0.004 / –0 mm from Ø 5.51–12.00 mm +0.005 / –0 mm
- 0.01 mm steps

AR 100



Left Hand Helix
HSS-E

d_1 DC mm	l_1 OAL mm	l_2 L mm	$d_{2\ h8}$ DCONMS mm	Z ZEFP	U2 Article no. 40 139 ... £	
3,76 - 3,81	56	20	3.55	6	24.73	xxxxx 1)
3,82 - 3,94	56	20	3.55	6	18.24	xxxxx 1)
3,95	56	20	3.55	6	18.24	03950
3,96	56	20	3.55	6	18.24	03960
3,97	56	20	3.55	6	18.24	03970
3,98	56	20	3.55	6	18.24	03980
3,99	56	20	3.55	6	18.24	03990
4,00	56	20	3.55	6	18.24	04000
4,01	56	20	3.55	6	18.24	04010
4,02	56	20	3.55	6	18.24	04020
4,03 - 4,20	56	20	3.55	6	18.24	xxxxx 1)
4,21 - 4,25	56	20	3.55	6	21.88	xxxxx 1)
4,26 - 4,75	63	22	4.00	6	21.88	xxxxx 1)
4,76 - 4,94	63	22	4.00	6	19.43	xxxxx 1)
4,95	63	22	4.00	6	19.43	04950
4,96	63	22	4.00	6	19.43	04960
4,97	63	22	4.00	6	19.43	04970
4,98	63	22	4.00	6	19.43	04980
4,99	63	22	4.00	6	19.43	04990
5,00	63	22	4.00	6	19.43	05000
5,01	63	22	4.00	6	19.43	05010
5,02	63	22	4.00	6	19.43	05020
5,03	63	22	4.00	6	19.43	05030
5,04	63	22	4.00	6	19.43	05040
5,05	63	22	4.00	6	19.43	05050
5,06 - 5,20	63	22	4.00	6	19.43	xxxxx 1)
5,21 - 5,30	63	22	4.00	6	21.88	xxxxx 1)
5,31 - 5,70	63	22	5.00	6	21.88	xxxxx 1)
5,71 - 5,94	63	22	5.00	6	21.88	xxxxx 1)
5,95	63	22	5.00	6	21.88	05950
5,96	63	22	5.00	6	21.88	05960
5,97	63	22	5.00	6	21.88	05970
5,98	63	22	5.00	6	21.88	05980
5,99	63	22	5.00	6	21.88	05990
6,00	63	22	5.00	6	21.88	06000
6,01	63	22	5.00	6	21.88	06010
6,02	63	22	5.00	6	21.88	06020
6,03 - 6,11	63	22	5.00	6	21.88	xxxxx 1)
6,12 - 6,70	63	22	5.00	6	23.50	xxxxx 1)
6,71 - 6,94	71	25	6.30	6	23.50	xxxxx 1)
6,95	71	25	6.30	6	23.50	06950
6,96	71	25	6.30	6	23.50	06960
6,97	71	25	6.30	6	23.50	06970
6,98	71	25	6.30	6	23.50	06980
6,99	71	25	6.30	6	23.50	06990
7,00	71	25	6.30	6	23.50	07000
7,01	71	25	6.30	6	23.50	07010
7,02	71	25	6.30	6	23.50	07020
7,03 - 7,25	71	25	6.30	6	23.50	xxxxx 1)
7,26 - 7,94	71	25	6.30	6	23.50	xxxxx 1)
7,95	71	25	6.30	6	23.50	07950
7,96	71	25	6.30	6	23.50	07960
7,97	71	25	6.30	6	23.50	07970
7,98	71	25	6.30	6	23.50	07980
7,99	71	25	6.30	6	23.50	07990
8,00	71	25	6.30	6	23.50	08000
8,01	71	25	6.30	6	23.50	08010
8,02	71	25	6.30	6	23.50	08020
8,03	71	25	6.30	6	23.50	08030
8,04	71	25	6.30	6	23.50	08040
8,05 - 8,20	71	25	6.30	6	23.50	xxxxx 1)
8,21 - 8,50	71	25	6.30	6	29.60	xxxxx 1)
8,51 - 8,94	71	25	8.00	6	29.60	xxxxx 1)
8,95	71	25	8.00	6	29.60	08950
8,96	71	25	8.00	6	29.60	08960
8,97	71	25	8.00	6	29.60	08970
8,98	71	25	8.00	6	29.60	08980
8,99	71	25	8.00	6	29.60	08990
9,00	71	25	8.00	6	29.60	09000
9,01	71	25	8.00	6	29.60	09010 1)
9,02	71	25	8.00	6	29.60	09020
9,03 - 9,25	71	25	8.00	6	29.60	xxxxx
9,26 - 9,94	71	25	8.00	6	29.60	xxxxx 1)
9,95	71	25	8.00	6	29.60	09950
9,96	71	25	8.00	6	29.60	09960
9,97	71	25	8.00	6	29.60	09970
9,98	71	25	8.00	6	29.60	09980
9,99	71	25	8.00	6	29.60	09990
10,00	71	25	8.00	6	29.60	10000
10,01	71	25	8.00	6	29.60	10010
10,02	71	25	8.00	6	29.60	10020
10,03 - 10,20	71	25	8.00	6	29.60	xxxxx 1)
10,21 - 10,60	71	25	8.00	6	37.66	xxxxx 1)
10,61 - 11,20	80	28	10.00	6	37.66	xxxxx 1)
11,21 - 11,25	80	28	10.00	6	43.73	xxxxx 1)
11,26 - 11,94	80	28	10.00	6	43.73	xxxxx 1)
11,95	80	28	10.00	6	43.73	11950
11,96	80	28	10.00	6	43.73	11960
11,97	80	28	10.00	6	43.73	11970
11,98	80	28	10.00	6	43.73	11980
11,99	80	28	10.00	6	43.73	11990
12,00	80	28	10.00	6	43.73	12000

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c Page 53

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

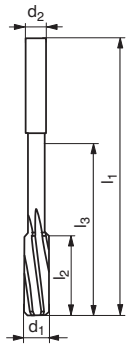
This tool concept covers countless tolerances.
For the tolerances covered, please see the table on → **page** 54
For xxxxx please specify the desired diameter when ordering
(e.g. Ø 3.82 mm – article no. 40 139 03820).

NC machine reamers, DIN 8093-2B

- 0.01 mm steps
- extremely irregular pitch
- Ø 0.6–0.94 mm similar to DIN 8093-B
- Ø 0.95–3.75 mm with centres both ends
- Ø 3.76–12.05 mm with protected centres

NC 100

TiAlN



~HA Left Hand Helix Solid carbide

~HA Left Hand Helix Solid carbide

$d_{1\ +0,004}$ DC mm	l_1 OAL mm	l_2 L mm	l_3 LU mm	$d_{2\ h6}$ DCONMS mm	Z ZEFP	U4 Article no. 40 430 ... £		U4 Article no. 40 431 ... £	
0,59 - 0,64	45	5	7.5	3	4	102.08	xxxxx 2)		
0,65 - 0,74	45	5	7.5	3	4	102.08	xxxxx 2)		
0,75 - 0,84	45	6	8.0	3	4	102.08	xxxxx 2)		
0,85 - 0,95	45	6	8.0	3	4	102.08	xxxxx 2)		
0,96	50	6	17.5	3	3	79.77	00960 2)		
0,97	50	6	17.5	3	3	79.77	00970 2)		
0,98	50	6	17.5	3	3	79.77	00980 1)		
0,99	50	6	17.5	3	3	79.77	00990 1)		
1,00	50	6	17.5	3	3	79.77	01000 1)	121.51	01000 1)
1,01	50	6	17.5	3	3	79.77	01010 1)	121.51	01010 1)
1,02	50	6	17.5	3	3	79.77	01020 1)	121.51	01020 1)
1,03	50	6	17.5	3	3	79.77	01030 1)	121.51	01030 1)
1,04 - 1,06	50	6	17.5	3	3	91.75	xxxxx 1)	121.51	xxxxx 1)
1,07 - 1,18	50	9	17.5	3	3	91.75	xxxxx 1)	121.51	xxxxx 1)
1,19 - 1,32	50	9	17.5	3	3	91.75	xxxxx 1)	121.51	xxxxx 1)
1,33 - 1,50	50	9	18.0	3	3	91.75	xxxxx 1)	121.51	xxxxx 1)
1,51 - 1,70	50	10	18.0	3	3	91.75	xxxxx 1)	121.51	xxxxx 1)
1,71 - 1,90	50	11	18.5	3	4	103.69	xxxxx 1)	121.51	xxxxx 1)
1,91 - 1,97	50	12	18.5	3	4	103.69	xxxxx 1)	121.51	xxxxx 1)
1,98	50	12	18.5	3	4	103.69	01980	137.46	01980
1,99	50	12	18.5	3	4	103.69	01990	137.46	01990
2,00	50	12	18.5	3	4	103.69	02000	137.46	02000
2,01	50	12	18.5	3	4	103.69	02010	137.46	02010
2,02	50	12	18.5	3	4	103.69	02020	137.46	02020
2,03	50	12	18.5	3	4	103.69	02030	137.46	02030
2,04 - 2,12	50	12	18.5	3	4	79.77	xxxxx 1)	121.51	xxxxx 1)
2,13 - 2,36	50	12	18.5	3	4	79.77	xxxxx 1)	121.51	xxxxx 1)
2,37 - 2,47	60	16	29.0	3	4	79.77	xxxxx 1)	121.51	xxxxx 1)
2,48	60	16	29.0	3	4	79.77	02480	105.73	02480
2,49	60	16	29.0	3	4	79.77	02490	105.73	02490
2,50	60	16	29.0	3	4	79.77	02500	105.73	02500
2,51	60	16	29.0	3	4	79.77	02510	105.73	02510
2,52	60	16	29.0	3	4	79.77	02520	105.73	02520
2,53	60	16	29.0	3	4	79.77	02530	105.73	02530
2,54 - 2,65	60	16	29.0	3	4	79.77	xxxxx 1)	105.73	xxxxx 1)
2,66 - 2,80	65	17	33.0	4	6	79.77	xxxxx 1)	105.73	xxxxx 1)
2,81 - 2,96	65	17	33.0	4	6	79.77	xxxxx 1)	105.73	xxxxx 1)
2,97	65	17	33.0	4	6	68.63	02970	90.97	02970
2,98	65	17	33.0	4	6	68.63	02980	90.97	02980
2,99	65	17	33.0	4	6	68.63	02990	90.97	02990
3,00	65	17	33.0	4	6	59.95	03000	79.46	03000
3,01	65	17	33.0	4	6	68.63	03010	90.97	03010
3,02	65	17	33.0	4	6	68.63	03020	90.97	03020
3,03	65	17	33.0	4	6	68.63	03030	90.97	03030
3,04 - 3,35	65	18	33.0	4	6	91.75	xxxxx 1)	121.51	xxxxx 1)
3,36 - 3,75	75	18	43.0	4	6	91.75	xxxxx 1)	121.51	xxxxx 1)
3,76 - 3,96	75	19	43.0	4	6	91.75	xxxxx 1)	121.51	xxxxx 1)
3,97	75	19	43.0	4	6	80.45	03970	106.57	03970
3,98	75	19	43.0	4	6	80.45	03980	106.57	03980
3,99	75	19	43.0	4	6	80.45	03990	106.57	03990
4,00	75	19	43.0	4	6	71.79	04000	95.08	04000
4,01	75	19	43.0	4	6	80.45	04010	106.57	04010
4,02	75	19	43.0	4	6	80.45	04020	106.57	04020
4,03	75	19	43.0	4	6	80.45	04030	106.57	04030
4,04 - 4,25	75	19	43.0	4	6	99.71	xxxxx 1)	132.16	xxxxx 1)
4,26 - 4,75	80	21	39.0	6	6	99.71	xxxxx 1)	132.16	xxxxx 1)
4,76 - 4,96	93	23	52.0	6	6	99.71	xxxxx 1)	132.16	xxxxx 1)
4,97	93	23	52.0	6	6	88.34	04970	117.05	04970
4,98	93	23	52.0	6	6	88.34	04980	117.05	04980
4,99	93	23	52.0	6	6	88.34	04990	117.05	04990
5,00	93	23	52.0	6	6	80.45	05000	106.57	05000
5,01	93	23	52.0	6	6	88.34	05010	117.05	05010
5,02	93	23	52.0	6	6	88.34	05020	117.05	05020
5,03	93	23	52.0	6	6	88.34	05030	117.05	05030
5,04 - 5,30	93	23	52.0	6	6	107.67	xxxxx 1)	142.61	xxxxx 1)
5,31 - 5,96	93	26	53.0	6	6	107.67	xxxxx 1)	142.61	xxxxx 1)
5,97	93	26	53.0	6	6	96.20	05970	127.51	05970
5,98	93	26	53.0	6	6	96.20	05980	127.51	05980
5,99	93	26	53.0	6	6	96.20	05990	127.51	05990
6,00	93	26	53.0	6	6	86.74	06000	115.00	06000
6,01	93	26	53.0	6	6	96.20	06010	127.51	06010
6,02	93	26	53.0	6	6	96.20	06020	127.51	06020
6,03	93	26	53.0	6	6	96.20	06030	127.51	06030
6,04 - 6,70	101	28	61.0	6	6	131.62	xxxxx 1)	174.37	xxxxx 1)
6,71 - 7,50	109	31	68.0	8	6	131.62	xxxxx 1)	174.37	xxxxx 1)
7,51 - 7,96	117	33	77.0	8	6	131.62	xxxxx 1)	174.37	xxxxx 1)
7,97	117	33	77.0	8	6	119.87	07970	158.92	07970
7,98	117	33	77.0	8	6	119.87	07980	158.92	07980
7,99	117	33	77.0	8	6	119.87	07990	158.92	07990
8,00	117	33	77.0	8	6	112.02	08000	148.27	08000
8,01	117	33	77.0	8	6	119.87	08010	158.92	08010
8,02	117	33	77.0	8	6	119.87	08020	158.92	08020
8,03	117	33	77.0	8	6	119.87	08030	158.92	08030
8,04	117	33	77.0	8	6	119.87	08040	158.92	08040
8,05 - 8,50	117	33	77.0	8	6	147.57	xxxxx 1)	195.48	xxxxx 1)
8,51 - 9,04	125	36	80.0	10	6	147.57	xxxxx 1)	195.48	xxxxx 1)
9,05 - 9,50	125	36	80.0	10	6	147.57	xxxxx 1)	195.48	xxxxx 1)
9,51 - 9,96	133	38	88.0	10	6	147.57	xxxxx 1)	195.48	xxxxx 1)
9,97	133	38	88.0	10	6	140.41	09970	185.36	09970
9,98	133	38	88.0	10	6	140.41	09980	185.36	09980
9,99	133	38	88.0	10	6	140.41	09990	185.36	09990
10,00	133	38	88.0	10	6	130.94	10000	173.34	10000
10,01	133	38	88.0	10	6	140.41	10010	185.36	10010
10,02	133	38	88.0	10	6	140.41	10020	185.36	10020
10,03	133	38	88.0	10	6	140.41	10030	185.36	10030
10,04	133	38	88.0	10	6	140.41	10040	185.36	10040
10,05	133	38	88.0	10	6	140.41	10050	185.36	10050
10,06 - 10,60	133	38	88.0	10	6	175.49	xxxxx 1)	232.55	xxxxx 1)
10,61 - 11,80	142	41	97.0	10	6	175.49	xxxxx 1)	232.55	xxxxx 1)
11,81 - 11,96	151	44	100.0	12	6	175.49	xxxxx 1)	232.55	xxxxx 1)
11,97	151	44	100.0	12	6	168.79	11970	223.11	11970
11,98	151	44	100.0	12	6	168.79	11980	223.11	11980
11,99	151	44	100.0	12	6	168.79	11990	223.11	11990
12,00	151	44	100.0	12	6	159.38	12000	211.10	12000
12,01	151	44	100.0	12	6	168.79	12010	223.11	12010
12,02	151	44	100.0	12	6	168.79	12020	223.11	12020
12,03	151	44	100.0	12	6	168.79	12030	223.11	12030
12,04	151	44	100.0	12	6	168.79	12040	223.11	12040
12,05	151	44	100.0	12	6	168.79	12050	223.11	12050

Steel	●	●
Stainless steel		
Cast iron	○	●
Non ferrous metals	●	
Heat resistant alloys	○	
hardened materials		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days / Minimum order 3 pieces

This tool concept permits numerous tolerances.
Please refer to the table on → **page 54** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.02 mm – Article No. 40 430 08020)!

Material examples referring to the WNT cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5% Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0,5 - 10% Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10 - 15% Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15% Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data for solid carbide reamer

	40 430 ...			40 430 ... / 40 431 ...									
	uncoated	to Ø 0.94 mm		uncoated	TiAlN	to Ø 5 mm		to Ø 8 mm		to Ø 10 mm		to Ø 12 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	v_c m/min	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
1.1													
1.2	**10–15**	**0,1–0,15**	0,03–0,05	**15–20**	**25–35**	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2	0,15–0,2	0,1–0,2
1.3													
1.4	**8–12**	**0,1–0,15**	0,03–0,05	**12–15**	**20–30**	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2	0,15–0,2	0,1–0,2
1.5	**10–15**	**0,1–0,15**	0,03–0,05	**15–20**	**25–35**	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2	0,15–0,2	0,1–0,2
1.6	**8–12**	**0,1–0,15**	0,03–0,05	**12–15**	**20–30**	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2	0,15–0,2	0,1–0,2
1.7	**10–15**	**0,1–0,15**	0,03–0,05	**15–20**	**25–35**	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2	0,15–0,2	0,1–0,2
1.8	**8–12**	**0,1–0,15**	0,03–0,05	**12–15**	**20–30**	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2	0,15–0,2	0,1–0,2
1.9	**10–15**	**0,1–0,15**	0,03–0,05	**15–20**	**25–35**	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2	0,15–0,2	0,1–0,2
1.10	**8–12**	**0,1–0,15**	0,03–0,05	**12–15**	**20–30**	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2	0,15–0,2	0,1–0,2
1.11													
1.12													
1.13	**6–8**	**0,1–0,15**	0,03–0,05	**8–12**	**12–20**	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2	0,15–0,2	0,1–0,2
1.14													
1.15													
1.16													
2.1													
2.2													
2.3													
2.4													
2.5													
2.6													
2.7													
3.1	**10–15**	0,1–0,15	0,03–0,05	**12–20**	**20–35**	0,1–0,15	0,1	0,15–0,2	0,1–0,2	0,15–0,2	0,1–0,2	0,15–0,3	0,15–0,25
3.2													
3.3	**8–12**	0,1–0,15	0,03–0,05	**12–15**	**20–30**	0,1–0,15	0,1	0,15–0,2	0,1–0,2	0,15–0,2	0,1–0,2	0,15–0,3	0,15–0,25
3.4	**8–10**	0,1–0,15	0,03–0,05	**10–15**	**15–20**	0,1–0,15	0,1	0,15–0,2	0,1–0,2	0,15–0,2	0,1–0,2	0,15–0,3	0,15–0,25
3.5													
3.6	**10–15**	0,1–0,15	0,03–0,05	**12–20**	**20–35**	0,1–0,15	0,1	0,15–0,2	0,1–0,2	0,15–0,2	0,1–0,2	0,15–0,3	0,15–0,25
3.7													
3.8													
4.1													
4.2	**10–30**	0,12–0,16	0,03–0,05	**20–60**		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,25	0,15–0,2
4.3													
4.4	**10–15**	0,12–0,16	0,03–0,05	**20–30**		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,25	0,15–0,2
4.5													
4.6	**10–30**	0,12–0,16	0,03–0,05	**20–80**		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,3	0,15–0,2
4.7	**10–25**	0,12–0,16	0,03–0,05	**25–60**		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,3	0,15–0,2
4.8													
4.9	**8–15**	0,12–0,16	0,03–0,05	**15–30**		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,3	0,15–0,2
4.10													
4.11													
4.12	**10–25**	0,12–0,16	0,03–0,05	**20–50**		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,3	0,15–0,2
4.13													
4.14													
4.15	**6–10**	0,12–0,16	0,03–0,05	**10–15**		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,3	0,15–0,2
4.16	**6–10**	0,06–0,1	0,03–0,05	**15–20**		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1	0,15–0,2	0,15
4.17	**5–10**	0,06–0,1	0,03–0,05	**10–20**		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1	0,15–0,2	0,15
4.18	**5–8**	0,06–0,1	0,03–0,05	**7–12**		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1	0,15–0,2	0,15
4.19	**5–8**												
5.1													
5.2	8–12	0,06–0,1	0,03–0,05	10–20		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1	0,15–0,2	0,15
5.3													
5.4													
5.5				8–10		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1	0,15–0,2	0,15
5.6	5–8	0,06–0,1	0,03–0,05										
5.7				6–10		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1	0,15–0,2	0,15
5.8	3–5	0,06–0,1	0,03–0,05	5–8		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1	0,15–0,2	0,15
5.9	5–8	0,06–0,1	0,03–0,05	6–10		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1	0,15–0,2	0,15
5.10													
5.11	3–5	0,06–0,1	0,03–0,05	6–8		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1	0,15–0,2	0,15
6.1													
6.2													
6.3													
6.4													
6.5													

The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data for HSS-E reamers

		40 115 ... / 40 139 ... / 40 140 ... / 40 145 ... / 40 155 ...					
		to Ø 5 mm		to Ø 8 mm		to Ø 12 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
1.1	18	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2
1.2	15	0,1–0,15	0,1	0,2–0,3	0,2–0,3	0,2–0,3	0,2
1.3							
1.4	12	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2
1.5							
1.6							
1.7							
1.8	10	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2
1.9	14	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2
1.10	12	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2
1.11	10	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2
1.12							
1.13							
1.14							
1.15							
1.16							
2.1	10	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2
2.2	8	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2
2.3							
2.4							
2.5							
2.6							
2.7							
3.1	14	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2
3.2							
3.3	12	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2
3.4	10	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2
3.5	12	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2
3.6	10	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2
3.7	12	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2
3.8	10	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2
4.1	20	0,15	0,1	0,2	0,2	0,3	0,2
4.2							
4.3							
4.4	18	0,15	0,1	0,2	0,2	0,3	0,2
4.5	16	0,15	0,1	0,2	0,2	0,3	0,2
4.6	20	0,15	0,1	0,2	0,2	0,3	0,2
4.7							
4.8							
4.9							
4.10							
4.11							
4.12							
4.13	14	0,15	0,1	0,2	0,2	0,3	0,2
4.14							
4.15	10	0,15	0,1	0,2	0,2	0,3	0,2
4.16	22	0,15	0,1	0,2	0,2	0,3	0,2
4.17							
4.18							
4.19							
5.1	6	0,1–0,15	0,1	0,2	0,2	0,25	0,2
5.2							
5.3							
5.4							
5.5	5	0,1–0,15	0,1	0,2	0,2	0,25	0,25
5.6							
5.7							
5.8							
5.9							
5.10	3	0,1	0,1	0,1	0,2	0,12	0,2
5.11							
6.1							
6.2							
6.3							
6.4							
6.5							

The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Tolerance classes covered with 1/100 reamer

The most common tolerance is H7, so most reamers configured for an H7 fit tolerance.
With the 1/100 reamers, increments of 0.01 mm can be covered, but are also suitable for various other dimensions.
For example, a 1/100 reamer diameter 8.02 mm can be used for a 8.0 fit F7.
Other fit sizes shown in the table.

Tolerance zone	Nominal Ø in mm											
	1,0	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	10,0	11,0	12,0
A9				4,29	5,29	6,29	7,30	8,30	9,30	10,30	11,32	12,32
A11	1,31	2,31	3,31	4,32	5,32	6,32	7,35	8,35	9,35	10,35	11,37	12,37
B8				4,15	5,15	6,15	7,16	8,16	9,16	10,16		
B9				4,16	5,16	6,16	7,17	8,17	9,17	10,17	11,18	12,18
B10	1,17	2,17	3,17	4,17	5,17	6,17	7,19	8,19	9,19	10,19	11,20	12,20
B11	1,18	2,18	3,18	4,19	5,19	6,19	7,22	8,22	9,22	10,22	11,23	12,23
C8				4,08	5,08	6,08	7,09	8,09	9,09	10,09	11,11	12,11
C9	1,07	2,07	3,07	4,09	5,09	6,09	7,10	8,10	9,10	10,10	11,12	12,12
C10	1,09	2,09	3,09	4,10	5,10	6,10	7,12	8,12	9,12	10,12	11,14	12,14
C11	1,10	2,10	3,10	4,12	5,12	6,12	7,15	8,15	9,15	10,15	11,18	12,18
D7											11,06	12,06
D8				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
D9				4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
D10	1,05	2,05	3,05	4,06	5,06	6,06	7,08	8,08	9,08	10,08	11,10	12,10
D11	1,06	2,06	3,06	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
E7							7,03	8,03	9,03	10,03	11,04	12,04
E8	1,02	2,02	3,02	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
E9	1,03	2,03	3,03	4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
F7	1,01	2,01	3,01				7,02	8,02	9,02	10,02	11,02	12,02
F8	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
F9	1,02	2,02	3,02	4,03	5,03	6,03	7,03	8,03	9,03	10,03	11,04	12,04
F10				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,07	12,07
G7				4,01	5,01	6,01	7,01	8,01	9,01	10,01		
H7										10,01	11,01	12,01
H8				4,01	5,01	6,01	7,01	8,01	9,01	10,01	11,02	12,02
H9	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
H10	1,03	2,03	3,03	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
H11	1,04	2,04	3,04	4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
H12	1,07	2,07	3,07	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
H13	1,11	2,11	3,11	4,14	5,14	6,14	7,18	8,18	9,18	10,18	11,22	12,22
J6				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS9	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,01	12,01
K8	0,99	1,99	2,99				6,99	7,99	8,99	9,99	10,99	11,99
M6							6,99	7,99	8,99	9,99	10,99	11,99
M7							6,99	7,99	8,99	9,99	10,99	11,99
M8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N6				3,99	4,99	5,99						
N7	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N9	0,98	1,98	2,98	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N10	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,98	11,98
N11	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,97	11,97
P6	0,99	1,99	2,99								10,98	11,98
P7	0,99	1,99	2,99				6,98	7,98	8,98	9,98	10,98	11,98
P8	0,99	1,99	2,99	3,98	4,98	5,98					10,97	11,97
R6							6,98	7,98	8,98	9,98		
R7				3,98	4,98	5,98	6,98	7,98	8,98	9,98	10,97	11,97
S6				3,98	4,98	5,98					10,97	11,97
S7	0,98	1,98	2,98	3,98	4,98	5,98	6,97	7,97	8,97	9,97	10,97	11,97
U6							6,97	7,97	8,97	9,97		
U7				3,97	4,97	5,97	6,97	7,97	8,97	9,97		
X7				3,97	4,97	5,97						
X8	0,97	1,97	2,97				6,96	7,96	8,96	9,96	10,95	11,95
X9	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95		
Z7	0,97	1,97	2,97	3,96	4,96	5,96	6,96	7,96	8,96	9,96	10,95	11,95
Z8	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95	10,94	11,94
Z9				3,95	4,95	5,95						
Z10	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94	10,93	11,93
ZA7	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94		
ZA8							6,94	7,94	8,94	9,94	10,93	11,93
ZB8	0,95	1,95	2,95	3,94	4,94	5,94					10,90	11,90
ZB9	0,95	1,95	2,95	3,94	4,94	5,94	6,92	7,92	8,92	9,92	10,90	11,90

Coatings

HSS drilling

TIN

- Universal PVD-TiN coating
- This all-round grade is suitable for low and medium cutting speeds with limitations for non-ferrous metals

Solid carbide drilling

TiAlN

- TiAlN multilayer coating

DPX 74S

- special TiAlN Nanolayer coating
- maximum application temperature 1000 °C

Ti 700

- TiAlN multilayer coating
- Excellent heat resistance

Ti 800

- AlTiN Nano composite
- applicable up to 1100°C

Reamers

TiAlN

- TiAlN multilayer coating

Drilling

HSS drilling

Solid carbide drilling

Reamers

1

Threading

HSS taps

Circular and Thread Milling

Thread turning

2

Turning

Turning Tools

EcoCut

Grooving Tools

Miniature turning tools

3

Milling

Solid Carbide milling cutters

4

Clamping

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WNT MASTERTOOL
PERFORMANCE

Premium quality tools for high performance.

The premium quality tools from the **WNT Mastertool Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

WNT MASTERTOOL
STANDARD

Quality tools for standard applications.

The quality tools of the **WNT Mastertool Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Overview

Tapping

- For through holes and blind holes
- All common thread types
- Universal application
- Static application
- Rotating application

Thread milling

- Excellent surface qualities
- For through holes and blind holes
- Universal application
- Various diameters with the same pitch

Circular Milling

- Circular milling
- Slot milling
- Multipurpose milling
- Universal application

Thread turning

- Size 11 insert
- Size 16 insert
- Internal and external thread
- Shank cross-section = 8 – 25 mm
- Universal application

Explanation of symbols – Taps

Chamfer form

B 4–5 — Form B (with spiral point, 4 -5 threads per chamfer)

C 2–3 — Form C (without spiral point, 2 - 3 threads per chamfer)

D 4–5 — Form D (without spiral point, 4 - 5 threads per chamfer)

E 1,5–2 — Form E (without spiral point, 1.5 - 2 threads per chamfer)

Helix angle

∢ 42° — Example: helix angle 42°

Tap Material

HSS-E — High-performance high speed steel

Thread types

M — Explanation of the thread types can be found on → **Page 78.**

Tolerances

ISO 2 6H — Explanation of the tolerances can be found on → **Page 70.**

Tensile strength

≤ 1100 N/mm² — Example up to 1100 N/mm²

Explanation of symbols – Circular and thread milling cutters

Version

central internal coolant

lateral internal coolant

VHM — Solid carbide

Thread / Flank angle

M — Explanation of the thread types can be found on → **Page 78.**

55° — Flank angle 55°

60° — Flank angle 60°

Shank

DIN 6535 HA HB

Applications

Full radius slot milling

Slot milling

Multipurpose milling

Chamfering and Deburring

IR/IL — IR = internal right, IL = internal left

● = **Main Application**

○ = Extended application

Explanation of symbols – Thread turning

Flank angle

55° — Flank angle 55°

60° — Flank angle 60°

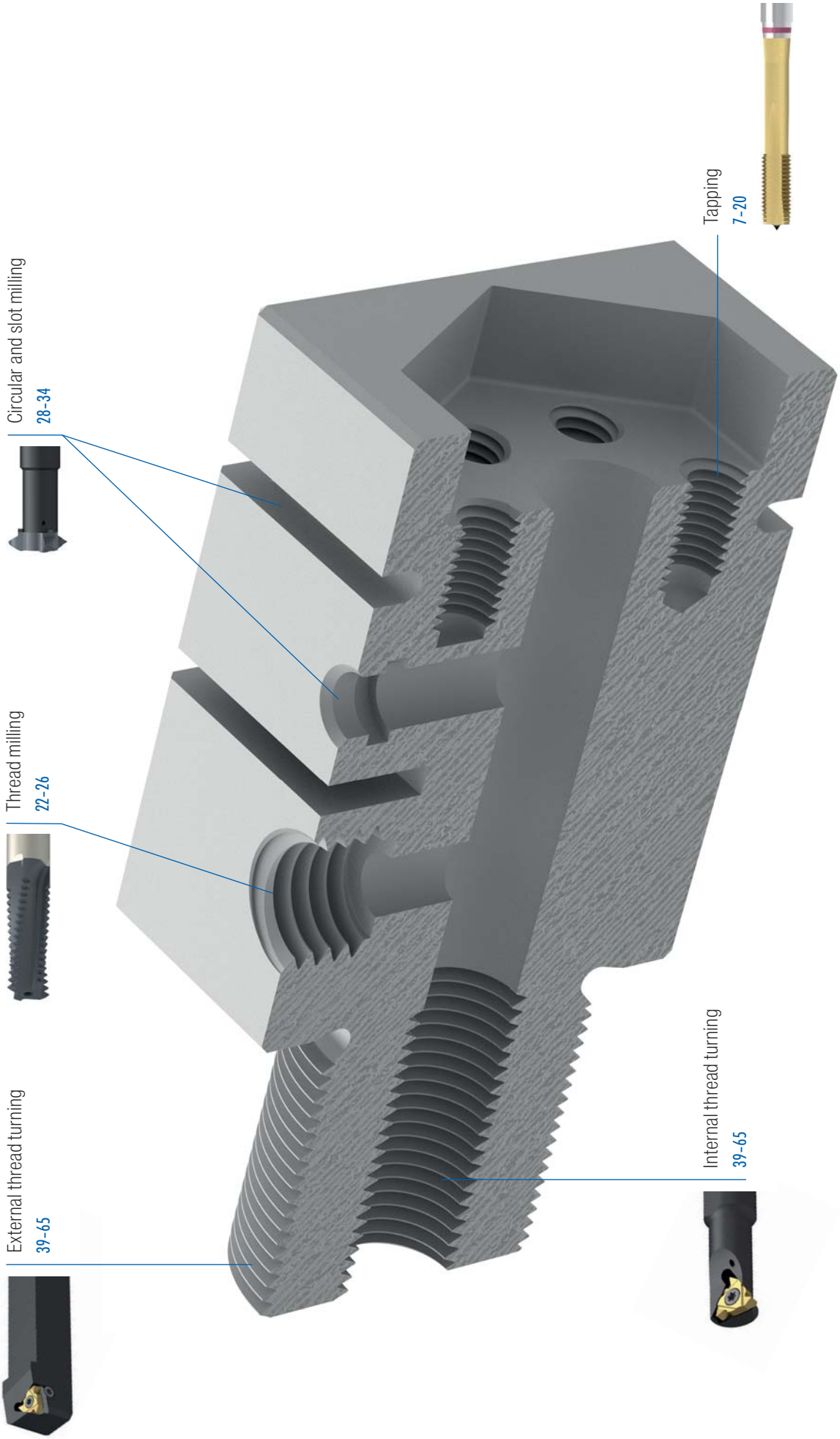
Threading

M — Explanation of the thread types can be found on → **Page 78.**

● = **Main Application**

○ = Extended application

WNT Toolfinder



Highlights

- All common thread types
  All component requirements can be covered
- Universal application
  Can be used on many materials
- Specially adapted and optimised cutting edge finish
  Low cutting force
- Tailored coating system
  Ideal for thread cutting
- From M1 thread size

Taps Overview

	Thread type	Application	Tolerance zone	Dimension Ø d_1	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Shank	Coating	Pages
	M		ISO 2 6H	M1 – M12	●	●	●				**DIN 371** with reinforced shank	nitr. + vap.	7
	M		ISO 2 6H	M2 – M10	●	●	●	●			**DIN 371** with reinforced shank	TiN	7
	M		ISO 2 6H	M2 – M12	●	●	●				**DIN 371** with reinforced shank	vap.	8
	M		ISO 2 6H	M2 – M12	●	●	●	●			**DIN 371** with reinforced shank	TiN	8
	MF		ISO 2 6H	M4x0,5 – M10x1	●	●	●				**DIN 371** with reinforced shank	nitr. + vap.	9
	MF		ISO 2 6H	M4x0,5 – M10x1	●	●	●	●			**DIN 371** with reinforced shank	TiN	9
	MF		ISO 2 6H	M4x0,5 – M6x0,5	●	●	●				**DIN 371** with reinforced shank	vap.	10
	MF		ISO 2 6H	M6x0,75 – M12x1,5	●	●	●				**DIN 374** with reduced shank	vap.	10

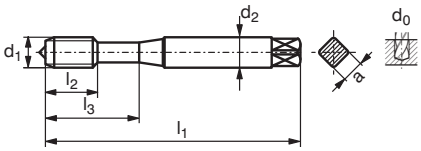
Taps Overview

	Thread type	Application	Tolerance zone	Dimension Ø d_1	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Shank	Coating	Pages
	G		ISO 228	1/8–28 – 1/2–14	●	●	●	●			**DIN 5156** with reduced shank	TiN	11
	G		ISO 228	1/8–28 – 1/2–14	●	●	●				**DIN 5156** with reduced shank	vap.	12
	G		ISO 228	1/8–28 – 1/2–14	●	●	●	●			**DIN 5156** with reduced shank	vap.	12
	UNC		2B	Nr. 2–56 – 3/8–16	●	●	●				**DIN 371** with reinforced shank	nitr. + vap.	13
	UNC		2B	Nr. 2–56 – 3/8–16	●	●	●				**DIN 371** with reinforced shank	vap.	14
	UNF		2B	Nr. 4–48 – 5/16–24	●	●	●				**DIN 371** with reinforced shank	nitr. + vap.	15
	UNF		2B	Nr. 4–48 – 5/16–24	●	●	●				**DIN 371** with reinforced shank	vap.	16
	UNJF		3BX	Nr. 4–48 – 3/8–24	●	●		●	●		**DIN 371** with reinforced shank	TiCN	17
	UNJF		3BX	Nr. 4–48 – 3/8–24	●	●		●	●		**DIN 371** with reinforced shank	TiCN	18
	BSW		med.	1/8–40 – 3/8–16	●	●	●				**DIN 371** with reinforced shank	nitr. + vap.	19
	BSW		med.	1/8–40 – 3/8–16	●	●	●				**DIN 371** with reinforced shank	vap.	20

Further dimensions and taps can be found in our → **main catalogue in Chapter 5 Taps**

Through hole – Machine taps, right hand

M | **Stabil**



DIN 371 with reinforced shank

	UNI	UNI
	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H
	nitr. + vap.	TiN

	HSS-E	HSS-E
	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD
	U0	U0
	Article no. 22 501 ...	Article no. 22 503 ...

d_1 TD	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	l_3 LU mm	Flutes	£		£	
M1	0.25	40	2.5	2.1	0.75	5	13	2	97.77	**010** 1)		
M1,2	0.25	40	2.5	2.1	0.95	5	13	2	94.15	**012** 1)		
M1,4	0.30	40	2.5	2.1	1.10	7	13	3	83.77	**014** 1)		
M1,6	0.35	40	2.5	2.1	1.25	8	11	3	59.41	**016**		
M1,7	0.35	40	2.5	2.1	1.35	6	11	2	90.99	**017**		
M1,8	0.35	40	2.5	2.1	1.45	6	11	2	126.16	**018**		
M2	0.40	45	2.8	2.1	1.60	7	12	2			42.71	**020**
M2	0.40	45	2.8	2.1	1.60	8	8	3	43.72	**020**		
M2,2	0.45	45	2.8	2.1	1.75	7	12	2	45.27	**022**		
M2,5	0.45	50	2.8	2.1	2.05	9	14	2	42.64	**025**		
M3	0.50	56	3.5	2.7	2.50	11	18	3	28.35	**030**	35.20	**030**
M3,5	0.60	56	4.0	3.0	2.90	12	20	3	34.94	**035**		
M4	0.70	63	4.5	3.4	3.30	13	21	3	25.01	**040**	33.72	**040**
M5	0.80	70	6.0	4.9	4.20	15	25	3	26.21	**050**	34.14	**050**
M6	1.00	80	6.0	4.9	5.00	17	30	3	26.21	**060**	41.66	**060**
M7	1.00	80	7.0	5.5	6.00	17	30	3	42.23	**070**		
M8	1.25	90	8.0	6.2	6.80	20	35	3	31.04	**080**	45.48	**080**
M10	1.50	100	10.0	8.0	8.50	22	39	3	37.23	**100**	67.99	**100**
M12	1.75	110	12.0	9.0	10.20	24	44	3	51.62	**120**		

Steel	**6-20**	**6-25**
Stainless steel	**4-8**	**5-10**
Cast iron	**6-15**	**10-20**
Non ferrous metals		**12-25**
Heat resistant alloys		
hardened materials		

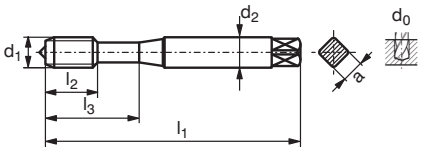
1) Tol. ISO 1 4H ≤ M1.4

Blind hole – Machine taps, right hand

M | Salo-Rex

UNI | C 2–3 | ISO 2 6H | vap.

UNI | C 2–3 | ISO 2 6H | TiN



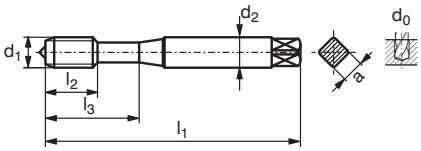
DIN 371 with reinforced shank

									HSS-E		HSS-E	
									◁ 42° ≤ 1100 N/mm² ≤ 3xD		◁ 42° ≤ 1100 N/mm² ≤ 3xD	
									U0		U0	
d_1 TD	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	l_3 LU mm	Flutes	Article no. 22 518 ... £		Article no. 22 520 ... £	
M2	0.40	45	2.8	2.1	1.60	4.0	12	2	34.11	**020**	49.86	**020**
M2,2	0.45	45	2.8	2.1	1.75	4.5	12	2	38.43	**022**		
M2,3	0.40	45	2.8	2.1	1.90	4.5	12	2	41.66	**023**		
M2,5	0.45	50	2.8	2.1	2.05	5.0	15	2	31.98	**025**		
M2,6	0.45	50	2.8	2.1	2.15	5.0	15	2	39.51	**026**		
M3	0.50	56	3.5	2.7	2.50	6.0	18	3	29.17	**030**	35.60	**030**
M3,5	0.60	56	4.0	3.0	2.90	7.0	20	3	31.31	**035**		
M4	0.70	63	4.5	3.4	3.30	7.0	21	3	29.70	**040**	38.04	**040**
M5	0.80	70	6.0	4.9	4.20	8.0	25	3	29.67	**050**	38.96	**050**
M6	1.00	80	6.0	4.9	5.00	10.0	30	3	30.89	**060**	45.82	**060**
M7	1.00	80	7.0	5.5	6.00	10.0	30	3	47.16	**070**		
M8	1.25	90	8.0	6.2	6.80	14.0	35	3	35.08	**080**	50.66	**080**
M10	1.50	100	10.0	8.0	8.50	16.0	39	3	42.99	**100**	60.61	**100**
M12	1.75	110	12.0	9.0	10.20	18.0	44	3	49.18	**120**	75.41	**120**

Steel	**6-20**	**6-25**
Stainless steel	**4-8**	**5-10**
Cast iron	**6-15**	**10-20**
Non ferrous metals		**12-25**
Heat resistant alloys		
hardened materials		

Through hole – Machine taps, right hand

MF | **Stabil**



DIN 371 with reinforced shank

	UNI	UNI
	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H
	nitr. + vap.	TiN

	HSS-E	HSS-E
	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD
	U0	U0
	Article no. 22 590 ...	Article no. 22 550 ...

d_1 TD	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	l_3 LU mm	Flutes	£		£	
M4x0,5	0.50	63	4.5	3.4	3.5	10	21	3	56.95	040	67.18	040
M5x0,5	0.50	70	6.0	4.9	4.5	11	25	3	56.95	050	67.18	050
M6x0,5	0.50	80	6.0	4.9	5.5	13	30	3	61.53	060	83.17	060
M6x0,75	0.75	80	6.0	4.9	5.2	13	30	3	61.53	062	83.17	062
M8x1	1.00	90	8.0	6.2	7.0	17	35	3	59.92	084	79.75	080
M10x1	1.00	90	10.0	8.0	9.0	18	35	4	61.53	102	90.97	100

Steel	6-20	6-25
Stainless steel	4-8	5-10
Cast iron	6-15	10-20
Non ferrous metals		12-25
Heat resistant alloys		
hardened materials		

Blind hole – Machine taps, right hand

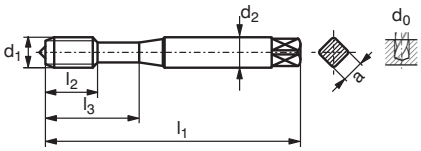
MF | Salo-Rex

UNI

C 2–3

ISO 2 6H

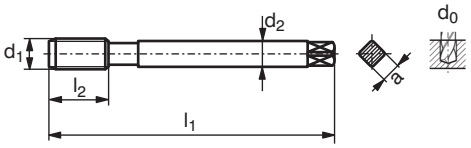
vap.



DIN 371 with reinforced shank

HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

d_1 TD	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	Flutes	U0 Article no. 22 202 ... £	
M4x0,5	0.50	63	4.5	3.4	3.5	5	3	63.28	**040**
M5x0,5	0.50	70	6.0	4.9	4.5	5	3	57.25	**050**
M6x0,75	0.75	80	6.0	4.9	5.2	8	3	63.28	**062**
M6x0,5	0.50	80	6.0	4.9	5.5	5	3	63.28	**060**



DIN 374 with reduced shank

d_1 TD	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	Flutes	U0 Article no. 22 553 ... £	
M6x0,75	0.75	80	4.5	3.4	5.2	8	3	54.81	**062**
M8x0,75	0.75	80	6.0	4.9	7.2	8	3	51.19	**080**
M8x1	1.00	90	6.0	4.9	7.0	10	3	46.40	**082**
M10x0,75	0.75	90	7.0	5.5	9.2	10	4	106.10	**101**
M10x1	1.00	90	7.0	5.5	9.0	10	3	49.57	**100**
M10x1,25	1.25	100	7.0	5.5	8.8	16	3	120.96	**102**
M12x1	1.00	100	9.0	7.0	11.0	11	4	64.48	**120**
M12x1,25	1.25	100	9.0	7.0	10.8	15	4	97.77	**122**
M12x1,5	1.50	100	9.0	7.0	10.5	15	4	60.89	**124**

Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
hardened materials	

Through hole – Machine taps, right hand

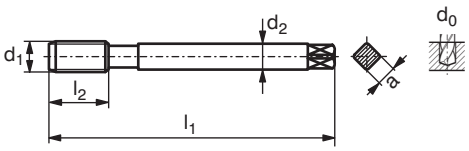
G | Stabil

UNI

B 4–5

ISO 228

TiN



DIN 5156 with reduced shank

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

d_1 TDIN	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	Flutes	U0 Article no. 22 630 ... £	
1/8-28	0.907	90	7	5.5	8.80	18	3	94.45	**012**
1/4-19	1.337	100	11	9.0	11.80	22	3	124.69	**025**
3/8-19	1.337	100	12	9.0	15.25	22	3	144.42	**037**
1/2-14	1.814	125	16	12.0	19.00	25	4	223.16	**050**

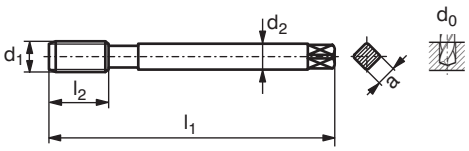
Steel	**6-25**
Stainless steel	**5-10**
Cast iron	**10-20**
Non ferrous metals	**12-25**
Heat resistant alloys	
hardened materials	

Blind hole – Machine taps, right hand

G | Salo-Rex

UNI | C 2–3 | ISO 228 | vap.

UNI | E 1,5–2 | ISO 228 | vap.



DIN 5156 with reduced shank

	HSS-E	HSS-E
	◁ 42° ≤ 1100 N/mm² ≤ 3xD	◁ 42° ≤ 1100 N/mm² ≤ 3xD
	U0	U0
	Article no. 22 633 ...	Article no. 22 635 ...

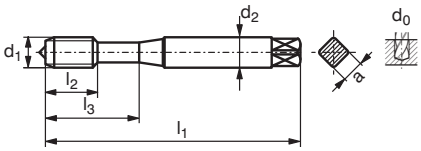
d_1 TDIN	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	Flutes	£		£	
1/8-28	0.907	90	7	5.5	8.80	10	3	57.14	**012**		
1/8-28	0.907	90	7	5.5	8.80	10	4			58.72	**012**
1/4-19	1.337	100	11	9.0	11.80	15	4	81.91	**025**		
1/4-19	1.337	100	11	9.0	11.80	15	5			78.82	**025**
3/8-19	1.337	100	12	9.0	15.25	15	4	99.47	**037**		
3/8-19	1.337	100	12	9.0	15.25	15	5			96.83	**037**
1/2-14	1.814	125	16	12.0	19.00	17	4	131.47	**050**		
1/2-14	1.814	125	16	12.0	19.00	17	5			125.48	**050**

Steel	**6-20**	**6-25**
Stainless steel	**4-8**	**4-10**
Cast iron	**6-15**	**6-20**
Non ferrous metals		**12-25**
Heat resistant alloys		
hardened materials		

Through hole – Machine taps, right hand

UNC | Stabil

UNI | B 4–5 | 2B | nitr. + vap.



DIN 371 with reinforced shank

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

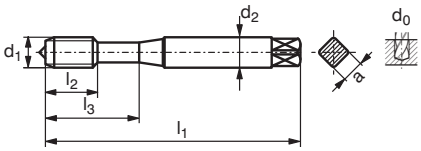
d_1 TDIN mm	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	l_3 LU mm	Flutes	U0 Article no. 22 572 ... £	
Nr. 2-56	0.454	45	2.8	2.1	1.85	7	12	2	76.84	**002**
Nr. 4-40	0.635	56	3.5	2.7	2.35	11	18	2	42.32	**004**
Nr. 6-32	0.794	56	4.0	3.0	2.85	12	20	3	35.90	**006**
Nr. 8-32	0.794	63	4.5	3.4	3.50	13	21	3	36.26	**008**
Nr. 10-24	1.058	70	6.0	4.9	3.90	15	25	3	39.21	**010**
Nr. 12-24	1.058	80	6.0	4.9	4.50	16	30	3	47.41	**012**
1/4-20	1.270	80	7.0	5.5	5.10	17	30	3	41.36	**025**
5/16-18	1.411	90	8.0	6.2	6.60	20	35	3	49.29	**031**
3/8-16	1.588	100	10.0	8.0	8.00	22	39	3	54.40	**037**

Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
hardened materials	

Blind hole – Machine taps, right hand

UNC | Salo-Rex

UNI | C 2–3 | 2B | vap.



DIN 371 with reinforced shank

HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

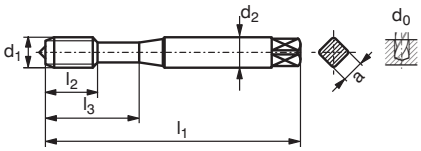
d_1 TDIN mm	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	l_3 LU mm	Flutes	U0 Article no. 22 582 ... £	
Nr. 2-56	0.454	45	2.8	2.1	1.85	4.5	12	2	63.68	**002**
Nr. 4-40	0.635	56	3.5	2.7	2.35	6.0	18	2	37.63	**004**
Nr. 6-32	0.794	56	4.0	3.0	2.85	7.0	20	3	34.55	**006**
Nr. 8-32	0.794	63	4.5	3.4	3.50	8.0	21	3	35.60	**008**
Nr. 10-24	1.058	70	6.0	4.9	3.90	10.0	25	3	37.89	**010**
1/4-20	1.270	80	7.0	5.5	5.10	13.0	30	3	41.13	**025**
5/16-18	1.411	90	8.0	6.2	6.60	14.0	35	3	43.37	**031**
3/8-16	1.588	100	10.0	8.0	8.00	16.0	39	3	47.97	**037**

Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
hardened materials	

Through hole – Machine taps, right hand

UNF | Stabil

UNI | B 4–5 | 2B | nitr. + vap.



DIN 371 with reinforced shank

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD
U0

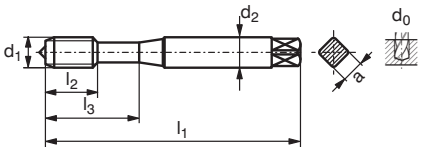
d_1 TDIN mm	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	l_3 LU mm	Flutes	Article no. 22 602 ... £	
Nr. 4-48	0.529	56	3.5	2.7	2.40	11	18	2	50.03	**004**
Nr. 6-40	0.635	56	4.0	3.0	2.95	12	20	3	44.85	**006**
Nr. 8-36	0.706	63	4.5	3.4	3.50	13	21	3	43.72	**008**
Nr. 10-32	0.794	70	6.0	4.9	4.10	15	25	3	44.89	**010**
1/4-28	0.907	80	7.0	5.5	5.50	17	30	3	51.13	**025**
5/16-24	1.058	90	8.0	6.2	6.90	17	35	3	61.53	**031**

Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
hardened materials	

Blind hole – Machine taps, right hand

UNF | Salo-Rex

UNI | C 2–3 | 2B | vap.



DIN 371 with reinforced shank

HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

d_1 TDIN mm	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	l_3 LU mm	Flutes	U0 Article no. 22 606 ... £	
Nr. 4-48	0.529	56	3.5	2.7	2.40	6	18	2	54.28	**004**
Nr. 6-40	0.635	56	4.0	3.0	2.95	7	20	3	41.13	**006**
Nr. 8-36	0.706	63	4.5	3.4	3.50	8	21	3	41.12	**008**
Nr. 10-32	0.794	70	6.0	4.9	4.10	10	25	3	43.37	**010**
1/4-28	0.907	80	7.0	5.5	5.50	10	30	3	46.08	**025**
5/16-24	1.058	90	8.0	6.2	6.90	10	35	3	63.28	**031**

Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
hardened materials	

Through hole – Machine taps, right hand

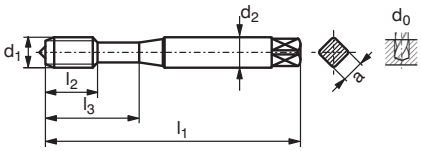
UNJF | DL

Ti

D 4–5

3BX

TiCN



DIN 371 with reinforced shank

HSS-E
15°
≤ 1200 N/mm²
≤ 4xD

d_1 TDIN mm	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	l_2 THL mm	l_3 LU mm	Flutes	U0 Article no. 22 167 ... £	
Nr. 4-48	0.529	56	3.5	2.7	11	18	2	86.78	**004**
Nr. 6-40	0.635	56	4.0	3.0	12	20	3	86.78	**006**
Nr. 8-36	0.705	63	4.5	3.4	13	21	3	86.78	**008**
Nr. 10-32	0.794	70	6.0	4.9	15	25	3	89.73	**010**
1/4-28	0.907	80	7.0	5.5	17	30	3	112.85	**025**
5/16-24	1.058	90	8.0	6.2	17	35	3	119.71	**031**
3/8-24	1.058	90	10.0	8.0	18	35	3	134.62	**037**

Steel	**6-8**
Stainless steel	**4-10**
Cast iron	
Non ferrous metals	**10-12**
Heat resistant alloys	**4-6**
hardened materials	

Blind hole – Machine taps, right hand

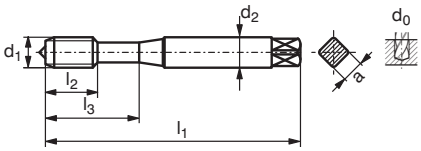
UNJF | SL

Ti

C 2–3

3BX

TiCN



DIN 371 with reinforced shank

HSS-E
15°
≤ 1200 N/mm²
≤ 2xD

d_1 TDIN mm	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	l_3 LU mm	Flutes	U0 Article no. 22 168 ... £	
Nr. 4-48	0.529	56	3.5	2.7	2.40	11	18	2	83.69	**004**
Nr. 6-40	0.635	56	4.0	3.0	3.00	12	20	3	83.69	**006**
Nr. 8-36	0.705	63	4.5	3.4	3.55	13	21	3	83.69	**008**
Nr. 10-32	0.794	70	6.0	4.9	4.15	15	25	3	87.26	**010**
1/4-28	0.907	80	7.0	5.5	5.55	17	30	3	111.50	**025**
5/16-24	1.058	90	8.0	6.2	7.00	17	35	3	118.10	**031**
3/8-24	1.058	90	10.0	8.0	8.60	18	35	3	133.80	**037**

Steel	**6-8**
Stainless steel	**4-10**
Cast iron	
Non ferrous metals	**10-12**
Heat resistant alloys	**4-6**
hardened materials	

Through hole – Machine taps, right hand

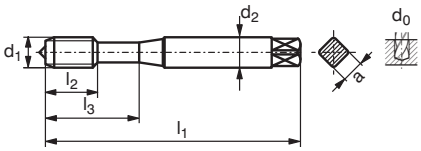
BSW | **Stabil**

UNI

B
4–5

med.

nitr. + vap.



DIN 371 with reinforced shank

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

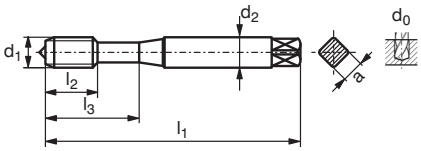
d_1 TDIN	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	l_3 LU mm	Flutes	U0 Article no. 22 626 ...	£
1/8-40	0.635	56	3.5	2.7	2.55	11	18	3	49.59	**012**
3/16-24	1.058	70	6.0	4.9	3.70	15	25	3	49.59	**018**
1/4-20	1.270	80	7.0	5.5	5.10	17	30	3	55.80	**025**
5/16-18	1.411	90	8.0	6.2	6.50	20	35	3	61.74	**031**
3/8-16	1.588	100	10.0	8.0	7.90	22	39	3	67.81	**037**

Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
hardened materials	

Blind hole – Machine taps, right hand

BSW | Salo-Rex

UNI | C 2–3 | med. | vap.



DIN 371 with reinforced shank

HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

d_1 TDIN mm	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	l_3 LU mm	Flutes	U0 Article no. 22 628 ...	£
1/8-40	0.635	56	3.5	2.7	2.55	7	18	3	47.02	**012**
3/16-24	1.058	70	6.0	4.9	3.70	10	25	3	49.84	**018**
1/4-20	1.270	80	7.0	5.5	5.10	13	30	3	53.64	**025**
5/16-18	1.411	90	8.0	6.2	6.50	14	35	3	59.12	**031**
3/8-16	1.588	100	10.0	8.0	7.90	16	39	3	64.64	**037**

Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
hardened materials	

Highlights

- Excellent surface qualities
  Improves thread quality
- Thread forming to the bottom of the hole
  Complete utilisation of the hole
- High process security
  No chip breakage problems
- Reduced cutting pressure
  Ideal for unstable parts

Thread milling cutters overview

	Thread type	Application	Angle	Diameter in mm Ø d_1	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Pitch/thread	Profile type	Coating	Pages WNT MASTERTOOL PERFORMANCE	Pages WNT MASTERTOOL STANDARD
	M	IR/IL	60°	5,8 – 7,8	●	●	●	●	○	○	0,5 – 2,0	Partial profile	CWX 500	22	
	M	IR/IL	60°	1,18 – 4,10	●	●	●	●	○	○	M1,6 – M6	Full profile	CWX 500	22	
	M	IR/IL	60°	2,4 – 11,6	●	●	●	●	●	●	M3 – M14	Full profile	Ti 500		23
	MF	IR/IL	60°	4,0 – 11,6	●	●	●	●	●	●	M5x0,5 – M14x1,5	Full profile	Ti 500		23
	G	IR/IL	55°	8,0 – 16,0	●	●	●	●	●	●	G 1/8 - 28 – G 1/2 - 14	Full profile	Ti 500		23
	BSW	IR/IL	55°	6,0 – 9,9	●	●	●	●	●	●	BSW 5/16 - 18 – BSW 5/8 - 11	Full profile	Ti 500		24
	BSF	IR/IL	55°	6,0 – 9,9	●	●	●	●	●	●	BSF 5/16 - 22 – BSF 5/8 - 14	Full profile	Ti 500		24
	UNC	IR/IL	60°	4,8 – 9,9	●	●	●	●	●	●	UNC 1/4 - 20 – UNC 1/2 - 13	Full profile	Ti 500		24
	UNF	IR/IL	60°	4,8 – 9,9	●	●	●	●	●	●	UNF 1/4 - 28 – UNF 1/2 - 20	Full profile	Ti 500		25
	M	IR/IL	60°	8,0 – 16,0	●	●	●	●	●	●	0,5 - 3,0	Partial profile	Ti 500		26

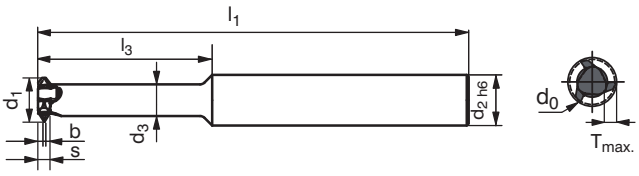
HA / HB

Further dimensions and thread milling cutters can be found in our → **main catalogue in Chapter 6 Circular- and Thread milling cutters**

MicroMill – Solid Carbide Circular Thread Milling Cutter – Partial profile

Micro Mill | IR/IL | 60°

CWX 500



HA

Solid carbide
W1

p mm	d_1 DC mm	s W1 mm	b CW mm	$T_{max.}$ PDPT mm	l_3 LU mm	l_1 OAL mm	d_3 DN mm	$d_{2\ h6}$ DCONMS mm	Z ZEFP	d_0 DAXN mm	Article no. 53 053 ... £	
0,5 - 1,5	5.8	2	0.06	0.91	15.2	58	3.5	6	3	6	58.73	010
0,5 - 1,5	7.8	2	0.06	0.91	25.4	68	5.5	8	3	8	77.77	110
1,0 - 2,0	7.8	2	0.12	1.19	25.4	68	5.0	8	3	8	77.77	120

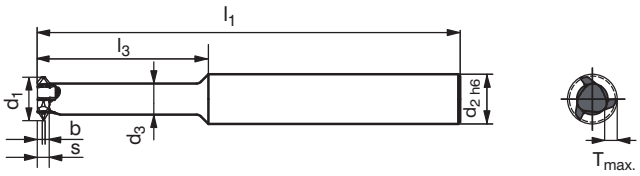
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	●

→ v_c/f_z Page 37

MicroMill – Solid Carbide Circular Thread Milling Cutter – Full profile

Micro Mill | IR/IL | 60° | M

CWX 500



HA

Solid carbide
W1

Thread TD	p TP mm	d_1 DC mm	s W1 mm	b CW mm	$T_{max.}$ PDPT mm	l_3 LU mm	l_1 OAL mm	d_3 DN mm	$d_{2\ h6}$ DCONMS mm	Z ZEFP	Article no. 53 052 ... £	
M1,6	0,35	1.18	0.40	0.04	0.19	4.0	32	0.64	3	3	66.14	160
M1,8	0,35	1.38	0.50	0.04	0.19	5.0	32	0.70	3	3	65.37	180
M2	0,4	1.50	0.56	0.05	0.22	5.0	32	0.90	3	4	72.80	200
M2,5	0,45	1.95	0.60	0.06	0.25	6.0	32	1.15	3	4	72.00	250
M3	0,5	2.40	0.60	0.06	0.27	7.0	32	1.60	3	4	71.35	300
M3,5	0,6	2.80	0.74	0.08	0.33	8.0	32	1.80	3	4	69.79	350
M4	0,7	3.10	0.82	0.09	0.38	9.0	44	1.98	5	4	75.78	400
M5	0,8	3.60	0.98	0.10	0.43	10.0	44	2.20	5	4	73.56	500
M6	1	4.10	0.98	0.13	0.54	12.2	44	2.70	5	4	72.00	600

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	●

→ v_c/f_z Page 37

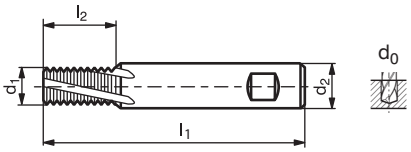
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

Thread milling cutter

- Profile corrected
- Hard machining to Ø d_1 = 4 mm possible

SGF | IR/IL | ≤ 2xD | 60° | M

Ti 500



HB

Solid carbide

d_1 DC mm	Thread TD	p TP mm	l_2 LU mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	Z ZEFP	d_0 mm	W8 Article no. 54 800 ... £	
2.40	M3	0.50	6.5	4	42	2	2.50	83.17	030 1)
3.15	M4	0.70	9.0	6	55	3	3.30	83.17	040 2)
4.00	M5	0.80	11.0	6	55	3	4.20	83.17	050 2)
4.80	M6	1.00	13.0	6	55	3	5.00	83.17	060 2)
6.00	M8	1.25	18.0	6	60	3	6.75	87.32	080
8.00	M10	1.50	21.0	8	70	3	8.50	105.57	100
9.90	M12	1.75	26.0	10	75	4	10.25	127.64	120
11.60	M14	2.00	30.0	12	85	4	12.00	147.80	140

1) DIN 6535 HA Shank / Without Through Coolant
2) Without Through Coolant

60° | MF

d_1 DC mm	Thread TD	p TP mm	l_2 LU mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	Z ZEFP	d_0 mm	W8 Article no. 54 802 ... £	
4.0	M5	0.50	11	6	55	3	4.50	83.17	050 1)
4.8	M6	0.75	13	6	55	3	5.25	83.17	060 1)
6.0	M8	1.00	18	6	60	3	7.00	87.32	080
8.0	M10	1.25	21	8	70	3	8.75	105.57	100
9.9	M12	1.00	26	10	75	4	11.00	127.64	120
9.9	M12	1.25	26	10	75	4	10.75	127.64	121
9.9	M12	1.50	26	10	75	4	10.50	127.64	122
11.6	M14	1.00	30	12	85	4	13.00	147.80	140
11.6	M14	1.50	30	12	85	4	12.50	147.80	141

1) DIN 6535 HA Shank / Without Through Coolant

55° | G

d_1 DC mm	Thread TDIN	p TP mm	l_2 LU mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	Z ZEFP	d_0 DAXN mm	W8 Article no. 54 804 ... £	
8.0	G 1/8 - 28	0.907	21	8	70	3	8.80	119.96	018
9.9	G 1/4 - 19	1.337	26	10	75	4	11.80	135.94	014
14.0	G 3/8 - 19	1.337	40	14	90	4	15.25	158.34	038
16.0	G 1/2 - 14	1.814	42	16	90	4	19.00	191.91	012

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	●

→ v_c/f_z Page 36

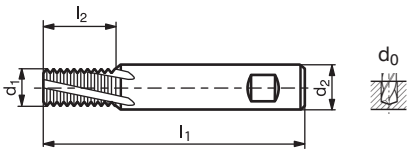
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

Thread milling cutter

- Profile corrected

SGF | IR/IL | ≤ 2xD | 55° | BSW

Ti 500



HB

Solid carbide

d_1 DC mm	Thread TDIN	p TP mm	l_2 LU mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	Z ZEFP	d_0 DAXN mm	W8 Article no. 54 806 ... £	
6.0	BSW 5/16 - 18	1.411	18	6	60	3	6.50	100.76	516
6.0	BSW 3/8 - 16	1.588	18	6	60	3	7.90	102.35	038
8.0	BSW 7/16 - 14	1.814	21	8	70	3	9.25	120.92	716
8.0	BSW 1/2 - 12	2.117	21	8	70	3	10.50	121.03	012
9.9	BSW 5/8 - 11	2.309	26	10	75	4	13.50	141.06	058

55° | BSF

d_1 DC mm	Thread TDIN	p TP mm	l_2 LU mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	Z ZEFP	d_0 DAXN mm	W8 Article no. 54 808 ... £	
6.0	BSF 5/16 - 22	1.155	18	6	60	3	6.80	102.35	516
6.0	BSF 3/8 - 20	1.270	18	6	60	3	8.30	102.35	038
8.0	BSF 7/16 - 18	1.411	21	8	70	3	9.70	120.92	716
8.0	BSF 1/2 - 16	1.588	21	8	70	3	11.10	120.92	012
9.9	BSF 5/8 - 14	1.814	26	10	75	4	14.00	141.06	058

60° | UNC

d_1 DC mm	Thread TDIN	p TP mm	l_2 LU mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	Z ZEFP	d_0 DAXN mm	W8 Article no. 54 810 ... £	
4.80	UNC 1/4 - 20	1.270	13	6	55	3	5.10	97.12	014 [1]
6.00	UNC 5/16 - 18	1.411	18	6	60	3	6.60	115.15	516
7.95	UNC 3/8 - 16	1.588	21	8	70	3	8.00	119.96	038
7.95	UNC 7/16 - 14	1.814	21	8	70	3	9.40	120.92	716
9.90	UNC 1/2 - 13	1.954	26	10	75	4	10.80	139.79	012

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	●

1) DIN 6535 HA Shank / Without Through Coolant

→ v_c/f_z Page 36

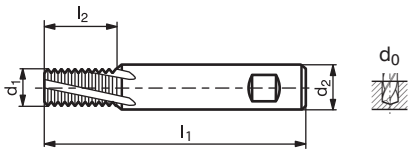
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

Thread milling cutter

- Profile corrected

SGF | IR/IL | ≤ 2xD | 60° | UNF

Ti 500



HB

Solid carbide

d_1 DC mm	Thread TDIN	p TP mm	l_2 LU mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	Z ZEFP	d_0 DAXN mm	W8 Article no. 54 812 ... £	
4.8	UNF 1/4 - 28	0.907	13	6	55	3	5.50	97.12	**014** 1)
6.0	UNF 5/16 - 24	1.058	18	6	60	3	6.90	100.76	**516**
8.0	UNF 3/8 - 24	1.058	21	8	70	3	8.50	121.03	**038**
8.0	UNF 7/16 - 20	1.270	21	8	70	3	9.90	121.03	**716**
9.9	UNF 1/2 - 20	1.270	26	10	75	4	11.50	119.96	**012**

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	●

1) Without Through Coolant

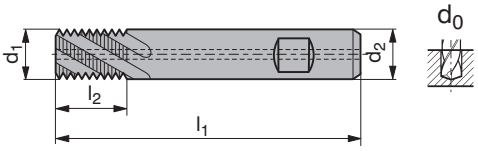
→ v_c/f_z Page 36

When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

Thread milling cutter

SGF | IR/IL | ≤ 2xD | 60° | M

Ti 500



HB

Solid carbide
W8

d_1 DC mm	p TP mm	l_2 LU mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	Z ZEFP	d_0 mm	Article no. 54 832 ... £	
8	0.50	12	8	70	3	10	316.49	008
8	0.75	12	8	70	3	11	316.49	080
10	1.00	16	10	75	4	14	320.21	100
10	1.50	16	10	75	4	14	320.21	101
12	1.00	20	12	85	4	16	390.95	120
12	1.50	20	12	85	4	16	390.95	121
12	2.00	20	12	85	4	18	390.95	122
16	1.00	25	16	90	5	22	528.70	160
16	1.50	25	16	90	5	22	484.02	161
16	2.00	25	16	90	5	22	536.14	162
16	3.00	25	16	90	5	24	543.58	164

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	●

→ v_c/f_z Page 36

When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

Highlights

- Proven 3-rib tooth profile
  Optimised centring
- Short holder made from steel
  Maximum stability
- Three- and six-edged inserts
  Increased flexibility
- Special cross-pitched application
  Minimised vibration

Circular milling cutters overview

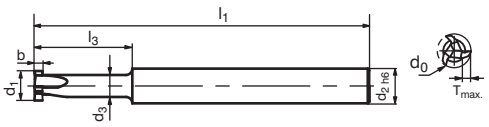
	Application	Special feature	Width	Diameter in mm Ø d_1	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Coating	Pages
			0,7 – 2,0	5,8 – 7,8	●	●	●	●	○	○	CWX 500	28
			2,0 – 3,0	5,8 – 7,8	●	●	●	●	○	○	CWX 500	28
		Cross-pitched	1,5 – 6,0	12 – 37	●	●	●	●	○	○	CWX 500	29
			1,0 – 6,0	10 – 28	●	●	●	●	○	○	CWX 500	30
		For aluminium	2,0 – 3,0	32				●			CWX 500	31
			1,0 – 5,0	12 – 22	●	●	●	●	○	○	CWX 500	31
		15 – 45°	0,2 – 3,0	10 – 28	●	●	●	●	○	○	CWX 500	32
		$T_{max.}$ 12 mm	0,5 – 1,5	37	●	●	●	●	○	○	CWX 500	33
												34

Further dimensions and circular milling cutters can be found in our → **main catalogue in Chapter 6 Circular and thread milling cutters**

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX 500



HA

Solid carbide
W1

d_1 DC mm	$b_{\pm 0,02}$ CW mm	$T_{max.}$ PDPT mm	l_3 LU mm	l_1 OAL mm	d_3 DN mm	$d_{2\ h6}$ DCONMS mm	Z ZEFP	d_0 DAXN mm	Article no. 53 050 ... £	
5.8	0.7	0.8	15.2	58	3.8	6	3	6	56.28	070
	0.8	0.8	15.2	58	3.8	6	3	6	56.28	080
	0.9	0.8	15.2	58	3.8	6	3	6	56.28	090
	1.0	0.8	15.2	58	3.8	6	3	6	56.28	100
	1.5	0.8	15.2	58	3.8	6	3	6	56.28	150
7.8	0.7	1.2	25.4	68	5.0	8	3	8	71.01	170
	0.8	1.2	25.4	68	5.0	8	3	8	71.01	180
	0.9	1.2	25.4	68	5.0	8	3	8	71.01	190
	1.0	1.2	25.4	68	5.0	8	3	8	71.01	200
	1.5	1.2	25.4	68	5.0	8	3	8	71.01	250
	2.0	1.2	25.4	68	5.0	8	3	8	71.01	300

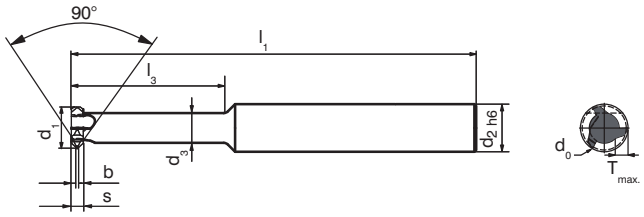
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 37

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX 500



HA

Solid carbide
W1

d_1 DC mm	s W1 mm	b CW mm	$T_{max.}$ PDPT mm	l_3 LU mm	l_1 OAL mm	d_3 DN mm	$d_{2\ h6}$ DCONMS mm	Z ZEFP	d_0 DAXN mm	Article no. 53 051 ... £	
5.8	2	0.2	0.8	15	58	4.2	6	3	6	54.29	010
	2	0.2	0.8	25	68	4.2	6	3	6	68.91	020
7.8	3	0.2	1.2	25	68	5.0	8	3	8	83.65	110
	3	0.2	1.2	35	78	5.0	8	3	8	88.07	120

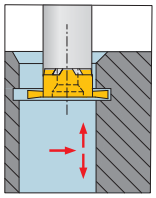
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

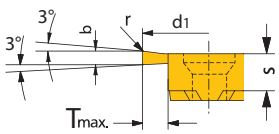
→ v_c/f_z Page 37

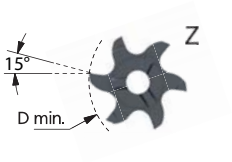
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

MiniMill – Milling insert for groove milling, cross-pitched

Mini Mill | ≥ Ø12 mm | CWX 500







Size	D_{min} DAXN mm	d_1 IC mm	$b_{+0,02}$ CW mm	$T_{max.}$ PDPT mm	s S mm	r RETR mm	Z ZEFP	NEW W2 Article no. 53 015 ... £	
10	12	11.7	1.5	2.0	3.5	0.2	6	52.79	114
	12	11.7	2.0	2.0	3.5	0.2	6	52.79	119
14	16	15.7	1.5	2.5	4.5	0.2	6	53.82	314
	16	15.7	2.0	2.5	4.5	0.2	6	53.82	319
	16	15.7	2.5	2.5	4.5	0.2	6	53.82	324
18	18	17.7	2.0	4.0	5.8	0.2	6	60.03	419
	18	17.7	2.5	4.0	5.8	0.2	6	60.03	424
	18	17.7	3.0	4.0	5.8	0.2	6	60.03	429
	20	19.7	2.0	5.0	5.8	0.2	6	60.03	469
	20	19.7	2.5	5.0	5.8	0.2	6	60.03	474
	20	19.7	3.0	5.0	5.8	0.2	6	60.03	479
22	22	21.7	2.0	4.5	6.2	0.2	6	57.96	820
	22	21.7	2.5	4.5	6.2	0.2	6	57.96	825
	22	21.7	3.0	4.5	6.2	0.2	6	57.96	830
	22	21.7	4.0	4.5	6.2	0.2	6	57.96	840
	37	36.7	1.5	12.0	6.2	0.1	6	75.56	865
	37	36.7	2.0	12.0	6.2	0.2	6	75.56	870
28	25	24.8	2.5	5.0	6.4	0.2	6	66.24	626
	25	24.8	3.0	5.0	6.4	0.2	6	66.24	631
	25	24.8	4.0	5.0	6.4	0.2	6	69.35	641
	25	24.8	5.0	5.0	6.4	0.2	6	72.45	651
	25	24.8	6.0	5.0	6.4	0.2	6	73.49	661
	28	27.7	2.5	6.5	6.2	0.2	6	66.24	726
	28	27.7	3.0	6.5	6.2	0.2	6	66.24	731
	28	27.7	4.0	6.5	6.2	0.2	6	68.31	741
	28	27.7	5.0	6.5	6.2	0.2	6	69.35	751
	28	27.7	6.0	6.5	6.2	0.2	6	69.35	761
	35	34.7	2.0	10.0	6.2	0.2	6	72.45	770
	35	34.7	2.5	10.0	6.2	0.2	6	73.49	775
	35	34.7	3.0	10.0	6.2	0.2	6	73.49	780

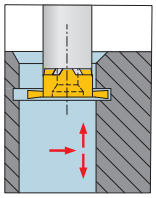
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

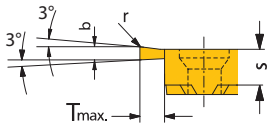
→ v_c/f_z Page 37

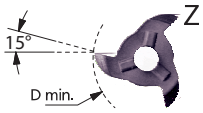
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

MiniMill – Milling insert for groove milling

Mini Mill | ≥ Ø10 mm | CWX 500







Size	D_{min} DAXN mm	$b_{+0,02}$ CW mm	$T_{max.}$ PDPT mm	s S mm	r RETR mm	Z ZEFP	W2 Article no. 53 007 ... £	
10	10	1.0	1.5	3.50		3	62.45	010
	10	1.5	1.5	3.50	0.2	3	55.93	015
	10	2.0	1.5	3.50	0.2	3	55.93	020
	10	2.5	1.5	3.50	0.2	3	55.93	025
	12	1.5	2.0	3.50	0.2	6	56.35	114
	12	1.5	2.5	3.50	0.2	3	55.93	115
	12	2.0	2.0	3.50	0.2	6	56.35	119
	12	2.0	2.5	3.50	0.2	3	55.93	120
	12	2.5	2.5	3.50	0.2	3	55.93	125
14	14	1.0	2.5	4.50		3	63.85	210
	14	1.5	2.5	4.50	0.2	3	58.60	215
	14	2.0	2.5	4.50	0.2	3	58.60	220
	14	2.5	2.5	4.50	0.2	3	58.60	225
	16	1.5	3.5	4.50	0.2	3	58.60	315
	16	2.0	3.5	4.50	0.2	3	58.60	320
	16	2.5	3.5	4.50	0.2	3	58.60	325
18	18	1.5	3.5	5.75	0.1	6	63.79	414
	18	1.5	3.5	5.75	0.2	3	60.02	415
	18	2.0	3.5	5.75	0.2	6	63.79	419
	18	2.0	3.5	5.75	0.2	3	60.02	420
	18	2.5	3.5	5.75	0.2	6	63.79	424
	18	2.5	3.5	5.75	0.2	3	60.02	425
	18	3.0	3.5	5.75	0.2	6	63.79	429
	18	3.0	3.5	5.75	0.2	3	60.02	430
	18	4.0	3.5	5.75	0.2	3	34.84	440
22	22	1.0	4.5	6.20	0.1	6	62.47	810
	22	1.5	4.5	6.20	0.1	6	135.63	815
	22	1.5	4.5	5.70	0.2	3	71.54	515
	22	2.0	4.5	5.70	0.2	3	71.54	520
	22	2.0	4.5	6.20	0.2	6	135.63	820
	22	2.5	4.5	5.70	0.2	3	71.54	525
	22	2.5	4.5	6.20	0.2	6	135.63	825
	22	3.0	4.5	5.70	0.2	3	71.54	530
	22	3.0	4.5	6.20	0.2	6	135.63	830
	22	3.5	4.5	5.70	0.2	3	36.40	535
	22	4.0	4.5	5.70	0.2	3	71.54	540
	22	4.0	4.5	6.20	0.2	6	135.63	840
28	25	2.0	5.0	6.50	0.2	3	71.54	620
	25	2.5	5.0	6.50	0.2	3	71.54	625
	25	3.0	5.0	6.50	0.2	3	71.54	630
	25	3.5	5.0	6.50	0.2	3	71.54	635
	25	4.0	5.0	6.50	0.2	3	71.54	640
	28	1.0	6.5	6.25	0.1	6	69.44	610
	28	1.5	6.5	6.25	0.1	6	68.49	615
	28	1.5	6.5	6.50	0.2	3	71.54	715
	28	2.0	6.5	6.25	0.2	6	69.32	721
	28	2.0	6.5	6.50	0.2	3	71.54	720
	28	2.5	6.5	6.25	0.2	6	70.05	726
	28	2.5	6.5	6.50	0.2	3	71.54	725
	28	3.0	6.5	6.50	0.2	3	71.54	730
	28	3.0	6.5	6.25	0.2	6	70.77	731
	28	3.5	6.5	6.50	0.2	3	71.54	735
	28	4.0	6.5	6.25	0.2	6	72.33	741
	28	4.0	6.5	6.50	0.2	3	71.54	740
	28	5.0	6.5	6.50	0.2	3	41.69	750
	28	6.0	6.5	6.50	0.2	3	42.54	760

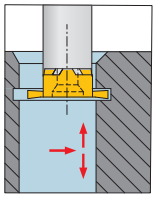
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

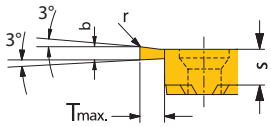
→ v_c/f_z Page 37

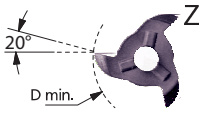
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

MiniMill – Milling insert for groove milling (Specialist for aluminium)

Mini Mill | ≥ Ø32 mm | CWX 500







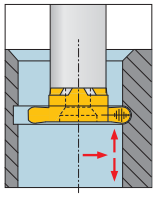
Size	D_{min} DAXN mm	$b_{+0,02}$ CW mm	$T_{max.}$ PDPT mm	s S mm	r RETR mm	Z ZEFP	W2 Article no. 53 007 ... £	
28	32	2.0	8.5	6.5	0.2	3	79.84	920
	32	2.5	8.5	6.5	0.2	3	79.84	925
	32	3.0	8.5	6.5	0.2	3	79.84	930

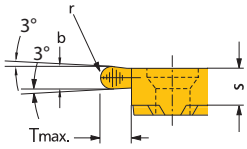
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

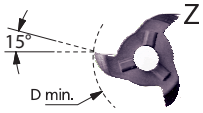
→ v_c/f_z Page 37

MiniMill – Milling insert for groove milling with full radius

Mini Mill | ≥ Ø12 mm | CWX 500







Size	D_{min} DAXN mm	$b_{+0,03}$ CW mm	$T_{max.}$ PDPT mm	s S mm	r RETR mm	Z ZEFP	W2 Article no. 53 008 ... £	
10	12	2.2	2.5	3.50	1.1	3	71.54	011
14	16	2.2	3.5	4.60	1.1	3	72.94	111
18	18	2.2	3.5	5.75	1.1	3	74.21	211
22	22	1.0	4.5	5.75	0.5	3	43.24	305
	22	1.6	4.5	5.75	0.8	3	43.97	308
	22	2.0	4.5	5.75	1.0	3	43.24	310
	22	2.4	4.5	5.75	1.2	3	44.83	312
	22	2.8	4.5	5.75	1.4	3	74.21	314
	22	3.0	4.5	5.75	1.5	3	43.24	315
	22	4.0	4.5	5.75	2.0	3	43.24	320
	22	4.4	4.5	5.75	2.2	3	44.58	322
	22	5.0	4.5	5.75	2.5	3	46.25	325

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

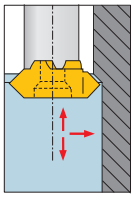
→ v_c/f_z Page 37

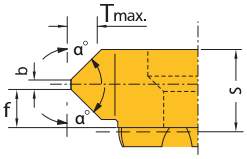
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

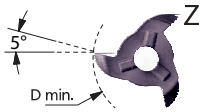
MiniMill – Milling insert for groove milling and chamfering

Mini Mill | ≥ Ø10 mm

CWX 500







Size	D_{min} DAXN mm	$b_{+0,03}$ CW mm	$T_{max.}$ PDPT mm	s S mm	α° KCHL	f PDX mm	Z ZEFP	W2 Article no. 53 009 ... £	
10	10	0.2	0.35	3.60	15	1.80	6	56.71	015
	10	0.2	0.45	3.60	20	1.80	6	56.71	020
	10	0.2	0.70	3.60	30	1.80	6	56.71	030
	10	0.2	1.20	3.60	45	1.80	6	56.71	045
	12	1.2	0.80	3.50	45	1.20	3	48.11	035
14	16	1.4	1.20	4.50	45	1.60	3	49.54	145
18	18	0.2	2.20	5.75	45	3.00	6	62.85	259
	18	2.5	1.40	5.85	45	1.70	3	50.30	258
22	22	0.2	2.50	6.40	45	3.90	6	137.03	463
	22	2.0	1.70	5.85	45	2.00	3	53.36	358
	22	3.0	3.00	9.40	45	3.25	3	55.93	394 [1]
28	28	0.2	1.90	6.05	45	3.75	6	68.36	560

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

1) Use clamping screw 73 082 006

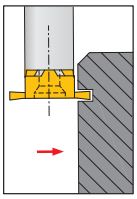
→ v_c/f_z Page 37

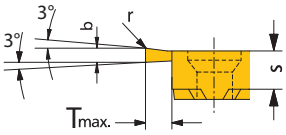
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

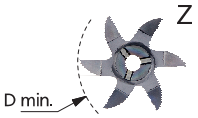
MiniMill – Milling insert for part-off

- $T_{max.}$ = 12,0 mm in combination with holder 53 003 624
- reduce feed rate by 50 %

Mini Mill | ≥ Ø37 mm | CWX 500







Size	D_{min} DAXN mm	$b_{+0,02}$ CW mm	$T_{max.}$ PDPT mm	s S mm	r RETR mm	Z ZEFP	W2 Article no. 53 013 ... £	
22	37	0.5	12	5.6		6	104.79	705 1)
	37	0.6	12	5.7		6	99.23	706 1)
	37	0.8	12	6.0		6	97.91	708 1)
	37	1.0	12	6.2	0.1	6	100.76	710
	37	1.5	12	6.2	0.1	6	85.98	715

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

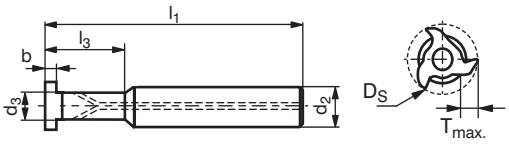
1) The end face is not ground free to the center

→ v_c/f_z Page 37

When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

MiniMill – Circular milling cutter, extra short

- Steel Version



A

Size	$d_{2\ h6}$ DCONMS mm	d_3 BD mm	l_1 OAL mm	l_3 LH mm	Ds DAXN mm	b CW mm	$T_{max.}$ PDPT mm	W1 Article no. 53 004 ... £	
10	10	6.0	60	15.2	9,7 / 11,7	≤3,35	1,4 / 2,5	215.86	015
14	10	8.0	60	17.7	13,7 / 15,7	≤4,35	2,5 / 3,5	215.86	217
	13	8.0	70	25.7	13,7 / 15,7	≤4,35	2,5 / 3,5	221.10	225
18	10	9.0	60	17.0	17,7	≤5,6	3,5	215.86	417
	13	9.0	70	25.0	17,7	≤5,6	3,5	221.10	425
22	10	11.3	60	10.7	21,7	≤9,15	4,5	221.10	610
	13	11.3	70	25.7	21,7	≤9,15	4	228.90	625
28	13	14.0	70	10.7	27,7	≤10	6,5	221.10	810
	20	14.0	100	35.7	27,7	≤10	6,5	228.90	835

When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

Spare parts Size	Y7 Key D Article no. 80 950 ... £		Y5 Clamping screw Article no. 73 082 ... £		Y5 Clamping screw Article no. 73 082 ... £	
10	9.52	110			6.60	002
14	11.15	112			6.60	003
18	11.34	113			6.60	004
22	12.13	114	12.91	006	6.60	005
28	12.13	114			6.60	005

Clamping screw 73 082 006 only for insert 53 009 394

Size	torque values
10	1,0 - 1,5 Nm
14	2,5 - 3,0 Nm
18	4,0 - 4,5 Nm
22 - 28	6,0 - 6,5 Nm

Material examples referring to the WNT cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5% Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0,5 - 10% Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10 - 15% Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15% Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data appoximate values

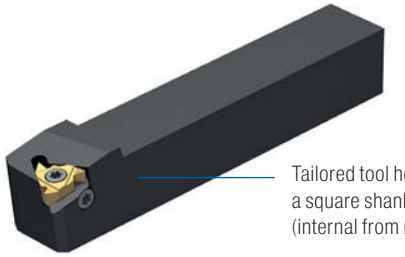
	SFG VHM Ti 500 54 832 ...			SFG VHM Ti 500 54 800 ..., 54 802 ..., 54 804 ..., 54 806 ..., 54 808 ..., 54 810 ..., 54 812 ...			
Index	v_c in m/min	< Ø 8 mm f_z	< Ø 8 mm f_z	v_c in m/min	Ø 2,4 + 3,15 mm f_z	Ø 4 mm f_z	Ø 4,8–16 mm f_z
1.1	**80–250**	0,04–0,07	0,05–0,15	**80–250**	0,03–0,04	0,03–0,06	0,05–0,15
1.2	**80–250**	0,04–0,07	0,05–0,15	**80–250**	0,03–0,04	0,03–0,06	0,05–0,15
1.3	**80–250**	0,04–0,07	0,05–0,15	**80–250**	0,03–0,04	0,03–0,06	0,05–0,15
1.4	**60–120**	0,04–0,07	0,05–0,10	**60–120**	0,01–0,02	0,01–0,03	0,05–0,10
1.5	**60–100**	0,04–0,07	0,05–0,10	**60–120**	0,01–0,02	0,01–0,03	0,05–0,10
1.6	**60–120**	0,04–0,07	0,05–0,10	**60–120**	0,01–0,02	0,01–0,03	0,05–0,10
1.7	**80–200**	0,04–0,07	0,05–0,10	**80–200**	0,03–0,04	0,03–0,06	0,05–0,10
1.8	**40–100**	0,03–0,05	0,04–0,06	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06
1.9	**60–100**	0,04–0,07	0,05–0,10	**60–120**	0,01–0,02	0,04–0,07	0,05–0,10
1.10	**60–120**	0,04–0,07	0,05–0,10	**60–120**	0,01–0,02	0,04–0,07	0,05–0,10
1.11	**40–100**	0,03–0,05	0,04–0,06	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06
1.12	**40–100**	0,03–0,05	0,04–0,06	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06
1.13	**40–100**	0,03–0,05	0,04–0,06	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06
1.14	**40–100**	0,03–0,05	0,04–0,06	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06
1.15	**40–100**	0,03–0,05	0,04–0,06	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06
1.16	**40–100**	0,03–0,05	0,04–0,06	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06
2.1	**50–150**	0,04–0,07	0,05–0,12	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12
2.2	**50–150**	0,04–0,07	0,05–0,12	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12
2.3	**50–150**	0,04–0,07	0,05–0,12	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12
2.4	**50–150**	0,04–0,07	0,05–0,12	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12
2.5	**50–150**	0,04–0,07	0,05–0,12	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12
2.6	**50–150**	0,04–0,07	0,05–0,12	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12
2.7	**50–150**	0,04–0,07	0,05–0,12	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12
3.1	**80–200**	0,04–0,07	0,05–0,15	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08
3.2	**80–200**	0,04–0,07	0,05–0,15	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08
3.3	**80–200**	0,04–0,07	0,05–0,15	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08
3.4	**80–200**	0,04–0,07	0,05–0,15	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08
3.5	**80–160**	0,04–0,07	0,05–0,15	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08
3.6	**80–160**	0,04–0,07	0,05–0,15	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08
3.7	**80–160**	0,04–0,07	0,05–0,15	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08
3.8	**80–160**	0,04–0,07	0,05–0,15	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08
4.1	**250–500**	0,05–0,08	0,07–0,2	**250–500**	0,05–0,07	0,05–0,07	0,06–0,12
4.2	**250–500**	0,05–0,08	0,07–0,2	**250–500**	0,05–0,07	0,05–0,07	0,06–0,12
4.3	**250–500**	0,05–0,08	0,07–0,2	**250–500**	0,05–0,07	0,05–0,07	0,06–0,12
4.4	**250–500**	0,05–0,08	0,07–0,2	**250–500**	0,05–0,07	0,05–0,07	0,06–0,12
4.5	**180–250**	0,05–0,07	0,06–0,12	**180–250**	0,05–0,07	0,05–0,07	0,06–0,12
4.6	**250–300**	0,05–0,07	0,06–0,08	**250–300**	0,05–0,07	0,05–0,07	0,06–0,08
4.7							
4.8							
4.9							
4.10							
4.11	**250–300**	0,05–0,07	0,06–0,08	**250–300**	0,05–0,07	0,05–0,07	0,06–0,08
4.12							
4.13	**350–450**	0,08–0,1		**350–450**	0,08–0,1	0,08–0,1	0,1–0,12
4.14	**80–400**	0,05–0,1	0,08–0,25	**300–400**	0,08–0,1	0,08–0,1	0,1–0,12
4.15	**180–200**	0,02–0,04	0,03–0,04	**180–200**	0,02–0,04	0,02–0,04	0,03–0,04
4.16							
4.17							
4.18							
4.19							
5.1							
5.2							
5.3				**60–80**	0,02–0,04	0,02–0,04	0,03–0,04
5.4							
5.5							
5.6							
5.7							
5.8							
5.9							
5.10							
5.11	**40–60**	0,03–0,05	0,04–0,1	**50–80**	0,01–0,03	0,01–0,03	0,01–0,03
6.1	**40–60**	0,03–0,05	0,04–0,1	**40–60**		0,03–0,05	0,03–0,05
6.2	**40–60**	0,03–0,05	0,04–0,1	**40–50**		0,03–0,05	0,03–0,05
6.3				**30–40**		0,02–0,04	0,02–0,04
6.4							
6.5							

Cutting data appoximate values

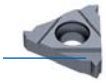
	MiniMill 53 007 ..., 53 008 ..., 53 009 ..., 53 013 ...			MiniMill Cross-pitched 53 015 ...		MicroMill 53 050 ..., 53 051 ..., 53 052 ..., 53 053 ...	
Index	v_c in m/min	f_z (drilling)	f_z (Threading)	v_c in m/min	f_z (drilling)	v_c in m/min	f_z (drilling)
1.1	120–200	0,05–0,20	0,10–0,25	80–200	0,03–0,10	60–200	0,02–0,05
1.2	120–200	0,05–0,20	0,10–0,25	80–200	0,03–0,10	60–200	0,02–0,05
1.3	120–200	0,05–0,20	0,10–0,25	80–200	0,03–0,10	60–200	0,02–0,05
1.4	100–180	0,05–0,15	0,10–0,15	60–180	0,03–0,08	60–160	0,01–0,04
1.5	100–180	0,05–0,15	0,10–0,15	60–180	0,03–0,08	60–160	0,02–0,05
1.6	100–180	0,05–0,15	0,10–0,15	60–180	0,03–0,08	60–160	0,01–0,04
1.7	80–160	0,05–0,15	0,10–0,20	60–160	0,03–0,10	50–140	0,02–0,05
1.8	80–160	0,05–0,15	0,10–0,20	60–160	0,02–0,07	50–140	0,007–0,03
1.9	80–160	0,05–0,15	0,10–0,20	60–160	0,03–0,10	50–140	0,02–0,05
1.10	80–160	0,05–0,15	0,10–0,20	60–160	0,03–0,10	50–140	0,01–0,04
1.11	80–160	0,05–0,15	0,10–0,20	60–160	0,02–0,08	50–140	0,007–0,03
1.12				30–100	0,02–0,07	10–60	0,007–0,03
1.13				30–100	0,02–0,07	10–60	0,007–0,03
1.14				30–100	0,02–0,07	10–60	0,007–0,03
1.15				30–100	0,02–0,07	10–60	0,007–0,03
1.16				30–100	0,02–0,07	10–60	0,007–0,03
2.1	100–120	0,03–0,08	0,10–0,25	80–120	0,03–0,08	60–120	0,01–0,04
2.2	100–120	0,03–0,08	0,10–0,25	80–120	0,03–0,10	60–120	0,02–0,05
2.3	100–120	0,03–0,08	0,10–0,25	80–120	0,02–0,07	60–120	0,007–0,03
2.4	100–120	0,03–0,08	0,10–0,25	80–120	0,02–0,07	60–120	0,007–0,03
2.5				80–120	0,02–0,07	60–120	0,007–0,03
2.6	100–120	0,03–0,08	0,10–0,25	80–120	0,02–0,07	60–120	0,007–0,03
2.7				80–120	0,02–0,07	60–120	0,007–0,03
3.1	100–170	0,2–0,4	0,2–0,3	100–170	0,03–0,10	70–170	0,02–0,05
3.2	100–170	0,2–0,4	0,2–0,3	100–170	0,03–0,10	70–170	0,02–0,05
3.3	100–170	0,2–0,4	0,2–0,3	100–170	0,03–0,10	70–170	0,02–0,05
3.4	100–170	0,2–0,4	0,2–0,3	100–170	0,03–0,10	70–170	0,02–0,05
3.5				100–170	0,03–0,10	70–170	0,02–0,05
3.6				100–170	0,03–0,10	70–170	0,02–0,05
3.7				100–170	0,03–0,10	70–170	0,02–0,05
3.8				100–170	0,03–0,10	70–170	0,02–0,05
4.1	300–800	0,05–0,3	0,05–0,2	250–800	0,04–0,15	100–600	0,02–0,07
4.2	300–800	0,05–0,3	0,05–0,2	250–800	0,04–0,15	100–600	0,02–0,07
4.3	300–800	0,05–0,3	0,05–0,2	250–800	0,04–0,15	100–600	0,02–0,07
4.4	300–800	0,05–0,3	0,05–0,2	250–800	0,04–0,15	100–600	0,02–0,07
4.5	300–800	0,05–0,3	0,05–0,2	250–800	0,04–0,15	100–600	0,02–0,07
4.6				200–500	0,04–0,15	100–300	0,02–0,07
4.7				200–500	0,04–0,15	100–300	0,02–0,07
4.8				200–500	0,04–0,15	100–300	0,02–0,07
4.9				200–500	0,04–0,15	100–300	0,02–0,07
4.10				200–500	0,04–0,15	100–300	0,02–0,07
4.11	150–180	0,05–0,3	0,05–0,2	150–180	0,04–0,15	120–180	0,02–0,07
4.12	150–180	0,05–0,3	0,05–0,2	150–180	0,04–0,15	120–180	0,02–0,07
4.13				20–100	0,04–0,15	10–50	0,02–0,1
4.14				20–100	0,04–0,15	10–50	0,02–0,1
4.15				20–100	0,04–0,15	10–50	0,02–0,07
4.16				20–100	0,02–0,10	10–50	0,02–0,05
4.17				20–100	0,04–0,15	10–50	0,02–0,07
4.18				20–100	0,02–0,10	10–50	0,02–0,05
4.19				20–100	0,02–0,10	10–50	0,02–0,05
5.1	40	0,05–0,08	0,05–0,1	10–100	0,005–0,05	10–60	0,007–0,02
5.2				10–100	0,005–0,05	10–60	0,007–0,02
5.3				10–100	0,005–0,05	10–60	0,007–0,02
5.4				10–100	0,005–0,05	10–60	0,007–0,02
5.5				10–100	0,005–0,05	10–60	0,007–0,02
5.6				10–100	0,005–0,05	10–60	0,007–0,02
5.7				10–100	0,005–0,05	10–60	0,007–0,02
5.8				10–100	0,005–0,05	10–60	0,007–0,02
5.9				10–100	0,005–0,05	10–60	0,007–0,02
5.10				10–100	0,005–0,05	10–60	0,007–0,02
5.11				10–100	0,005–0,05	10–60	0,007–0,02
6.1				10–60	0,002–0,05	10–40	0,007–0,02
6.2				10–60	0,002–0,05	10–40	0,007–0,02
6.3				10–60	0,002–0,05	10–40	0,007–0,02
6.4						10–40	0,007–0,02
6.5							

Highlights

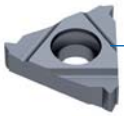
- Three-edged indexable inserts
  In sizes 11 and 16
- Mini internal thread from Ø 6 mm
  Cost-effective with small diameters
- External and internal threading holder
  Available with square shank from 8x8 mm
- CCN 20 universal grade
  One grade for all steel and stainless-steel applications
- The specialist for non-ferrous metals
  CWK 20 increases performance



Tailored tool holder from a square shank of 8x8 mm (internal from Ø 6 mm)



Size 11 for narrow machining spaces



Size 16 for larger pitches

Thread turning tools overview

Thread / Flank angle

Full profile

- Improved quality of thread
- No burr formation
- No secondary operations
- Longer service lives

External				Internal			
M	MJ	BSW	UN	M	MJ	BSW	UN
39+40	43	45+46	49+50	41+42	44	47+48	51+52
UNC	UNF	UNEF		UNC	UNF	UNEF	
49+50	49+50	49+50		51+52	51+52	51+52	

Partial profile

- One insert can be used for several pitches
- Reduced stock requirements

External		Internal	
60°	55°	60°	55°
53	55	54	56

suitable holder

57

58+59

Full Profile Mini Size 06/08

- Special inserts for low cutting speeds
- for diameters from 6mm to 8mm

Internal	
M	BSW
60+62	60

Partial Profile Mini Size 06/08

- Special inserts for low cutting speeds
- for diameters from 6mm to 8mm

Internal	
60°	55°
61+62	61+63

suitable holder

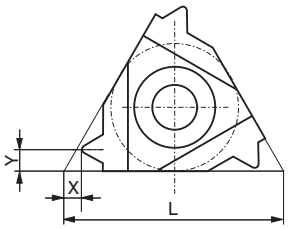
64

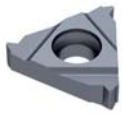
Right hand external thread turning insert

- Full profile

M | 60°

CCN 20 | CWK 20





Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	ER X3 Article no. 71 220 ... £		ER Y1 Article no. 71 220 ... £	
11 ER 0,35	0.35	11	0.8	0.4	21.40	204	15.65	604
11 ER 0,4	0.40	11	0.7	0.4	21.40	206	15.65	606
11 ER 0,45	0.45	11	0.7	0.4	21.40	208	15.65	608
11 ER 0,5	0.50	11	0.6	0.6	21.40	209	15.65	609
11 ER 0,6	0.60	11	0.6	0.6	21.40	210	15.65	610
11 ER 0,7	0.70	11	0.6	0.6	21.40	211	15.65	611
11 ER 0,75	0.75	11	0.6	0.6	21.40	212	15.65	612
11 ER 0,8	0.80	11	0.6	0.6	21.40	213	15.65	613
11 ER 1,0	1.00	11	0.7	0.7	21.40	214	15.65	614
11 ER 1,25	1.25	11	0.8	0.9	21.40	216	15.65	616
11 ER 1,5	1.50	11	0.8	1.0	21.40	218	15.65	618
11 ER 1,75	1.75	11	0.8	1.1	21.40	220	15.65	620
16 ER 0,35	0.35	16	0.8	0.4	22.15	234	16.20	634
16 ER 0,4	0.40	16	0.7	0.4	22.15	236	16.20	636
16 ER 0,45	0.45	16	0.7	0.4	22.15	238	16.20	638
16 ER 0,5	0.50	16	0.6	0.6	22.15	240	16.20	640
16 ER 0,7	0.70	16	0.6	0.6	22.15	241	16.20	641
16 ER 0,75	0.75	16	0.6	0.6	22.15	242	16.20	642
16 ER 0,8	0.80	16	0.6	0.6	22.15	243	16.20	643
16 ER 1,0	1.00	16	0.7	0.7	22.15	244	15.77	644
16 ER 1,25	1.25	16	0.8	0.9	22.15	246	16.20	646
16 ER 1,5	1.50	16	0.8	1.0	22.15	248	15.77	648
16 ER 1,75	1.75	16	0.9	1.2	22.15	250	16.20	650
16 ER 2,0	2.00	16	1.0	1.3	22.15	252	16.20	652
16 ER 2,5	2.50	16	1.1	1.5	22.15	254	16.20	654
16 ER 3,0	3.00	16	1.2	1.6	22.15	256	16.20	656

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

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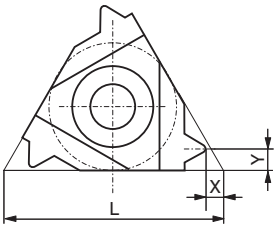
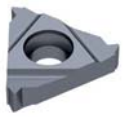
Left hand external thread turning insert

- Full profile

M | 60°

CCN 20 | CWK 20





Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	EL X3 Article no. 71 222 ... £		EL Y1 Article no. 71 222 ... £	
11 EL 0,35	0.35	11	0.8	0.4	21.40	204	15.65	604
11 EL 0,4	0.40	11	0.7	0.4	21.40	206	15.65	606
11 EL 0,45	0.45	11	0.7	0.4	21.40	208	15.65	608
11 EL 0,5	0.50	11	0.6	0.6	21.40	209	15.65	609
11 EL 0,6	0.60	11	0.6	0.6	21.40	210	15.65	610
11 EL 0,7	0.70	11	0.6	0.6	21.40	211	15.65	611
11 EL 0,75	0.75	11	0.6	0.6	21.40	212	15.65	612
11 EL 0,8	0.80	11	0.6	0.6	21.40	213	15.65	613
11 EL 1,0	1.00	11	0.7	0.7	21.40	214	15.65	614
11 EL 1,25	1.25	11	0.8	0.9	21.40	216	15.65	616
11 EL 1,5	1.50	11	0.8	1.0	21.40	218	15.65	618
11 EL 1,75	1.75	11	0.8	1.1	21.40	220	15.65	620
16 EL 0,35	0.35	16	0.8	0.4	22.15	234	16.20	634
16 EL 0,4	0.40	16	0.7	0.4	22.15	236	16.20	636
16 EL 0,45	0.45	16	0.7	0.4	22.15	238	16.20	638
16 EL 0,5	0.50	16	0.6	0.6	22.15	240	16.20	640
16 EL 0,7	0.70	16	0.6	0.6	22.15	241	16.20	641
16 EL 0,75	0.75	16	0.6	0.6	22.15	242	16.20	642
16 EL 0,8	0.80	16	0.6	0.6	22.15	243	16.20	643
16 EL 1,0	1.00	16	0.7	0.7	22.15	244	15.77	644
16 EL 1,25	1.25	16	0.8	0.9	22.15	246	16.20	646
16 EL 1,5	1.50	16	0.8	1.0	22.15	248	15.77	648
16 EL 1,75	1.75	16	0.9	1.2	22.15	250	16.20	650
16 EL 2,0	2.00	16	1.0	1.3	22.15	252	16.20	652
16 EL 2,5	2.50	16	1.1	1.5	22.15	254	16.20	654
16 EL 3,0	3.00	16	1.2	1.6	22.15	256	16.20	656

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

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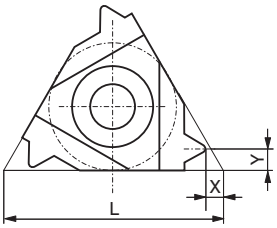
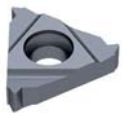
Right hand internal thread turning insert

- Full profile

M | 60°

CCN 20 | CWK 20





Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	IR X3 Article no. 71 224 ... £		IR Y1 Article no. 71 224 ... £	
11 IR 0,35	0.35	11	0.8	0.3	22.15	204	16.20	604
11 IR 0,4	0.40	11	0.8	0.4	22.15	206	16.20	606
11 IR 0,45	0.45	11	0.8	0.4	22.15	208	16.20	608
11 IR 0,5	0.50	11	0.6	0.6	22.15	210	16.20	610
11 IR 0,7	0.70	11	0.6	0.6	22.15	211	16.20	611
11 IR 0,75	0.75	11	0.6	0.6	22.15	212	16.20	612
11 IR 0,8	0.80	11	0.6	0.6	22.15	213	16.20	613
11 IR 1,0	1.00	11	0.6	0.7	22.15	214	15.77	614
11 IR 1,25	1.25	11	0.8	0.9	22.15	216	16.20	616
11 IR 1,5	1.50	11	0.8	1.0	22.15	218	15.77	618
11 IR 1,75	1.75	11	0.9	1.1	22.15	220	16.20	620
11 IR 2,0	2.00	11	0.9	1.1	22.15	222	16.20	622
11 IR 2,5	2.50	11	0.9	1.1	22.15	224	16.20	624
16 IR 0,35	0.35	16	0.8	0.4	22.15	234	16.20	634
16 IR 0,4	0.40	16	0.7	0.4	22.15	236	16.20	636
16 IR 0,45	0.45	16	0.7	0.4	22.15	238	16.20	638
16 IR 0,5	0.50	16	0.6	0.6	22.15	240	16.20	640
16 IR 0,7	0.70	16	0.6	0.6	22.15	241	16.20	641
16 IR 0,75	0.75	16	0.6	0.6	22.15	242	16.20	642
16 IR 0,8	0.80	16	0.6	0.6	22.15	243	16.20	643
16 IR 1,0	1.00	16	0.7	0.7	22.15	244	15.77	644
16 IR 1,25	1.25	16	0.8	0.9	22.15	246	16.20	646
16 IR 1,5	1.50	16	0.8	1.0	22.15	248	15.77	648
16 IR 1,75	1.75	16	0.9	1.2	22.15	250	16.20	650
16 IR 2,0	2.00	16	1.0	1.3	22.15	252	16.20	652
16 IR 2,5	2.50	16	1.1	1.5	22.15	254	16.20	654
16 IR 3,0	3.00	16	1.1	1.5	22.15	256	16.20	656

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

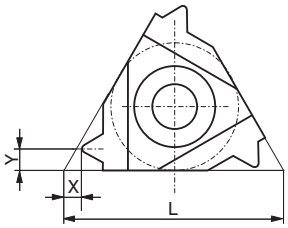
→ v_c Page 67

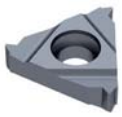
Left hand internal thread turning insert

- Full profile

M | 60°

CCN 20 | CWK 20





Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	IL X3 Article no. 71 226 ... £		IL Y1 Article no. 71 226 ... £	
11 IL 0,35	0,35	11	0.8	0.3	22.15	204	16.20	604
11 IL 0,4	0,40	11	0.8	0.4	22.15	206	16.20	606
11 IL 0,45	0,45	11	0.8	0.4	22.15	208	16.20	608
11 IL 0,5	0,50	11	0.6	0.6	22.15	210	16.20	610
11 IL 0,7	0,70	11	0.6	0.6	22.15	211	16.20	611
11 IL 0,75	0,75	11	0.6	0.6	22.15	212	16.20	612
11 IL 0,8	0,80	11	0.6	0.6	22.15	213	16.20	613
11 IL 1,0	1,00	11	0.6	0.7	22.15	214	15.77	614
11 IL 1,25	1,25	11	0.8	0.9	22.15	216	16.20	616
11 IL 1,5	1,50	11	0.8	1.0	22.15	218	15.77	618
11 IL 1,75	1,75	11	0.9	1.1	22.15	220	16.20	620
11 IL 2,0	2,00	11	0.9	1.1	22.15	222	16.20	622
11 IL 2,5	2,50	11	0.9	1.1	22.15	224	16.20	624
16 IL 0,35	0,35	16	0.8	0.4	22.15	234	16.20	634
16 IL 0,4	0,40	16	0.7	0.4	22.15	236	16.20	636
16 IL 0,45	0,45	16	0.7	0.4	22.15	238	16.20	638
16 IL 0,5	0,50	16	0.6	0.6	22.15	240	16.20	640
16 IL 0,7	0,70	16	0.6	0.6	22.15	241	16.20	641
16 IL 0,75	0,75	16	0.6	0.6	22.15	242	16.20	642
16 IL 0,8	0,80	16	0.6	0.6	22.15	243	16.20	643
16 IL 1,0	1,00	16	0.7	0.7	22.15	244	15.77	644
16 IL 1,25	1,25	16	0.8	0.9	22.15	246	16.20	646
16 IL 1,5	1,50	16	0.8	1.0	22.15	248	15.77	648
16 IL 1,75	1,75	16	0.9	1.2	22.15	250	16.20	650
16 IL 2,0	2,00	16	1.0	1.3	22.15	252	16.20	652
16 IL 2,5	2,50	16	1.1	1.5	22.15	254	16.20	654
16 IL 3,0	3,00	16	1.2	1.6	22.15	256	16.20	656

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

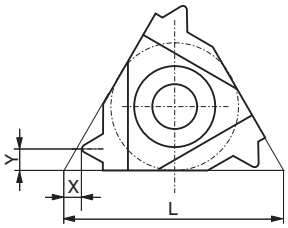
→ v_c Page 67

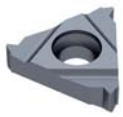
Right hand external thread turning insert

- Full profile

MJ 60°

CCN 20 CWK 20





Designation	Y PDY mm	X PDX mm	L INSL mm	p TP mm	ER NEW X3 Article no. 71 286 ... £		ER NEW Y1 Article no. 71 286 ... £	
11 ER 1,0	0.8	0.7	11	1.00	29.41	214	23.59	614
11 ER 1,25	0.9	0.8	11	1.25	29.41	216	23.59	616
11 ER 1,5	1.0	0.8	11	1.50	29.41	218	23.59	618
11 ER 2,0	1.0	0.9	11	2.00	29.41	222	23.59	622
16 ER 1,0	0.8	0.7	16	1.00	29.41	244	23.59	644
16 ER 1,25	0.9	0.8	16	1.25	29.41	246	23.59	646
16 ER 1,5	1.0	0.8	16	1.50	29.41	248	23.59	648
16 ER 2,0	1.3	1.0	16	2.00	29.41	252	23.59	652

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

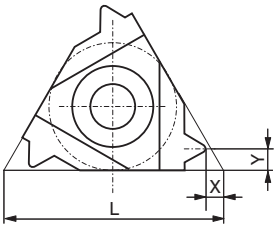
→ v_c Page 67

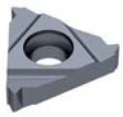
Left hand external thread turning insert

- Full profile

MJ 60°

CCN 20 CWK 20





Designation	Y PDY mm	X PDX mm	L INSL mm	p TP mm	EL NEW X3 Article no. 71 287 ... £		EL NEW Y1 Article no. 71 287 ... £	
11 EL 1,0	0.8	0.7	11	1.00	29.41	214	23.59	614
11 EL 1,25	0.9	0.8	11	1.25	29.41	216	23.59	616
11 EL 1,5	1.0	0.8	11	1.50	29.41	218	23.59	618
11 EL 2,0	1.0	0.9	11	2.00	29.41	222	23.59	622
16 EL 1,0	0.8	0.7	16	1.00	29.41	244	23.59	644
16 EL 1,25	0.9	0.8	16	1.25	29.41	246	23.59	646
16 EL 1,5	1.0	0.8	16	1.50	29.41	248	23.59	648
16 EL 2,0	1.3	1.0	16	2.00	29.41	252	23.59	652

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

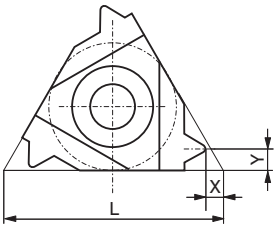
→ v_c Page 67

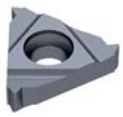
Right hand internal thread turning insert

- Full profile

MJ 60°

CCN 20 CWK 20





Designation	Y PDY mm	X PDX mm	L INSL mm	p TP mm	IR NEW X3 Article no. 71 284 ... £		IR NEW Y1 Article no. 71 284 ... £	
11 IR 1,0	0.8	0.7	11	1.00	29.41	214	23.59	614
11 IR 1,25	0.9	0.8	11	1.25	29.41	216	23.59	616
11 IR 1,5	1.0	0.8	11	1.50	29.41	218	23.59	618
11 IR 2,0	1.0	0.9	11	2.00	29.41	222	23.59	622
16 IR 1,0	0.8	0.7	16	1.00	29.41	244	23.59	644
16 IR 1,25	0.9	0.8	16	1.25	29.41	246	23.59	646
16 IR 1,5	1.0	0.8	16	1.50	29.41	248	23.59	648
16 IR 2,0	1.3	1.0	16	2.00	29.41	252	23.59	652

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

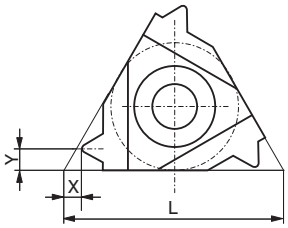
→ v_c Page 67

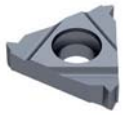
Left hand internal thread turning insert

- Full profile

MJ 60°

CCN 20 CWK 20





Designation	Y PDY mm	X PDX mm	L INSL mm	p TP mm	IL NEW X3 Article no. 71 285 ... £		IL NEW Y1 Article no. 71 285 ... £	
11 IL 1,0	0.8	0.7	11	1.00	29.41	214	23.59	614
11 IL 1,25	0.9	0.8	11	1.25	29.41	216	23.59	616
11 IL 1,5	1.0	0.8	11	1.50	29.41	218	23.59	618
11 IL 2,0	1.0	0.9	11	2.00	29.41	222	23.59	622
16 IL 1,0	0.8	0.7	16	1.00	29.41	244	23.59	644
16 IL 1,25	0.9	0.8	16	1.25	29.41	246	23.59	646
16 IL 1,5	1.0	0.8	16	1.50	29.41	248	23.59	648
16 IL 2,0	1.3	1.0	16	2.00	29.41	252	23.59	652

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

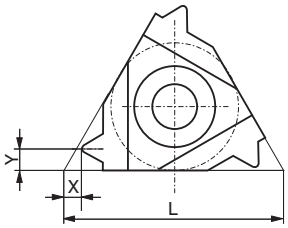
→ v_c Page 67

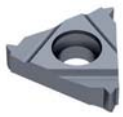
Right hand external thread turning insert

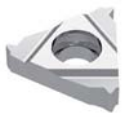
- Full profile

BSW 55°

CCN 20 CWK 20







Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	ER X3 Article no. 71 228 ... £		ER Y1 Article no. 71 228 ... £	
11 ER 72	72.0	11	0.7	4.0	21.40	202	15.65	602
11 ER 60	60.0	11	0.7	4.0	21.40	204	15.65	604
11 ER 56	56.0	11	0.7	4.0	21.40	206	15.65	606
11 ER 48	48.0	11	0.6	0.6	21.40	208	15.65	608
11 ER 40	40.0	11	0.6	0.6	21.40	210	15.65	610
11 ER 36	36.0	11	0.6	0.6	21.40	212	15.65	612
11 ER 32	32.0	11	0.6	0.6	21.40	214	15.65	614
11 ER 28	28.0	11	0.6	0.7	21.40	216	15.65	616
11 ER 26	26.0	11	0.7	0.8	21.40	218	15.65	618
11 ER 24	24.0	11	0.7	0.8	21.40	220	15.65	620
11 ER 22	22.0	11	0.8	0.9	21.40	222	15.65	622
11 ER 20	20.0	11	0.8	0.9	21.40	224	15.65	624
11 ER 19	19.0	11	0.8	1.0	21.40	226	15.65	626
11 ER 18	18.0	11	0.8	1.0	21.40	228	15.65	628
11 ER 16	16.0	11	0.9	1.1	21.40	230	15.65	630
11 ER 14	14.0	11	0.9	1.1	21.40	232	15.65	632
16 ER 40	40.0	16	0.6	0.6	22.15	240	16.20	640
16 ER 36	36.0	16	0.6	0.6	22.15	242	16.20	642
16 ER 32	32.0	16	0.6	0.6	22.15	244	16.20	644
16 ER 28	28.0	16	0.6	0.7	22.15	246	16.20	646
16 ER 26	26.0	16	0.7	0.8	22.15	248	16.20	648
16 ER 24	24.0	16	0.7	0.8	22.15	250	16.20	650
16 ER 22	22.0	16	0.8	0.9	22.15	252	16.20	652
16 ER 20	20.0	16	0.8	0.9	22.15	254	16.20	654
16 ER 19	19.0	16	0.8	1.0	22.15	256	16.20	656
16 ER 18	18.0	16	0.8	1.0	22.15	258	16.20	658
16 ER 16	16.0	16	0.9	1.1	22.15	260	16.20	660
16 ER 14	14.0	16	1.0	1.2	22.15	262	16.20	662
16 ER 12	12.0	16	1.1	1.4	22.15	264	16.20	664
16 ER 11	11.0	16	1.1	1.5	22.15	266	16.20	666
16 ER 10	10.0	16	1.1	1.5	22.15	268	16.20	668
16 ER 9	9.0	16	1.2	1.7	22.15	270	16.20	670
16 ER 8	8.0	16	1.2	1.5	22.15	272	16.20	672

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

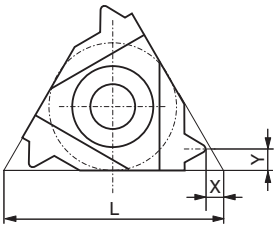
→ v_c Page 67

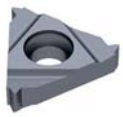
Left hand external thread turning insert

- Full profile

BSW 55°

CCN 20 CWK 20





Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	EL X3 Article no. 71 229 ... £		EL Y1 Article no. 71 229 ... £	
11 EL 72	72	11	0.7	4.0	21.40	202	15.65	602
11 EL 60	60	11	0.7	4.0	21.40	204	15.65	604
11 EL 56	56	11	0.7	4.0	21.40	206	15.65	606
11 EL 48	48	11	0.6	0.6	21.40	208	15.65	608
11 EL 40	40	11	0.6	0.6	21.40	210	15.65	610
11 EL 36	36	11	0.6	0.6	21.40	212	15.65	612
11 EL 32	32	11	0.6	0.6	21.40	214	15.65	614
11 EL 28	28	11	0.6	0.7	21.40	216	15.65	616
11 EL 26	26	11	0.7	0.8	21.40	218	15.65	618
11 EL 24	24	11	0.7	0.8	21.40	220	15.65	620
11 EL 22	22	11	0.8	0.9	21.40	222	15.65	622
11 EL 20	20	11	0.8	0.9	21.40	224	15.65	624
11 EL 19	19	11	0.8	1.0	21.40	226	15.65	626
11 EL 18	18	11	0.8	1.0	21.40	228	15.65	628
11 EL 16	16	11	0.9	1.1	21.40	230	15.65	630
11 EL 14	14	11	0.9	1.1	21.40	232	15.65	632
16 EL 40	40	16	0.6	0.6	22.15	240	16.20	640
16 EL 36	36	16	0.6	0.6	22.15	242	16.20	642
16 EL 32	32	16	0.6	0.6	22.15	244	16.20	644
16 EL 28	28	16	0.6	0.7	22.15	246	16.20	646
16 EL 26	26	16	0.7	0.8	22.15	248	16.20	648
16 EL 24	24	16	0.7	0.8	22.15	250	16.20	650
16 EL 22	22	16	0.8	0.9	22.15	252	16.20	652
16 EL 20	20	16	0.8	0.9	22.15	254	16.20	654
16 EL 19	19	16	0.8	1.0	22.15	256	16.20	656
16 EL 18	18	16	0.8	1.0	22.15	258	16.20	658
16 EL 16	16	16	0.9	1.1	22.15	260	16.20	660
16 EL 14	14	16	1.0	1.2	22.15	262	16.20	662
16 EL 12	12	16	1.1	1.4	22.15	264	16.20	664
16 EL 11	11	16	1.1	1.5	22.15	266	16.20	666
16 EL 10	10	16	1.1	1.5	22.15	268	16.20	668
16 EL 9	9	16	1.2	1.7	22.15	270	16.20	670
16 EL 8	8	16	1.2	1.5	22.15	272	16.20	672

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

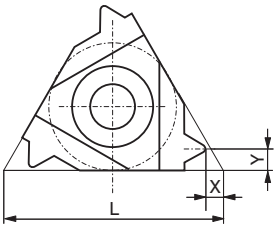
→ v_c Page 67

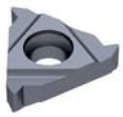
Right hand internal thread turning insert

- Full profile

BSW 55°

CCN 20 CWK 20





Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	IR X3 Article no. 71 230 ... £		IR Y1 Article no. 71 230 ... £	
11 IR 48	48	11	0.6	0.6	22.15	206	16.20	606
11 IR 40	40	11	0.6	0.6	22.15	208	16.20	608
11 IR 36	36	11	0.6	0.6	22.15	210	16.20	610
11 IR 32	32	11	0.6	0.6	22.15	212	16.20	612
11 IR 28	28	11	0.6	0.7	22.15	214	16.20	614
11 IR 26	26	11	0.7	0.8	22.15	216	16.20	616
11 IR 24	24	11	0.7	0.8	22.15	218	16.20	618
11 IR 22	22	11	0.8	0.9	22.15	220	16.20	620
11 IR 20	20	11	0.8	0.9	22.15	222	16.20	622
11 IR 19	19	11	0.8	1.0	22.15	224	16.20	624
11 IR 18	18	11	0.8	1.0	22.15	226	16.20	626
11 IR 16	16	11	0.9	1.1	22.15	228	16.20	628
11 IR 14	14	11	0.9	1.1	22.15	230	16.20	630
16 IR 40	40	16	0.6	0.6	22.15	240	16.20	640
16 IR 36	36	16	0.6	0.6	22.15	242	16.20	642
16 IR 32	32	16	0.6	0.6	22.15	244	16.20	644
16 IR 28	28	16	0.6	0.7	22.15	246	16.20	646
16 IR 26	26	16	0.7	0.8	22.15	248	16.20	648
16 IR 24	24	16	0.7	0.8	22.15	250	16.20	650
16 IR 22	22	16	0.8	0.9	22.15	252	16.20	652
16 IR 20	20	16	0.8	0.9	22.15	254	16.20	654
16 IR 19	19	16	0.8	1.0	22.15	256	16.20	656
16 IR 18	18	16	0.8	1.0	22.15	258	16.20	658
16 IR 16	16	16	0.9	1.1	22.15	260	16.20	660
16 IR 14	14	16	1.0	1.2	22.15	262	16.20	662
16 IR 12	12	16	1.1	1.4	22.15	264	16.20	664
16 IR 11	11	16	1.1	1.5	22.15	266	16.20	666
16 IR 10	10	16	1.1	1.5	22.15	268	16.20	668
16 IR 9	9	16	1.2	1.7	22.15	270	16.20	670
16 IR 8	8	16	1.2	1.5	22.15	272	16.20	672

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

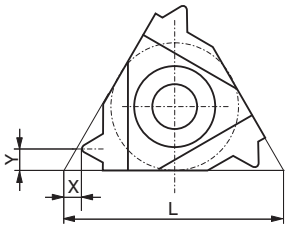
→ v_c Page 67

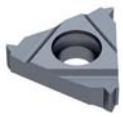
Left hand internal thread turning insert

- Full Profile

BSW 55°

CCN 20 CWK 20





Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	IL X3 Article no. 71 231 ... £		IL Y1 Article no. 71 231 ... £	
11 IL 48	48	11	0.6	0.6	22.15	206	16.20	606
11 IL 40	40	11	0.6	0.6	22.15	208	16.20	608
11 IL 36	36	11	0.6	0.6	22.15	210	16.20	610
11 IL 32	32	11	0.6	0.6	22.15	212	16.20	612
11 IL 28	28	11	0.6	0.7	22.15	214	16.20	614
11 IL 26	26	11	0.7	0.8	22.15	216	16.20	616
11 IL 24	24	11	0.7	0.8	22.15	218	16.20	618
11 IL 22	22	11	0.8	0.9	22.15	220	16.20	620
11 IL 20	20	11	0.8	0.9	22.15	222	16.20	622
11 IL 19	19	11	0.8	1.0	22.15	224	16.20	624
11 IL 18	18	11	0.8	1.0	22.15	226	16.20	626
11 IL 16	16	11	0.9	1.1	22.15	228	16.20	628
11 IL 14	14	11	0.9	1.1	22.15	230	16.20	630
16 IL 40	40	16	0.6	0.6	22.15	240	16.20	640
16 IL 36	36	16	0.6	0.6	22.15	242	16.20	642
16 IL 32	32	16	0.6	0.6	22.15	244	16.20	644
16 IL 28	28	16	0.6	0.7	22.15	246	16.20	646
16 IL 26	26	16	0.7	0.8	22.15	248	16.20	648
16 IL 24	24	16	0.7	0.8	22.15	250	16.20	650
16 IL 22	22	16	0.8	0.9	22.15	252	16.20	652
16 IL 20	20	16	0.8	0.9	22.15	254	16.20	654
16 IL 19	19	16	0.8	1.0	22.15	256	16.20	656
16 IL 18	18	16	0.8	1.0	22.15	258	16.20	658
16 IL 16	16	16	0.9	1.1	22.15	260	16.20	660
16 IL 14	14	16	1.0	1.2	22.15	262	16.20	662
16 IL 12	12	16	1.1	1.4	22.15	264	16.20	664
16 IL 11	11	16	1.1	1.5	22.15	266	16.20	666
16 IL 10	10	16	1.1	1.5	22.15	268	16.20	668
16 IL 9	9	16	1.2	1.7	22.15	270	16.20	670
16 IL 8	8	16	1.2	1.5	22.15	272	16.20	672

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

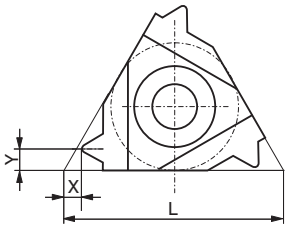
→ v_c Page 67

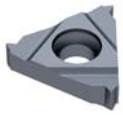
Right hand external thread turning insert

- Full profile

UN | UNC | UNF | UNEF | 60°

CCN 20 | CWK 20





Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	ER X3 Article no. 71 264 ...	£	ER Y1 Article no. 71 264 ...	£
11 ER 72	72.0	11	0.8	0.4	21.40	202	15.65	602
11 ER 64	64.0	11	0.8	0.4	21.40	204	15.65	604
11 ER 56	56.0	11	0.7	0.4	21.40	206	15.65	606
11 ER 48	48.0	11	0.6	0.6	21.40	208	15.65	608
11 ER 44	44.0	11	0.6	0.6	21.40	210	15.65	610
11 ER 40	40.0	11	0.6	0.6	21.40	212	15.65	612
11 ER 36	36.0	11	0.6	0.6	21.40	214	15.65	614
11 ER 32	32.0	11	0.6	0.6	21.40	216	15.65	616
11 ER 28	28.0	11	0.6	0.7	21.40	218	15.65	618
11 ER 27	27.0	11	0.7	0.8	21.40	220	15.65	620
11 ER 24	24.0	11	0.7	0.8	21.40	222	15.65	622
11 ER 20	20.0	11	0.8	0.9	21.40	224	15.65	624
11 ER 18	18.0	11	0.8	1.0	21.40	226	15.65	626
11 ER 16	16.0	11	0.9	1.1	21.40	228	15.65	628
11 ER 14	14.0	11	0.9	1.1	21.40	230	15.65	630
16 ER 72	72.0	16	0.8	0.4	22.15	232	16.20	632
16 ER 64	64.0	16	0.8	0.4	22.15	234	16.20	634
16 ER 56	56.0	16	0.7	0.4	22.15	236	16.20	636
16 ER 48	48.0	16	0.6	0.6	22.15	238	16.20	638
16 ER 44	44.0	16	0.6	0.6	22.15	240	16.20	640
16 ER 40	40.0	16	0.6	0.6	22.15	242	16.20	642
16 ER 36	36.0	16	0.6	0.6	22.15	244	16.20	644
16 ER 32	32.0	16	0.6	0.6	22.15	246	16.20	646
16 ER 28	28.0	16	0.6	0.7	22.15	248	16.20	648
16 ER 27	27.0	16	0.7	0.8	22.15	250	16.20	650
16 ER 24	24.0	16	0.7	0.8	22.15	252	16.20	652
16 ER 20	20.0	16	0.8	0.9	22.15	254	16.20	654
16 ER 18	18.0	16	0.8	1.0	22.15	256	16.20	656
16 ER 16	16.0	16	0.9	1.1	22.15	258	16.20	658
16 ER 14	14.0	16	1.0	1.2	22.15	260	16.20	660
16 ER 13	13.0	16	1.0	1.3	22.15	262	16.20	662
16 ER 12	12.0	16	1.1	1.4	22.15	264	16.20	664
16 ER 11,5	11.5	16	1.1	1.5	22.15	266	16.20	666
16 ER 11	11.0	16	1.1	1.5	22.15	268	16.20	668
16 ER 10	10.0	16	1.1	1.5	22.15	270	16.20	670
16 ER 9	9.0	16	1.2	1.7	22.15	272	16.20	672
16 ER 8	8.0	16	1.2	1.6	22.15	274	16.20	674

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

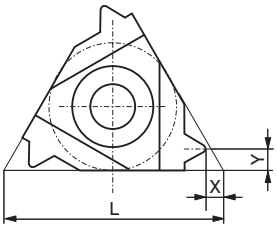
→ v_c Page 67

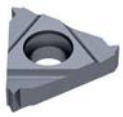
Left hand external thread turning insert

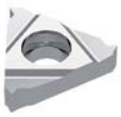
- Full profile

UN | UNC | UNF | UNEF | 60°

CCN 20 | CWK 20







Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	EL X3 Article no. 71 266 ... £		EL Y1 Article no. 71 266 ... £	
11 EL 72	72,0	11	0.8	0.4	21.40	202	15.65	602
11 EL 64	64,0	11	0.8	0.4	21.40	204	15.65	604
11 EL 56	56,0	11	0.7	0.4	21.40	206	15.65	606
11 EL 48	48,0	11	0.6	0.6	21.40	208	15.65	608
11 EL 44	44,0	11	0.6	0.6	21.40	210	15.65	610
11 EL 40	40,0	11	0.6	0.6	21.40	212	15.65	612
11 EL 36	36,0	11	0.6	0.6	21.40	214	15.65	614
11 EL 32	32,0	11	0.6	0.6	21.40	216	15.65	616
11 EL 28	28,0	11	0.6	0.7	21.40	218	15.65	618
11 EL 27	27,0	11	0.7	0.8	21.40	220	15.65	620
11 EL 24	24,0	11	0.7	0.8	21.40	222	15.65	622
11 EL 20	20,0	11	0.8	0.9	21.40	224	15.65	624
11 EL 18	18,0	11	0.8	1.0	21.40	226	15.65	626
11 EL 16	16,0	11	0.9	1.1	21.40	228	15.65	628
11 EL 14	14,0	11	0.9	1.1	21.40	230	15.65	630
16 EL 72	72,0	16	0.8	0.4	22.15	232	16.20	632
16 EL 64	64,0	16	0.8	0.4	22.15	234	16.20	634
16 EL 56	56,0	16	0.7	0.4	22.15	236	16.20	636
16 EL 48	48,0	16	0.6	0.6	22.15	238	16.20	638
16 EL 44	44,0	16	0.6	0.6	22.15	240	16.20	640
16 EL 40	40,0	16	0.6	0.6	22.15	242	16.20	642
16 EL 36	36,0	16	0.6	0.6	22.15	244	16.20	644
16 EL 32	32,0	16	0.6	0.6	22.15	246	16.20	646
16 EL 28	28,0	16	0.6	0.7	22.15	248	16.20	648
16 EL 27	27,0	16	0.7	0.8	22.15	250	16.20	650
16 EL 24	24,0	16	0.7	0.8	22.15	252	16.20	652
16 EL 20	20,0	16	0.8	0.9	22.15	254	16.20	654
16 EL 18	18,0	16	0.8	1.0	22.15	256	16.20	656
16 EL 16	16,0	16	0.9	1.1	22.15	258	16.20	658
16 EL 14	14,0	16	1.0	1.2	22.15	260	16.20	660
16 EL 13	13,0	16	1.0	1.3	22.15	262	16.20	662
16 EL 12	12,0	16	1.1	1.4	22.15	264	16.20	664
16 EL 11,5	11,5	16	1.1	1.5	22.15	266	16.20	666
16 EL 11	11,0	16	1.1	1.5	22.15	268	16.20	668
16 EL 10	10,0	16	1.1	1.5	22.15	270	16.20	670
16 EL 9	9,0	16	1.2	1.7	22.15	272	16.20	672
16 EL 8	8,0	16	1.2	1.6	22.15	274	16.20	674

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

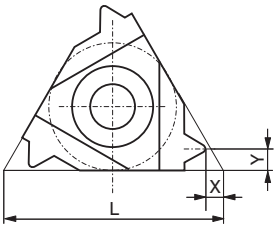
→ v_c Page 67

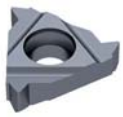
Right hand internal thread turning insert

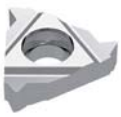
- Full profile

UN | UNC | UNF | UNEF | 60°

CCN 20 | CWK 20







Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	IR X3 Article no. 71 268 ... £		IR Y1 Article no. 71 268 ... £	
11 IR 72	72.0	11	0.8	0.3	22.15	202	16.20	602
11 IR 64	64.0	11	0.8	0.4	22.15	204	16.20	604
11 IR 56	56.0	11	0.7	0.4	22.15	206	16.20	606
11 IR 48	48.0	11	0.6	0.6	22.15	208	16.20	608
11 IR 44	44.0	11	0.6	0.6	22.15	210	16.20	610
11 IR 40	40.0	11	0.6	0.6	22.15	212	16.20	612
11 IR 36	36.0	11	0.6	0.6	22.15	214	16.20	614
11 IR 32	32.0	11	0.6	0.6	22.15	216	16.20	616
11 IR 28	28.0	11	0.6	0.7	22.15	218	16.20	618
11 IR 27	27.0	11	0.7	0.8	22.15	220	16.20	620
11 IR 24	24.0	11	0.7	0.8	22.15	222	16.20	622
11 IR 20	20.0	11	0.8	0.9	22.15	224	16.20	624
11 IR 18	18.0	11	0.8	1.0	22.15	226	16.20	626
11 IR 16	16.0	11	0.9	1.1	22.15	228	16.20	628
11 IR 14	14.0	11	1.0	1.1	22.15	230	16.20	630
16 IR 72	72.0	16	0.8	0.3	22.15	232	16.20	632
16 IR 64	64.0	16	0.8	0.4	22.15	234	16.20	634
16 IR 56	56.0	16	0.7	0.4	22.15	236	16.20	636
16 IR 48	48.0	16	0.6	0.6	22.15	238	16.20	638
16 IR 44	44.0	16	0.6	0.6	22.15	240	16.20	640
16 IR 40	40.0	16	0.6	0.6	22.15	242	16.20	642
16 IR 36	36.0	16	0.6	0.6	22.15	244	16.20	644
16 IR 32	32.0	16	0.6	0.6	22.15	246	16.20	646
16 IR 28	28.0	16	0.6	0.7	22.15	248	16.20	648
16 IR 27	27.0	16	0.7	0.8	22.15	250	16.20	650
16 IR 24	24.0	16	0.7	0.8	22.15	252	16.20	652
16 IR 20	20.0	16	0.8	0.9	22.15	254	16.20	654
16 IR 18	18.0	16	0.8	1.0	22.15	256	16.20	656
16 IR 16	16.0	16	0.9	1.1	22.15	258	16.20	658
16 IR 14	14.0	16	1.0	1.2	22.15	260	16.20	660
16 IR 13	13.0	16	1.0	1.3	22.15	262	16.20	662
16 IR 12	12.0	16	1.1	1.4	22.15	264	16.20	664
16 IR 11,5	11.5	16	1.1	1.5	22.15	266	16.20	666
16 IR 11	11.0	16	1.1	1.5	22.15	268	16.20	668
16 IR 10	10.0	16	1.1	1.5	22.15	270	16.20	670
16 IR 9	9.0	16	1.2	1.7	22.15	272	16.20	672
16 IR 8	8.0	16	1.2	1.6	22.15	274	16.20	674

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

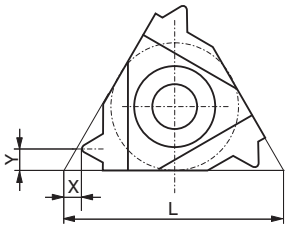
→ v_c Page 67

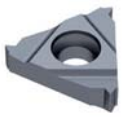
Left hand internal thread turning insert

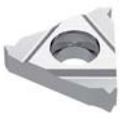
- Full profile

UN | UNC | UNF | UNEF | 60°

CCN 20 | CWK 20







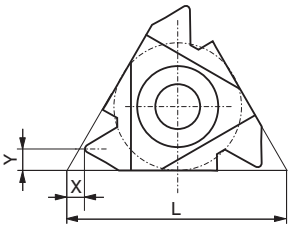
Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	IL X3 Article no. 71 270 ... £		IL Y1 Article no. 71 270 ... £	
11 IL 72	72,0	11	0.8	0.3	22.15	202	16.20	602
11 IL 64	64,0	11	0.8	0.4	22.15	204	16.20	604
11 IL 56	56,0	11	0.7	0.4	22.15	206	16.20	606
11 IL 48	48,0	11	0.6	0.6	22.15	208	16.20	608
11 IL 44	44,0	11	0.6	0.6	22.15	210	16.20	610
11 IL 40	40,0	11	0.6	0.6	22.15	212	16.20	612
11 IL 36	36,0	11	0.6	0.6	22.15	214	16.20	614
11 IL 32	32,0	11	0.6	0.6	22.15	216	16.20	616
11 IL 28	28,0	11	0.6	0.7	22.15	218	16.20	618
11 IL 27	27,0	11	0.7	0.8	22.15	220	16.20	620
11 IL 24	24,0	11	0.7	0.8	22.15	222	16.20	622
11 IL 20	20,0	11	0.8	0.9	22.15	224	16.20	624
11 IL 18	18,0	11	0.8	1.0	22.15	226	16.20	626
11 IL 16	16,0	11	0.9	1.1	22.15	228	16.20	628
11 IL 14	14,0	11	0.9	1.1	22.15	230	16.20	630
16 IL 72	72,0	16	0.8	0.3	30.72	232	16.20	632
16 IL 64	64,0	16	0.8	0.4	22.15	234	16.20	634
16 IL 56	56,0	16	0.7	0.4	22.15	236	16.20	636
16 IL 48	48,0	16	0.6	0.6	22.15	238	16.20	638
16 IL 44	44,0	16	0.6	0.6	22.15	240	16.20	640
16 IL 40	40,0	16	0.6	0.6	22.15	242	16.20	642
16 IL 36	36,0	16	0.6	0.6	22.15	244	16.20	644
16 IL 32	32,0	16	0.6	0.6	22.15	246	16.20	646
16 IL 28	28,0	16	0.6	0.7	22.15	248	16.20	648
16 IL 27	27,0	16	0.7	0.8	22.15	250	16.20	650
16 IL 24	24,0	16	0.7	0.8	22.15	252	16.20	652
16 IL 20	20,0	16	0.8	0.9	22.15	254	16.20	654
16 IL 18	18,0	16	0.8	1.0	22.15	256	16.20	656
16 IL 16	16,0	16	0.9	1.1	22.15	258	16.20	658
16 IL 14	14,0	16	1.0	1.2	22.15	260	16.20	660
16 IL 13	13,0	16	1.0	1.3	22.15	262	16.20	662
16 IL 12	12,0	16	1.1	1.4	22.15	264	16.20	664
16 IL 11,5	11,5	16	1.1	1.5	22.15	266	16.20	666
16 IL 11	11,0	16	1.1	1.5	22.15	268	16.20	668
16 IL 10	10,0	16	1.1	1.5	22.15	270	16.20	670
16 IL 9	9,0	16	1.2	1.7	22.15	272	16.20	672
16 IL 8	8,0	16	1.2	1.6	22.15	274	16.20	674

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

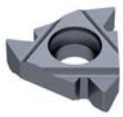
→ v_c Page 67

Right hand external thread turning insert

- Partial profile



CCN 20



CWK 20

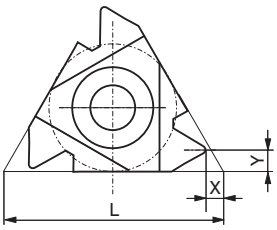
Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	ER X3 Article no. 71 206 ... £		ER Y1 Article no. 71 206 ... £	
16 ER A60	0,5 - 1,5	16	0.8	0.9	22.15	**240**	16.20	**640**
16 ER G60	1,75 - 3	16	1.2	1.7	22.15	**242**	16.20	**642**
16 ER AG60	0,5 - 3	16	1.2	1.7	22.15	**244**	16.20	**644**

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

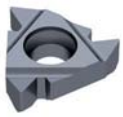
→ v_c Page 67

Left hand external thread turning insert

- Partial profile



CCN 20



CWK 20

Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	EL X3 Article no. 71 208 ... £		EL Y1 Article no. 71 208 ... £	
16 EL A60	0,5 - 1,5	16	0.8	0.9	22.15	**240**	16.20	**640**
16 EL G60	1,75 - 3	16	1.2	1.7	22.15	**242**	16.20	**642**
16 EL AG60	0,5 - 3	16	1.2	1.7	22.15	**244**	16.20	**644**

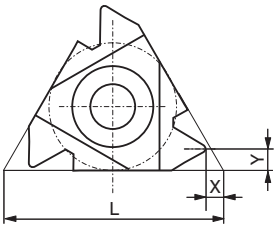
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

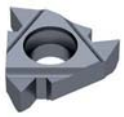
→ v_c Page 67

Right hand internal thread turning insert

- Partial profile

CCN 20 | CWK 20





Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	IR X3 Article no. 71 210 ... £		IR Y1 Article no. 71 210 ... £	
11 IR A60	0,5 - 1,5	11	0.8	0.9	22.15	210	16.20	610
16 IR A60	0,5 - 1,5	16	0.8	0.9	22.15	240	16.20	640
16 IR AG60	0,5 - 3	16	1.2	1.7	22.15	244	16.20	644
16 IR G60	1,75 - 3	16	1.2	1.7	22.15	242	16.20	642

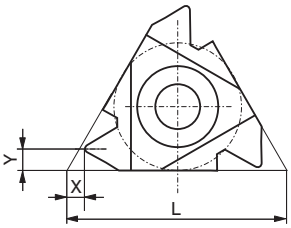
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

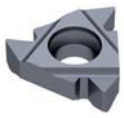
→ v_c Page 67

Left hand internal thread turning insert

- Partial profile

CCN 20 | CWK 20





Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	IL X3 Article no. 71 212 ... £		IL Y1 Article no. 71 212 ... £	
11 IL A60	0,5 - 1,5	11	0.8	0.9	22.15	210	16.20	610
16 IL A60	0,5 - 1,5	16	0.8	0.9	22.15	240	16.20	640
16 IL G60	1,75 - 3	16	1.2	1.7	22.15	242	16.20	642
16 IL AG60	0,5 - 3	16	1.2	1.7	22.15	244	16.20	644

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

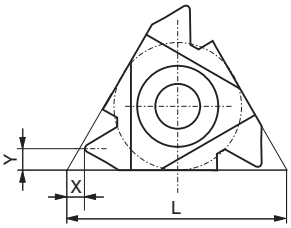
→ v_c Page 67

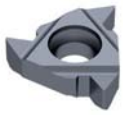
Right hand external thread turning insert

- Partial profile

55°

CCN 20 CWK 20





Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm		ER X3 Article no. 71 200 ... £		ER Y1 Article no. 71 200 ... £	
16 ER A55	48 - 16	16	0.8	0.9	1	22.15	**240**	16.20	**640**
16 ER AG55	48 - 8	16	1.2	1.7	2	22.15	**244**	16.20	**644**
16 ER G55	14 - 8	16	1.2	1.7	3	22.15	**242**	16.20	**642**

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

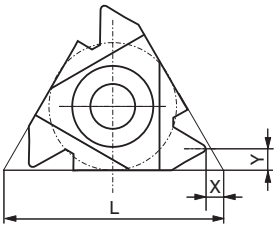
→ v_c Page 67

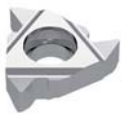
Left hand external thread turning insert

- Partial profile

55°

CCN 20 CWK 20





Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	EL X3 Article no. 71 202 ... £		EL Y1 Article no. 71 202 ... £	
16 EL A55	48 - 16	16	0.8	0.9	22.15	**240**	16.20	**640**
16 EL AG55	48 - 8	16	1.2	1.7	22.15	**244**	16.20	**644**
16 EL G55	14 - 8	16	1.2	1.7	22.15	**242**	16.20	**642**

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

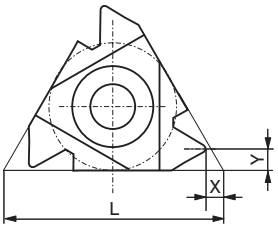
→ v_c Page 67

Right hand internal thread turning insert

- Partial profile

55°

CCN 20 | CWK 20



Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	IR X3 Article no. 71 204 ... £		IR Y1 Article no. 71 204 ... £	
11 IR A55	48 - 16	11	0.8	0.9	22.15	210	16.20	610
16 IR A55	48 - 16	16	0.8	0.9	22.15	240	16.20	640
16 IR AG55	48 - 8	16	1.2	1.7	22.15	244	16.20	644
16 IR G55	14 - 8	16	1.2	1.7	22.15	242	16.20	642

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

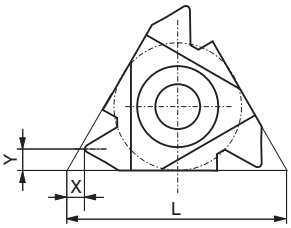
→ v_c Page 67

Left hand internal thread turning insert

- Partial profile

55°

CCN 20 | CWK 20



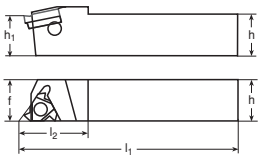
Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	IL X3 Article no. 71 203 ... £		IL Y1 Article no. 71 203 ... £	
11 IL A55	48 - 16	11	0.8	0.9	20.48	210	16.20	610
16 IL A55	48 - 16	16	0.8	0.9	20.48	240	16.20	640
16 IL AG55	48 - 8	16	1.2	1.7	20.48	244	16.20	644
16 IL G55	14 - 8	16	1.2	1.7	20.48	242	16.20	642

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

→ v_c Page 67

Standard External Thread Turning Holder

- Tool Holder with Approach Angle ß = 1,5°



Illustrations show right-hand versions

Designation	h = h_1 H mm	f WF mm	l_1 OAL mm	l_2 LH mm	Insert	Left-hand Y2 Article no. 71 281 ... £		Right-hand Y2 Article no. 71 280 ... £	
SE R/L 08 08 H11	8	11	100	16	11 ..	98.72	**908**	98.72	**908**
SE R/L 10 10 H11	10	11	100	18	11 ..	98.72	**910**	98.72	**910**
SE R/L 12 12 K11	12	12	125	20	11 ..	98.72	**912**	98.72	**912**
SE R/L 12 12 F16	12	16	80	22	16 ..	98.72	**012**	98.72	**012**
SE R/L 16 16 H16	16	16	100	25	16 ..	121.51	**016**	121.51	**016**
SE R/L 20 20 K16	20	20	125	30	16 ..	121.51	**020**	121.51	**020**
SE R/L 25 25 M16	25	25	150	30	16 ..	138.68	**025**	138.68	**025**
SE R/L 32 32 P16	32	32	170	30	16 ..	152.41	**032**	152.41	**032**

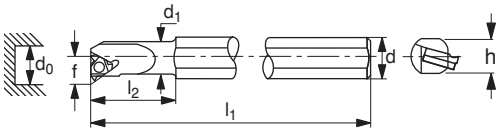
Spare parts for Article no.		Y2 Shim Article no. 71 950 ... £		Y2 Screw-U Article no. 71 950 ... £			Y7 Key D Article no. 80 950 ... £		Y2 Clamping screw Article no. 71 950 ... £	
71 280 908 / 71 281 908						T08	9.52	**110**	1.38	**230**
71 280 910 / 71 281 910						T08	9.52	**110**	1.38	**230**
71 280 912 / 71 281 912						T08	9.52	**110**	1.38	**230**
71 280 012	ER 16 / IL 16	12.91	**121**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 281 012	EL 16 / IR 16	12.91	**129**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 280 016	ER 16 / IL 16	12.91	**121**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 281 016	EL 16 / IR 16	12.91	**129**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 280 020	ER 16 / IL 16	12.91	**121**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 281 020	EL 16 / IR 16	12.91	**129**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 280 025	ER 16 / IL 16	12.91	**121**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 281 025	EL 16 / IR 16	12.91	**129**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 280 032	ER 16 / IL 16	12.91	**121**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 281 032	EL 16 / IR 16	12.91	**129**	1.34	**234**	T10	11.15	**112**	1.34	**231**

Shims for correction of helix angle see page → **Page 65.**

Tool holders for 11 mm indexable inserts are used without insert seats.

Standard Internal Thread Turning Holder

- Tool Holder with Approach Angle ß = 1,5°



Illustrations show right-hand versions

Designation	h H mm	l_1 OAL mm	l_2 LDRED mm	d DCONMS mm	d_1 BDRED mm	f WF mm	d_0 DAXN mm	Insert	Left-hand Y2 Article no. 71 283 ... £		Right-hand Y2 Article no. 71 282 ... £	
SI R 0010 H11	9.0	100		10	10	7.4	12	11 ..			138.68	**011** [1]
SI R/L 0010 K11	14.0	125	25	16	10	7.4	12	11 ..	106.40	**010** [1]	106.40	**010** [1]
SI R 0013 L11	14.0	140	32	16	13	8.9	15	11 ..			113.96	**013** [1]
SI R/L 0013 M16	14.0	150	32	16	13	10.2	16	16 ..	115.88	**015** [1]	115.88	**015** [1]
SI R/L 0016 P16	18.0	170	40	20	16	11.7	19	16 ..	115.88	**016** [1]	115.88	**016** [1]
SI R/L 0020 P16	18.0	170		20	20	13.7	24	16 ..	136.61	**020**	136.61	**020**
SI R 0025 R16	22.6	200		25	25	16.2	29	16 ..			166.14	**026**
SI R/L 0032 S16	28.8	250		32	32	19.7	36	16 ..	178.49	**032**	178.49	**032**
SI R 0040 T16	36.0	300		40	40	23.7	44	16 ..			264.99	**040**

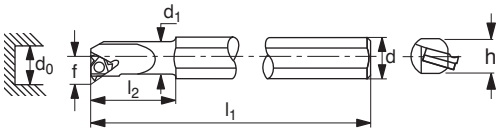
1) without shim

Spare parts for Article no.		Y2 Shim Article no. 71 950 ... £		Y2 Screw-U Article no. 71 950 ... £			Y7 Key D Article no. 80 950 ... £		Y2 Clamping screw Article no. 71 950 ... £	
71 282 011						T08	9.52	**110**	1.38	**230**
71 282 010 / 71 283 010						T08	9.52	**110**	1.38	**230**
71 282 013						T08	9.52	**110**	1.38	**230**
71 282 015 / 71 283 015						T10	11.15	**112**	2.07	**236**
71 282 016 / 71 283 016						T10	11.15	**112**	2.07	**236**
71 282 020	EL 16 / IR 16	12.91	**129**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 283 020	ER 16 / IL 16	12.91	**121**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 282 026	EL 16 / IR 16	12.91	**129**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 282 032	EL 16 / IR 16	12.91	**129**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 283 032	ER 16 / IL 16	12.91	**121**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 282 040	EL 16 / IR 16	12.91	**129**	1.34	**234**	T10	11.15	**112**	1.34	**231**

Shims for correction of helix angle see page → **Page 65.**

Standard Internal Thread Turning Holder with thro' coolant

- Tool Holder with Approach Angle ß = 1,5°



Illustrations show right-hand versions

Designation	h H mm	l_1 OAL mm	l_2 LDRED mm	d DCONMS mm	d_1 BDRED mm	f WF mm	d_0 DAXN mm	Insert	Left-hand Y2 Article no. 71 283 ... £		Right-hand Y2 Article no. 71 282 ... £	
SI R 0010 M11CB	9.0	150		10	10	7.4	12	11 ..			435.23	**510** [2]
SI R 0012 P11CB	11.0	170		12	12	8.4	15	11 ..			462.70	**512** [2]
SI R/L 0010 K11B	14.0	125	25	16	10	7.4	12	11 ..	127.41	**310**	127.41	**310**
SI R/L 0013 M16B	14.0	150	32	16	13	10.2	16	16 ..	138.68	**315**	138.68	**315**
SI R 0016 P16B	18.0	170	40	20	16	11.7	19	16 ..			138.68	**316**
SI R 0020 P16B	18.0	170		20	20	13.7	24	16 ..			163.37	**320** [1]
SI R/L 0032 S16B	28.8	250		32	32	19.7	36	16 ..	201.83	**332** [1]	201.83	**332** [1]

1) with shim seat
2) Carbide version

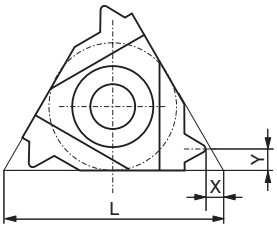
Spare parts for Article no.		Y2 Shim Article no. 71 950 ... £		Y2 Screw-U Article no. 71 950 ... £			Y7 Key D Article no. 80 950 ... £		Y2 Clamping screw Article no. 71 950 ... £	
71 282 510						T08	9.52	**110**	1.38	**230**
71 282 512						T08	9.52	**110**	1.38	**230**
71 282 310 / 71 283 310						T08	9.52	**110**	1.38	**230**
71 282 315 / 71 283 315						T10	11.15	**112**	2.07	**236**
71 282 316						T10	11.15	**112**	2.07	**236**
71 282 320	EL 16 / IR 16	12.91	**129**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 282 332	EL 16 / IR 16	12.91	**129**	1.34	**234**	T10	11.15	**112**	1.34	**231**
71 283 332	ER 16 / IL 16	12.91	**121**	1.34	**234**	T10	11.15	**112**	1.34	**231**

Shims for correction of helix angle see page → **Page 65.**

Right hand internal thread turning insert – Mini size 06

- Full profile

M | 60°



CWS 80 | CCN 1525 | CWN 30

Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	HSS IR Y1 Article no. 71 276 ... £		IR X3 Article no. 71 271 ... £		IR Y1 Article no. 71 276 ... £	
06 IR 0,5	0,50	6	0.9	0.5	24.57	710	21.09	110	24.57	310
06 IR 0,75	0,75	6	0.8	0.5	24.57	712	21.09	112	24.57	312
06 IR 1,0	1,00	6	0.7	0.6	23.13	714	21.09	114	23.13	314
06 IR 1,25	1,25	6	0.6	0.6	24.57	716	21.09	116	24.57	316

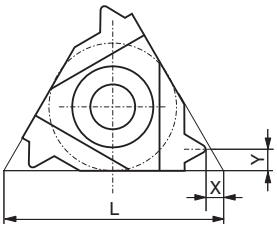
Steel	○	●	●
Stainless steel	●	●	●
Cast iron	○	●	○
Non ferrous metals	○	○	○
Heat resistant alloys			○

→ v_c Page 67

Right hand internal thread turning insert – Mini size 06

- Full profile

BSW | 55°



CWS 80 | CWN 30

Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	HSS IR Y1 Article no. 71 278 ... £		IR Y1 Article no. 71 278 ... £	
06 IR 26	26	6	0.6	0.6	24.57	716	24.57	316
06 IR 22	22	6	0.6	0.6	24.57	720	24.57	320
06 IR 20	20	6	0.6	0.6	24.57	722	24.57	322
06 IR 19	19	6	0.6	0.6	24.57	724	24.57	324
06 IR 18	18	6	0.6	0.6	24.57	726	24.57	326

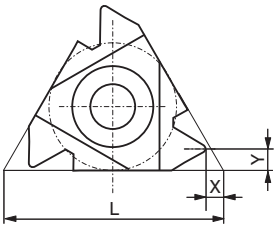
Steel	○	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys		○

→ v_c Page 67

Right hand internal thread turning insert – Mini size 06

- Partial profile

60° | 60°



CWS 80 | CCN 1525 | CWN 30

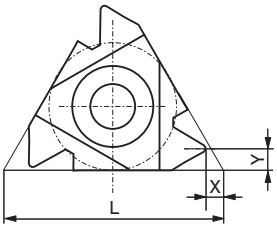
Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	HSS IR Y1 Article no. 71 272 ... £		IR X3 Article no. 71 274 ... £		IR Y1 Article no. 71 272 ... £	
06 IR A60	0,5 - 1,25	6	0.6	0.6	24.57	710	21.09	210	24.57	310
Steel						○		●		●
Stainless steel						●		●		●
Cast iron						○		●		○
Non ferrous metals						○		○		○
Heat resistant alloys										○

→ v_c Page 67

Right hand internal thread turning insert – Mini size 06

- Partial profile

55° | 55°



CWS 80 | CWN 30

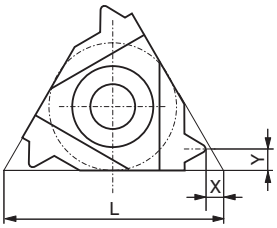
Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	HSS IR Y1 Article no. 71 274 ... £		IR Y1 Article no. 71 274 ... £	
06 IR A55	48 - 20	6	0.5	0.6	24.57	710	24.57	310
Steel						○		●
Stainless steel						●		●
Cast iron						○		○
Non ferrous metals						○		○
Heat resistant alloys								○

→ v_c Page 67

Right hand internal thread turning insert – Mini size 08

- Full profile

M | 60°



CWS 80 | CWN 30

Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	HSS IR Y1 Article no. 71 277 ... £		IR Y1 Article no. 71 277 ... £	
08 IR 0,5	0,50	8	0.6	0.5	24.57	710	24.57	310
08 IR 0,75	0,75	8	0.6	0.5	24.57	712	24.57	312
08 IR 1,0	1,00	8	0.6	0.6	23.13	714	23.13	314
08 IR 1,25	1,25	8	0.6	0.7	24.57	716	24.57	316
08 IR 1,5	1,50	8	0.6	0.7	23.13	718	23.13	318
08 IR 1,75	1,75	8	0.6	0.8	24.57	720	24.57	320
08 IN 2,0	2,00	8	1.0	4.0	29.41	784 1)	29.41	384 1)

Steel	○	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys		○

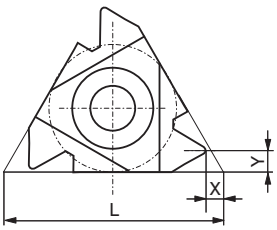
1) Neutral version (N)

→ v_c Page 67

Right hand internal thread turning insert – Mini size 08

- Partial profile

60° | 60°



CWS 80 | CWN 30

Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	HSS IR Y1 Article no. 71 273 ... £		IR Y1 Article no. 71 273 ... £	
08 IR A60	0,5 - 1,5	8	0.6	0.7	24.57	710	24.57	310
08 IN M60	1,75 - 2,0	8	0.8	4.0	29.41	772 1)	29.41	372 1)

Steel	○	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys		○

1) Neutral version (N)

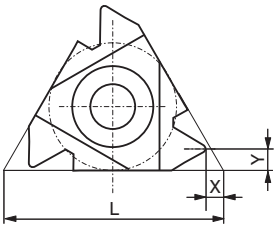
→ v_c Page 67

Right hand internal thread turning insert – Mini size 08

- Partial profile

55° 55°

CWS 80 CWN 30



Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	HSS IR Y1 Article no. 71 275 ... £		IR Y1 Article no. 71 275 ... £	
08 IR A55	48 - 16	8	0.6	0.7	24.57	**710**	24.57	**310**
08 IN M55	14 - 11	8	0.9	4.0	29.41	**772** 1)	29.41	**372** 1)

Steel	○	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys		○

1) Neutral version (N)

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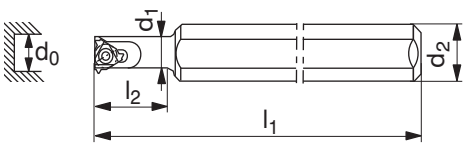
Right Hand Internal Thread Holder – Mini size 06

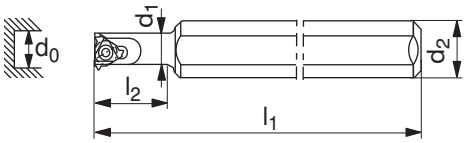


Designation	l_1 OAL mm	l_2 LDRED mm	d_2 DCONMS mm	d_1 BDRED mm	d_0 DAXN mm	Insert	Right-hand Y2 Article no. 71 294 ... £	
SI R 0005 H06	100	12	12	5.2	6	06 ..	176.34	005
SI R 0005 H06 C	100	25	6	5.2	6	06 ..	314.41	105 1)

1) Solid Carbide Shank with Thro' Coolant

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £		Y2 Clamping screw Article no. 71 950 ... £	
71 294 005	T06	10.31	108	3.04	029
71 294 105	T06	10.31	108	3.04	029

Right Hand Internal Thread Holder – Mini size 08



Designation	l_1 OAL mm	l_2 LDRED mm	d_2 DCONMS mm	d_1 BDRED mm	d_0 DAXN mm	Insert	Right-hand Y2 Article no. 71 295 ... £	
SI R 0007 K08	125	18	16	6.7	7.8	08 ..	176.34	007
SI R 0007 K08U	125	21	16	7.5	9.0	08 .N	200.70	008 1)
SI R 0007 K08C	125	30	8	6.5	7.8	08 ..	350.03	107 2)

1) Neutral insert indicated by marking (N)
2) Solid Carbide Shank with Thro' Coolant

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £		Y2 Clamping screw Article no. 71 950 ... £	
71 295 007	T06	10.31	108	3.04	033
71 295 008	T06	10.31	108	3.04	033
71 295 107	T06	10.31	108	3.04	033

Shims for Standard Threading Inserts

Pitch-angle β	AE 16 ER 16 / IL 16 Y2 Article no. 71 950 ... £		AI 16 EL 16 / IR 16 Y2 Article no. 71 950 ... £	
+ 4,5°	12.53	118	12.53	126
+ 3,5°	12.53	119	12.53	127
+ 2,5°	12.53	120	12.53	128
+ 1,5°	12.91	121	12.91	129
+ 0,5°	12.53	122	12.53	130
0°	12.53	123	12.53	131
- 0,5°	12.53	124	12.53	132
- 1,5°	12.53	125	12.53	133

Material examples referring to the WNT cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5% Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0,5 - 10% Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10 - 15% Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15% Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

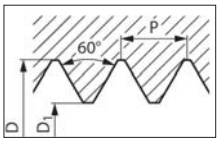
Cutting data appoximate values

	Mini CWN 30	Mini CWS 80	Mini CCN 1525	CCN 20	CWK 20
Index	v_c in m/min				
1.1	**20–100**	30–50	**80–100**	**120–180**	
1.2	**20–100**	30–50	**80–100**	**140–200**	
1.3	**20–100**	30–50	**80–100**	**110–180**	
1.4	**20–80**	25–40	**60–80**	**100–155**	
1.5	**20–80**	25–40	**90–110**	**110–180**	
1.6	**20–80**	25–40	**90–110**	**100–155**	
1.7	**20–100**	30–50	**50–60**	**110–180**	
1.8	**20–80**	25–40	**50–60**	**80–135**	
1.9	**20–100**	25–40	**60–80**		
1.10	**20–80**	25–40	**50–60**		
1.11	**20–80**	25–40	**50–60**		
1.12	**20–80**	25–40	**50–60**	**80–135**	
1.13		25–40	**50–60**		
1.14			**50–60**		
1.15			**50–60**		
1.16			**50–60**		
2.1	**20–70**	**10–25**	**40–50**	**70–120**	
2.2	**20–70**	**10–25**	**40–50**	**70–120**	
2.3	**20–70**	**10–25**	**40–50**	**60–95**	
2.4	**20–70**	**10–25**	**40–50**	**60–95**	
2.5	**20–70**	**10–25**	**40–50**	**40–90**	
2.6	**20–70**	**10–25**	**40–50**	**70–100**	
2.7	**20–70**	**10–25**	**40–50**	**70–100**	
3.1	40–90	20–40	**60–80**		**70–100**
3.2	40–90	20–40	**60–80**		**70–100**
3.3	40–90	20–40	**60–80**		**70–100**
3.4	40–90	20–40	**60–80**		**70–100**
3.5	40–90	20–40	**50–70**		**70–100**
3.6	40–90	20–40	**50–70**		**70–100**
3.7	40–90	20–40	**50–70**		**70–100**
3.8	40–90	20–40	**50–70**		**70–100**
4.1	80–180	40–100	550–570		**100–250**
4.2	80–180	40–100	300–330		**100–250**
4.3	60–150		300–330		**100–250**
4.4	60–130		300–330		**100–250**
4.5	40–120		300–330		**100–250**
4.6	80–150	40–80	120–150	80–200	**100–250**
4.7	80–150	40–80	110–130	80–200	**100–250**
4.8	80–150	40–80	110–130	80–200	**100–250**
4.9	80–150	40–80	110–130	80–200	**100–250**
4.10	80–150	40–80	100–120	80–200	**100–250**
4.11	80–150	40–80	100–120	80–200	**100–250**
4.12	80–150		100–120	80–200	**100–250**
4.13			180–200		
4.14			180–200		
4.15			180–200		
4.16			60–80		**100–250**
4.17			60–80		**100–250**
4.18			60–80		**100–250**
4.19			60–80		**100–250**
5.1					
5.2					20–30
5.3					20–30
5.4					20–30
5.5					20–30
5.6					20–30
5.7					
5.8					
5.9	20–90				25–50
5.10	20–90				20–30
5.11	20–90				20–30
6.1					
6.2					
6.3					
6.4					
6.5					

The cutting data depends extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced according to the application conditions.

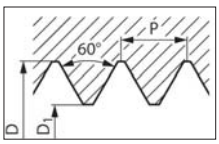
Tapped hole pilot diameter

M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1-M1,4 = 5H)



Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M1	0,25	0,729	0,785	0,75
M1,1	0,25	0,829	0,885	0,85
M1,2	0,25	0,929	0,985	0,95
M1,4	0,3	1,075	1,142	1,1
M1,6	0,35	1,221	1,321	1,25
M1,8	0,35	1,421	1,521	1,45
M2	0,4	1,567	1,679	1,6
M2,2	0,45	1,713	1,838	1,75
M2,5	0,45	2,013	2,138	2,05
M3	0,5	2,459	2,599	2,5
M3,5	0,6	2,850	3,010	2,9
M4	0,7	3,242	3,422	3,3
M4,5	0,75	3,688	3,878	3,7
M5	0,8	4,134	4,334	4,2
M6	1,0	4,917	5,153	5
M7	1,0	5,917	6,153	6
M8	1,25	6,647	6,912	6,8
M9	1,25	7,647	7,912	7,8
M10	1,5	8,376	8,676	8,5
M11	1,5	9,376	9,676	9,5
M12	1,75	10,106	10,441	10,2

MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1



Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M2	x	0,25	1,729	1,774	1,75
M2,2	x	0,25	1,929	1,974	1,95
M2,5	x	0,35	2,121	2,221	2,15
M3	x	0,35	2,621	2,721	2,65
M3,5	x	0,35	3,121	3,221	3,15
M4	x	0,35	3,621	3,721	3,65
M4	x	0,5	3,459	3,599	3,5
M4,5	x	0,5	3,959	4,099	4
M5	x	0,5	4,459	4,599	4,5
M6	x	0,5	5,459	5,599	5,5
M6	x	0,75	5,188	5,378	5,2
M8	x	0,75	7,188	7,378	7,2
M8	x	1,0	6,917	7,153	7
M10	x	0,75	9,188	9,378	9,2
M10	x	1,0	8,917	9,153	9
M10	x	1,25	8,647	8,912	8,8
M12	x	1,0	10,917	11,153	11
M12	x	1,5	10,376	10,676	10,5

Tap Type Explanation

Stabil

Through hole tap type Stabil

- For through holes up to 4xD
- Lead Form B: 3.5-5 cutting leads, with spiral point
- Straight Flutes
- Also suitable for synchronised machining, with Wedlon flat and with extra long version
- Due to the special geometry of the flutes, the chips are removed in the direction of cut

Salo-Rex

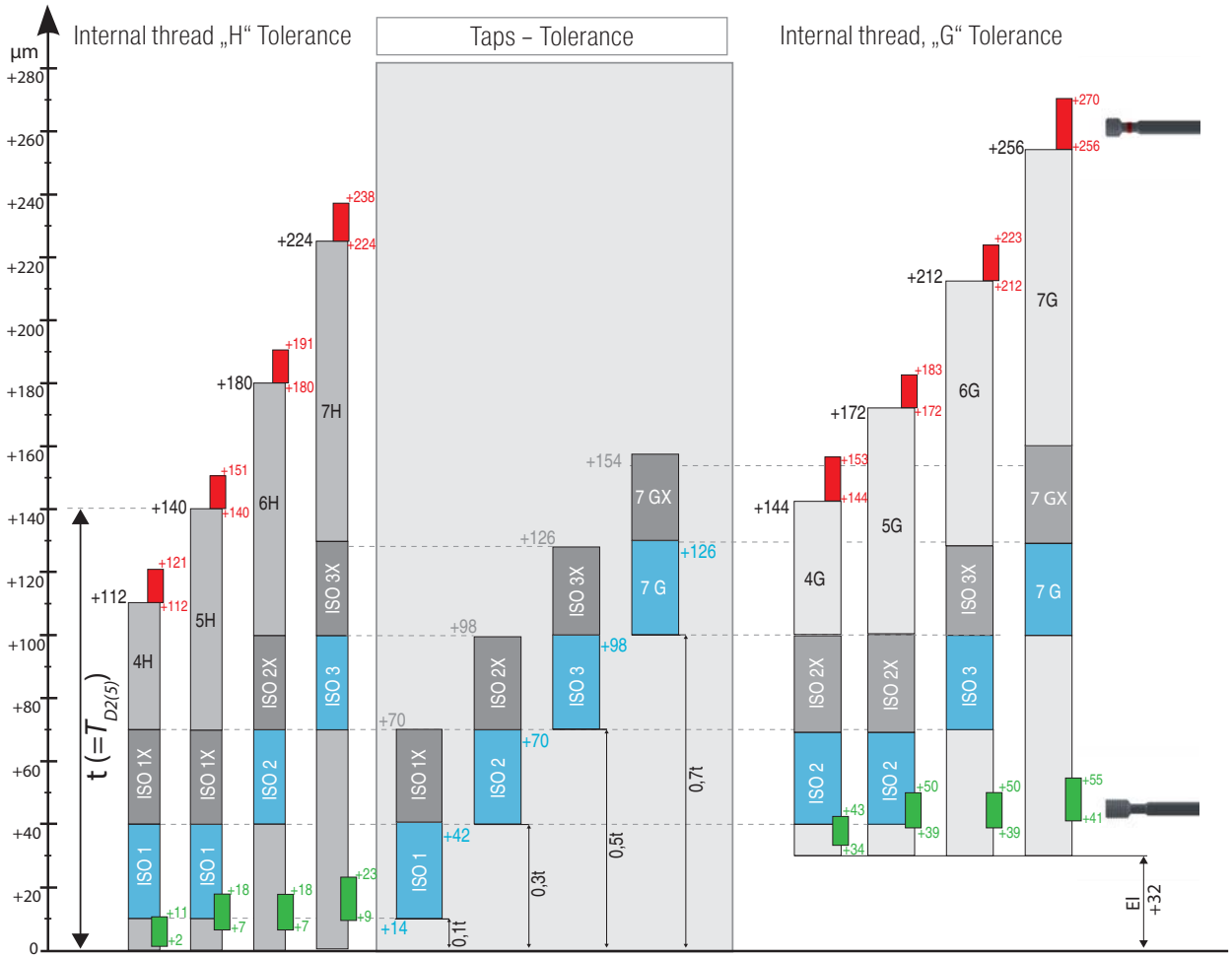
Blind hole tap type Salo-Rex

- For blind holes up to 3xD
- Lead Form C: 2-3 cutting leads, without spiral point
- Lead Form E: 1.5-2 cutting leads, without spiral point
- (35°, 42°, 45°, 50°) right hand helix
- Also suitable for syncronised machining, with Weldon flat, with extra long version and through coolant
- The high helix angle ensures chips are discharged effectively against the direction of cut

WNT Shank Types

Shank type		Thread types			
		M, UNC, BSW	MF, UNF	UNJF	G
HSS taps					
short version		DIN 352	DIN 2181		DIN 5157
with reinforced shank		DIN 371	DIN 371	DIN 371	
with reduced shank		DIN 376	DIN 374		DIN 5156
Thread formers					
with reinforced shank		DIN 2174	DIN 2174		
with reduced shank		DIN 2174	DIN 2174		DIN 2189
Dies					
		DIN EN 22568	DIN EN 22568		DIN EN 24231

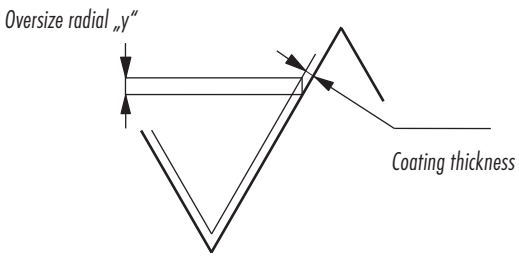
Thread tolerances and recommended manufacturing tolerances



Example of M10 in microns

Workpieces to be plated require oversize taps.
The interference depends on the coating thickness and the flank angle.

at	60° Flank angle	Oversize 4 x coating thickness
	55° Flank angle	Oversize 4.331 x coating thickness
	30° Flank angle	Oversize 7.727 x coating thickness



Application class of the tap Designation according to		Tolerance class of the internal thread to be cut				
DIN	ISO					
4H	ISO1	4H	5H	–	–	–
6H	ISO2	4G	5G	6H	–	–
6G	ISO3	–	(4E)	6G	7H	8H
7G	–	–	–	(6E)	7G	8G

For special applications, e.g. abrasive cast iron materials or plastics, other dimensions must be chosen that are determined based on previous experience. In such cases, an "X" is added to the short designation of the tolerance class, e.g. ISO 2X, whereby the tolerance field assignment to the internal thread may be limited (6HX for tolerance field 6H and 5G). In addition, it must be taken into account that the dimensions of the cut internal thread not only depend on the dimensions of the tap, but also on the material to be machined and all production conditions. No thread dimensions are determined for taper and intermediate taps.

Troubleshooting

Poor tool life

Cause

- Overload fractures of the cutting edge on the lead
- Hardness or tool material not suitable for the application
- Pilot hole too small or work hardened
- Insufficient lubrication or incorrect application parameters

Remedy

- A longer lead or more flutes for the same lead length, giving a greater number of cutting teeth
- In reground tools, the hardness can be reduced; apply correct parameters for regrinding
- Increase frequency of changes or regrinding of the drilling tool
- Use the correct application parameters for the drilling tool
- Select the correct lubricant and ensure adequate supply

Axial thread error

Cause

- Selected cutting edge geometry is not suitable
- Spindle speed does not match feed (synchronisation error)
- Blind hole taps are used with a feed pressure that is too high
- Through hole taps are used with a feed pressure that is too low

Remedy

- Check programming and pitch control or machine synchronisation
- Use tapping chuck with length compensation
- Increase retraction feed pessure
- Increase feed pessure

Oversize thread

Cause

- Thread tolerances of tool and thread gauge do not match
- Burred tool edges after regrinding
- Cold pressure welding

Remedy

- Use correct tolerances for tool and thread gauge
- Carefully deburr
- Use appropriate (positive) geometry
- Reduce cutting speed
- Use a different surface treatment or coating
- Use a tapping chuck with length compensation
- Use appropriate lubricant

Broken tool

Cause

- Tool is worn
- Tool has hit the bottom of the hole
- Weld deposits
- Pilot hole too small
- Chip trapping
- Incorrect cutting speed
- Chip jams in the flute
- Insufficient coolant/lubrication

Remedy

- Use set taps
- Use a tool with a lower helix angle
- Use tools with a shorter/longer lead
- Check the predrilling depth and thread depth
- Drill pilot hole deeper
- Use a tool with a shorter lead
- Correct the cutting speed
- Use a different coating or surface treatment
- Use an adapter with length compensation
- Use suitable lubricant
- Use the correct pilot hole diameter
- Change geometry and/or flute type
- Note chip shape and chip formation

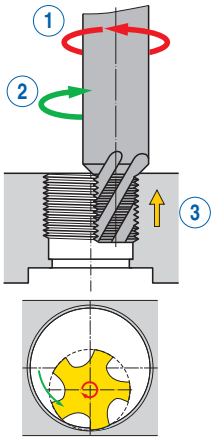
Milling Procedures

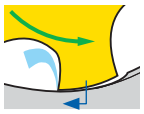
Climb milling

Characteristics:

1. Tool rotation direction „right“
2. Toolpath counter clockwise
3. Feed direction „outwards“

Right hand thread





When climb milling, the chip thickness at the end of cut is always 0 (h=0)

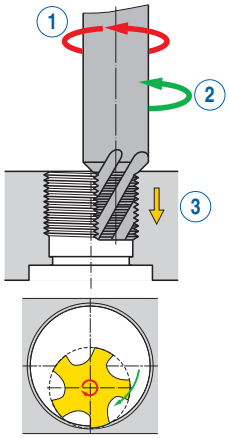
h = 0

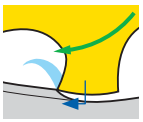
Conventional milling

Characteristics:

1. Tool rotation direction „right“
2. Toolpath clockwise
3. Feed direction „inwards“

Right hand thread

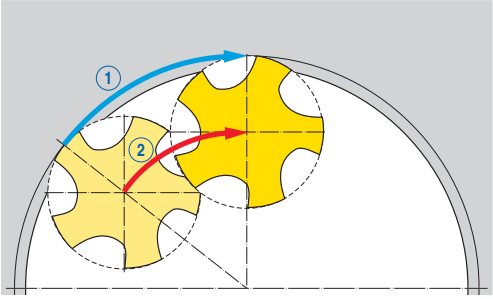




When conventional milling, the chip thickness at the end of cut is always at maximum (h=max)

h = max

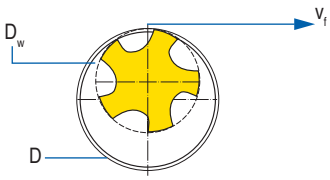
Feed rate calculation



1. Peripheral feedrate v_f
2. Centerline feedrate v_{fm}

Peripheral feedrate v_f

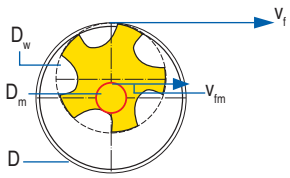
$$v_f = n \cdot f_z \cdot z$$ mm/min.



D_w = Effective diameter in mm
n = RPM in min^{-1}
f_z = Feed per tooth in mm

Centerline feedrate v_{fm}

$$v_{fm} = \frac{v_f \cdot (D - D_w)}{D}$$ mm/min.



z = Number of cutting edges (radial)
D = Nominal thread diameter = external profile diameter in mm
D_m = Centre path diameter ($D-D_W$) in mm

Tips for the User

With thread milling there are two different programme possibilities with the feed motion of the tool.

On the one hand the machine controls the feed at the diameter of the tool, on the other hand the feed control is the tool center line.
In order to ascertain which method the machine control uses, the following method should be employed:

- Enter the thread milling routine into the control.
- Enter a safety margin into the program, so that the tool runs in air.
- Run the program through and check the operating time.
- Compare the actual time with the calculated theoretical time.

If the time is longer than the calculated time the feed is controlling the tool center line.
If the time is shorter than the calculated time the feed is controlling the diameter of the tool.

Numeric calculation of cutting data for thread milling

$$n = \frac{v_c \cdot 1000}{d \cdot \pi}$$

$$v_c = \frac{d \cdot \pi \cdot n}{1000}$$

$$v_f = f_z \cdot z \cdot n$$

$$n = \frac{v_f}{f_z \cdot z}$$

$$f_z = \frac{v_f}{z \cdot n}$$

Milling - external contour

$$v_{fm} = \frac{v_f \cdot (D + d)}{D}$$

$$v_f = \frac{D \cdot v_{fm}}{(D + d)}$$

Milling - internal contour

$$v_{fm} = \frac{v_f \cdot (D - d)}{D}$$

$$v_f = \frac{D \cdot v_{fm}}{(D - d)}$$

Helical plunging

$$U_{arc} = 0{,}25 \cdot v_{fm}$$

Ramping in the arc

$$U_{arc} = v_{fm}$$

n	=	rpm	rev./min.
v_c	=	Cutting speed	m/min
d	=	Tool diameter	mm
D	=	Nominal thread-Ø	mm
v_f	=	Feed rate at the diameter	mm/min.

v_{fm}	=	Feed rate at the centre	mm/min.
U_{arc}	=	programmed ramping feed rate	mm/min.
f_z	=	Feed per tooth	mm
z	=	number of cutting edges of the cutter	Piece

Correction values for the internal thread milling

The cutting edge diameter of the thread milling cutter which is entered into the machine control, can be calculated as follows

half the cutter Ø - 0.05 x pitch p

Example: M30x3
Cutter-Ø: 20 mm

$$Ø\,\frac{20}{2} - (0{,}05 \cdot 3) = \underline{\underline{9{,}85\ \text{mm}}}$$

9,85 mm is the cutting radius to be entered into the machine control

Pitch angle

Important Information about Standard Shims

- the pitch angle should be determined through calculation or by using the chart below
- the standard WNT threading holder is supplied with a 1.5 ° inclined insert seat and a shim without angular correction.
  Hence the WNT Tool holders are delivered with an angle of inclination β of 1.5 °.

Without the appropriate correction of the helix angle, the following may occur

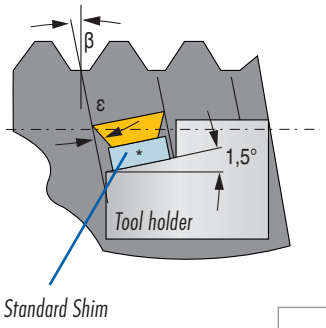
- the profile will be distorted.
- insufficient clearance angle.
- the tool life of the insert is greatly reduced.

Method 1: Calculation

Calculating the helix angle β:

$$\beta = \frac{20 \times p}{D}$$

20 = constant
β = Helix angle (°)
p = Pitch (mm)
D = Nominal diameter (mm)



Example calculation

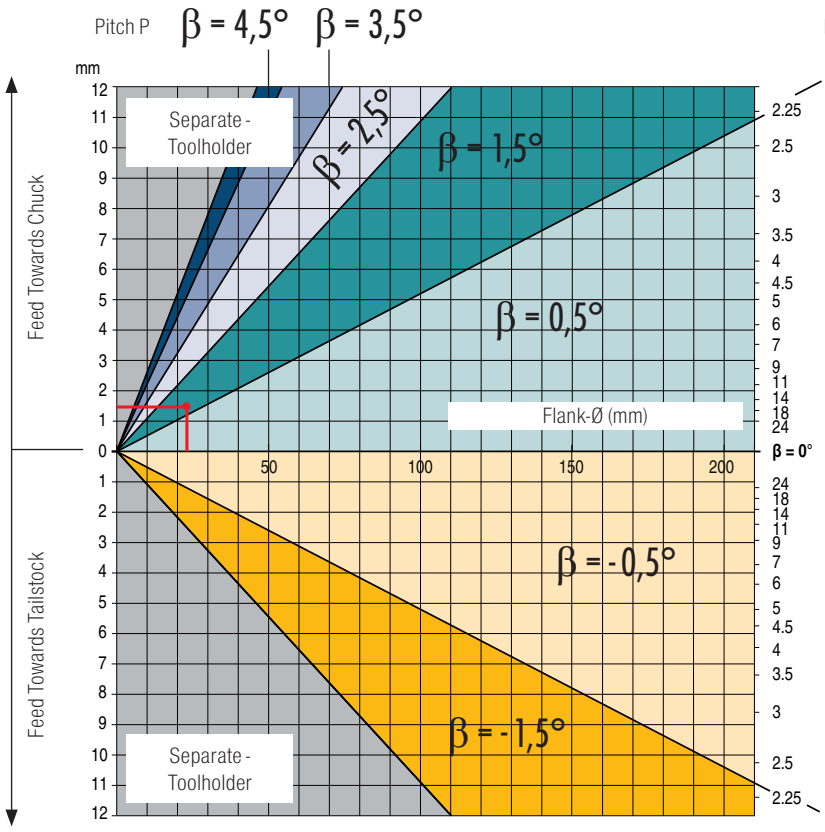
External thread M24 x 1.5
Feed towards chuck
D = Nominal Ø – M24 = 24 mm
p = Pitch – 1.5 mm

$$\beta = \frac{20 \times 1{,}5 \text{ mm}}{24 \text{ mm}}$$

β = 1,25°

Method 2: Diagram

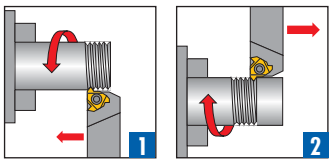
From the flank Ø in the diagram, a line is drawn vertically upwards until it intersects with the line of the pitch of the thread to be produced. In the color-coded region in which it is now, a horizontal line to the edge of the chart indicates the appropriate factor.



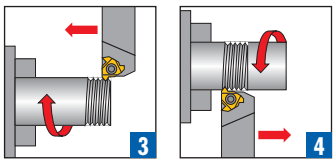
calculated pitch angle β value	Shim
0,0°–0,99°	0,5°
1,0°–1,99°	1,5°
2,0°–2,99°	2,5°
3,0°–3,99°	3,5°
4,0°–4,99°	4,5°
0,0°–(-0,99°)	-0,5°
-1,0°–(-1,99°)	-1,5°

Thread turning methods

External right-hand thread

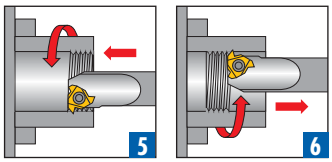


External left-hand thread

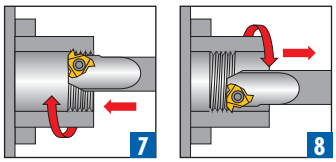


Applications 2, 4, 6 and 8 require negative insert seats.
These inserts can be found on → **Page 65.**

Internal right-hand thread

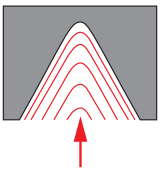


Internal left-hand thread



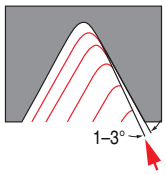
Thread infeed methods

Radial Infeed



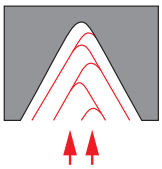
- for pitches less than 1.5 mm
- for short chipping materials
- for machining hardened materials
- simple and quick method

Flank infeed



- for pitches larger than 1.5 mm
- with radial penetration the effective cutting edge length is too large, which may lead to chattering
- with trapezoidal and ACME threads, chip flow on three sides can be problematic

Alternating infeed



- with large pitches
- for long chipping materials
- uniform wear of the cutting edges
- complicated programming process

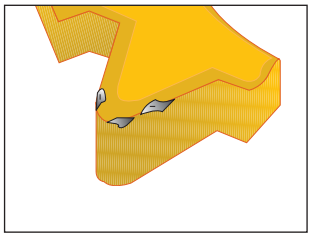
Recommended number of cuts and cutting depths

Standard Threading Inserts

Pitch	mm	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,50	3,00	3,50	4,00	4,50	5,00	5,50	6,00	8,00
	TPI	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4	3
Number of passes		4–6	4–7	4–8	5–9	6–10	7–12	7–12	8–14	9–16	10–18	11–18	11–19	12–20	12–20	12–20	15–24
Number of passes	Mini Inserts	6–9	6–11	6–12	8–14	9–15	11–18	11–18									

Troubleshooting

Edge chipping



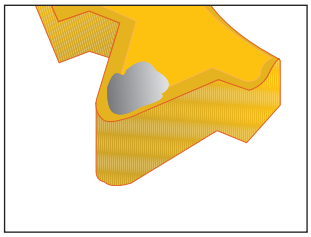
Cause

- Common in stainless materials
- Incorrect grade

Corrective measures

- Minimize tool overhang length
- Check that the insert is clamped
- Minimize vibration
- Use a tougher grade

Cratering



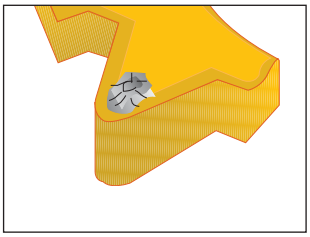
Cause

- Common in stainless materials
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Use a harder grade

Built-up edge



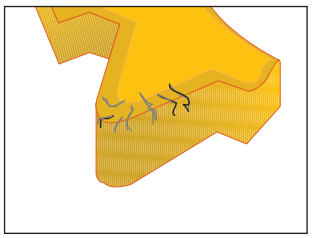
Cause

- Cutting speed too low
- Incorrect grade

Remedy

- Apply coolant
- Increase cutting speed
- Use a tougher grade

Thermal cracking



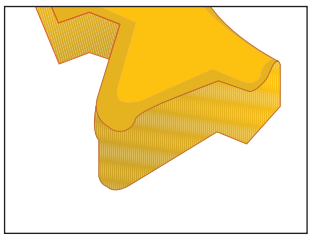
Cause

- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce cutting speed
- Use a tougher grade

Plastic deformation



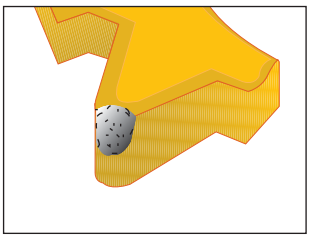
Cause

- Infeed too large
- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Reduce cutting speed
- Use a harder grade

Breakage



Cause

- Infeed too large
- Insufficient coolant
- Plastic deformation
- Instability
- Helix angle not appropriate
- Incorrect grade

Remedy

- Reduce depth of cut
- Check machine and tool stability
- Reduce cutting speed
- Check helix angle
- Use a tougher grade

WNT Designation Key

Inserts

16	E	R	AG 60	

Insert size

L	I.C.
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"

Insert

E	External
I	Internal

Cutting design

R	Right-hand
L	Left-hand
N	neutral

Pitch

Full profile

	mm	G/Z
	0,35	72–4

Partial profile

	mm	G/Z
A	0,5–1,5	48–16
AG	0,5–3,0	48–8
M	1,7–2,0	14–11
G	1,75–3,0	14–8
N	3,5–5,0	7–5
U	5,5–8,0	4,5–3,5

Flank angle
55°
60°

Number of teeth

2M	Multi-tooth insert with 2 teeth
3M	Multi-tooth insert with 3 teeth

Example

16 ER AG 60
ER16 right hand - external insert with a pitch of 0.5-3.0 mm

Tool holder

SE	R	1212	F	16	

Tool holder

SE	External
SI	Internal

Cutting design

R	Right-hand
L	Left-hand

Shank cross-section

Example	
External holder square shank	1212 = 12 mm x 12 mm
Internal boring bar	0020 = 20 mm Diameter

Overall length

	mm
F	80
H	100
K	125
L	140
M	150
P	170
R	200
S	250
T	300

Insert size

L	I.C.
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"

Properties

B	Diameter
C	with thro' coolant
U	with carbide shank

Example

SE R 1212 F 16
Right hand holder with 12 x 12 mm square shank, overall length of 80 mm, only suitable for an ER16 threading insert

Thread types

M	ISO metric coarse thread DIN 13
MF	ISO Metric fine thread DIN 13
MJ	Metric thread for the aviation industry
G	Whitworth pipe thread DIN-EN-ISO 228
UNC	Unified coarse thread ASME - B1.1
UNF	Unified fine thread ASME - B1.1
UNJC	Unified Coarse Thread ASME - B1.15 and ISO 3161
UNJF	Unified fine thread ASME - B1.15 and ISO 3161
BSW	Whitworth thread BS84
BSF	Whitworth fine thread
UN	Unified thread
UNEF	American Unified Thread (Extra Fine)

Tap Types

Tool type

Stabil	for through holes to 4xD
Salo-Rex	for blind holes up to 3xD, high helix angle for secure chip evacuation
SL	for blind holes up to 2xD, 15°, 25° or 30° helix angle

Application range:

UNI	for universal application

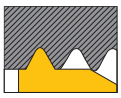
Circular and thread milling cutter types

Tool type

Micro Mill	Solid Carbide Circular End Milling Cutter
Mini Mill	Circular milling cutter with solid carbide insert
SGF	Thread milling cutter

Profile Type Description

Full profile



- Core diameter does not have to be machined to the finished core diameter
- A minimum infeed of 0.07 mm is required
- Insert can only be used for one pitch

Partial profile

- Core diameter must be premachined to the final dimension
- A minimum infeed of 0.07 mm is required
- One threading insert can be used to machine several pitches
- The threading insert can therefore be used for any application

Mini Thread Turning Insert

- From a min. core hole diameter of Ø 6 mm or Ø 8 mm

Coatings and Grades

HSS taps

vap.

Vaporised
- Good lubricant carrier
- Oxide layer creates surface protection and prevents cold welding

vap. + nitr.

Vapourised + **nitrided**,
Combination of increased surface hardness and lubricant carrier

TiCN

Titanium Carbon Nitride coating,
- high hardness
- high toughness
- high wear resistance
- for abrasive materials

TiN

Titanium nitride coated,
- high wear resistance
- good sliding properties
- ideal for universal use

Thread milling cutters

CWX 500

Universal grade that is distinguished by good toughness / hardness ratio.

Ti 500

- TiAIN based coating
- Universal application
- High temperature resistance
- Smooth and droplet-free surface

Circular milling cutters

CWX 500

Universal grade that is distinguished by good toughness / hardness ratio.

Thread turning

CCN 20

- TiALN coated
- for low cutting speeds

CCN 1525

- TiN coated
- for insert size 06mm and 08mm (Internal machining)
- for low cutting speeds

CWK 20

- Uncoated
- Particularly suitable for non-ferrous metals, aluminium alloys and cast iron

CWN 30

- TiN coated
- for insert size 06mm and 08mm (Internal machining)
- for low cutting speeds

CWS 80

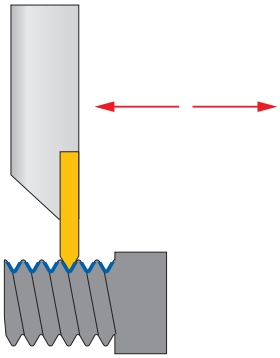
- HSS
- TiN coated
- For insert size 06 mm and 08 mm (internal machining)
- Also for exotic materials
- For low cutting speeds

Overview Thread Turning Types

Further thread turning options can be found in the chapters below.

Thread turning for automatic lathes System 25 & 45

TiAlN coated carbide insert for external threading on automatic lathes.



Carbide indexable inserts with a pitch of 0.25 mm–2.0 with appropriate tool holders can be found in → **Turning**.

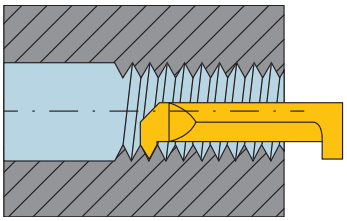
TC Threading System

Mono and Modular Systems for Internal and External Thread Turning.

TC thread inserts with appropriate tool holders can be found in → **Grooving**.

UltraMini

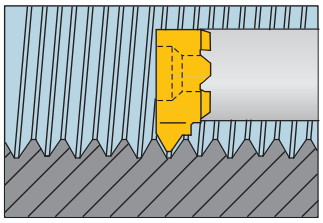
TiN and TiAlN coated carbide cutting inserts for internal threading from $D_{min.}$ Ø 2.4 mm.



Cutting inserts for thread turning and other applications with the appropriate tool holders can be found in → **Miniature turning**.

MiniCut

TiALN carbide inserts for internal threading from $D_{min.}$ Ø 8 mm.



Cutting inserts for thread turning and other applications with the appropriate tool holders can be found in → **Miniature turning**.

Special manufacturing methods

The thread production process is of great importance for mass-produced parts and the medical industry in particular, e.g. for traditional bone screws. The – in some cases very long – threads must be of maximum quality and must be produced in the shortest space of time and at an extremely high productivity rate. One option for meeting these requirements is thread whirling.

Advantages of thread whirling

- Ideal for very long threads
- Optimised for large pitches
- Extremely high productivity
- Excellent surface qualities
- Maximum chip control

We would be happy to assist in shaping your processes. In order to provide you with the right tools quickly and effectively, there are several ways to get in touch with us:

Technical Advice

Interested in tools for thread whirling?

Our Technical Sales Engineers would be happy to advise you. You can of course also talk to our in-house Technical Sales Engineers by calling our freefone number.

Enquiry Form

If you would like to submit an enquiry regarding thread whirling, you can find a detailed enquiry form on our homepage in the download area. Please fill in this form carefully and send it to us via email or fax. → **www.wnt.com/uk/download/**

Please have the following information to hand:

- The machine to be used for production (Manufacturer and type)
- The turning apparatus to be used (Manufacturer and type)
- The type of thread to be produced (multi-start, single-start)
- The material to be machined
- Detailed drawing of the thread

Drilling

HSS drilling

Solid carbide drilling

Reamers

1

Threading

HSS taps

Circular and Thread Milling

Thread turning

2

Turning

Turning Tools

EcoCut

Grooving Tools

Miniature turning tools

3

Milling

Solid Carbide milling cutters

4

Clamping

5

Material examples and article no. index

6

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VertiClamp	52–85
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Coolant connections	123+124
Technical Information	125–157
EcoCut	158–185
Grooving Tools	186–259
Miniature turning tools	260–315

WNT MASTERTOOL PERFORMANCE

Premium quality tools for high performance.

The premium quality tools from the **WNT Mastertool Performance** product line have been designed for specific applications and are distinguished by their outstanding performance.
If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

WNT MASTERTOOL STANDARD

Quality tools for standard applications.

The quality tools of the **WNT Mastertool Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide.
Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Overview

ISO turning

WNT Toolfinder → 3

Selection of turning inserts with common ISO geometries in various cutting material grades.

VertiClamp/System 25 & 45

WNT Toolfinder → 52

Specialised systems for use on sliding head lathes with vertically positioned indexable inserts.

TriClamp/VCGT system

WNT Toolfinder → 109

ISO turning inserts with optimised cutting edge for improving the surface quality or increasing the feed rate.

SOGX system

Overview → 119

Tangential indexable insert system specially developed for sliding head lathes with four cutting edges.

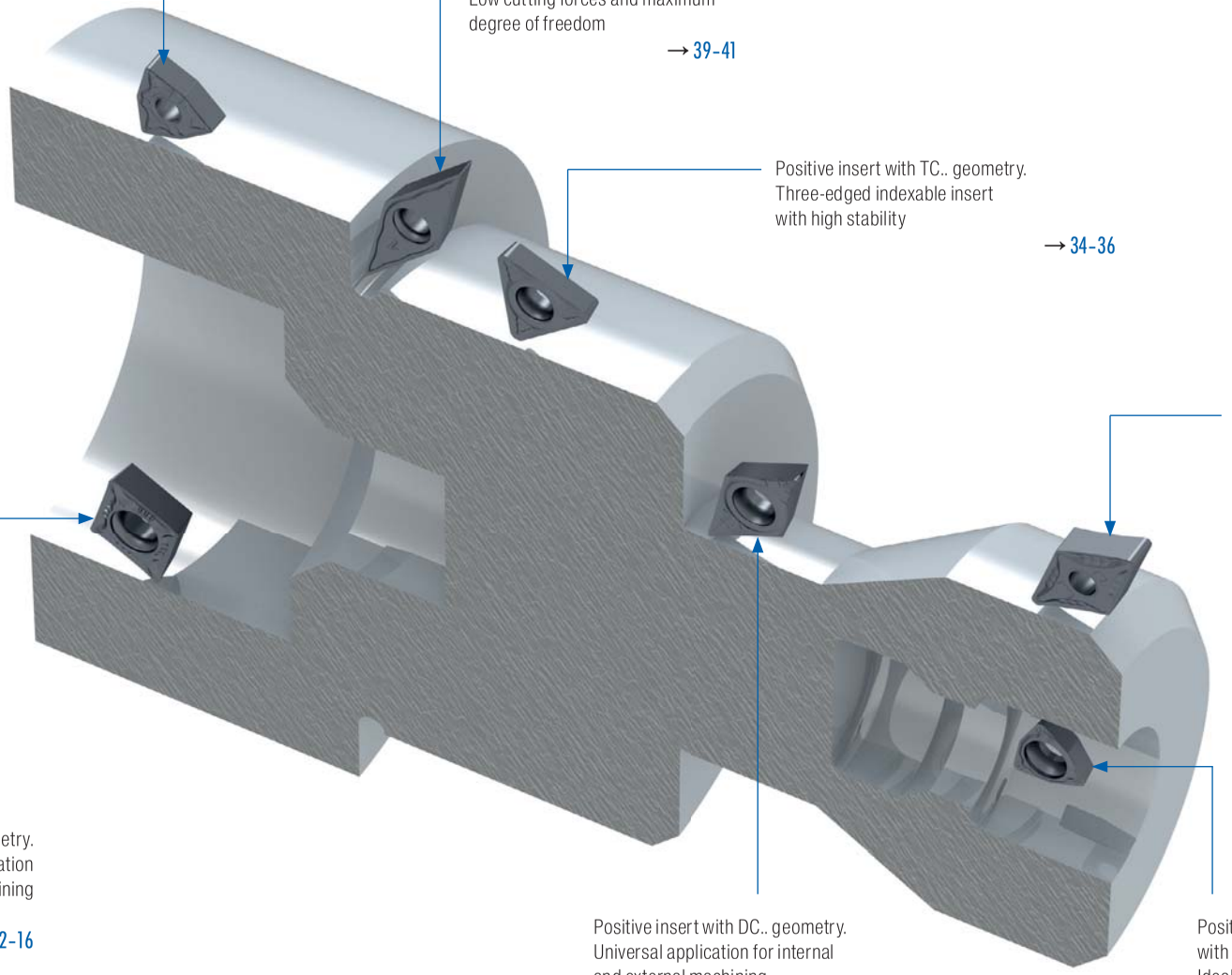
XheadClamp

Overview → 48

Exchangeable head system for standard turning and grooving operations.

Further indexable inserts and tool holders can be found in our → **main catalogue in Chapter 8 Turning Tools**

WNT Toolfinder



Negative indexable insert with WN.. geometry.
Six-edged indexable insert, ideal for roughing

→ 9+10

Positive insert with VC.. geometry.
Low cutting forces and maximum degree of freedom

→ 39-41

Positive insert with TC.. geometry.
Three-edged indexable insert with high stability

→ 34-36

Negative indexable insert with DN.. geometry.
Four-edged indexable insert, ideal for sloping contours

→ 5+6

Positive insert with CC.. geometry.
Two-edged indexable insert, universal application for internal and external machining

→ 12-16

Positive insert with DC.. geometry.
Universal application for internal and external machining

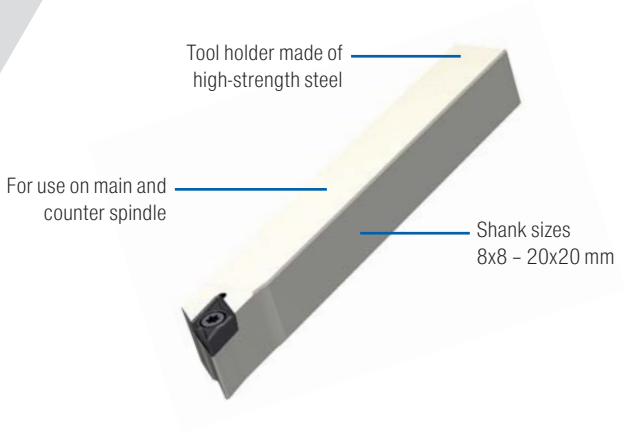
→ 22-26

Positive mini indexable insert with WC.. geometry.
Ideal for internal machining

→ 46

Highlights

- ISO turning inserts in many geometries
  Wide range for every application
- Tailored carbide grades
  Machining of all main material groups
- Wide range of chip breakers
  Effective chip control
- Innovative Dragonskin coatings
  Suitable layer system for all materials
- Tool holders with various setting angles
  Can be perfectly tailored to the component



Overview

sharp ↑ / stable ↓

	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Geometries DN..	Geometries WN..
-F32	●	●	●	○	●	5	
-NF23	○	●				5	9
-NF15	●	○	○		○	5	9
-NM23	○	●				5	9
-NM15	●	○	○		○	5	9
-NM26	○	●			○		9
-M42	○	●				5	10
-M52		○	○	○	●		10
-NM19	●	●	○		●	6	10
Suitable tool holders						7+8	11

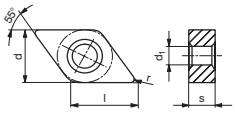
sharp ↑ / stable ↓

	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Geometries CC..	Geometries DC..	Geometries TC..	Geometries VC..	Geometries WC..
-F23		●	○	○	●	12	22		39	
-PF23	○	●				12	22	34		
-F43	○	●			●	12	22	34		
-ZF	●	●	○		●	13	23	34	39	46
-23P			○	●	○	13	23			
-SMF	●	○	○		○	13	23	34	39	
-PF26	○	●				14	23	34		
-FM37	●	●	●	●	○		24			
-SMQ							24			
-25P	○	○	○	●	○	14	24		39	
-25Q	○	○	○	●	○	14	24		40	
-ZM	●	●	○		●	15	25	34		
-AL	○	○	○	●	○	15	25	35	40	
-M81		●		○		15	25			
Suitable tool holders						17–21	27–33	37+38	42–45	47

Diamond	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Geometries CC..	Geometries DC..	Geometries TC..	Geometries VC..
-CB1				●		16	26	36	41
-CB2				●		16	26	36	41
Suitable tool holders						17–21	27–33	37+38	42–45

DNGU / DNMG

Designation	l DC mm	s S mm	d_1 D1 mm	d IC mm
DN.. 1104..	11.6	4.76	3.81	9.52



DNGU / DNMG

F M R

ISO	r RE mm	-F32 WUU 7630 DNGU NEW X1 Article no. 72 401 ... £		-F32 TiAlN DNGU X1 Article no. 72 494 ... £		-NF23 HCN 2125 DNMG 1A Article no. 75 013 ... £		-NF15 HCX 1115 DNMG NEW 1A Article no. 76 134 ... £		-NF15 HCX 1125 DNMG NEW 1A Article no. 76 134 ... £		-NF15 HCR 1135 DNMG NEW 1A Article no. 76 134 ... £	
1104008FN	0.08	25.41	638	27.40	108								
1104015FN	0.15	25.41	645	27.40	115								
110402EN	0.2							10.24	302	10.24	502	10.24	702
110404EN	0.4					10.24	204	10.24	304	10.24	504	10.24	704
110408EN	0.8					10.24	206	10.24	306	10.24	506	10.24	706
Steel		●		●		○		●		●		●	
Stainless steel		●		●		●		○		○		○	
Cast iron				●				○		○			
Non ferrous metals		○		●									
Heat resistant alloys		○		○								○	

DNMG

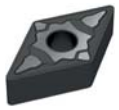
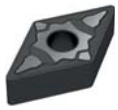
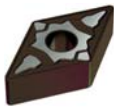
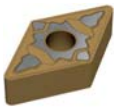
F M R

ISO	r RE mm	-NM23 HCN 2125 DNMG 1A Article no. 75 014 ... £		-NM15 HCX 1115 DNMG 1A Article no. 76 136 ... £		-NM15 HCX 1125 DNMG 1A Article no. 76 136 ... £		-NM15 HCR 1135 DNMG 1A Article no. 76 136 ... £		-M42 CWN 2135 DNMG 1A Article no. 70 158 ... £	
110404EN	0.4			10.24	304	10.24	504	10.24	704	10.24	600
110408EN	0.8	10.24	206	10.24	306	10.24	506	10.24	706	10.24	602
Steel		○		●		●		●		○	
Stainless steel		●		○		○		○		●	
Cast iron				○		○					
Non ferrous metals											
Heat resistant alloys		○						○		●	

→ v_c Page 125–136

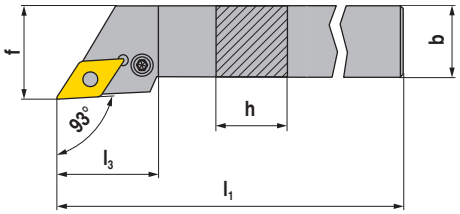
DNMG

F	M	R

ISO	r RE mm	-NM19 HCX 1115		-NM19 HCX 1125		-NM19 HCR 1135		-NM19 CWN 2135	
									
		DNMG 1A		DNMG 1A		DNMG 1A		DNMG 1A	
		Article no. 76 263 ...		Article no. 76 263 ...		Article no. 76 263 ...		Article no. 70 263 ...	
		£		£		£		£	
110408EN	0.8	10.24	306	10.24	506	10.24	706	10.24	406
Steel			●		●		●		○
Stainless steel			○		○		○		●
Cast iron			○		○				
Non ferrous metals									
Heat resistant alloys							○		●

→ v_c Page 125–136

IsoClamp – PDJN 93° – Toolholder with lever clamping

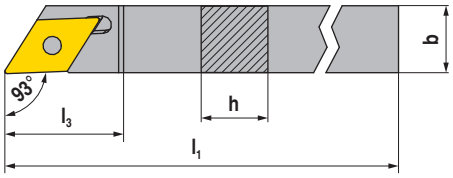


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand 2A Article no. 70 541 ... £		Right-hand 2A Article no. 70 540 ... £	
PDJN R/L 1616 H11	16	16	100	30	20	DN.. 1104	66.10	**116**	66.10	**116**
PDJN R/L 2020 K11	20	20	125	30	25	DN.. 1104	73.63	**120**	73.63	**120**
PDJN R/L 2525 M11	25	25	150	30	32	DN.. 1104	76.18	**125**	76.18	**125**

Spare parts for Article no.		2A Key I Article no. 70 950 ... £		2A Shim Article no. 70 950 ... £		2A Assembly pin Article no. 70 950 ... £		2A Lever Article no. 70 950 ... £		2A Clamping screw Article no. 70 950 ... £		2A Solid Carbide Seat D Article no. 70 950 ... £	
70 540 116 / 70 541 116	SW2,5	2.12	**175**	1.78	**122**	1.07	**191**	12.97	**121**	2.76	**208**	6.25	**120**
70 540 120 / 70 541 120	SW2,5	2.12	**175**	1.78	**122**	1.07	**191**	12.97	**121**	2.76	**208**	6.25	**120**
70 540 125 / 70 541 125	SW2,5	2.12	**175**	1.78	**122**	1.07	**191**	12.97	**121**	2.76	**208**	6.25	**120**

IsoClamp – SDJN 93° – Toolholder with screw clamping



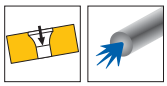
Illustrations show right-hand versions

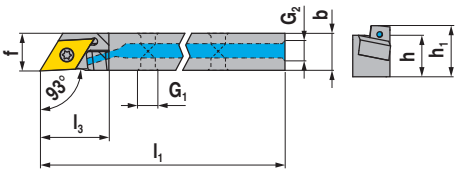
ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	Insert	Left-hand X0 Article no. 70 699 ... £		Right-hand X0 Article no. 70 698 ... £	
SDJN R/L 1012 H11	10	12	100	21.3	DNGU 1104	84.32	**010**	84.32	**010**
SDJN R/L 1212 H11	12	12	100	21.3	DNGU 1104	84.32	**012**	84.32	**012**
SDJN R/L 1616 K11	16	16	125	21.3	DNGU 1104	89.84	**016**	89.84	**016**
SDJN R/L 2020 K11	20	20	125	21.3	DNGU 1104	93.03	**020**	93.03	**020**
SDJN R/L 2525 M11	25	25	150	21.3	DNGU 1104	100.82	**025**	100.82	**025**

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 72 950 ... £	
70 698 010 / 70 699 010	T15 - IP	14.58	**128**	M4x11	4.32	**007**
70 698 012 / 70 699 012	T15 - IP	14.58	**128**	M4x11	4.32	**007**
70 698 016 / 70 699 016	T15 - IP	14.58	**128**	M4x11	4.32	**007**
70 698 020 / 70 699 020	T15 - IP	14.58	**128**	M4x11	4.32	**007**
70 698 025 / 70 699 025	T15 - IP	14.58	**128**	M4x11	4.32	**007**

IsoClamp – SDJN 93° – Tool holder with thro' coolant

- for sliding head lathes





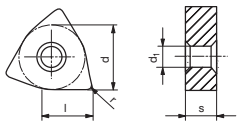
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	h_1 OAH mm	G_1	G_2	Insert	Left-hand NEW X0 Article no. 72 359 ... £		Right-hand NEW X0 Article no. 72 358 ... £	
SDJN R/L 1012 H11 IC	10	12	100	22	12	16.5	M5	M5	DNGU 1104	396.00	**010**	396.00	**010**
SDJN R/L 1212 H11 IC	12	12	100	22	12	18.5	M5	M5	DNGU 1104	396.00	**012**	396.00	**012**
SDJN R/L 1616 K11 IC	16	16	125	22	16	22.5	M5	G1/8"	DNGU 1104	381.15	**016**	381.15	**016**
SDJN R/L 2020 K11 IC	20	20	125	22	20	26.5	M5	G1/8"	DNGU 1104	346.50	**020**	346.50	**020**
SDJN R/L 2525 K11 IC	25	25	125	22	25	31.5	M5	G1/8"	DNGU 1104	397.65	**025**	397.65	**025**

Spare parts for Article no.		X0 Cylindrical screw Article no. 72 950 ... £			X0 Cylindrical screw Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 72 950 ... £	
72 358 010 / 72 359 010				M5x4	7.59	**011**	T15 - IP	14.58	**128**	M4x11	4.32	**007**
72 358 012 / 72 359 012				M5x4	7.59	**011**	T15 - IP	14.58	**128**	M4x11	4.32	**007**
72 358 016 / 72 359 016	G1/8"	24.09	**010**	M5x4	7.59	**011**	T15 - IP	14.58	**128**	M4x11	4.32	**007**
72 358 020 / 72 359 020	G1/8"	24.09	**010**	M5x4	7.59	**011**	T15 - IP	14.58	**128**	M4x11	4.32	**007**
72 358 025 / 72 359 025	G1/8"	24.09	**010**	M5x4	7.59	**011**	T15 - IP	14.58	**128**	M4x11	4.32	**007**

WNMG

Designation	l DC mm	s S mm	d_1 D1 mm	d IC mm
WNMG 0604..	6.5	4.76	3.81	9.52



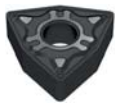
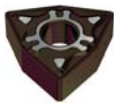
WNMG

F	M	R

	-NF23	-NF15	-NF15	-NF15
	HCN 2125	HCX 1115	HCX 1125	HCR 1135
	WNMG	WNMG	WNMG	WNMG
	1A	NEW 1A	NEW 1A	NEW 1A
ISO	Article no. 75 024 ...	Article no. 76 157 ...	Article no. 76 157 ...	Article no. 76 157 ...
r RE mm	£	£	£	£
060404EN 0.4	8.36 204	8.36 304	8.36 504	8.36 704
060408EN 0.8	8.36 206	8.36 306	8.36 506	8.36 706
Steel	○	●	●	●
Stainless steel	●	○	○	○
Cast iron		○	○	
Non ferrous metals				
Heat resistant alloys				○

WNMG

F	M	R

	-NM23	-NM15	-NM15	-NM15	-NM26
	HCN 2125	HCX 1115	HCX 1125	HCR 1135	HCN 2125
					
	WNMG	WNMG	WNMG	WNMG	WNMG
	1A	1A	1A	1A	1A
ISO	Article no. 75 025 ...	Article no. 76 139 ...	Article no. 76 139 ...	Article no. 76 139 ...	Article no. 75 026 ...
r RE mm	£	£	£	£	£
060404EN 0.4		8.36 304	8.36 504	8.36 704	
060408EN 0.8	8.36 206	8.36 306	8.36 506	8.36 706	8.36 206
Steel	○	●	●	●	○
Stainless steel	●	○	○	○	●
Cast iron		○	○		
Non ferrous metals					
Heat resistant alloys	○			○	○

→ v_c Page 125–136

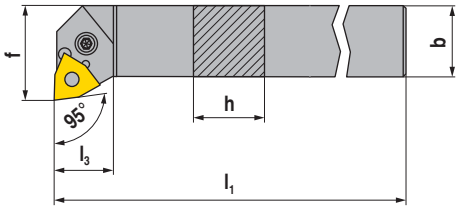
WNMG

F	M	R

ISO	r RE mm	-M52 CCN 2120		-M42 CWN 2135		-NM19 HCX 1115		-NM19 HCX 1125		-NM19 HCR 1135	
		WNMG 1A		WNMG 1A		WNMG 1A		WNMG 1A		WNMG 1A	
		Article no. 70 179 ...		Article no. 70 178 ...		Article no. 76 273 ...		Article no. 76 273 ...		Article no. 76 273 ...	
		£		£		£		£		£	
060404EN	0.4	8.14	604	8.14	400						
060408EN	0.8	8.14	608	8.14	402	8.36	306	8.36	506	8.36	706
Steel				○		●		●		●	
Stainless steel		○		●		○		○		○	
Cast iron		○				○		○			
Non ferrous metals		○									
Heat resistant alloys		●		●						○	

→ v_c Page 125–136

IsoClamp – PWLN 95° – Toolholder with lever clamping



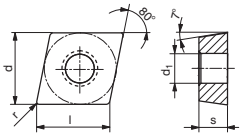
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand 2A Article no. 70 543 ... £		Right-hand 2A Article no. 70 542 ... £	
PWLN R/L 1616 H06	16	16	100	20	20	WNMG 0604	66.10	**116**	66.10	**116**
PWLN R/L 2020 K06	20	20	125	25	25	WNMG 0604	73.63	**120**	73.63	**120**
PWLN R/L 2525 M06	25	25	150	25	32	WNMG 0604	76.18	**125**	76.18	**125**

Spare parts for Article no.		2A Key I Article no. 70 950 ... £		2A Shim Article no. 70 950 ... £		2A Assembly pin Article no. 70 950 ... £		2A Lever Article no. 70 950 ... £		2A Clamping screw Article no. 70 950 ... £		2A Solid Carbide Seat W Article no. 70 950 ... £	
70 542 116 / 70 543 116	SW2,5	2.12	**175**	1.78	**122**	1.07	**191**	10.81	**185**	2.76	**208**	6.25	**127**
70 542 120 / 70 543 120	SW2,5	2.12	**175**	1.78	**122**	1.07	**191**	10.81	**185**	2.76	**208**	6.25	**127**
70 542 125 / 70 543 125	SW2,5	2.12	**175**	1.78	**122**	1.07	**191**	10.81	**185**	2.76	**208**	6.25	**127**

CCGT / CCMT / CCXT

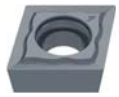
Designation	l DC mm	s S mm	d_1 D1 mm	d IC mm
CC.T 0602..	6.4	2.38	2.8	6.35
CC.T 09T3..	9.7	3.97	4.4	9.52



CCGT / CCMT

F	M	R

	-F23	-PF23	-F43
	CCN 2120	HCN 2125	CWN 2135



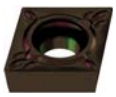
ISO	r RE mm	CCGT 1A Article no. 70 191 ... £		CCMT 1A Article no. 75 210 ... £		CCMT 1A Article no. 70 185 ... £	
060200FN	0.0	11.64	600				
060201FN	0.1	11.64	602				
060204EN	0.4			6.53	204		
09T300FN	0.0	13.43	604				
09T301FN	0.1	13.43	606				
09T304EN	0.4			8.16	216	8.14	460
09T308EN	0.8			8.16	218	8.14	462

Steel		○	○
Stainless steel	●	●	●
Cast iron	○		
Non ferrous metals	○		
Heat resistant alloys	●		●

→ v_c Page 125–136

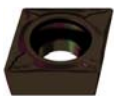
CCMT / CCGT

F	M	R

		-ZF		-ZF		-ZF		-ZF		-ZF		-ZF	
		HCX 1115		HCX 1125		HCX 1125		HCR 1135		HCR 1135		CWN 2135	
													
		CCMT		CCGT		CCMT		CCGT		CCMT		CCMT	
		1A		1A		1A		1A		1A		1A	
ISO	r RE mm	Article no. 76 253 ... £		Article no. 76 251 ... £		Article no. 76 253 ... £		Article no. 76 251 ... £		Article no. 76 253 ... £		Article no. 70 253 ... £	
060202EN	0.2			11.64	502			11.64	702				
060204EN	0.4	6.53	304			6.53	504			6.53	704	6.33	460
09T304EN	0.4	8.16	316			8.16	516			8.16	716	8.14	464
09T308EN	0.8	8.16	318			8.16	518						
Steel		●		●		●		●		●		○	
Stainless steel		○		○		○		○		○		●	
Cast iron		○		○		○							
Non ferrous metals													
Heat resistant alloys								○		○		●	

CCGT / CCMT

F	M	R

		-23P		-SMF		-SMF		-SMF	
		CWK 26		HCX 1115		HCX 1125		HCR 1135	
									
		CCGT		CCMT		CCMT		CCMT	
		1A		1A		1A		1A	
ISO	r RE mm	Article no. 70 255 ... £		Article no. 76 249 ... £		Article no. 76 249 ... £		Article no. 76 249 ... £	
060202FN	0.2	9.16	652						
060204EN	0.4					6.53	504	6.53	704
060204FN	0.4	9.16	654						
060208EN	0.8					6.53	506		
09T304EN	0.4			8.16	316	8.16	516	8.16	716
09T304FN	0.4	9.58	656						
09T308EN	0.8			8.16	318	8.16	518		
09T308FN	0.8	9.58	658						
Steel					●		●		●
Stainless steel					○		○		○
Cast iron			○		○		○		
Non ferrous metals			●						
Heat resistant alloys			○						○

→ v_c Page 125–136

CCMT / CCGT

F	M	R

	-PF26		-25P		-25P	
	HCN 2125		CWK 20		AMZ	
	CCMT		CCGT		CCGT	
	1A		1A		1A	
ISO	r RE mm	Article no. 75 211 ... £		Article no. 70 248 ... £		Article no. 70 248 ... £	
060202FN	0.2			9.16	636	10.91	556
060204EN	0.4	6.53	204				
060204FN	0.4			9.16	638	10.91	558
09T302FN	0.2			9.58	639	11.19	539
09T304EN	0.4	8.16	216				
09T304FN	0.4			9.58	640	11.19	560
09T308EN	0.8	8.16	218				
09T308FN	0.8			9.58	641	11.19	541
Steel		○				○	
Stainless steel		●				○	
Cast iron				○		○	
Non ferrous metals				●		●	
Heat resistant alloys				○			

CCGT

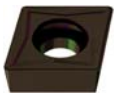
F	M	R

	-25Q		-25Q	
	CWK 20		AMZ	
	CCGT		CCGT	
	1A		1A	
ISO	r RE mm	Article no. 70 248 ... £		Article no. 70 248 ... £	
060204FN	0.4	9.96	678	14.13	618
09T304FN	0.4	10.53	680	14.81	620
09T308FN	0.8	10.53	681	14.81	621
Steel					○
Stainless steel					○
Cast iron			○		○
Non ferrous metals			●		●
Heat resistant alloys			○		

→ v_c Page 125–136

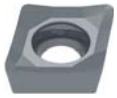
CCMT / CCGT

F	M	R

		-ZM	-ZM	-ZM	-ZM	-ZM
		HCX 1115	HCX 1125	HCX 1125	HCR 1135	HCR 1135
						
		CCMT	CCGT	CCMT	CCGT	CCMT
		1A	1A	1A	1A	1A
ISO	r RE mm	Article no. 76 252 ... £	Article no. 76 250 ... £	Article no. 76 252 ... £	Article no. 76 250 ... £	Article no. 76 252 ... £
060202EN	0.2		11.64 502		11.64 702	
060204EN	0.4	6.53 304		6.53 504		6.53 704
060208EN	0.8	6.53 306				6.53 706
09T304EN	0.4	8.16 316		8.16 516		8.16 716
09T308EN	0.8	8.16 318		8.16 518		8.16 718
Steel		●	●	●	●	●
Stainless steel		○	○	○	○	○
Cast iron		○	○	○		
Non ferrous metals						
Heat resistant alloys					○	○

CCMT / CCGT / CCXT

F	M	R

		-ZM	-AL	-AL	-AL	-M81
		CWN 2135	CWN 15	CWK 15	AMZ	CWN 2120
						
		CCMT	CCGT	CCGT	CCGT	CCXT
		1A	1A	1A	1A	1A
ISO	r RE mm	Article no. 70 252 ... £	Article no. 70 254 ... £	Article no. 70 254 ... £	Article no. 70 254 ... £	Article no. 70 254 ... £
060202FN	0.2		11.71 300	8.59 600	10.43 450	8.09 100
060204EN	0.4	6.33 670				
060204FN	0.4		11.71 302	8.59 602	10.43 452	8.09 102
09T302FN	0.2		12.09 304	9.16 604	10.71 454	7.92 104
09T304EN	0.4	8.14 674				
09T304FN	0.4		12.09 306	9.16 606	10.71 456	7.92 106
09T308EN	0.8	8.14 676				
09T308FN	0.8		12.09 308	9.16 608	10.71 458	7.92 108
Steel		○			○	
Stainless steel		●	○		○	●
Cast iron				○	○	
Non ferrous metals			●	●	●	○
Heat resistant alloys		●		○		

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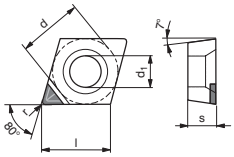
CCGT

Designation	l DC mm	s S mm	d_1 D1 mm	d IC mm
CCGT 0602..	6.45	2.38	2.8	6.35
CCGT 09T3..	9.70	3.97	4.4	9.52



CCGT

CCGT

F	M	R

ISO	r RE mm	-CB1 PDC DIAMOND CCGT Y0 Article no. 71 300 ... £		-CB1 CVD DIAMOND CCGT Y0 Article no. 71 300 ... £	
060202	0.2	81.67	102	103.64	302
060204	0.4	81.67	104	103.64	304
09T302	0.2	80.31	112		
09T304	0.4	80.31	114	107.01	314
09T308	0.8	87.01	118		

Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		

CCGT

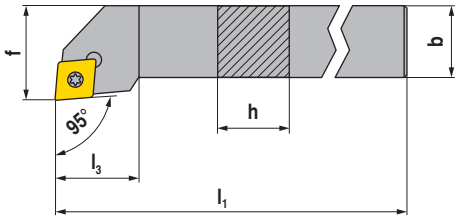
F	M	R

ISO	r RE mm	-CB2 PDC-S DIAMOND CCGT Y0 Article no. 71 301 ... £		-CB2 CVD DIAMOND CCGT Y0 Article no. 71 301 ... £	
060202	0.2	81.67	202		
060204	0.4	81.67	204	103.64	304
060208	0.8	85.25	208		
09T302	0.2	84.65	212		
09T304	0.4	84.65	214	107.01	314
09T308	0.8	91.73	218		

Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys	○	

→ v_c Page 125–136

IsoClamp – SCLC 95° – Toolholder with screw clamping



Illustrations show right-hand versions

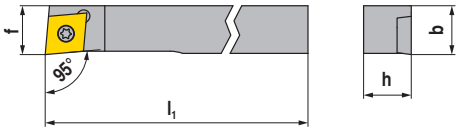
ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand 2A Article no. 70 653 ... £		Right-hand 2A Article no. 70 652 ... £	
SCLC R/L 0808 D06	8	8	60	9	10	CC.. 0602	52.74	008	52.74	008
SCLC R/L 1010 E06	10	10	70	9	12	CC.. 0602	55.93	010	55.93	010
SCLC R/L 1212 F09	12	12	80	15	16	CC.. 09T3	55.93	012	55.93	012
SCLC R/L 1616 H09	16	16	100	17	20	CC.. 09T3	69.27	016	69.27	016
SCLC R/L 2020 K09	20	20	125	17	25	CC.. 09T3	73.63	020	73.63	020

Spare parts for Article no.	Y7 Key D Article no. 80 950 ... £		2A Combination Key Article no. 70 950 ... £		2A Clamping screw Article no. 70 950 ... £		2A Carbide type C Article no. 70 950 ... £		2A Threaded sleeve Article no. 70 950 ... £	
70 652 008 / 70 653 008	9.52	110			2.19	112				
70 652 010 / 70 653 010	9.52	110			2.19	112				
70 652 012 / 70 653 012	11.34	113			2.71	113				
70 652 016 / 70 653 016			7.17	398	2.71	113	8.37	165	4.03	171
70 652 020 / 70 653 020			7.17	398	2.71	113	8.37	165	4.03	171

3

IsoClamp – SCLC 95° – Toolholder with screw clamping

- for sliding head lathes



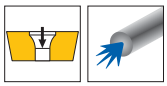
Illustrations show right-hand versions

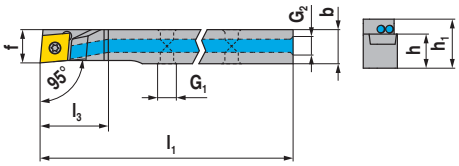
ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	Insert	Left-hand NEW X0 Article no. 72 353 ... £		Right-hand NEW X0 Article no. 72 352 ... £	
SCLC R/L 0808 H06	8	8	100	8	CC.. 0602	127.88	008	127.88	008
SCLC R/L 1010 H06	10	10	100	10	CC.. 0602	165.84	010	165.84	010
SCLC R/L 1212 H09	12	12	100	12	CC.. 09T3	184.40	012	184.40	012

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
72 352 008 / 72 353 008	T08	9.52	110	M2,5x6	2.19	112
72 352 010 / 72 353 010	T08	9.52	110	M2,5x6	2.19	112
72 352 012 / 72 353 012	T15	11.34	113	M3,5x11	2.71	113

IsoClamp – SCLC 95° – Tool holder with thro' coolant

- for sliding head lathes



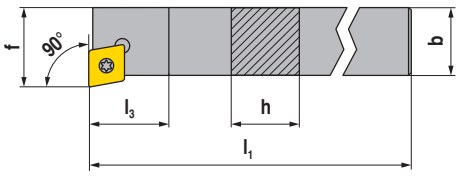


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	h_1 OAH mm	G_1	G_2	Insert	Left-hand NEW X0 Article no. 72 351 ... £		Right-hand NEW X0 Article no. 72 350 ... £	
SCLC R/L 0808 H06 IC	8	8	100	16	8	11.5	M5	M5	CC.. 0602	382.80	008	382.80	008
SCLC R/L 1010 H06 IC	10	10	100	16	10	13.5	M5	M5	CC.. 0602	320.10	010	320.10	010
SCLC R/L 1212 H09 IC	12	12	100	19	12	15.5	M5	M5	CC.. 09T3	359.70	012	359.70	012
SCLC R/L 1616 K09 IC	16	16	125	19	16	19.5	M5	M5	CC.. 09T3	348.15	016	348.15	016

Spare parts for Article no.		X0 Cylindrical screw Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
72 350 008 / 72 351 008	M5x4	7.59	011	T08	9.52	110	M2,5x6	2.19	112
72 350 010 / 72 351 010	M5x4	7.59	011	T08	9.52	110	M2,5x6	2.19	112
72 350 012 / 72 351 012	M5x4	7.59	011	T15	11.34	113	M3,5x11	2.71	113
72 350 016 / 72 351 016	M5x4	7.59	011	T15	11.34	113	M3,5x11	2.71	113

IsoClamp – SCFC 90° – Toolholder with screw clamping



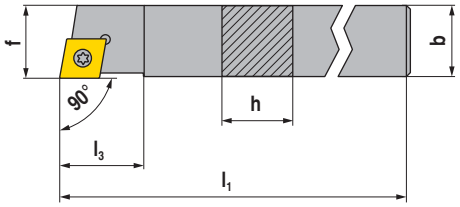
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand 2A Article no. 70 761 ... £		Right-hand 2A Article no. 70 760 ... £	
SCFC R/L 0808 D06	8	8	60	10	10	CC.. 0602	52.74	008	52.74	008
SCFC R/L 1010 E06	10	10	70	10	12	CC.. 0602	55.93	010	55.93	010
SCFC R/L 1212 F09	12	12	80	13	16	CC.. 09T3	55.93	012	55.93	012
SCFC R/L 1616 H09	16	16	100	13	20	CC.. 09T3	69.27	016	69.27	016

Spare parts for Article no.	Y7 Key D Article no. 80 950 ... £		2A Combination Key Article no. 70 950 ... £		2A Clamping screw Article no. 70 950 ... £		2A Carbide type C Article no. 70 950 ... £		2A Threaded sleeve Article no. 70 950 ... £	
70 760 008 / 70 761 008	9.52	110			2.19	112				
70 760 010 / 70 761 010	9.52	110			2.19	112				
70 760 012 / 70 761 012	11.34	113			2.71	113				
70 760 016 / 70 761 016			7.17	398	2.71	113	8.37	165	4.03	171

IsoClamp – SCAC 90° – Toolholder with screw clamping

- for sliding head lathes

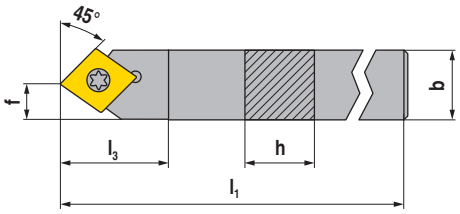


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand 2A Article no. 70 757 ... £		Right-hand 2A Article no. 70 756 ... £	
SCAC R/L 0808 K06	8	8	125	9	8	CC.. 0602	55.93	108	55.93	108
SCAC R/L 0808 D06	8	8	60	9	8	CC.. 0602	52.74	008	52.74	008
SCAC R/L 1010 M06	10	10	150	9	10	CC.. 0602	55.93	110	55.93	110
SCAC R/L 1010 E06	10	10	70	9	10	CC.. 0602	55.93	010	55.93	010
SCAC R/L 1212 M09	12	12	150	13	12	CC.. 09T3	62.56	112	62.56	112
SCAC R/L 1212 F09	12	12	80	13	12	CC.. 09T3	55.93	012	55.93	012
SCAC R/L 1414 M09	14	14	150	13	14	CC.. 09T3	62.56	114	62.56	114
SCAC R/L 1616 H09	16	16	100	13	16	CC.. 09T3	69.27	116	69.27	116

Spare parts for Article no.	Y7 Key D Article no. 80 950 ... £		2A Combination Key Article no. 70 950 ... £		2A Clamping screw Article no. 70 950 ... £		2A Carbide type C Article no. 70 950 ... £		2A Threaded sleeve Article no. 70 950 ... £	
70 756 108 / 70 757 108	9.52	110			2.19	112				
70 756 008 / 70 757 008	9.52	110			2.19	112				
70 756 110 / 70 757 110	9.52	110			2.19	112				
70 756 010 / 70 757 010	9.52	110			2.19	112				
70 756 112 / 70 757 112	11.34	113			2.71	113				
70 756 012 / 70 757 012	11.34	113			2.71	113				
70 756 114 / 70 757 114	11.34	113			2.71	113				
70 756 116 / 70 757 116			7.17	398	2.71	113	8.37	165	4.03	171

IsoClamp – SCDC 45° – Toolholder with screw clamping

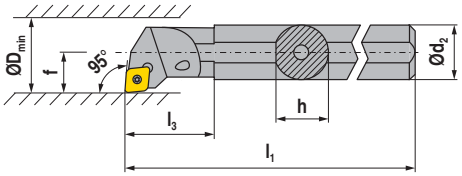


ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Neutral 2A Article no. 70 752 ... £	
SCDC L 0808 K06	8	8	125	13	4	CC.. 0602	55.93	008
SCDC L 1010 M06	10	10	150	13	5	CC.. 0602	55.93	010
SCDC L 1212 M09	12	12	150	18	6	CC.. 09T3	62.56	012
SCDC L 1414 M09	14	14	150	18	7	CC.. 09T3	62.56	014

Spare parts for Article no.	Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 70 950 ... £	
70 752 008	9.52	110	2.19	112
70 752 010	9.52	110	2.19	112
70 752 012	11.34	113	2.71	113
70 752 014	11.34	113	2.71	113

IsoClamp – SCLC 95° – Boring bar with screw clamping

- A... = with thro' coolant
- S... = without thro' coolant



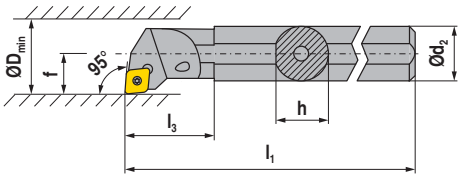
Illustrations show right-hand versions

ISO designation	d_2 DCONMS mm	h H mm	l_1 OAL mm	l_3 LH mm	f WF mm	D_{min} DAXN mm	Insert	Left-hand 2A Article no. 70 717 ... £		Right-hand 2A Article no. 70 716 ... £	
S08H SCLC R/L 06	8	7.2	100		5	11	CC.. 0602	83.62	**008**	83.62	**008**
A08F SCLC R/L 06	8	7.6	80		5	11	CC.. 0602	83.62	**208**	83.62	**208**
A10H SCLC R/L 06	10	9.5	100	10	7	13	CC.. 0602	83.62	**210**	83.62	**210**
S10K SCLC R/L 06	10	9.0	125	10	7	13	CC.. 0602	83.62	**010**	83.62	**010**
A12K SCLC R/L 06	12	11.5	125	10	9	16	CC.. 0602	83.62	**212**	83.62	**212**
S12Q SCLC R/L 06	12	11.0	180	10	9	16	CC.. 0602	83.62	**012**	83.62	**012**
A16M SCLC R/L 06	16	14.0	150	50	9	18	CC.. 0602	89.02	**116**	89.02	**116**
S16R SCLC R/L 09	16	14.5	200	16	11	20	CC.. 09T3	85.43	**016**	85.43	**016**
A16M SCLC R/L 09	16	15.0	150	16	11	20	CC.. 09T3	85.43	**216**	85.43	**216**
A20Q SCLC R/L 09	20	18.5	180	16	13	25	CC.. 09T3	106.49	**220**	106.49	**220**
S20S SCLC R/L 09	20	18.0	250	16	13	25	CC.. 09T3	106.49	**020**	106.49	**020**
S25T SCLC R/L 09	25	23.0	300	16	17	32	CC.. 09T3	122.39	**025**	122.39	**025**
A25R SCLC R/L 09	25	23.0	200	16	17	32	CC.. 09T3	122.39	**225**	122.39	**225**

Spare parts for Article no.	Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 70 950 ... £	
70 716 008 / 70 717 008	9.52	**110**	2.23	**116**
70 716 208 / 70 717 208	9.52	**110**	2.23	**116**
70 716 210 / 70 717 210	9.52	**110**	2.23	**116**
70 716 010 / 70 717 010	9.52	**110**	2.23	**116**
70 716 212 / 70 717 212	9.52	**110**	2.23	**116**
70 716 012 / 70 717 012	9.52	**110**	2.23	**116**
70 716 116 / 70 717 116	9.52	**110**	2.23	**116**
70 716 016 / 70 717 016	11.34	**113**	2.71	**110**
70 716 216 / 70 717 216	11.34	**113**	2.71	**110**
70 716 220 / 70 717 220	11.34	**113**	2.71	**304**
70 716 020 / 70 717 020	11.34	**113**	2.71	**110**
70 716 025 / 70 717 025	11.34	**113**	2.71	**113**
70 716 225 / 70 717 225	11.34	**113**	2.71	**304**

IsoClamp – SCLC 95° – Boring bar with screw clamping

- Type: Solid carbide



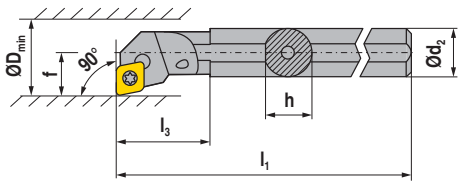
Illustrations show right-hand versions

ISO designation	d_2 DCONMS mm	h H mm	l_1 OAL mm	l_3 LH mm	f WF mm	D_{min} DAXN mm	Insert	Left-hand 2A Article no. 70 719 ... £		Right-hand 2A Article no. 70 718 ... £	
E08H SCLC R/L 06	8	7.6	100		5	11	CC.. 0602	190.11	008	190.11	008
E10K SCLC R/L 06	10	9.0	125	10	7	13	CC.. 0602	219.62	010	219.62	010
E12Q SCLC R/L 06	12	11.5	180	10	9	16	CC.. 0602	288.53	012	288.53	012
E16R SCLC R/L 09	16	15.0	200	16	11	20	CC.. 09T3	376.96	016	376.96	016
E20S SCLC R/L 09	20	18.5	250	16	13	25	CC.. 09T3	470.93	020	470.93	020
E25T SCLC R/L 09	25	23.0	300	16	17	32	CC.. 09T3	830.45	025	830.45	025

Spare parts for Article no.	Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 70 950 ... £	
70 718 008 / 70 719 008	9.52	110	2.23	116
70 718 010 / 70 719 010	9.52	110	2.23	116
70 718 012 / 70 719 012	9.52	110	2.23	116
70 718 016 / 70 719 016	11.34	113	2.71	110
70 718 020 / 70 719 020	11.34	113	2.71	304
70 718 025 / 70 719 025	11.34	113	2.71	113

3

IsoClamp – SCFC 90° – Boring bar with screw clamping



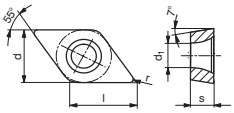
Illustrations show right-hand versions

ISO designation	d_2 DCONMS mm	h H mm	l_1 OAL mm	l_3 LH mm	f WF mm	D_{min} DAXN mm	Insert	Left-hand 2A Article no. 70 793 ... £		Right-hand 2A Article no. 70 792 ... £	
A08F SCFC R/L 06	8	7.6	80		5	11	CC.. 0602	83.62	208	83.62	208
A10H SCFC R/L 06	10	9.5	100	9	7	13	CC.. 0602	83.62	210	83.62	210
A12K SCFC R/L 06	12	11.5	125	14	9	16	CC.. 0602	83.62	212	83.62	212

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 792 208 / 70 793 208	T08	9.52	110	M2,5x5	2.23	116
70 792 210 / 70 793 210	T08	9.52	110	M2,5x5	2.23	116
70 792 212 / 70 793 212	T08	9.52	110	M2,5x5	2.23	116

DCGT / DCMT / DCXT

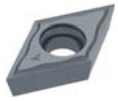
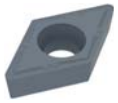
Designation	l DC mm	s S mm	d_1 D1 mm	d IC mm
DC.T 0702..	7.75	2.38	2.8	6.35
DC.T 11T3..	11.60	3.97	4.4	9.52



DCGT / DCMT

F	M	R

	-F23	-PF23	-F43
	CCN 2120	HCN 2125	CWN 2135

ISO	r RE mm	DCGT 1A Article no. 70 192 ...		DCMT 1A Article no. 75 213 ...		DCMT 1A Article no. 70 186 ...	
		£		£		£	
070200FN	0.0	11.64	600				
070201FN	0.1	11.64	602				
070202EN	0.2			6.53	202	6.33	400
070204EN	0.4			6.53	204	6.33	402
11T300FN	0.0	15.69	604				
11T301FN	0.1	15.69	606				
11T302EN	0.2			9.16	214	9.16	404
11T304EN	0.4			9.18	216	9.16	406
11T308EN	0.8			9.18	218	9.16	408

Steel		○	○
Stainless steel	●	●	●
Cast iron	○		
Non ferrous metals	○		
Heat resistant alloys	●		●

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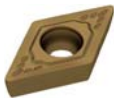
DCMT / DCGT

F	M	R

		-ZF	-ZF	-ZF	-ZF	-ZF	-ZF
		HCX 1115	HCX 1125	HCX 1125	HCR 1135	CWN 2135	CWN 2135
							
		DCMT	DCGT	DCMT	DCMT	DCGT	DCMT
		1A	1A	1A	1A	1A	1A
ISO	r RE mm	Article no. 76 259 ... £	Article no. 76 257 ... £	Article no. 76 259 ... £	Article no. 76 259 ... £	Article no. 70 257 ... £	Article no. 70 259 ... £
070202EN	0.2		11.64 502			11.64 440	
070204EN	0.4	6.53 304		6.53 504	6.53 704		6.33 440
11T304EN	0.4	9.18 316		9.18 516	9.18 716		9.16 444
11T308EN	0.8	9.18 318		9.18 518	9.18 718		9.16 446
Steel		●	●	●	●	○	○
Stainless steel		○	○	○	○	●	●
Cast iron		○	○	○			
Non ferrous metals							
Heat resistant alloys					○	●	●

DCGT / DCMT

F	M	R

		-23P	-SMF	-SMF	-SMF	-PF26
		CWK 26	HCX 1115	HCX 1125	HCR 1135	HCN 2125
		DCGT	DCMT	DCMT	DCMT	DCMT
		1A	1A	1A	1A	1A
ISO	r RE mm	Article no. 70 261 ... £	Article no. 76 265 ... £	Article no. 76 265 ... £	Article no. 76 265 ... £	Article no. 75 214 ... £
070204EN	0.4			6.53 504	6.53 704	6.53 204
070204FN	0.4	8.25 654				
070208EN	0.8				6.53 706	6.53 206
11T304EN	0.4		9.18 316	9.18 516	9.18 716	9.18 216
11T304FN	0.4	10.24 664				
11T308EN	0.8		9.18 318	9.18 518	9.18 718	9.18 218
11T308FN	0.8	10.24 666				
Steel			●	●	●	○
Stainless steel			○	○	○	●
Cast iron		○	○	○		
Non ferrous metals		●				
Heat resistant alloys		○			○	

3

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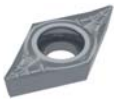
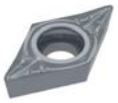
DCGT / DCMT

F	M	R
●		

	-FM37	-FM37	-FM37	-SMQ	-SMQ	-25P	-25P
	WUU 7610	WPU 7610	WPU 7620	HCX 1115	HCX 1125	CWK 20	AMZ
							
	DCGT	DCGT	DCGT	DCMT	DCMT	DCGT	DCGT
	NEW X1	NEW X1	NEW X1	1A	1A	1A	1A
ISO / r RE mm	Article no. 72 400 ... £		Article no. 72 400 ... £		Article no. 72 400 ... £		Article no. 76 195 ... £		Article no. 76 195 ... £		Article no. 70 263 ... £		Article no. 70 263 ... £	
0702006FN 0.06	17.82	006	22.28	706	22.02	506								
0702015FN 0.15	17.33	015	21.95	715	22.02	515								
070202FN 0.2											8.25	632	9.87	552
0702035FN 0.35	17.33	035	21.95	735	22.02	535								
070204EN 0.4							7.44	304	7.44	504				
070204FN 0.4											8.25	634	9.87	554
11T3008FN 0.08	20.30	038	25.58	738	25.26	538								
11T3015FN 0.15	20.30	045	25.58	745										
11T302FN 0.2											10.24	635	11.93	535
11T3035FN 0.35	20.30	065	25.58	765	25.26	565								
11T304EL 0.4									10.24	516				
11T304EN 0.4									10.24	515				
11T304ER 0.4									10.24	517				
11T304FN 0.4											10.24	636	11.93	556
11T308EN 0.8									10.24	518				
11T308FN 0.8											10.24	638	11.93	558
Steel					●		●		●					○
Stainless steel				○	●		○		○					○
Cast iron				●	●		○		○			○		○
Non ferrous metals		●		●	●							●		●
Heat resistant alloys		●		●	○							○		

DCGT

F	M	R
	●	

	-25Q	-25Q
	CWK 20	AMZ
		
	DCGT	DCGT
	1A	1A
ISO / r RE mm	Article no. 70 263 ... £		Article no. 70 263 ... £	
11T304FL 0.4	11.19	670	15.30	620
11T304FN 0.4	11.19	660	15.30	610
11T304FR 0.4	11.19	680	15.30	630
11T308FL 0.8	11.19	672	15.30	622
11T308FN 0.8	11.19	662	15.30	612
11T308FR 0.8	11.19	682	15.30	642
Steel				○
Stainless steel				○
Cast iron		○		○
Non ferrous metals		●		●
Heat resistant alloys		○		

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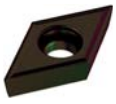
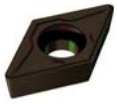
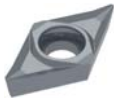
DCMT / DCGT

F	M	R

		-ZM		-ZM		-ZM		-ZM		-ZM		-ZM	
		HCX 1115		HCX 1125		HCX 1125		HCR 1135		HCR 1135		CWN 2135	
													
		DCMT		DCGT		DCMT		DCGT		DCMT		DCMT	
		1A		1A		1A		1A		1A		1A	
ISO	r RE mm	Article no. 76 258 ... £		Article no. 76 256 ... £		Article no. 76 258 ... £		Article no. 76 256 ... £		Article no. 76 258 ... £		Article no. 70 258 ... £	
070202EN	0.2			11.64	502			11.64	702				
070204EN	0.4	6.53	304			6.53	504			6.53	704	6.33	440
070208EN	0.8	6.53	306			6.53	506			6.53	706	6.33	442
11T304EN	0.4	9.18	316			9.18	516			9.18	716	9.16	444
11T308EN	0.8	9.18	318			9.18	518			9.18	718	9.16	448
11T312EN	1.2					9.18	520						
Steel		●		●		●		●		●		○	
Stainless steel		○		○		○		○		○		●	
Cast iron		○		○		○							
Non ferrous metals													
Heat resistant alloys								○		○		●	

DCGT / DCXT

F	M	R

		-AL		-AL		-AL		-M81	
		CWK 15		CWN 15		AMZ		CWN 2120	
									
		DCGT		DCGT		DCGT		DCXT	
		1A		1A		1A		1A	
ISO	r RE mm	Article no. 70 260 ... £		Article no. 70 260 ... £		Article no. 70 260 ... £		Article no. 70 260 ... £	
070202FN	0.2	7.80	600	10.72	300	9.49	450	8.27	100
070204FN	0.4	7.80	602	10.72	302	9.49	452	8.27	102
11T302FN	0.2	9.77	604	12.66	304	11.47	454	8.60	104
11T304FN	0.4	9.77	606	12.66	306	11.47	456	8.60	106
11T308FN	0.8	9.77	608	12.66	308	11.47	458	8.60	108
Steel							○		
Stainless steel					○		○		●
Cast iron			○				○		
Non ferrous metals			●		●		●		○
Heat resistant alloys			○						

3

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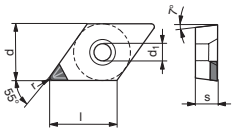
DCGT

Designation	l DC mm	s S mm	d_1 D1 mm	d IC mm
DCGT 0702..	7.75	2.38	2.8	6.35
DCGT 11T3..	11.60	3.97	4.4	9.52



DCGT

DCGT

F	M	R

ISO	r RE mm	-CB1 PDC DIAMOND DCGT Y0 Article no. 71 310 ... £		-CB1 PDC-S DIAMOND DCGT Y0 Article no. 71 310 ... £		-CB1 CVD DIAMOND DCGT Y0 Article no. 71 310 ... £	
070202	0.2	85.17	102	85.17	202	105.41	302
070204	0.4	85.17	104	85.17	204	105.41	304
070208	0.8	93.81	108				
11T302	0.2	87.01	112	87.01	212		
11T304	0.4	87.01	114	87.01	214	107.01	314
11T308	0.8	100.80	118	100.80	218	119.93	318

Steel			
Stainless steel			
Cast iron			
Non ferrous metals	●	●	●
Heat resistant alloys		○	

DCGT

F	M	R

ISO	r RE mm	-CB2 PDC-S DIAMOND DCGT Y0 Article no. 71 311 ... £		-CB2 CVD DIAMOND DCGT Y0 Article no. 71 311 ... £	
070202	0.2	85.17	202		
070204	0.4	85.17	204	105.41	304
070208	0.8	93.81	208	113.72	308
11T302	0.2	91.73	212		
11T304	0.4	91.73	214	107.01	314
11T308	0.8	100.80	218	119.93	318

Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys	○	

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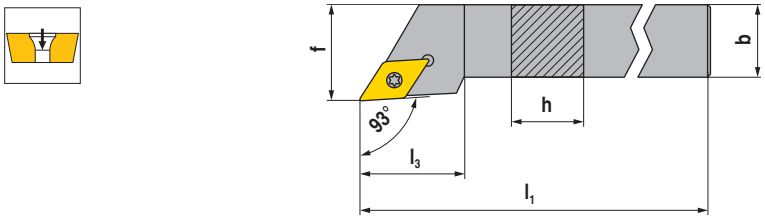
IsoClamp – SDJC 93° – Toolholder with screw clamping



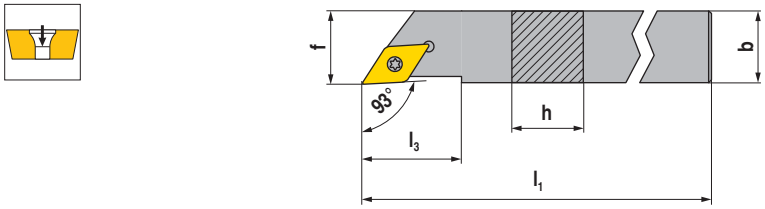
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand 2A Article no. 70 685 ... £		Right-hand 2A Article no. 70 684 ... £	
SDJC R/L 0808 D07	8	8	60	13.0	10	DC.. 0702	52.74	008	52.74	008
SDJC R/L 1010 E07	10	10	70	13.0	12	DC.. 0702	55.93	010	55.93	010
SDJC R/L 1212 F07	12	12	80	14.5	16	DC.. 0702	55.93	012	55.93	012
SDJC R/L 1616 H11	16	16	100	20.0	20	DC.. 11T3	69.27	016	69.27	016
SDJC R/L 2020 K11	20	20	125	20.5	25	DC.. 11T3	73.63	020	73.63	020
SDJC R/L 2525 M11	25	25	150	21.5	32	DC.. 11T3	76.18	025	76.18	025

Spare parts Insert	Y7 Key D Article no. 80 950 ... £		2A Combination Key Article no. 70 950 ... £		2A Clamping screw Article no. 70 950 ... £		2A Solid Carbide Seat D Article no. 70 950 ... £		2A Threaded sleeve Article no. 70 950 ... £	
DC.. 0702	9.52	110			2.19	112				
DC.. 11T3			7.17	398	2.71	113	6.48	106	4.03	171

IsoClamp – SDJC 93° – Toolholder with screw clamping

- for sliding head lathes



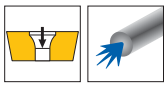
Illustrations show right-hand versions

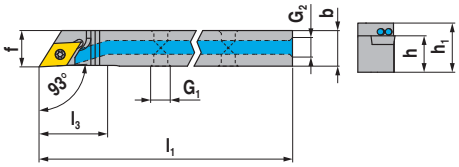
ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand X0 Article no. 70 685 ... £		Right-hand X0 Article no. 70 684 ... £	
SDJC R/L 0808 H07	8	8	100	13.0	8	DC.. 0702	93.67	108	93.67	108
SDJC R/L 1010 H07	10	10	100	13.0	10	DC.. 0702	93.67	110	93.67	110
SDJC R/L 1212 H07	12	12	100	14.5	12	DC.. 0702	104.79	112	104.79	112
SDJC R/L 1616 K07	16	16	125	33.0	16	DC.. 0702	116.18	116	116.18	116
SDJC R/L 1212 H11	12	12	100	22.0	12	DC.. 11T3	104.79	212	104.79	212
SDJC R/L 1616 K11	16	16	125	33.0	16	DC.. 11T3	116.18	216	116.18	216
SDJC R/L 2020 K11	20	20	125		20	DC.. 11T3	224.70	220	224.70	220

Spare parts Insert		Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
DC.. 0702	T08	9.52	110	4.32	002
DC.. 11T3	T15	11.34	113	4.32	006

IsoClamp – SDJC 93° – Tool holder with thro' coolant

- for sliding head lathes



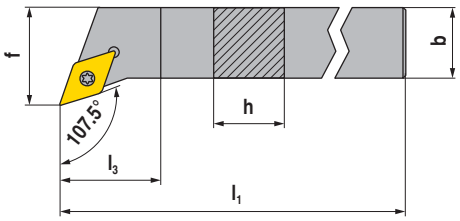


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	h_1 OAH mm	G_1	G_2	Insert	Left-hand NEW X0 Article no. 72 357 ... £		Right-hand NEW X0 Article no. 72 356 ... £	
SDJC L 0808 H07 IC	8	8	100	17	8	11.5	M5	M5	DC.. 0702	382.80	008		
SDJC R/L 1010 H07 IC	10	10	100	17	10	13.5	M5	M5	DC.. 0702	320.10	010	320.10	010
SDJC R/L 1212 H07 IC	12	12	100	17	12	15.5	M5	M5	DC.. 0702	359.70	012	359.70	012
SDJC R/L 1616 K07 IC	16	16	125	17	16	15.5	M5	G1/8"	DC.. 0702	348.15	016	348.15	016
SDJC R/L 1010 H11 IC	10	10	100	22	10	13.5	M5	M5	DC.. 11T3	396.00	110	396.00	110
SDJC R/L 1212 H11 IC	12	12	100	22	12	15.5	M5	M5	DC.. 11T3	359.70	112	359.70	112
SDJC R/L 1616 K11 IC	16	16	125	22	16	19.5	M5	G1/8"	DC.. 11T3	348.15	116	348.15	116
SDJC R/L 2020 K11 IC	20	20	125	22	20	23.5	M5	G1/8"	DC.. 11T3	346.50	120	346.50	120

Spare parts for Article no.		X0 Cylindrical screw Article no. 72 950 ... £		X0 Cylindrical screw Article no. 72 950 ... £		Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
72 357 008				M5x4	7.59 011	T08	9.52 110	4.32	002
72 356 010 / 72 357 010				M5x4	7.59 011	T08	9.52 110	4.32	002
72 356 012 / 72 357 012				M5x4	7.59 011	T08	9.52 110	4.32	002
72 356 016 / 72 357 016	G1/8"	24.09	010	M5x4	7.59 011	T08	9.52 110	4.32	002
72 356 110 / 72 357 110				M5x4	7.59 011	T15	11.34 113	4.32	006
72 356 112 / 72 357 112				M5x4	7.59 011	T15	11.34 113	4.32	006
72 356 116 / 72 357 116	G1/8"	24.09	010	M5x4	7.59 011	T15	11.34 113	4.32	006
72 356 120 / 72 357 120	G1/8"	24.09	010	M5x4	7.59 011	T15	11.34 113	4.32	006

IsoClamp – SDHC 107.5° – Toolholder with screw clamping



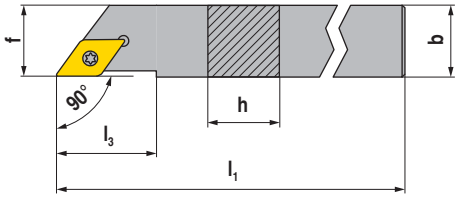
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand 2A Article no. 70 689 ... £		Right-hand 2A Article no. 70 688 ... £	
SDHC R/L 1010 E07	10	10	70	5.5	12	DC.. 0702	55.93	010	55.93	010
SDHC R/L 1212 F07	12	12	80	12.0	16	DC.. 0702	55.93	012	55.93	012
SDHC R/L 1616 H11	16	16	100	10.4	20	DC.. 11T3	69.27	016	69.27	016
SDHC R/L 2020 K11	20	20	125	14.0	32	DC.. 11T3	73.63	020	73.63	020
SDHC R/L 2525 M11	25	25	150	20.0	32	DC.. 11T3	76.18	025	76.18	025

Spare parts for Article no.	Y7 Key D Article no. 80 950 ... £		2A Combination Key Article no. 70 950 ... £		2A Clamping screw Article no. 70 950 ... £		2A Solid Carbide Seat D Article no. 70 950 ... £		2A Threaded sleeve Article no. 70 950 ... £	
70 688 010 / 70 689 010	9.52	110			2.19	112				
70 688 012 / 70 689 012	9.52	110			2.19	112				
70 688 016 / 70 689 016			7.17	398	2.71	113	6.48	106	4.03	171
70 688 020 / 70 689 020			7.17	398	2.71	113	6.48	106	4.03	171
70 688 025 / 70 689 025			7.17	398	2.71	113	6.48	106	4.03	171

IsoClamp – SDAC 90° – Toolholder with screw clamping

- for sliding head lathes



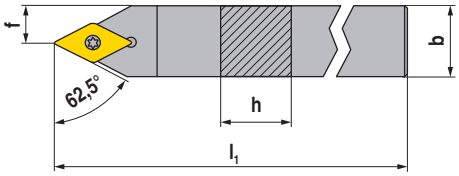
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand 2A Article no. 70 789 ... £		Right-hand 2A Article no. 70 788 ... £	
SDAC R/L 0808 K07	8	8	125	14	8	DC.. 0702	55.93	008	55.93	008
SDAC R/L 1010 M07	10	10	150	14	10	DC.. 0702	55.93	010	55.93	010
SDAC R/L 1212 M07	12	12	150	14	12	DC.. 0702	62.56	012	62.56	012
SDAC R/L 1414 M11	14	14	150	21	14	DC.. 11T3	62.56	014	62.56	014

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 788 008 / 70 789 008	T08	9.52	110	M2,5x6	2.19	112
70 788 010 / 70 789 010	T08	9.52	110	M2,5x6	2.19	112
70 788 012 / 70 789 012	T08	9.52	110	M2,5x6	2.19	112
70 788 014 / 70 789 014	T15	11.34	113	M3,5x11	2.71	113

3

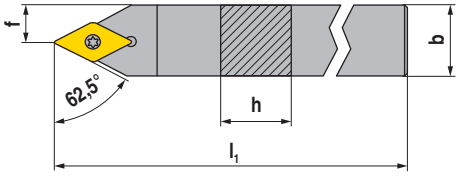
IsoClamp – SDNC 62.5° – Toolholder with screw clamping



ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	Insert	Neutral 2A Article no. 70 680 ... £	
SDNC N 0808 D07	8	8	60	4.0	DC.. 0702	52.74	008
SDNC N 1010 E07	10	10	70	5.0	DC.. 0702	55.93	010
SDNC N 1212 F07	12	12	80	6.0	DC.. 0702	55.93	012
SDNC N 1616 H11	16	16	100	8.0	DC.. 11T3	69.27	016
SDNC N 2020 K11	20	20	125	10.0	DC.. 11T3	73.63	020
SDNC N 2525 M11	25	25	150	12.5	DC.. 11T3	76.18	025

Spare parts for Article no.	Y7 Key D Article no. 80 950 ... £		2A Combination Key Article no. 70 950 ... £		2A Clamping screw Article no. 70 950 ... £		2A Solid Carbide Seat D Article no. 70 950 ... £		2A Threaded sleeve Article no. 70 950 ... £	
70 680 008	9.52	110			2.19	112				
70 680 010	9.52	110			2.19	112				
70 680 012	9.52	110			2.19	112				
70 680 016			7.17	398	2.71	113	6.48	106	4.03	171
70 680 020			7.17	398	2.71	113	6.48	106	4.03	171
70 680 025			7.17	398	2.71	113	6.48	106	4.03	171

IsoClamp – SDNC 62.5° – Toolholder with screw clamping

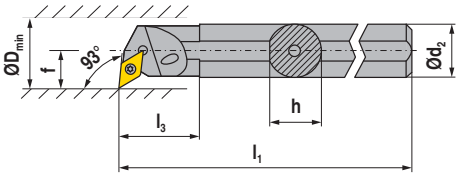


ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	Insert	Neutral 2A Article no. 70 784 ... £	
SDNC N 0808 K07	8	8	125	4	DC.. 0702	52.74	**008**
SDNC N 1010 M07	10	10	150	5	DC.. 0702	55.93	**010**
SDNC N 1212 M07	12	12	150	6	DC.. 0702	62.56	**012**
SDNC N 1414 M11	14	14	150	7	DC.. 11T3	62.56	**014**

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 784 008	T08	9.52	**110**	M2,5x6	2.19	**112**
70 784 010	T08	9.52	**110**	M2,5x6	2.19	**112**
70 784 012	T08	9.52	**110**	M2,5x6	2.19	**112**
70 784 014	T15	11.34	**113**	M3,5x11	2.71	**113**

IsoClamp – SDUC 93° – Boring bar with screw clamping

- A... = with thro' coolant
- S... = without thro' coolant



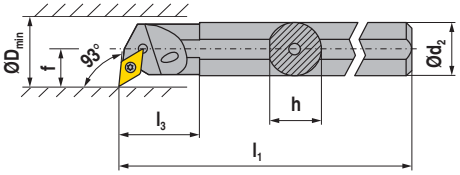
Illustrations show right-hand versions

ISO designation	d_2 DCONMS mm	h H mm	l_1 OAL mm	l_3 LH mm	f WF mm	D_{min} DAXN mm	Insert	Left-hand 2A Article no. 70 737 ... £		Right-hand 2A Article no. 70 736 ... £	
S12Q SDUC R/L 07	12	11.0	180	12.5	9	17	DC.. 0702	83.62	**012**	83.62	**012**
A12K SDUC R/L 07	12	11.5	125	12.5	9	16	DC.. 0702	83.62	**212**	83.62	**212**
S16R SDUC R/L 07	16	15.0	200	16.5	11	21	DC.. 0702	85.43	**016**	85.43	**016**
A16M SDUC R/L 07	16	15.0	150	16.5	11	20	DC.. 0702	85.43	**216**	85.43	**216**
S20S SDUC R 07	20	18.0	250	20.5	13	25	DC.. 0702			106.49	**020**
A20Q SDUC R/L 07	20	18.5	180	20.5	13	25	DC.. 0702	106.49	**220**	106.49	**220**
S20S SDUC R 11	20	18.0	250	21.0	13	25	DC.. 11T3			106.49	**120**
A20Q SDUC R/L 11	20	18.5	180	21.0	13	25	DC.. 11T3	106.49	**320**	106.49	**320**

Spare parts for Article no.	Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 70 950 ... £	
70 736 012 / 70 737 012	9.52	**110**	2.19	**112**
70 736 212 / 70 737 212	9.52	**110**	2.19	**112**
70 736 016 / 70 737 016	9.52	**110**	2.19	**112**
70 736 216 / 70 737 216	9.52	**110**	2.19	**112**
70 736 020	9.52	**110**	2.19	**112**
70 736 220 / 70 737 220	9.52	**110**	2.19	**112**
70 736 120	11.34	**113**	2.71	**110**
70 736 320 / 70 737 320	11.34	**113**	2.71	**110**

IsoClamp – SDUC 93° – Boring bar with screw clamping

- Type: Solid carbide

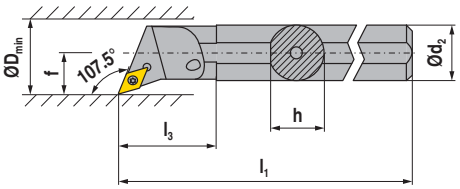


Illustrations show right-hand versions

ISO designation	d_2 DCONMS mm	h H mm	l_1 OAL mm	l_3 LH mm	f WF mm	D_{min} DAXN mm	Insert	Left-hand 2A Article no. 70 739 ... £		Right-hand 2A Article no. 70 738 ... £	
E12Q SDUC R/L 07	12	11.5	180	12.5	9	16	DC.. 0702	288.53	012	288.53	012
E16R SDUC R/L 07	16	15.0	200	16.5	11	20	DC.. 0702	376.96	016	376.96	016
E20S SDUC R/L 11	20	18.5	250	16.0	13	25	DC.. 11T3	470.93	120	470.93	120
E25T SDUC R/L 11	25	23.0	300	26.0	17	32	DC.. 11T3	830.45	125	830.45	125

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 738 012 / 70 739 012	T08	9.52	110	M2,5x6	2.19	112
70 738 016 / 70 739 016	T08	9.52	110	M2,5x6	2.19	112
70 738 120 / 70 739 120	T15	11.34	113	M3,5x8,6	2.71	304
70 738 125 / 70 739 125	T15	11.34	113	M3,5x11	2.71	113

IsoClamp – SDQC 107.5° – Boring bar with screw clamping

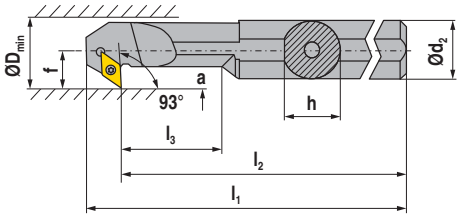


Illustrations show right-hand versions

ISO designation	d_2 DCONMS mm	h H mm	l_1 OAL mm	l_3 LH mm	f WF mm	D_{min} DAXN mm	Insert	Left-hand 2A Article no. 70 741 ... £		Right-hand 2A Article no. 70 740 ... £	
A10H SDQC R/L 07	10	9.0	100	22.0	7	12.5	DC.. 0702	87.13	210	87.13	210
A12K SDQC R/L 07	12	11.5	125	12.5	9	16.0	DC.. 0702	83.62	212	83.62	212
A16M SDQC R/L 07	16	15.0	150	16.5	11	20.0	DC.. 0702	85.43	216	85.43	216
A20Q SDQC R/L 07	20	18.5	180	20.5	13	25.0	DC.. 0702	106.49	220	106.49	220
A25R SDQC R/L 11	25	23.0	200	26.5	17	32.0	DC.. 11T3	122.39	225	122.39	225

Spare parts for Article no.	Y7 Key D Article no. 80 950 ... £		2A Combination Key Article no. 70 950 ... £		2A Clamping screw Article no. 70 950 ... £		2A Solid Carbide Seat D Article no. 70 950 ... £		2A Threaded sleeve Article no. 70 950 ... £	
70 740 210 / 70 741 210	9.52	110			2.19	112				
70 740 212 / 70 741 212	9.52	110			2.19	112				
70 740 216 / 70 741 216	9.52	110			2.19	112				
70 740 220 / 70 741 220	9.52	110			2.19	112				
70 740 225 / 70 741 225			7.17	398	2.71	113	6.48	106	4.03	171

IsoClamp – SDXC 93° – Boring bar with screw clamping



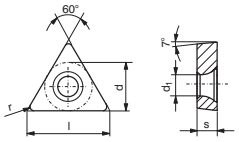
Illustrations show right-hand versions

ISO designation	d_2 DCONMS mm	h H mm	l_2 LF mm	l_1 OAL mm	l_3 LH mm	f WF mm	D_{min} DAXN mm	a mm	Insert	Left-hand 2A Article no. 70 733 ... £		Right-hand 2A Article no. 70 732 ... £	
A12K SDXC R/L 07	12	11.5	125	137.0	24	9	16	4.5	DC.. 0702	83.62	**212**	83.62	**212**
A16M SDXC R/L 07	16	15.0	150	162.0	32	11	20	4.5	DC.. 0702	85.43	**216**	85.43	**216**
A20Q SDXC R/L 11	20	18.5	180	196.5	40	13	25	6.5	DC.. 11T3	106.49	**220**	106.49	**220**
A25R SDXC R/L 11	25	23.0	200	216.8	50	17	32	9.5	DC.. 11T3	122.39	**225**	122.39	**225**

Spare parts for Article no.	Y7 Key D Article no. 80 950 ...			2A Clamping screw Article no. 70 950 ...		
		£			£	
70 732 212 / 70 733 212	T08	9.52	**110**	M2,5x6	2.19	**112**
70 732 216 / 70 733 216	T08	9.52	**110**	M2,5x6	2.19	**112**
70 732 220 / 70 733 220	T15	11.34	**113**	M3,5x8,6	2.71	**304**
70 732 225 / 70 733 225	T15	11.34	**113**	M3,5x8,6	2.71	**304**

TCMT / TCGT

Designation	l DC mm	s S mm	d_1 D1 mm	d IC mm
TCMT 0902..	9.6	2.38	2.5	5.56
TC.T 1102..	11.0	2.38	2.8	6.35



TCMT

F	M	R

		-PF23		-F43		-ZF		-SMF		-SMF		-PF26	
		HCN 2125		CWN 2135		HCX 1125		HCX 1115		HCR 1135		HCN 2125	
		TCMT		TCMT		TCMT		TCMT		TCMT		TCMT	
		1A		1A		1A		1A		1A		1A	
ISO	r RE mm	Article no. 75 217 ... £		Article no. 70 187 ... £		Article no. 76 275 ... £		Article no. 76 284 ... £		Article no. 76 284 ... £		Article no. 75 218 ... £	
090204EN	0.4											6.43	204
110204EN	0.4	6.43	216	6.33	400	6.43	516					6.43	216
110208EN	0.8					6.43	518	6.43	318	6.43	718		
Steel		○		○		●		●		●		○	
Stainless steel		●		●		○		○		○		●	
Cast iron						○		○					
Non ferrous metals													
Heat resistant alloys				●						○			

TCMT / TCGT

F	M	R

		-ZM		-ZM		-ZM		-ZM		-ZM	
		HCX 1115		HCX 1125		HCR 1135		HCR 1135		CWN 2135	
		TCMT		TCMT		TCGT		TCMT		TCMT	
		1A		1A		1A		1A		1A	
ISO	r RE mm	Article no. 76 274 ... £		Article no. 76 274 ... £		Article no. 76 270 ... £		Article no. 76 274 ... £		Article no. 70 274 ... £	
090204EN	0.4			6.43	504			6.43	704	6.33	398
110202EN	0.2					11.36	714				
110204EN	0.4	6.43	316	6.43	516			6.43	716	6.33	402
110208EN	0.8	6.43	318					6.43	718		
Steel		●		●		●		●		○	
Stainless steel		○		○		○		○		●	
Cast iron		○		○							
Non ferrous metals											
Heat resistant alloys						○		○		●	

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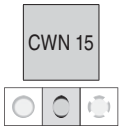
TCGT

F	M	R



ISO	r RE mm	-AL CWN 15 TCGT 1A Article no. 70 276 ... £		-AL CWK 15 TCGT 1A Article no. 70 276 ... £	
110202FN	0.2	12.09	300	9.16	600
110204FN	0.4	12.09	302	9.16	602

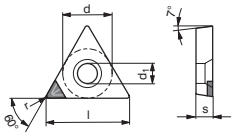
Steel		
Stainless steel	○	
Cast iron		○
Non ferrous metals	●	●
Heat resistant alloys		○

3

→ v_c Page 125–136

TCGT

Designation	l DC mm	s S mm	d_1 D1 mm	d IC mm
TCGT 0902..	9.6	2.38	2.5	5.56
TCGT 1102..	11.0	2.38	2.8	6.35



TCGT

TCGT

F	M	R

-CB1

PDC

DIAMOND
TCGT
Y0

ISO	r RE mm	Article no. 71 325 ... £	
090202	0.2	81.67	112
090204	0.4	81.67	114
110202	0.2	85.17	122
110204	0.4	85.17	124

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	

TCGT

F	M	R

-CB2

PDC-S

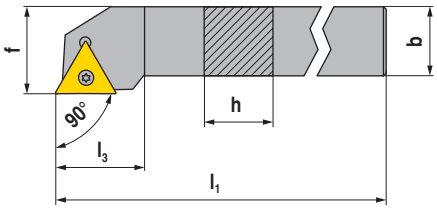
DIAMOND
TCGT
Y0

ISO	r RE mm	Article no. 71 326 ... £	
090202	0.2	81.67	212
090204	0.4	81.67	214
110202	0.2	85.17	222
110204	0.4	85.17	224

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	○

→ v_c Page 125–136

IsoClamp – STGC 90° – Toolholder with screw clamping



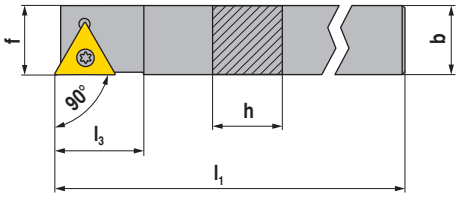
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand 2A Article no. 70 677 ... £		Right-hand 2A Article no. 70 676 ... £	
STGC R/L 1010 E09	10	10	70	12	12	TC.. 0902	55.93	**010**	55.93	**010**
STGC R/L 1212 F11	12	12	80	15	16	TC.. 1102	55.93	**012**	55.93	**012**

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 676 012 / 70 677 012	T08	9.52	**110**	M2,5x6	2.19	**112**

IsoClamp – STAC 90° – Toolholder with screw clamping

- for sliding head lathes

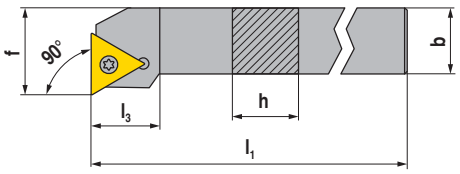


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand 2A Article no. 70 769 ... £		Right-hand 2A Article no. 70 768 ... £	
STAC R/L 1010 K09	10	10	125	12	10	TC.. 0902	55.93	**010**	55.93	**010**
STAC R/L 1212 K11	12	12	125	15	12	TC.. 1102	62.56	**012**	62.56	**012**
STAC R 1414 K11	14	14	125	15	14	TC.. 1102			62.56	**014**

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 768 012 / 70 769 012	T08	9.52	**110**	M2,5x6	2.19	**112**
70 768 014	T08	9.52	**110**	M2,5x6	2.19	**112**

IsoClamp – STFC 90° – Toolholder with screw clamping

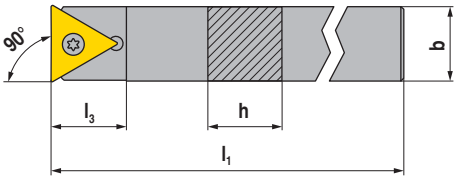


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand 2A Article no. 70 673 ... £		Right-hand 2A Article no. 70 672 ... £	
STFC R/L 1212 F11	12	12	80	15	16	TC.. 1102	55.93	**012**	55.93	**012**

Spare parts for Article no.	Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 70 950 ... £	
70 672 012 / 70 673 012	9.52	**110**	2.19	**112**

IsoClamp – STCC 90° – Toolholder with screw clamping

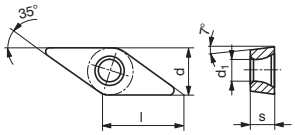


ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	Insert	Neutral 2A Article no. 70 782 ... £	
STCC N 0808 K09	8	8	125	11	TC.. 0902	52.74	**008**
STCC N 1010 K11	10	10	125	15	TC.. 1102	55.93	**010**
STCC N 1212 K11	12	12	125	15	TC.. 1102	62.56	**012**
STCC N 1414 K11	14	14	125	21	TC.. 1102	62.56	**014**
STCC N 1616 K11	16	16	125	24	TC.. 1102	69.27	**016**

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 782 010	T08	9.52	**110**	M2,5x6	2.19	**112**
70 782 012	T08	9.52	**110**	M2,5x6	2.19	**112**
70 782 014	T08	9.52	**110**	M2,5x6	2.19	**112**
70 782 016	T08	9.52	**110**	M2,5x6	2.19	**112**

VCGT / VCMT

Designation	l DC mm	s S mm	d_1 D1 mm	d IC mm
VC.T 1103..	11.1	3.18	2.9	6.35



VCGT

F	M	R

ISO	r RE mm	-F23 CCN 2120 VCGT 1A Article no. 70 193 ... £		-ZF HCX 1115 VCGT 1A Article no. 76 277 ... £		-ZF HCX 1125 VCGT 1A Article no. 76 277 ... £		-ZF HCR 1135 VCGT 1A Article no. 76 277 ... £		-ZF CWN 2135 VCGT 1A Article no. 70 277 ... £	
110300FN	0.0	13.43	600								
110301FN	0.1	13.43	602								
110302EN	0.2			13.43	314	13.43	514	13.43	714	13.43	444
110304EN	0.4			13.43	316	13.43	516	13.43	716	13.43	446
110308EN	0.8			13.43	318	13.43	518	13.43	718		
Steel					●		●		●		○
Stainless steel			●		○		○		○		●
Cast iron			○		○		○				
Non ferrous metals			○								
Heat resistant alloys			●						○		●

VCMT / VCGT

F	M	R

ISO	r RE mm	-SMF HCX 1115 VCMT 1A Article no. 76 288 ... £		-SMF HCX 1125 VCMT 1A Article no. 76 288 ... £		-SMF HCR 1135 VCGT 1A Article no. 76 285 ... £		-SMF HCR 1135 VCMT 1A Article no. 76 288 ... £		-25P CWK 20 VCGT 1A Article no. 70 282 ... £		-25P AMZ VCGT 1A Article no. 70 282 ... £	
110302EN	0.2					13.43	714						
110302FN	0.2									12.68	638	14.56	538
110304EN	0.4	11.56	316	11.56	516			11.56	716				
110304FN	0.4									12.68	640	14.56	540
Steel			●		●		●		●				○
Stainless steel			○		○		○		○				○
Cast iron			○		○						○		○
Non ferrous metals											●		●
Heat resistant alloys							○		○		○		

→ v_c Page 125–136

VCGT

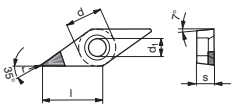
F	M	R

ISO	r RE mm	-25Q CWK 20 VCGT 1A Article no. 70 282 ... £		-25Q AMZ VCGT 1A Article no. 70 282 ... £		-AL CWN 15 VCGT 1A Article no. 70 280 ... £		-AL CWK 15 VCGT 1A Article no. 70 280 ... £		-AL AMZ VCGT 1A Article no. 70 280 ... £	
110302FN	0.2					15.30	306	12.12	606	14.19	456
110304FL	0.4	14.10	670	18.42	620						
110304FN	0.4					15.30	308	12.12	608	14.19	458
110304FR	0.4	14.10	680	18.42	630						
110308FN	0.8					15.30	310	12.12	610		
Steel				○						○	
Stainless steel				○		○				○	
Cast iron		○		○				○		○	
Non ferrous metals		●		●		●		●		●	
Heat resistant alloys		○						○			

→ v_c Page 125–136

VCGT

Designation	l DC mm	s S mm	d_1 D1 mm	d IC mm
VCGT 0702..	6.9	2.38	2.2	3.97
VCGT 1103..	11.1	3.18	2.9	6.35



VCGT

VCGT

F	M	R

		-CB1		-CB1		-CB1	
		PDC		PDC-S		CVD	
		DIAMOND VCGT Y0		DIAMOND VCGT Y0		DIAMOND VCGT Y0	
ISO	r RE mm	Article no. 71 330 ... £		Article no. 71 330 ... £		Article no. 71 330 ... £	
070202	0.2	113.72	102				
070204	0.4	113.72	104				
110302	0.2	110.35	112			132.07	312
110304	0.4	110.35	114	110.35	214	132.07	314

Steel			
Stainless steel			
Cast iron			
Non ferrous metals	●	●	●
Heat resistant alloys		○	

VCGT

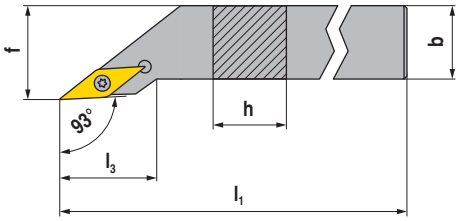
F	M	R

		-CB2		-CB2	
		PDC-S		CVD	
		DIAMOND VCGT Y0		DIAMOND VCGT Y0	
ISO	r RE mm	Article no. 71 331 ... £		Article no. 71 331 ... £	
110302	0.2	107.01	212	132.07	312
110304	0.4	110.35	214	132.07	314

Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys	○	

→ v_c Page 125–136

IsoClamp – SVJC 93° – Toolholder with screw clamping



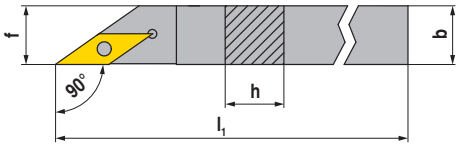
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	Insert	Left-hand X0 Article no. 70 697 ... £		Right-hand X0 Article no. 70 696 ... £	
SVJC R/L 0808 H11	8	8	100	8	VC.. 1103	102.11	008	102.11	008
SVJC R/L 1010 H11	10	10	100	10	VC.. 1103	102.11	010	102.11	010
SVJC R/L 1212 H11	12	12	100	12	VC.. 1103	114.66	112	114.66	112
SVJC R/L 1616 K11	16	16	125	16	VC.. 1103	127.33	116	127.33	116

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 696 008 / 70 697 008	T08	9.52	110	M2,5x6	2.19	112
70 696 010 / 70 697 010	T08	9.52	110	M2,5x6	2.19	112
70 696 112 / 70 697 112	T08	9.52	110	M2,5x6	2.19	112
70 696 116 / 70 697 116	T08	9.52	110	M2,5x6	2.19	112

IsoClamp – SVAC 90° – Toolholder with screw clamping

- for sliding head lathes

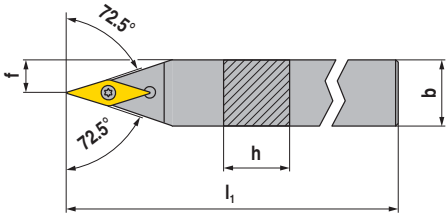


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	Insert	Left-hand X0 Article no. 70 695 ... £		Right-hand X0 Article no. 70 694 ... £	
SVAC R/L 0808 H11	8	8	100	8	VC.. 1103	102.11	008	102.11	008
SVAC R/L 1010 H11	10	10	100	10	VC.. 1103	102.11	010	102.11	010
SVAC R/L 1212 H11	12	12	100	12	VC.. 1103	114.66	012	114.66	012

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 694 008 / 70 695 008	T08	9.52	110	M2,5x6	2.19	112
70 694 010 / 70 695 010	T08	9.52	110	M2,5x6	2.19	112
70 694 012 / 70 695 012	T08	9.52	110	M2,5x6	2.19	112

IsoClamp – SVVC 72.5° – Toolholder with screw clamping

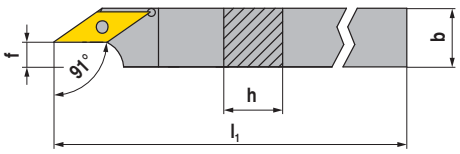


ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	Insert	Neutral 2A Article no. 70 692 ... £	
SVVC N 1212 F11	12	12	80	6	VC.. 1103	68.64	012
SVVC N 1616 H11	16	16	100	8	VC.. 1103	76.18	016
SVVC N 2020 K11	20	20	125	10	VC.. 1103	87.34	020

Spare parts for Article no.	Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 70 950 ... £	
70 692 012	9.52	110	2.19	112
70 692 016	9.52	110	2.19	112
70 692 020	9.52	110	2.19	112

IsoClamp – SVXC 91° – Toolholder with screw clamping

- for sliding head lathes

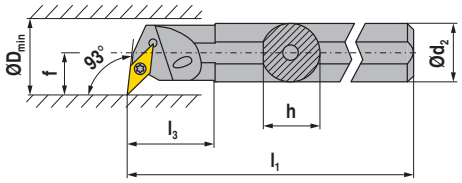


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	Insert	Left-hand X0 Article no. 70 691 ... £		Right-hand X0 Article no. 70 690 ... £	
SVXC R/L 1010 H11	10	10	100	3.4	VC.. 1103	102.11	010	102.11	010
SVXC R/L 1212 H11	12	12	100	5.4	VC.. 1103	114.66	012	114.66	012
SVXC R/L 1616 K11	16	16	125	8.9	VC.. 1103	127.33	016	127.33	016

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 690 010 / 70 691 010	T08	9.52	110	M2,5x6	2.19	112
70 690 012 / 70 691 012	T08	9.52	110	M2,5x6	2.19	112
70 690 016 / 70 691 016	T08	9.52	110	M2,5x6	2.19	112

IsoClamp – SVUC 93° – Boring bar with screw clamping



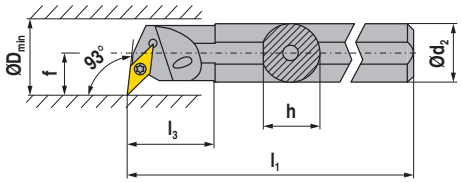
Illustrations show right-hand versions

ISO designation	d_2 DCONMS mm	h H mm	l_1 OAL mm	l_3 LH mm	f WF mm	D_{min} DAXN mm	Insert	Left-hand 2A Article no. 70 745 ...	£	Right-hand 2A Article no. 70 744 ...	£
A16M SVUC R/L 11	16	15.0	150	29	11	20	VC.. 1103	108.94	**216**	108.94	**216**
A20Q SVUC R/L 11	20	18.5	180	32	13	25	VC.. 1103	125.65	**220**	125.65	**220**
A25R SVUC R/L 11	25	23.0	200	36	17	32	VC.. 1103	153.98	**225**	153.98	**225**

Spare parts for Article no.		Y7 Key D Article no. 80 950 ...	£		2A Clamping screw Article no. 70 950 ...	£
70 744 216 / 70 745 216	T08	9.52	**110**	M2,5x6	2.19	**112**
70 744 220 / 70 745 220	T08	9.52	**110**	M2,5x6	2.19	**112**
70 744 225 / 70 745 225	T08	9.52	**110**	M2,5x6	2.19	**112**

IsoClamp – SVUC 93° – Boring bar with screw clamping

- Type: Solid carbide

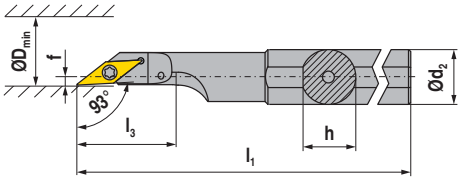


Illustrations show right-hand versions

ISO designation	d_2 DCONMS mm	h H mm	l_1 OAL mm	l_3 LH mm	f WF mm	D_{min} DAXN mm	Insert	Left-hand 2A Article no. 70 747 ...	£	Right-hand 2A Article no. 70 746 ...	£
E16R SVUC R/L 11	16	15.0	200	16.5	11	20	VC.. 1103	417.45	**016**	417.45	**016**
E20S SVUC R/L 11	20	18.5	250	20.5	13	25	VC.. 1103	495.07	**020**	495.07	**020**
E25T SVUC R 11	25	23.0	300	25.5	17	32	VC.. 1103			866.49	**025**

Spare parts for Article no.		Y7 Key D Article no. 80 950 ...	£		2A Clamping screw Article no. 70 950 ...	£
70 746 016 / 70 747 016	T08	9.52	**110**	M2,5x6	2.19	**112**
70 746 020 / 70 747 020	T08	9.52	**110**	M2,5x6	2.19	**112**
70 746 025	T08	9.52	**110**	M2,5x6	2.19	**112**

IsoClamp – SVJC 93° – Boring bar with screw clamping



Illustrations show right-hand versions

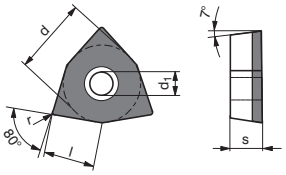
ISO designation	d_2 DCONMS mm	h H mm	l_1 OAL mm	l_3 LH mm	f WF mm	D_{min} DAXN mm	Insert	Left-hand NEW 2A Article no. 70 727 ... £		Right-hand NEW 2A Article no. 70 726 ... £	
A16M SVJC R/L 11	16	15	150	30	2	22	VC.. 1103	103.12	**216**	103.12	**216**
A20M SVJC R/L 11	20	19	150	38	2	25	VC.. 1103	103.12	**220**	103.12	**220**

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 726 216 / 70 727 216	T08	9.52	**110**	M2,5x6	2.19	**112**
70 726 220 / 70 727 220	T08	9.52	**110**	M2,5x6	2.19	**112**

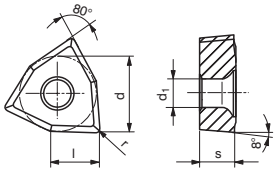
3

WCGT / WCGW

Designation	l DC mm	s S mm	d_1 D1 mm	d IC mm
WCGW 0201..	2.70	1.58	2.3	3.97
WCGT 0201..	2.71	1.59	2.1	3.97



WCGW



WCGT

WCGT

F	M	R

ISO	r RE mm	-ZF HCN 2430 WCGT NEW 1A Article no. 70 287 ... £		-ZF CWK 26 WCGT 1A Article no. 70 287 ... £	
020102EN	0.2	14.68	450	11.21	600
020104EN	0.4	14.68	452	11.21	602
Steel		●			
Stainless steel		●			
Cast iron		○		○	
Non ferrous metals		○		●	
Heat resistant alloys		●		○	

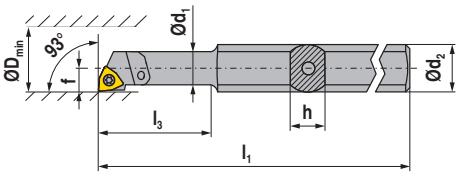
WCGW

F	M	R

ISO	r RE mm	PDC DIAMOND WCGW Y0 Article no. 71 154 ... £	
020102	0.2	184.19	100
020104	0.4	184.19	102
Steel			
Stainless steel			
Cast iron			
Non ferrous metals		●	
Heat resistant alloys			

→ v_c Page 125–136

IsoClamp – SWUC 93° – Boring bar with screw clamping



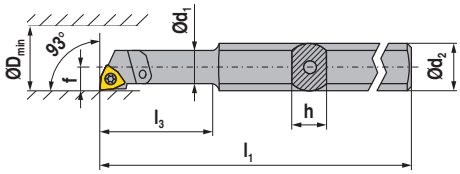
Illustrations show right-hand versions

ISO designation	h H mm	d_1 mm	l_1 OAL mm	l_3 LH mm	f WF mm	d_2 DCONMS mm	D_{min} DAXN mm	Insert	Left-hand 2A Article no. 70 731 ... £		Right-hand 2A Article no. 70 730 ... £	
A0508H SWUC R/L 02	7	5	100	24	2.9	8	5.8	WC.. 0201..	128.62	005	128.62	005
A0608H SWUC R/L 02	7	6	100	24	3.9	8	7.8	WC.. 0201..	128.62	006	128.62	006
SET								WC.. 0201..	232.89	999	232.89	999

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 730 005 / 70 731 005	T06	10.31	108	M1,8x3,4	3.19	334
70 730 006 / 70 731 006	T06	10.31	108	M1,8x3,4	3.19	334

IsoClamp – SWUC 93° – Boring bar with screw clamping

- with carbide core



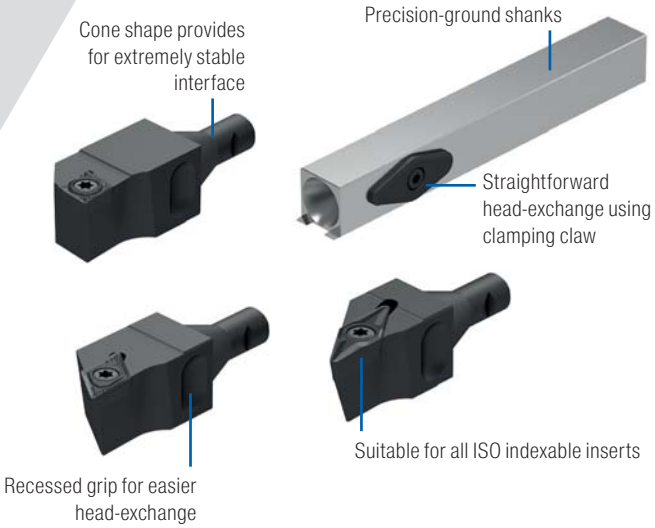
Illustrations show right-hand versions

ISO designation	h H mm	d_1 mm	l_1 OAL mm	l_3 LH mm	f WF mm	d_2 DCONMS mm	D_{min} DAXN mm	Insert	Left-hand NEW 2A Article no. 70 743 ... £		Right-hand NEW 2A Article no. 70 742 ... £	
E-A0508H SWUC R/L 02	7	5	100	24	2.9	8	5.8	WC.. 0201..	128.62	005	128.62	005
E-A0608H SWUC R/L 02	7	6	100	24	3.9	8	7.8	WC.. 0201..	128.62	006	128.62	006
SET								WC.. 0201..	232.89	999	232.89	999

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 742 005 / 70 743 005	T06	10.31	108	M1,8x3,4	3.19	334
70 742 006 / 70 743 006	T06	10.31	108	M1,8x3,4	3.19	334

Highlights

- Quick and easy head-exchange
  Reduced downtime
- Uniform height and lengths
  No setup time required
- High repeatability of ±7.5 µm
  Low reject rate
- Ground base holder
  Maximum precision
- Secure positioning of heads
  Repeat inspections not required



Overview

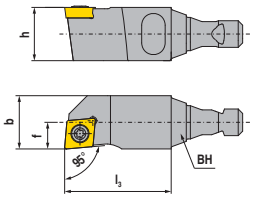
Exchangeable heads

CC.T	DC.T	VC.T	GX grooving	
SCLC 95°	SDJC 93°	SVJC 93°	GX09	GX16
49	49	50	50	50

Basic holder

BH 12: l_1 = 63 mm **BH 16:** l_1 = 63 mm	**BH 12:** l_1 = 93 mm **BH 16:** l_1 = 89 mm
51	51

XheadClamp – SCLC 95° exchangeable head turning tool

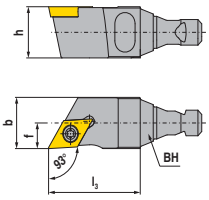


ISO designation	System dimensions BH	b B mm	h H mm	l_3 LH mm	f WF mm	Insert	Left-hand NEW X0 Article no. 72 809 ... £		Right-hand NEW X0 Article no. 72 808 ... £	
SCLC R/L 06 BH12	12	12	12	24	6	CC.. 0602	170.28	221	170.28	221
SCLC R/L 09 BH12	12	16	12	24	6	CC.. 09T3	170.28	222	170.28	222
SCLC R/L 06 BH16	16	16	16	28	8	CC.. 0602	178.50	621	178.50	621
SCLC R/L 09 BH16	16	16	16	28	8	CC.. 09T3	178.50	622	178.50	622

Spare parts Insert		Y7 Key D Article no. 80 950 ... £			2A Combination Key Article no. 70 950 ... £			2A Clamping screw Article no. 70 950 ... £	
CC.. 0602	T08	9.52	110				M2,5x6	2.19	112
CC.. 09T3				T15/SW	7.17	398	M3,5x11	2.71	113

Suitable indexable inserts can be found on → **Page 12-16.**

XheadClamp – SDJC 93° exchangeable head turning tool

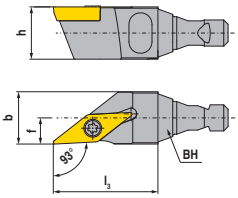


ISO designation	System dimensions BH	b B mm	h H mm	l_3 LH mm	f WF mm	Insert	Left-hand NEW X0 Article no. 72 811 ... £		Right-hand NEW X0 Article no. 72 810 ... £	
SDJC R/L 07-BH12	12	12	12	24	6	DC.. 0702	170.28	230	170.28	230
SDJC R/L 11-BH12	12	14	12	24	6	DC.. 11T3	170.28	231	170.28	231
SDJC R/L 07-BH16	16	16	16	28	8	DC.. 0702	178.50	630	178.50	630
SDJC R/L 11-BH16	16	16	16	28	8	DC.. 11T3	178.50	631	178.50	631

Spare parts Insert		Y7 Key D Article no. 80 950 ... £			2A Combination Key Article no. 70 950 ... £			2A Clamping screw Article no. 70 950 ... £	
DC.. 0702	T08	9.52	110				M2,5x6	2.19	112
DC.. 11T3				T15/SW	7.17	398	M3,5x11	2.71	113

Suitable indexable inserts can be found on → **Page 22-26.**

XheadClamp – SVJC 93° exchangeable head turning tool

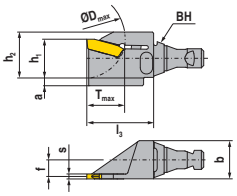


ISO designation	System dimensions BH	b B mm	h H mm	l_3 LH mm	f WF mm	Insert	Left-hand NEW X0 Article no. 72 813 ... £		Right-hand NEW X0 Article no. 72 812 ... £	
SVJC R/L 11-BH12	12	12	12	24	6	VC.. 1103	170.28	**234**	170.28	**234**
SVJC R/L 11-BH16	16	16	16	28	8	VC.. 1103	178.50	**634**	178.50	**634**

Spare parts Insert		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
VC.. 1103	T08	9.52	**110**	M2,5x6	2.19	**112**

Suitable indexable inserts can be found on → **Page 39-41.**

XheadClamp – GX 09/16 exchangeable head grooving tool holder

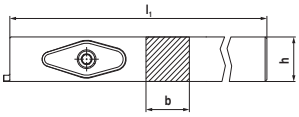


Designation	System dimensions BH	b B mm	h = h_1 H mm	h_2 OAH mm	l_3 LH mm	$T_{max.}$ CDX mm	D_{max} DAXX mm	f WF mm	s mm	a mm	for grooving inserts	Left-hand NEW X0 Article no. 72 801 ... £		Right-hand NEW X0 Article no. 72 800 ... £	
GX09-1 R/L -BH12	12	12	12	15	24	12.5	25	5.5	0,60-2,50	4.0	GX 09-1	194.08	**112**	194.08	**112**
GX09-2 R/L -BH12	12	12	12	15	24	12.5	25	5.0	0,60-3,00	4.0	GX 09-2	194.08	**212**	194.08	**212**
GX16-1 R/L -BH12	12	12	12	15	24	12.5	25	5.5	0,60-2,50	4.0	GX 16-1	194.08	**612**	194.08	**612**
GX16-2 R/L -BH12	12	12	12	15	24	12.5	25	5.0	0,60-3,50	4.0	GX 16-2	194.08	**712**	194.08	**712**
GX09-1 R/L -BH16	16	16	16	19	28	16.0	32	7.5	0,60-2,50	3.5	GX 09-1	203.84	**116**	203.84	**116**
GX09-2 R/L -BH16	16	16	16	19	28	16.0	32	7.0	0,60-3,00	3.5	GX 09-2	203.84	**216**	203.84	**216**
GX16-1 R/L -BH16	16	16	16	19	28	16.0	32	7.5	0,60-2,50	3.5	GX 16-1	203.84	**616**	203.84	**616**
GX16-2 R/L -BH16	16	16	16	19	28	16.0	32	7.0	0,60-3,50	3.5	GX 16-2	203.84	**716**	203.84	**716**

Spare parts System dimensions BH		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
12	T15	11.34	**113**	M4x11	2.94	**174**
16	T15	11.34	**113**	M4x11	2.94	**174**

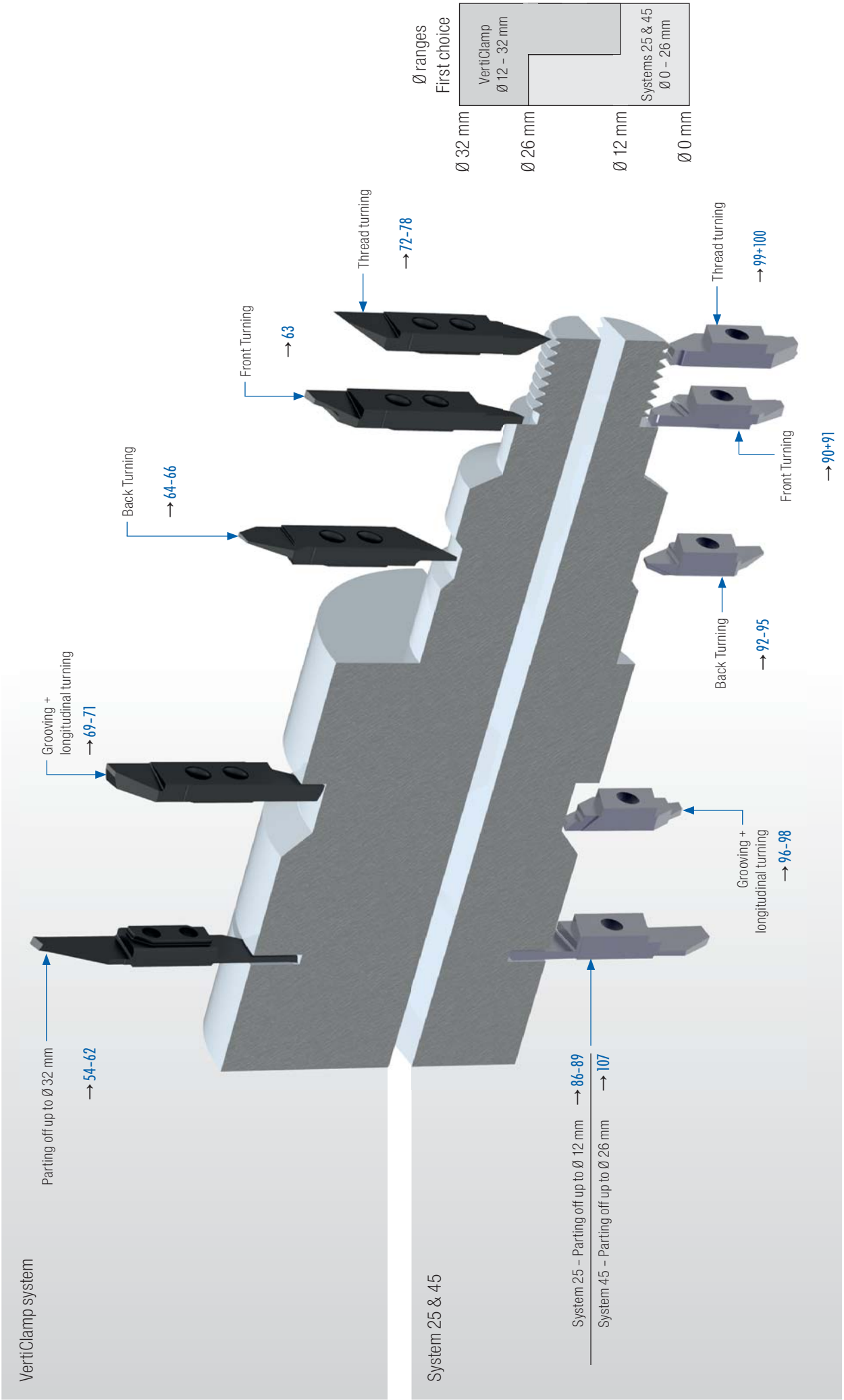
Suitable indexable inserts can be found in the grooving tools section on → **Page 204-210.**

XheadClamp – Base holder



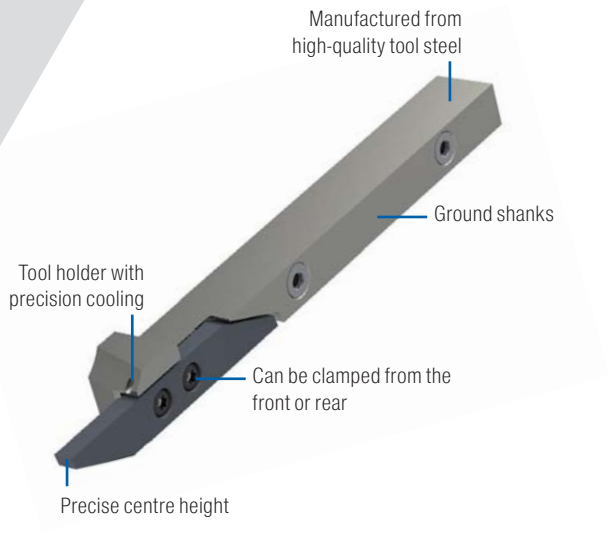
ISO designation	System dimen-sions BH	b B mm	h H mm	l_1 OAL mm	For exchangeable heads	Left-hand NEW X0 Article no. 72 841 ... £		Right-hand NEW X0 Article no. 72 840 ... £	
BHSH.12X63	12	12	12	63	BH12	187.25	**263**	187.25	**263**
BHSH.12X93	12	12	12	93	BH12	199.50	**293**	199.50	**293**
BHSH.16X63	16	16	16	63	BH16	197.75	**663**	197.75	**663**
BHSH.16X89	16	16	16	89	BH16	210.00	**693**	210.00	**693**

Spare parts System dimensions BH		X0 Clamping screw Article no. 72 950 ... £			X0 Clamp Article no. 72 950 ... £			2A Key I Article no. 70 950 ... £	
12	SR.BHSH.12	12.99	**801**	PR.BHSH.12	43.05	**800**	SW2,5	2.12	**175**
16	SR.BHSH.16	13.86	**803**	PR.BHSH.16	45.33	**802**	SW03	2.12	**176**

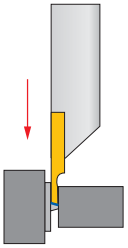
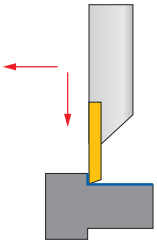
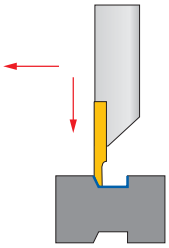
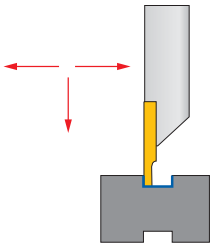

Ø ranges
First choice
VertiClamp
Ø 12 – 32 mm
Systems 25 & 45
Ø 0 – 26 mm
Ø 32 mm
Ø 26 mm
Ø 12 mm
Ø 0 mm
Thread turning
→ 72–78
Front Turning
→ 63
Back Turning
→ 64–66
Grooving +
longitudinal turning
→ 69–71
Parting off up to Ø 32 mm
→ 54–62
VertiClamp system
Thread turning
→ 99+100
Front Turning
→ 90+91
Back Turning
→ 92–95
Grooving +
longitudinal turning
→ 96–98
System 25 – Parting off up to Ø 12 mm
→ 86–89
System 45 – Parting off up to Ø 26 mm
→ 107
System 25 & 45

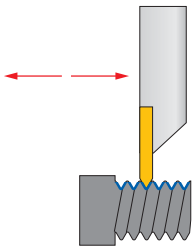
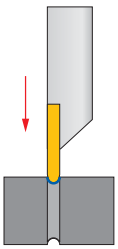
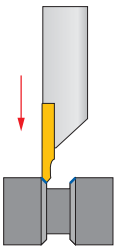
Highlights

- Vertical arrangement of cutting edges
  Less space required
- Second cutting edge can still be used in the event of breakage
  Minimises costs
- Insert seat protected against swarf
  Increases the service life of the holder
- High changeover precision
  Reduces unproductive times
- Large selection of indexable inserts and geometries
  Increases flexibility
- Optional coolant supply to cutting edge
  Increases service life and improves surface quality



Overview

	Parting	Front Turning	Back Turning	Grooving + longitudinal turning
				
WNT MASTERTOOL PERFORMANCE	54–62	63	64–66	67–71
WNT MASTERTOOL STANDARD System 25	86–89	90+91	92–95	96–98
WNT MASTERTOOL STANDARD System 45	107			

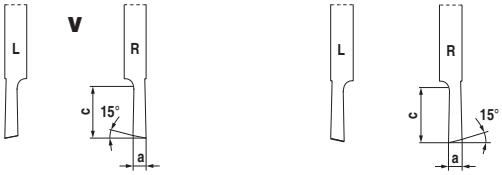
	Thread turning	Radius Grooving	Chamfers
			
WNT MASTERTOOL PERFORMANCE	72–78	79+80	81
WNT MASTERTOOL STANDARD	99+100		

Tool holder

		Standard tool holders	Offset tool holders	Contra tool holders
WNT MASTERTOOL PERFORMANCE	normal	82	83+84	85
	with through coolant	82	83+84	
WNT MASTERTOOL STANDARD	normal	101+102 + 108	101+108	104
	with through coolant	102+103		105

3002 L / 3002 LV / 3002 R / 3002 RV

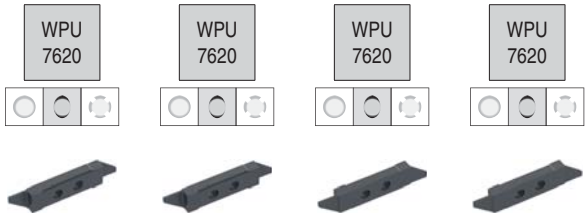
Designation	a CW mm	c PDPT mm
3002-0,8-6	0.8	6
3002-0,8-10	0.8	10
3002-1,0-6	1.0	6
3002-1,0-13	1.0	13
3002-1,2-6	1.2	6
3002-1,5-8	1.5	8
3002-1,5-16	1.5	16
3002-1,8-8	1.8	8
3002-2,0-10	2.0	10
3002-2,0-16	2.0	16
3002-2,5-13	2.5	13
3002-2,5-16	2.5	16
3002-3,0-16	3.0	16



3002 L / 3002 LV / 3002 R / 3002 RV

- for parting off

F	M	R



ISO	3002 L NEW X1 Article no. 72 420 ... £		3002 LV NEW X1 Article no. 72 422 ... £		3002 R NEW X1 Article no. 72 416 ... £		3002 RV NEW X1 Article no. 72 418 ... £	
3002-0,8-6	36.53	510	36.53	510	36.53	510	36.53	510
3002-0,8-10	36.53	530	36.53	530	36.53	530	36.53	530
3002-1,0-6	36.53	512	36.53	512	36.53	512	36.53	512
3002-1,0-13	42.56	532	42.88	532	42.56	532	42.88	532
3002-1,2-6	36.53	514	36.53	514	36.53	514	36.53	514
3002-1,5-8	36.53	516	36.53	516	36.53	516	36.53	516
3002-1,5-16	46.46	536	46.46	536	46.46	536	46.46	536
3002-1,8-8	36.53	518	36.53	518	36.53	518	36.53	518
3002-2,0-10	36.53	520	36.53	520	36.53	520	36.53	520
3002-2,0-16	46.46	540	46.46	540	46.46	540	46.46	540
3002-2,5-13	42.56	522 1)	42.56	522 1)	42.56	522 1)	42.56	522 1)
3002-2,5-16	46.46	542 1)	46.46	542 1)	46.46	542 1)	46.46	542 1)
3002-3,0-16	46.46	524 1)	46.46	524 1)	46.46	524 1)	46.46	524 1)
Steel	●		●		●		●	
Stainless steel	●		●		●		●	
Cast iron	●		●		●		●	
Non ferrous metals	●		●		●		●	
Heat resistant alloys	●		●		●		●	

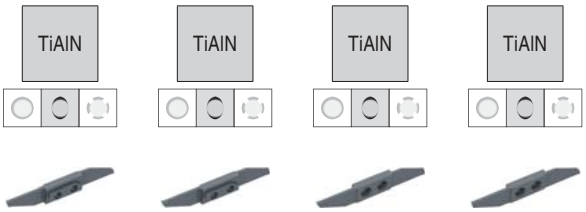
1) used with tool holders with 12 mm and larger shank size

→ v_c Page 125–136

3002 L / 3002 LV / 3002 R / 3002 RV

- for parting off

F	M	R



ISO	3002 L X1 Article no. 72 420 ... £		3002 LV X1 Article no. 72 422 ... £		3002 R X1 Article no. 72 416 ... £		3002 RV X1 Article no. 72 418 ... £	
3002-0,8-6	33.53	110	33.53	110	33.53	110	33.53	110
3002-0,8-10	37.54	130	47.99	130	37.54	130	47.99	130
3002-1,0-6	33.53	112	33.53	112	33.53	112	33.53	112
3002-1,0-13	44.33	132	47.99	132	44.33	132	47.99	132
3002-1,2-6	33.53	114	33.53	114	33.53	114	33.53	114
3002-1,5-8	33.53	116	33.53	116	33.53	116	33.53	116
3002-1,5-16	47.99	136	47.99	136	47.99	136	47.99	136
3002-1,8-8	33.53	118	33.53	118	33.53	118	33.53	118
3002-2,0-10	33.53	120	33.53	120	33.53	120	33.53	120
3002-2,0-16	47.99	140	47.99	140	47.99	140	47.99	140
3002-2,5-13	38.90	122 [1]	38.90	122 [1]	38.90	122 [1]	38.90	122 [1]
3002-2,5-16	47.99	142 [1]	47.99	142 [1]	47.99	142 [1]	47.99	142 [1]
3002-3,0-16	41.46	124 [1]	41.46	124 [1]	41.46	124 [1]	41.46	124 [1]
Steel		●		●		●		●
Stainless steel		●		●		●		●
Cast iron								
Non ferrous metals		○		○		○		○
Heat resistant alloys		○		○		○		○

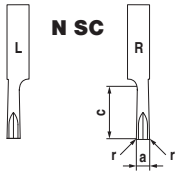
1) used with tool holders with 12 mm and larger shank size

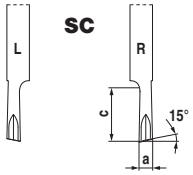
3

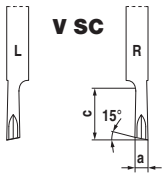
→ v_c Page 125–136

3002 L / 3002 LN / 3002 LV / 3002 R / 3002 RN / 3002 RV

Designation	a CW mm	c PDPT mm	r CRE mm
3002-1,5-8	1.5	8	-
3002-1,5-10	1.5	10	0.08
3002-1,5-16	1.5	16	0.08
3002-1,5-16	1.5	16	-
3002-2,0-10	2.0	10	0.08
3002-2,0-10	2.0	10	-
3002-2,0-16	2.0	16	-
3002-2,0-16	2.0	16	0.08
3002-2,5-13	2.5	13	0.08
3002-2,5-13	2.5	13	-
3002-2,5-16	2.5	16	-
3002-2,5-16	2.5	16	0.08
3002-3,0-16	3.0	16	0.08
3002-3,0-16	3.0	16	-







3002 L / 3002 LN / 3002 LV / 3002 R / 3002 RN / 3002 RV

- for parting off

F	M	R

ISO	-SC WPU 7620		-SC WPU 7620		-SC WPU 7620		-SC WPU 7620		-SC WPU 7620		-SC WPU 7620	
	3002 L		3002 LN		3002 LV		3002 R		3002 RN		3002 RV	
	NEW X1		NEW X1		NEW X1		NEW X1		NEW X1		NEW X1	
	Article no. 72 432 ...		Article no. 72 426 ...		Article no. 72 434 ...		Article no. 72 428 ...		Article no. 72 424 ...		Article no. 72 430 ...	
	£		£		£		£		£		£	
3002-1,5-8	39.62	508			39.62	508	39.62	508			39.62	508
3002-1,5-10			42.38	510					40.27	510		
3002-1,5-16	49.73	528	50.54	530	49.73	528	49.73	528	50.54	530	49.73	528
3002-2,0-10	39.62	510	42.38	512	39.62	510	39.62	510	40.27	512	39.62	510
3002-2,0-16	49.73	530	50.54	532	49.73	530	49.73	530	50.54	532	49.73	530
3002-2,5-13	46.46	512 1)	49.89	514 1)	46.30	512 1)	46.46	512 1)	47.60	514 1)	46.30	512 1)
3002-2,5-16	49.73	532 1)	49.89	534 1)	49.73	532 1)	49.73	532 1)	47.60	534 1)	49.73	532 1)
3002-3,0-16	49.73	514 1)	49.89	516 1)	49.73	514 1)	49.73	514 1)	47.60	516 1)	49.73	514 1)
Steel	●		●		●		●		●		●	
Stainless steel	●		●		●		●		●		●	
Cast iron	●		●		●		●		●		●	
Non ferrous metals	●		●		●		●		●		●	
Heat resistant alloys	●		●		●		●		●		●	

1) used with tool holders with 12 mm and larger shank size

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3002 L / 3002 LN / 3002 LV / 3002 R / 3002 RN / 3002 RV

- for parting off

F	M	R

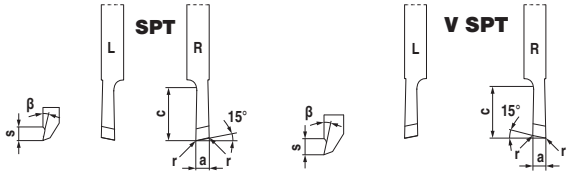
	-SC		-SC		-SC		-SC		-SC		-SC	
	TiAlN		TiAlN		TiAlN		TiAlN		TiAlN		TiAlN	
	3002 L		3002 LN		3002 LV		3002 R		3002 RN		3002 RV	
	X1		X1		X1		X1		X1		X1	
ISO	Article no. 72 432 ...		Article no. 72 426 ...		Article no. 72 434 ...		Article no. 72 428 ...		Article no. 72 424 ...		Article no. 72 430 ...	
	£		£		£		£		£		£	
3002-1,5-8	35.84	**108**			35.84	**108**	35.84	**108**			35.84	**108**
3002-1,5-10			35.84	**110**					35.84	**110**		
3002-1,5-16	51.43	**128**	51.43	**130**	51.43	**128**	51.43	**128**	51.43	**130**	51.43	**128**
3002-2,0-10	35.84	**110**	35.84	**112**	35.84	**110**	35.84	**110**	35.84	**112**	35.84	**110**
3002-2,0-16	51.43	**130**	51.43	**132**	51.43	**130**	51.43	**130**	51.43	**132**	51.43	**130**
3002-2,5-13	41.46	**112** [1]	41.46	**114** [1]	41.46	**112** [1]	41.46	**112** [1]	41.46	**114** [1]	41.46	**112** [1]
3002-2,5-16	51.43	**132** [1]	51.43	**134** [1]	51.43	**132** [1]	51.43	**132** [1]	51.43	**134** [1]	51.43	**132** [1]
3002-3,0-16	43.51	**114** [1]	43.51	**116** [1]	43.51	**114** [1]	43.51	**114** [1]	43.51	**116** [1]	43.51	**114** [1]
Steel	●		●		●		●		●		●	
Stainless steel	●		●		●		●		●		●	
Cast iron												
Non ferrous metals	○		○		○		○		○		○	
Heat resistant alloys	○		○		○		○		○		○	

1) used with tool holders with 12 mm and larger shank size

→ v_c Page 125–136

3002 L / 3002 LV / 3002 R / 3002 RV

Designation	a CW mm	c PDPT mm	r CRE mm	β°	s mm
3002-0,8-10	0.8	10	-	20	2
3002-1,0-13	1.0	13	-	20	2
3002-1,5-8-06	1.5	8	0.05	6	2
3002-1,5-8-12	1.5	8	0.05	12	2
3002-1,5-8	1.5	8	-	20	2
3002-1,5-16	1.5	16	-	20	2
3002-2,0-10-06	2.0	10	0.05	6	2
3002-2,0-10-12	2.0	10	0.05	12	2
3002-2,0-10	2.0	10	-	20	2
3002-2,0-16-06	2.0	16	0.05	6	2
3002-2,0-16-12	2.0	16	0.05	12	2
3002-2,0-16	2.0	16	-	20	2
3002-2,5-13-06	2.5	13	0.05	6	2
3002-2,5-13-12	2.5	13	0.05	12	2
3002-2,5-13	2.5	13	-	20	2
3002-2,5-16-06	2.5	16	0.05	6	2
3002-2,5-16-12	2.5	16	0.05	12	2
3002-2,5-16	2.5	16	-	20	2
3002-3,0-16-06	3.0	16	0.05	6	2
3002-3,0-16-12	3.0	16	0.05	12	2
3002-3,0-16	3.0	16	-	20	2



3002 L / 3002 LV / 3002 R / 3002 RV

- for parting off

F	M	R

ISO	-SPT WPU 7620 3002 L NEW X1 Article no. 72 440 ... £		-SPT WPU 7620 3002 LV NEW X1 Article no. 72 442 ... £		-SPT WPU 7620 3002 R NEW X1 Article no. 72 436 ... £		-SPT WPU 7620 3002 RV NEW X1 Article no. 72 438 ... £	
3002-1,5-8-06	42.38	540	42.38	540	42.38	540	42.38	540
3002-1,5-8-12	42.38	570	42.38	570	42.38	570	42.38	570
3002-2,0-10-06	42.38	572	42.38	572	42.38	572	42.38	572
3002-2,0-10-12	42.38	582	42.38	582	42.38	582	42.38	582
3002-2,0-16-06	52.99	552	52.99	552	52.99	552	52.99	552
3002-2,0-16-12	52.99	592	52.99	592	52.99	592	52.99	592
3002-2,5-13-06	49.89	554	52.99	554	49.89	554	52.99	554
3002-2,5-13-12	49.89	584	52.99	584	49.89	584	52.99	584
3002-2,5-16-06	52.99	574	52.99	574	52.99	574	52.99	574
3002-2,5-16-12	52.99	594	52.99	594	52.99	594	52.99	594
3002-3,0-16-06	52.99	556	52.99	556	52.99	556	52.99	556
3002-3,0-16-12	52.99	586	52.99	586	52.99	586	52.99	586
Steel	●		●		●		●	
Stainless steel	●		●		●		●	
Cast iron	●		●		●		●	
Non ferrous metals	●		●		●		●	
Heat resistant alloys	●		●		●		●	

→ v_c Page 125–136

3002 L / 3002 LV / 3002 R / 3002 RV

- for parting off

F	M	R

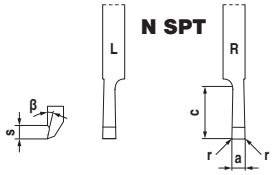
	-SPT		-SPT		-SPT		-SPT	
	TiAlN		TiAlN		TiAlN		TiAlN	
	3002 L		3002 LV		3002 R		3002 RV	
	X1		X1		X1		X1	
ISO	Article no. 72 440 ...		Article no. 72 442 ...		Article no. 72 436 ...		Article no. 72 438 ...	
	£		£		£		£	
3002-0,8-10	39.62	106	39.62	106	39.62	106	39.62	106
3002-1,0-13	45.98	128	45.98	128	45.98	128	45.98	128
3002-1,5-8	35.84	110	35.84	110	35.84	110	35.84	110
3002-1,5-16	50.65	130	50.65	130	50.65	130	50.65	130
3002-2,0-10	35.84	112	35.84	112	35.84	112	35.84	112
3002-2,0-16	50.65	132	50.65	132	50.65	132	50.65	132
3002-2,5-13	45.98	114	45.98	114	45.98	114	45.98	114
3002-2,5-16	49.07	134	49.07	134	49.07	134	49.07	134
3002-3,0-16	49.07	136	49.07	136	49.07	136	49.07	136
Steel	●		●		●		●	
Stainless steel	●		●		●		●	
Cast iron								
Non ferrous metals	○		○		○		○	
Heat resistant alloys	○		○		○		○	

3

→ v_c Page 125–136

3002 LN / 3002 RN

Designation	a CW mm	c PDPT mm	r CRE mm	β°	s mm
3002-1,0-10	1.0	10	0.05	20	2
3002-1,5-10-06	1.5	10	0.05	6	2
3002-1,5-10-12	1.5	10	0.05	12	2
3002-1,5-10	1.5	10	0.05	20	2
3002-1,5-16	1.5	16	0.05	20	2
3002-2,0-10-06	2.0	10	0.05	6	2
3002-2,0-10-12	2.0	10	0.05	12	2
3002-2,0-10	2.0	10	0.05	20	2
3002-2,0-16-06	2.0	16	0.05	6	2
3002-2,0-16-12	2.0	16	0.05	12	2
3002-2,0-16	2.0	16	0.05	20	2
3002-2,5-13-06	2.5	13	0.05	6	2
3002-2,5-13-12	2.5	13	0.05	12	2
3002-2,5-13	2.5	13	0.05	20	2
3002-2,5-16-06	2.5	16	0.05	6	2
3002-2,5-16-12	2.5	16	0.05	12	2
3002-2,5-16	2.5	16	0.05	20	2
3002-3,0-16-06	3.0	16	0.05	6	2
3002-3,0-16-12	3.0	16	0.05	12	2
3002-3,0-16	3.0	16	0.05	20	2



3002 LN / 3002 RN

- for parting off

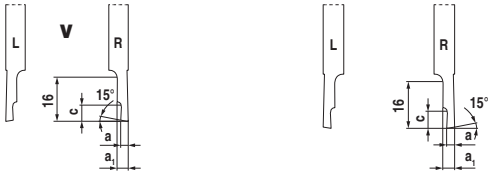
F	M	R

ISO	-SPT WPU 7620 3002 LN NEW X1 Article no. 72 515 ... £		-SPT WPU 7620 3002 RN NEW X1 Article no. 72 514 ... £		-SPT TiAlN 3002 LN NEW X1 Article no. 72 515 ... £		-SPT TiAlN 3002 RN NEW X1 Article no. 72 514 ... £	
3002-1,0-10					47.12	108	47.12	108
3002-1,5-10					42.38	120	42.38	120
3002-1,5-10-06	42.38	550	42.38	550				
3002-1,5-10-12	42.38	580	42.38	580				
3002-1,5-16					52.99	130	52.99	130
3002-2,0-10					42.38	112	42.38	112
3002-2,0-10-06	42.38	572	42.38	572				
3002-2,0-10-12	42.38	582	42.38	582				
3002-2,0-16					52.99	132	52.99	132
3002-2,0-16-06	52.99	552	52.99	552				
3002-2,0-16-12	52.99	592	52.99	592				
3002-2,5-13					49.89	114	49.89	114
3002-2,5-13-06	49.89	554	49.89	554				
3002-2,5-13-12	49.89	584	49.89	584				
3002-2,5-16					52.99	134	52.99	134
3002-2,5-16-06	52.99	574	52.99	574				
3002-2,5-16-12	52.99	594	52.99	594				
3002-3,0-16					52.99	136	52.99	136
3002-3,0-16-06	52.99	556	52.99	556				
3002-3,0-16-12	52.99	586	52.99	586				
Steel	●		●		●		●	
Stainless steel	●		●		●		●	
Cast iron	●		●					
Non ferrous metals	●		●		○		○	
Heat resistant alloys	●		●		○		○	

→ v_c Page 125–136

3002 L-16 / 3002 LV-16 / 3002 R-16 / 3002 RV-16

Designation	a CW mm	c PDPT mm
3002-0,8-..	0.8	6
3002-1,0-..	1.0	6
3002-1,2-..	1.2	6



3002 L-16 / 3002 LV-16 / 3002 R-16 / 3002 RV-16

- For parting off with pick-up spindle

F	M	R
●		

ISO	3002 L-16 NEW X1 Article no. 72 497 ... £		3002 LV-16 NEW X1 Article no. 72 499 ... £		3002 R-16 NEW X1 Article no. 72 496 ... £		3002 RV-16 NEW X1 Article no. 72 498 ... £	
3002-0,8-6-16	45.65	510	45.65	510	45.65	510	45.65	510
3002-1,2-6-16	45.65	514	45.65	514	45.65	514	45.65	514
Steel	●		●		●		●	
Stainless steel	●		●		●		●	
Cast iron	●		●		●		●	
Non ferrous metals	●		●		●		●	
Heat resistant alloys	●		●		●		●	

3002 L-16 / 3002 LV-16 / 3002 R-16 / 3002 RV-16

- For parting off with pick-up spindle

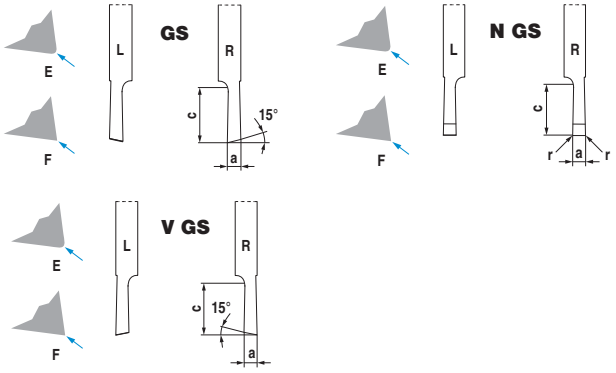
F	M	R
●		

ISO	3002 L-16 NEW X1 Article no. 72 497 ... £		3002 LV-16 NEW X1 Article no. 72 499 ... £		3002 R-16 NEW X1 Article no. 72 496 ... £		3002 RV-16 NEW X1 Article no. 72 498 ... £	
3002-0,8-6-16	45.65	110	45.65	110	45.65	110	45.65	110
3002-1,0-6-16	45.65	112	45.65	112	45.65	112	45.65	112
3002-1,2-6-16	45.65	114	45.65	114	45.65	114	45.65	114
Steel	●		●		●		●	
Stainless steel	●		●		●		●	
Cast iron								
Non ferrous metals	○		○		○		○	
Heat resistant alloys	○		○		○		○	

→ v_c Page 125–136

3002 L / 3002 LN / 3002 LV / 3002 R / 3002 RN / 3002 RV

Designation	a CW mm	c PDPT mm	r CRE mm
3002-2,0-10..	2	10	0.2



3002 L / 3002 LN / 3002 LV / 3002 R / 3002 RN / 3002 RV

- For parting off
- **E:** Blade with rounded cutting edge
- **F:** Blade with sharp cutting edge

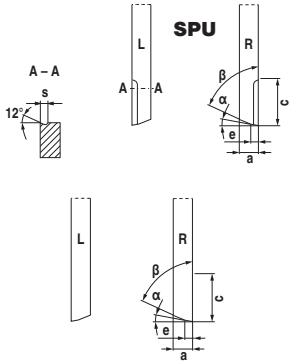
F	M	R

	-GS		-GS		-GS		-GS		-GS		-GS	
	WPU 7620		WPU 7620		WPU 7620		WPU 7620		WPU 7620		WPU 7620	
	3002 L		3002 LN		3002 LV		3002 R		3002 RN		3002 RV	
	NEW X1		NEW X1		NEW X1		NEW X1		NEW X1		NEW X1	
ISO	Article no. 72 501 ...		Article no. 72 505 ...		Article no. 72 507 ...		Article no. 72 500 ...		Article no. 72 504 ...		Article no. 72 506 ...	
	£		£		£		£		£		£	
3002-2,0-10 E	31.95	512	31.95	512	31.95	512	31.95	512	31.95	512	31.95	512
3002-2,0-10 F	37.98	552	37.98	552	37.98	552	37.98	552	37.98	552	37.98	552
Steel	●		●		●		●		●		●	
Stainless steel	●		●		●		●		●		●	
Cast iron	●		●		●		●		●		●	
Non ferrous metals	●		●		●		●		●		●	
Heat resistant alloys	●		●		●		●		●		●	

→ v_c Page 125–136

3003 L / 3003 R

Designation	a CW mm	e CF mm	c PDPT mm	s mm	α°	β°
3003-3,4-..	3.4	0.2	8	1.2	1	82
3003-3,4-..	3.4	1.0	8	-	3	82



3003 L / 3003 R

- for front turning

F	M	R

ISO	WPU 7620	WPU 7620	-SPU WPU 7620	-SPU WPU 7620
	3003 L	3003 R	3003 L	3003 R
	NEW X1	NEW X1	NEW X1	NEW X1
	Article no. 72 446 ...	Article no. 72 444 ...	Article no. 72 521 ...	Article no. 72 520 ...
	£	£	£	£
3003-3,4-8	33.58 510	33.58 510	36.69 510	36.69 510
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	●	●	●	●
Non ferrous metals	●	●	●	●
Heat resistant alloys	●	●	●	●

3003 L / 3003 R

- for front turning

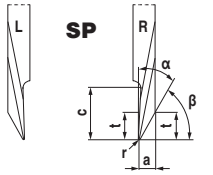
F	M	R

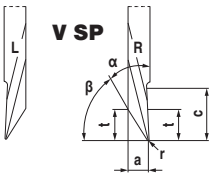
ISO	TiAlN	TiAlN	-SPU TiAlN	-SPU TiAlN
	3003 L	3003 R	3003 L	3003 R
	X1	X1	X1	X1
	Article no. 72 446 ...	Article no. 72 444 ...	Article no. 72 450 ...	Article no. 72 448 ...
	£	£	£	£
3003-3,4-8	35.84 110	35.84 110	38.14 110	38.14 110
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron				
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○

→ v_c Page 125–136

3004 L / 3004 LV / 3004 R / 3004 RV

Designation	r CRE mm	a CW mm	c PDPT mm	t mm	α° PNA	β°
3004-3,2-6 29075	0.75	3.2	11	5	29	61
3004-3,2-6 29035	0.35	3.2	11	5	29	61
3004-3,2-6 29015	0.15	3.2	11	5	29	61
3004-3,2-6 29008	0.08	3.2	11	5	29	61
3004-3,2-5 35035	0.35	3.2	11	4	35	55
3004-3,2-5 35015	0.15	3.2	11	4	35	55





3004 L / 3004 LV / 3004 R / 3004 RV

- for back turning

F	M	R

ISO	-SP WPU 7620		-SP WPU 7620		-SP WPU 7620		-SP WPU 7620	
	3004 L		3004 LV		3004 R		3004 RV	
	NEW X1		NEW X1		NEW X1		NEW X1	
	Article no. 72 562 ...		Article no. 72 563 ...		Article no. 72 560 ...		Article no. 72 561 ...	
	£		£		£		£	
3004-3,2-5 35015	38.96	514			38.96	514		
3004-3,2-5 35035	38.96	516			38.96	516		
3004-3,2-6 29008	38.96	508	38.96	508	38.96	508	38.96	508
3004-3,2-6 29015	38.96	510	38.96	510	38.96	510	38.96	510
3004-3,2-6 29035	38.96	512	38.96	512	38.96	512	38.96	512
3004-3,2-6 29075	38.96	515	38.96	515	38.96	515	38.96	515
Steel	●		●		●		●	
Stainless steel	●		●		●		●	
Cast iron	●		●		●		●	
Non ferrous metals	●		●		●		●	
Heat resistant alloys	●		●		●		●	

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3004 L / 3004 LV / 3004 R / 3004 RV

- for back turning

F	M	R

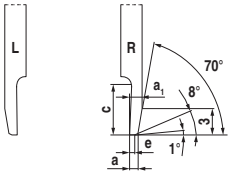
	-SP		-SP		-SP		-SP	
	TiAlN		TiAlN		TiAlN		TiAlN	
	3004 L		3004 LV		3004 R		3004 RV	
	X1		X1		X1		X1	
ISO	Article no. 72 562 ...		Article no. 72 563 ...		Article no. 72 560 ...		Article no. 72 561 ...	
	£		£		£		£	
3004-3,2-5 35015	40.32	114			40.32	114		
3004-3,2-5 35035	40.32	116			40.32	116		
3004-3,2-6 29008	38.96	108	38.96	108	38.96	108	38.96	108
3004-3,2-6 29015	40.32	110	40.32	110	40.32	110	40.32	110
3004-3,2-6 29035	40.32	112	40.32	112	40.32	112	40.32	112
3004-3,2-6 29075	38.96	115	38.96	115	38.96	115	38.96	115
Steel	●		●		●		●	
Stainless steel	●		●		●		●	
Cast iron								
Non ferrous metals	○		○		○		○	
Heat resistant alloys	○		○		○		○	

3

→ v_c Page 125–136

3004 L / 3004 R

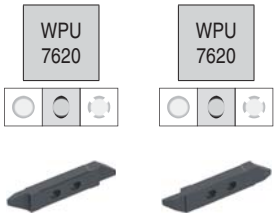
Designation	a CW mm	e CF mm	a_1 mm	c PDPT mm
3004-0,8-..	0.8	0.5	2.0	6
3004-1,0-..	1.0	0.5	2.2	6
3004-1,2-..	1.2	0.5	2.4	8
3004-1,5-..	1.5	0.5	2.7	8
3004-1,8-..	1.8	0.5	3.0	8



3004 L / 3004 R

- for back turning

F	M	R



ISO	3004 L NEW X1 Article no. 72 457 ... £		3004 R NEW X1 Article no. 72 456 ... £	
3004-0,8-6	33.58	504	33.58	504
3004-1,0-6	33.58	506	33.58	506
3004-1,2-8	33.58	508	33.58	508
3004-1,5-8	33.58	510	33.58	510
3004-1,8-8	33.58	512	33.58	512
Steel		●		●
Stainless steel		●		●
Cast iron		●		●
Non ferrous metals		●		●
Heat resistant alloys		●		●

3004 L / 3004 R

- for back turning

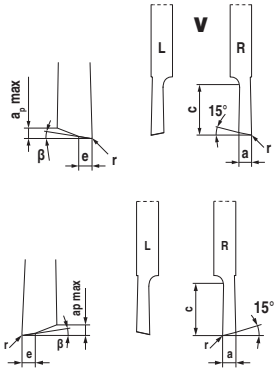
F	M	R

ISO	3004 L X1 Article no. 72 454 ... £		3004 R X1 Article no. 72 452 ... £	
3004-0,8-6	35.84	110	35.84	110
3004-1,0-6	35.84	112	35.84	112
3004-1,2-8	35.84	114	35.84	114
3004-1,5-8	35.84	116	35.84	116
3004-1,8-8	35.84	118	35.84	118
Steel		●		●
Stainless steel		●		●
Cast iron				
Non ferrous metals		○		○
Heat resistant alloys		○		○

→ v_c Page 125–136

3002-015 R / 3002-015 L / 3002-015 RV / 3002-015 LV

Designation	a CW mm	e CF mm	c PDPT mm	r CRE mm	β°	$a_{p\,max}$ mm
3002-015-..	2	0.3	10	0.15	1.5	0.45



3002-015 L / 3002-015 LV / 3002-015 R / 3002-015 RV

- For turning and parting off

F	M	R

ISO	WPU 7620	WPU 7620	WPU 7620	WPU 7620
	3002-015 L	3002-015 LV	3002-015 R	3002-015 RV
	NEW X1	NEW X1	NEW X1	NEW X1
	Article no. 72 517 ...	Article no. 72 519 ...	Article no. 72 516 ...	Article no. 72 518 ...
	£	£	£	£
3002-015-2,0-10	39.62 510	39.62 510	39.62 510	39.62 510
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	●	●	●	●
Non ferrous metals	●	●	●	●
Heat resistant alloys	●	●	●	●

3002-015 L / 3002-015 LV / 3002-015 R / 3002-015 RV

- For turning and parting off

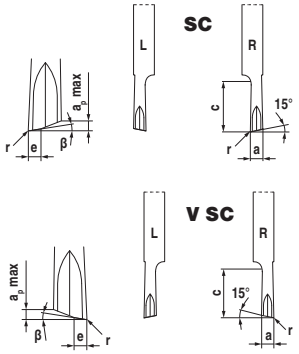
F	M	R

ISO	TiAlN	TiAlN	TiAlN	TiAlN
	3002-015 L	3002-015 LV	3002-015 R	3002-015 RV
	NEW X1	NEW X1	NEW X1	NEW X1
	Article no. 72 517 ...	Article no. 72 519 ...	Article no. 72 516 ...	Article no. 72 518 ...
	£	£	£	£
3002-015-2,0-10	39.62 110	39.62 110	39.62 110	39.62 110
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron				
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○

→ v_c Page 125–136

3002-015 L / 3002-015 LV / 3002-015 R / 3002-015 RV

Designation	a CW mm	e CF mm	c PDPT mm	r CRE mm	β°	$a_{p\,max}$ mm
3002-015-..	2	0.3	10	0.15	1.5	0.45



3002-015 L / 3002-015 LV / 3002-015 R / 3002-015 RV

- For turning and parting off

F	M	R

	-SC	-SC	-SC	-SC
	WPU 7620	WPU 7620	WPU 7620	WPU 7620
	3002-015 L	3002-015 LV	3002-015 R	3002-015 RV
	NEW X1	NEW X1	NEW X1	NEW X1
ISO	Article no. 72 511 ...	Article no. 72 513 ...	Article no. 72 510 ...	Article no. 72 512 ...
	£	£	£	£
3002-015-2,0-10	41.90 510	41.90 510	41.90 510	41.90 510
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	●	●	●	●
Non ferrous metals	●	●	●	●
Heat resistant alloys	●	●	●	●

3002-015 L / 3002-015 LV / 3002-015 R / 3002-015 RV

- For turning and parting off

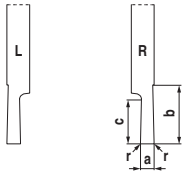
F	M	R

	-SC	-SC	-SC	-SC
	TiAlN	TiAlN	TiAlN	TiAlN
	3002-015 L	3002-015 LV	3002-015 R	3002-015 RV
	NEW X1	NEW X1	NEW X1	NEW X1
ISO	Article no. 72 511 ...	Article no. 72 513 ...	Article no. 72 510 ...	Article no. 72 512 ...
	£	£	£	£
3002-015-2,0-10	41.90 110	41.90 110	41.90 110	41.90 110
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron				
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○

→ v_c Page 125–136

3005 L / 3005 R

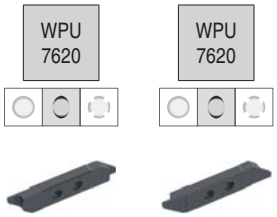
Designation	a CW mm	c PDPT mm	r CRE mm	b mm
3005-1,0-..	1.0	2.5	0.05	8
3005-1,5-..	1.5	3.0	0.05	8
3005-2,0-..	2.0	4.0	0.05	8
3005-2,5-..	2.5	5.0	0.05	8
3005-3,0-..	3.0	6.0	0.05	8



3005 L / 3005 R

- for grooving and turning

F	M	R



ISO	3005 L NEW X1 Article no. 72 466 ... £		3005 R NEW X1 Article no. 72 464 ... £	
3005-1,0-2,5	34.40	518	34.40	518
3005-1,5-3	34.40	510	34.40	510
3005-2,0-4	34.40	512	34.40	512
3005-2,5-5	34.40	514	34.40	514
3005-3,0-6	34.40	516	34.40	516
Steel	●		●	
Stainless steel	●		●	
Cast iron	●		●	
Non ferrous metals	●		●	
Heat resistant alloys	●		●	

3005 L / 3005 R

- for grooving and turning

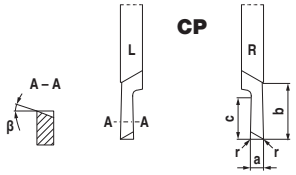
F	M	R

ISO	3005 L X1 Article no. 72 466 ... £		3005 R X1 Article no. 72 464 ... £	
3005-1,0-2,5	35.84	108	35.84	108
3005-1,5-3	35.84	110	35.84	110
3005-2,0-4	35.84	112	35.84	112
3005-2,5-5	35.84	114	35.84	114
3005-3,0-6	34.40	116	34.40	116
Steel	●		●	
Stainless steel	●		●	
Cast iron				
Non ferrous metals	○		○	
Heat resistant alloys	○		○	

→ v_c Page 125–136

3005 L / 3005 R

Designation	a CW mm	c PDPT mm	r CRE mm	b mm	β°
3005-0,8-2,5	0.8	2.5	-	8	10
3005-1,0-3,5	1.0	3.5	-	8	10
3005-1,5-4	1.5	4.0	-	8	10
3005-1,5-4 R08	1.5	4.0	0.08	8	10
3005-2,0-5	2.0	5.0	-	8	10
3005-2,0-5 R08	2.0	5.0	0.08	8	10
3005-2,0-5 R15	2.0	5.0	0.15	8	10
3005-2,5-6	2.5	6.0	-	8	10
3005-2,5-6 R08	2.5	6.0	0.08	8	10
3005-2,5-6 R15	2.5	6.0	0.15	8	10
3005-3,0-6	3.0	6.0	-	8	10
3005-3,0-6 R08	3.0	6.0	0.08	8	10
3005-3,0-6 R15	3.0	6.0	0.15	8	10



3005 L / 3005 R

- for grooving and turning

F	M	R

ISO	-CP WPU 7620 3005 L NEW X1 Article no. 72 470 ... £		-CP WPU 7620 3005 R NEW X1 Article no. 72 468 ... £	
3005-0,8-2,5	36.19	508	36.19	508
3005-1,0-3,5	36.19	518	36.19	518
3005-1,5-4	36.19	510	36.19	528
3005-1,5-4 R08	38.48	519	38.48	519
3005-2,0-5	36.19	512	36.19	512
3005-2,0-5 R08	38.48	522	38.48	522
3005-2,0-5 R15	38.48	532	38.48	532
3005-2,5-6	36.19	514	36.19	514
3005-2,5-6 R08	38.48	524	38.48	524
3005-2,5-6 R15	38.48	534	38.48	534
3005-3,0-6	36.19	516	36.19	516
3005-3,0-6 R08	38.48	526	38.48	526
3005-3,0-6 R15	38.48	536	38.48	536
Steel	●		●	
Stainless steel	●		●	
Cast iron	●		●	
Non ferrous metals	●		●	
Heat resistant alloys	●		●	

→ v_c Page 125–136

3005 L / 3005 R

- for grooving and turning

F	M	R

ISO	-CP TiAlN 3005 L X1 Article no. 72 470 ... £		-CP TiAlN 3005 R X1 Article no. 72 468 ... £	
3005-0,8-2,5	38.14	106	38.14	106
3005-1,0-3,5	38.14	108	38.14	108
3005-1,5-4	38.14	110	38.14	110
3005-1,5-4 R08	38.48	119	38.48	119
3005-2,0-5	38.14	112	38.14	112
3005-2,0-5 R08	38.48	122	38.48	122
3005-2,0-5 R15	38.48	132	38.48	132
3005-2,5-6	38.14	114	38.14	114
3005-2,5-6 R08	38.48	124	38.48	124
3005-2,5-6 R15	38.48	134	38.48	134
3005-3,0-6	38.14	116	38.14	116
3005-3,0-6 R08	38.48	126	38.48	126
3005-3,0-6 R15	38.48	136	38.48	136

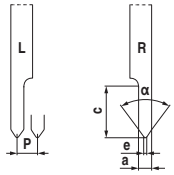
Steel	●	●
Stainless steel	●	●
Cast iron		
Non ferrous metals	○	○
Heat resistant alloys	○	○

3

→ v_c Page 125–136

3006 L / 3006 R

Designation	Pitch TP mm	a CW mm	c PDPT mm	α° PNA	e CF mm
3006-2-6-..	0,25 - 2,0	2	6	60	0.035
3006-3-10..	0,25 - 2,0	3	10	60	0.035



3006 L / 3006 R

- For thread turning (partial profile)

F	M	R
●		

WPU 7620

WPU 7620

ISO	3006 L NEW X1 Article no. 72 478 ... £		3006 R NEW X1 Article no. 72 476 ... £	
3006-2-6-60	33.58	510	33.58	510
3006-3-10-60	33.58	512	33.58	512
Steel	●		●	
Stainless steel	●		●	
Cast iron	●		●	
Non ferrous metals	●		●	
Heat resistant alloys	●		●	

3006 L / 3006 R

- For thread turning (partial profile)

F	M	R
●		

TiAlN

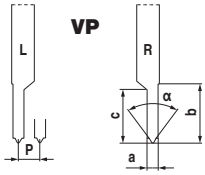
TiAlN

ISO	3006 L X1 Article no. 72 478 ... £		3006 R X1 Article no. 72 476 ... £	
3006-2-6-60	35.84	110	35.84	110
3006-3-10-60	35.84	112	35.84	112
Steel	●		●	
Stainless steel	●		●	
Cast iron				
Non ferrous metals	○		○	
Heat resistant alloys	○		○	

→ v_c Page 125–136

3006 VP L / 3006 VP R

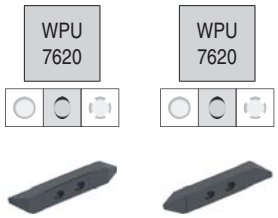
Designation	Pitch TP mm	Thread	a CW mm	c PDPT mm	b mm	α° PNA
3006-0,15..	0.15	M0,6	0.16	-	8	60
3006-0,25..	0.25	M1 - M1,2	0.28	-	8	60
3006-0,35..	0.35	M1,6 - M1,8	0.38	-	8	60
3006-0,4-..	0.40	M2	0.44	-	8	60
3006-0,45..	0.45	M2,2 - M2,5	0.50	-	8	60
3006-0,5-..	0.50	M3	0.70	1.4	8	60
3006-0,6-..	0.60	M3,5	0.80	1.4	8	60
3006-0,7-..	0.70	M4	0.90	1.8	8	60
3006-0,75..	0.75	M4,5	0.90	1.9	8	60
3006-0,8-..	0.80	M5	1.00	2	8	60
3006-1,0-..	1.00	M6 - M7	1.10	2.4	8	60
3006-1,25..	1.25	M8 - M9	1.46	2.9	8	60
3006-1,5-..	1.50	M10 - M11	1.74	3.4	8	60
3006-1,75..	1.75	M12	1.96	3.9	8	60
3006-2,0-..	2.00	M14 - M16	2.20	4	8	60



3006 VP L / 3006 VP R

- For thread turning (full profile)

F	M	R



ISO	3006 VP L NEW X1 Article no. 72 474 ... £		3006 VP R NEW X1 Article no. 72 472 ... £	
3006-0,25-10-60 VP	74.67	510	74.67	510
3006-0,35-10-60 VP	74.67	512	74.67	512
3006-0,4-10-60 VP	74.67	514	74.67	514
3006-0,45-10-60 VP	74.67	516	74.67	516
3006-0,5-10-60 VP	52.02	518	52.02	518
3006-0,6-10-60 VP	52.02	520	52.02	520
3006-0,7-10-60 VP	52.02	522	52.02	522
3006-0,75-10-60 VP	52.02	524	52.02	524
3006-0,8-10-60 VP	52.02	526	52.02	526
3006-1,0-10-60 VP	52.02	528	52.02	528
3006-1,25-10-60 VP	52.02	530	52.02	530
3006-1,5-10-60 VP	52.02	532	52.02	532
3006-1,75-10-60 VP	52.02	534	52.02	534
Steel		●		●
Stainless steel		●		●
Cast iron		●		●
Non ferrous metals		●		●
Heat resistant alloys		●		●

→ v_c Page 125–136

3006 VP L / 3006 VP R

- For thread turning (full profile)

F	M	R

60°

M

TiAlN

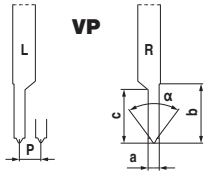
TiAlN

ISO	3006 VP L X1 Article no. 72 474 ...		3006 VP R X1 Article no. 72 472 ...	
	£		£	
3006-0,15-10-60 VP	74.67	108	74.67	108
3006-0,25-10-60 VP	80.10	110	80.10	110
3006-0,35-10-60 VP	80.10	112	80.10	112
3006-0,4-10-60 VP	80.10	114	80.10	114
3006-0,45-10-60 VP	80.10	116	80.10	116
3006-0,5-10-60 VP	52.21	118	52.21	118
3006-0,6-10-60 VP	52.21	120	52.21	120
3006-0,7-10-60 VP	52.21	122	52.21	122
3006-0,75-10-60 VP	52.21	124	52.21	124
3006-0,8-10-60 VP	52.21	126	52.21	126
3006-1,0-10-60 VP	52.21	128	52.21	128
3006-1,25-10-60 VP	52.21	130	52.21	130
3006-1,5-10-60 VP	52.21	132	52.21	132
3006-1,75-10-60 VP	52.21	134	52.21	134
3006-2,0-10-60 VP			52.02	136
Steel		●		●
Stainless steel		●		●
Cast iron				
Non ferrous metals		○		○
Heat resistant alloys		○		○

→ v_c Page 125–136

3006 VP L / 3006 VP R

Designation	Thread TDIN	Pitch TP mm	a CW mm	c PDPT mm	α° PNA	b mm
3006-03-4..	Nr. 3-48	0.529	0.70	1.4	60	8
3006-04-4..	Nr. 4-40	0.635	0.80	1.8	60	8
3006-05-4..	Nr. 5-40	0.635	0.80	1.8	60	8
3006-06-3..	Nr. 6-32	0.794	1.00	2.0	60	8
3006-08-3..	Nr. 8-32	0.794	1.00	2.0	60	8
3006-1/2-..	1/2-13	1.954	2.40	4.2	60	8
3006-1/4-..	1/4-20	1.270	1.46	2.9	60	8
3006-10-2..	Nr. 10-24	1.058	1.20	2.4	60	8
3006-12-2..	Nr. 12-24	1.058	1.20	2.4	60	8
3006-3/8-..	3/8-16	1.588	1.80	3.6	60	8
3006-5/16..	5/16-18	1.411	1.60	3.4	60	8
3006-7/16..	7/16-14	1.814	2.20	3.9	60	8

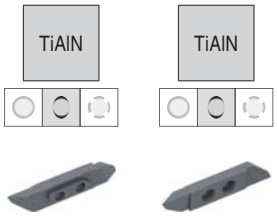


3006 VP L / 3006 VP R

- For thread turning (full profile)

F	M	R

UNC



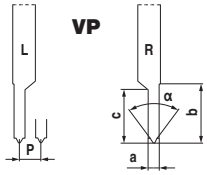
ISO	3006 VP L NEW X1 Article no. 72 523 ... £		3006 VP R NEW X1 Article no. 72 522 ... £	
3006-03-48 UNC 10-60 VP	52.02	110	52.02	110
3006-04-40 UNC 10-60 VP	52.02	112	52.02	112
3006-05-40 UNC 10-60 VP	52.02	114	52.02	114
3006-06-32 UNC 10-60 VP	52.02	116	52.02	116
3006-08-32 UNC 10-60 VP	52.02	118	52.02	118
3006-1/2-13 UNC 10-60 VP	52.02	132	52.02	132
3006-1/4-20 UNC 10-60 VP	52.02	124	52.02	124
3006-10-24 UNC 10-60 VP	52.02	120	52.02	120
3006-12-24 UNC 10-60 VP	52.02	122	52.02	122
3006-3/8-16 UNC 10-60 VP	52.02	128	52.02	128
3006-5/16-18 UNC 10-60 VP	52.02	126	52.02	126
3006-7/16-14 UNC 10-60 VP	52.02	130	52.02	130
Steel		●		●
Stainless steel		●		●
Cast iron				
Non ferrous metals		○		○
Heat resistant alloys		○		○

3

→ v_c Page 125–136

3006 VP L / 3006 VP R

Designation	Thread TDIN	Pitch TP mm	a CW mm	c PDPT mm	α° PNA	b mm
3006-04-4..	Nr. 4-48	0.529	0.70	1.4	60	8
3006-05-4..	Nr. 5-44	0.577	0.80	1.4	60	8
3006-06-4..	Nr. 6-40	0.635	0.80	1.8	60	8
3006-08-3..	Nr. 8-36	0.705	0.90	1.8	60	8
3006-1/2-..	1/2-20	1.270	1.44	2.9	60	8
3006-1/4-..	1/4-28	0.907	1.20	2.2	60	8
3006-10-3..	Nr. 10-32	0.794	1.00	2.0	60	8
3006-12-2..	Nr. 12-28	0.907	1.20	2.2	60	8
3006-3/8-..	3/8-24	1.058	1.20	2.4	60	8
3006-5/16..	5/16-24	1.058	1.20	2.4	60	8
3006-7/16..	7/16-20	1.270	1.44	2.4	60	8

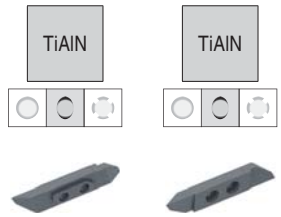


3006 VP L / 3006 VP R

- For thread turning (full profile)

F	M	R

60° UNF



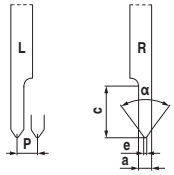
ISO	3006 VP L NEW X1 Article no. 72 525 ... £		3006 VP R NEW X1 Article no. 72 524 ... £	
3006-04-48 UNF 10-60 VP	52.02	150	52.02	150
3006-05-44 UNF 10-60 VP	52.02	152	52.02	152
3006-06-40 UNF 10-60 VP	52.02	154	52.02	154
3006-08-36 UNF 10-60 VP	52.02	156	52.02	156
3006-1/2-20 UNF 10-60 VP	52.02	170	52.02	170
3006-1/4-28 UNF 10-60 VP	52.02	162	52.02	162
3006-10-32 UNF 10-60 VP	52.02	158	52.02	158
3006-12-28 UNF 10-60 VP	52.02	160	52.02	160
3006-3/8-24 UNF 10-60 VP	52.02	166	52.02	166
3006-5/16-24 UNF 10-60 VP	52.02	164	52.02	164
3006-7/16-20 UNF 10-60 VP	52.02	168	52.02	168

Steel	●	●
Stainless steel	●	●
Cast iron		
Non ferrous metals	○	○
Heat resistant alloys	○	○

→ v_c Page 125–136

3006 L / 3006 R

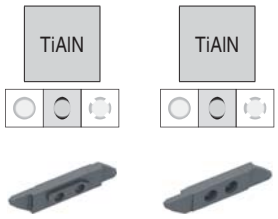
Designation	Pitch TP mm	a CW mm	c PDPT mm	α° PNA	e CF mm
3006-2-6-..	0,25 - 2,0	2	6	55	0.035
3006-3-10..	0,25 - 2,0	3	10	55	0.035



3006 L / 3006 R

- For thread turning (partial profile)

F	M	R



ISO	3006 L NEW X1 Article no. 72 527 ... £		3006 R NEW X1 Article no. 72 526 ... £	
3006-2-6-55	33.58	100	33.58	100
3006-3-10-55	33.58	102	33.58	102

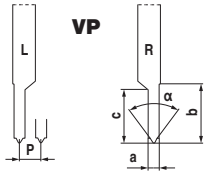
Steel	●	●
Stainless steel	●	●
Cast iron		
Non ferrous metals	○	○
Heat resistant alloys	○	○

3

→ v_c Page 125–136

3006 VP L / 3006 VP R

Designation	Pitch TP mm	Thread	a CW mm	c PDPT mm	α° PNA	b mm
3006-G11-..	2.309	1-11 - 6-11	2.54	5.0	55	8
3006-G14-..	1.814	1/2-14 - 7/8-14	2.00	4.5	55	8
3006-G19-..	1.337	1/4-19 - 3/8-19	1.48	3.3	55	8
3006-G28-..	0.907	1/8-28 - 1/16-28	1.00	2.3	55	8



3006 VP L / 3006 VP R

- For thread turning (full profile)

F	M	R

G

TiAlN

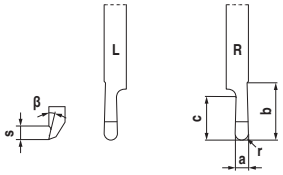
TiAlN

ISO	3006 VP L NEW X1 Article no. 72 529 ... £		3006 VP R NEW X1 Article no. 72 528 ... £	
3006-G11-10-55 VP	52.02	111	52.02	111
3006-G14-10-55 VP	52.02	114	52.02	114
3006-G19-10-55 VP	52.02	119	52.02	119
3006-G28-10-55 VP	52.02	128	52.02	128
Steel		●		●
Stainless steel		●		●
Cast iron				
Non ferrous metals		○		○
Heat resistant alloys		○		○

→ v_c Page 125–136

3007 L / 3007 R

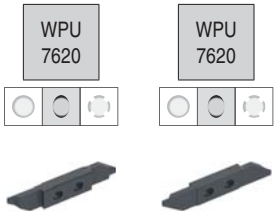
Designation	a CW mm	b mm	c PDPT mm	β°	r CRE mm	s mm
3007-R0,25-2-..	0.5	12	2.0	6	0.25	2
3007-R0,5-2,5..	1.0	12	2.5	6	0.50	2
3007-R0,6-2,5..	1.2	12	2.5	6	0.60	2
3007-R0,75-3-..	1.5	12	3.0	6	0.75	2
3007-R0,8-3-1..	1.6	12	3.0	6	0.80	2
3007-R1,0-10	2.0	12	10.0	6	1.00	2
3007-R1,5-10	3.0	12	10.0	6	1.50	2
3007-R1,5-16	3.0	17	16.0	6	1.50	2



3007 L / 3007 R

- for radius turning

F	M	R



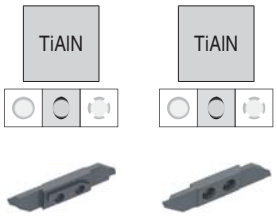
ISO	3007 L NEW X1 Article no. 72 482 ... £		3007 R NEW X1 Article no. 72 480 ... £	
3007-R0,25-2-10	33.58	510	33.58	510
3007-R0,5-2,5-10	33.58	512	33.58	512
3007-R0,6-2,5-10	33.58	514	33.58	514
3007-R0,75-3-10	33.58	516	33.58	516
3007-R0,8-3-10	33.58	518	33.58	518
3007-R1,0-10	33.58	520	33.58	520
3007-R1,5-10	33.58	522	33.58	522
3007-R1,5-16	39.95	524	39.95	524
Steel		●		●
Stainless steel		●		●
Cast iron		●		●
Non ferrous metals		○		○
Heat resistant alloys		○		○

→ v_c Page 125–136

3007 L / 3007 R

- for radius turning

F	M	R



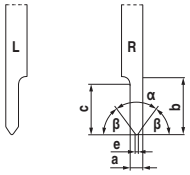
ISO	3007 L X1 Article no. 72 482 ... £		3007 R X1 Article no. 72 480 ... £	
3007-R0,25-2-10	40.22	110	40.22	110
3007-R0,5-2,5-10	40.22	112	40.22	112
3007-R0,6-2,5-10	40.22	114	40.22	114
3007-R0,75-3-10	40.22	116	40.22	116
3007-R0,8-3-10	40.22	118	40.22	118
3007-R1,0-10	40.22	120	40.22	120
3007-R1,5-10	40.22	122	40.22	122
3007-R1,5-16	46.11	124	46.11	124

Steel	○	○
Stainless steel	○	○
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys	○	○

→ v_c Page 125–136

3012 L / 3012 R

Designation	a CW mm	c PDPT mm	b mm	β°	α° PNA	e CF mm
3012-2-6-..	2	2	10	60	60	0.035
3012-2-10..	2	10	12	45	90	-



3012 L / 3012 R

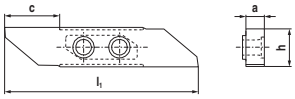
- for chamfering

F	M	R

ISO	TiAlN		TiAlN	
	3012 L		3012 R	
	X1		X1	
	Article no. 72 486 ...		Article no. 72 484 ...	
	£		£	
3012-2-6-60	40.22	110	40.22	110
3012-2-10-45	40.22	112	40.22	112
Steel	○		○	
Stainless steel	○		○	
Cast iron				
Non ferrous metals	●		●	
Heat resistant alloys	○		○	

3001 L / 3001 R

Designation	a CW mm	c PDPT mm	h S1 mm	l_1 INSL mm
3001-3,5-..	3.5	11	8	40.5
3001-3,6-..	3.6	17	8	51.5



3001 L / 3001 R

- Blank

ISO	WUU 7630		WUU 7630	
	3001 L		3001 R	
	X1		X1	
	Article no. 72 414 ...		Article no. 72 412 ...	
	£		£	
3001-3,5-10	25.47	010	25.47	010
3001-3,6-17	31.00	030	31.00	030

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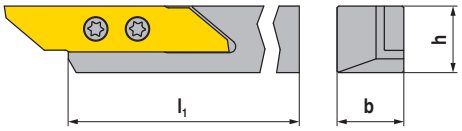
VertiClamp – Standard tool holder

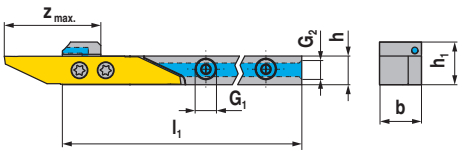


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	Insert	Left-hand X0 Article no. 72 302 ... £		Right-hand X0 Article no. 72 300 ... £	
3000-08x100 .	8	8	100	30..	97.12	008	97.12	008
3000-10x100 .	10	10	100	30..	105.95	010	105.95	010
3000-12x100 .	12	12	100	30..	115.15	012	115.15	012
3000-16x125 .	16	16	125	30..	138.58	016	138.58	016
3000-20x125 .	20	20	125	30..	154.94	020	154.94	020
3000-25x150 .	25	25	150	30..	196.35	025		

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
72 300 008 / 72 302 008	T08	9.52	110	3.38	004
72 300 010 / 72 302 010	T08	9.52	110	3.38	005
72 300 012 / 72 302 012	T08	9.52	110	3.38	005
72 300 016 / 72 302 016	T08	9.52	110	3.38	005
72 300 020 / 72 302 020	T08	9.52	110	3.38	005

VertiClamp – Standard holder with thro' coolant

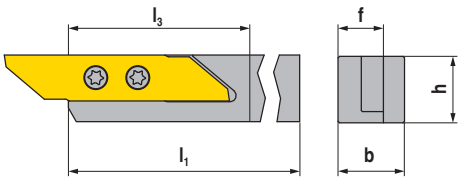


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	h_1 OAH mm	$z_{max.}$ mm	G_1	G_2	Insert	Left-hand NEW X0 Article no. 72 311 ... £		Right-hand NEW X0 Article no. 72 310 ... £	
3000-08x100 .IC	8	12	100	12.2	26	M5	M5	30..	316.80	008	316.80	008
3000-10x100 .IC	10	12	100	14.0	26	M5	M5	30..	262.35	010	262.35	010
3000-12x100 .IC	12	12	100	16.0	26	M5	M5	30..	262.35	012	262.35	012
3000-16x100 .IC	16	16	125	20.0	26	M5	G1/8"	30..	278.85	016	278.85	016
3000-20x100 .IC	20	20	125	24.0	26	M5	G1/8"	30..	285.45	020	285.45	020
3000-25x100 .IC	25	25	125	29.0	26	M5	G1/8"	30..	321.75	025	321.75	025

Spare parts for Article no.		X0 Cylindrical screw Article no. 72 950 ... £			X0 Cylindrical screw Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
72 310 008 / 72 311 008				M5x4	7.59	011	T08	9.52	110	3.38	004
72 310 010 / 72 311 010				M5x4	7.59	011	T08	9.52	110	3.38	005
72 310 012 / 72 311 012				M5x4	7.59	011	T08	9.52	110	3.38	005
72 310 016 / 72 311 016	G1/8"	24.09	010	M5x4	7.59	011	T08	9.52	110	3.38	005
72 310 020 / 72 311 020	G1/8"	24.09	010	M5x4	7.59	011	T08	9.52	110	3.38	005
72 310 025 / 72 311 025	G1/8"	24.09	010	M5x4	7.59	011	T08	9.52	110	3.38	005

VertiClamp – Offset tool holder

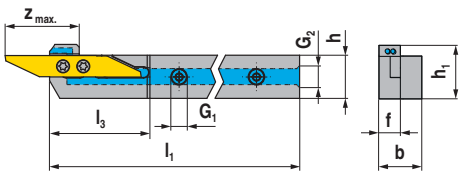


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand X0 Article no. 72 309 ... £		Right-hand X0 Article no. 72 308 ... £	
3000-10x100 .A	10	10	100	37	8	30..	115.17	006	115.17	006
3000-12x100 .A	12	12	100	37	8	30..	126.93	008	126.93	008
3000-16x125 .A	16	16	125	37	8	30..	153.79	010	153.79	010

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
72 308 008 / 72 309 008	T08	9.52	110	3.38	004
72 308 010 / 72 309 010	T08	9.52	110	3.38	004

VertiClamp – Offset holder with thro' coolant

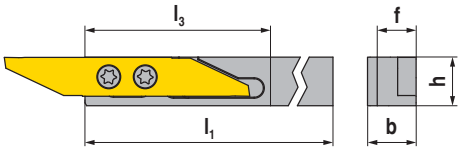


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	l_3 LH mm	h_1 OAH mm	$z_{max.}$ mm	G_1	G_2	Insert	Left-hand NEW X0 Article no. 72 315 ... £		Right-hand NEW X0 Article no. 72 314 ... £	
3000-16x125 .A IC	16	16	125	8	37	20	27	M5	G1/8"	30..	278.85	016	278.85	016

Spare parts for Article no.		X0 Cylindrical screw Article no. 72 950 ... £			X0 Cylindrical screw Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
72 314 016 / 72 315 016	G1/8"	24.09	010	M5x4	7.59	011	T08	9.52	110	3.38	004

VertiClamp – Offset holder with offset insert seat

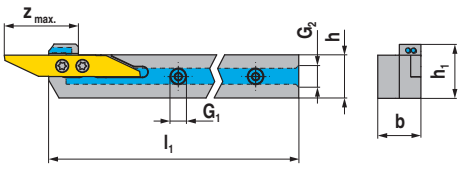


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	Insert	Left-hand NEW X0 Article no. 72 317 ... £		Right-hand NEW X0 Article no. 72 316 ... £	
3000-10x100 .AV	10	10	100	28	8	30..	115.17	010	115.17	010
3000-12x100 .AV	12	12	100	28	8	30..	115.17	012		
3000-16x125 .AV	16	16	125	28	8	30..	139.59	016	139.59	016

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
72 316 010 / 72 317 010	T08	9.52	110	3.38	004
72 317 012	T08	9.52	110	3.38	004
72 316 016 / 72 317 016	T08	9.52	110	3.38	004

VertiClamp – Offset holder with offset insert seat and thro' coolant

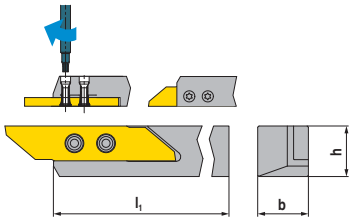


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	h_1 OAH mm	$z_{max.}$ mm	G_1	G_2	Insert	Left-hand NEW X0 Article no. 72 313 ... £		Right-hand NEW X0 Article no. 72 312 ... £	
3000-16x125 .AV IC	16	16	125	20	27	M5	G1/8"	30..	278.85	016	278.85	016

Spare parts for Article no.		X0 Cylindrical screw Article no. 72 950 ... £			X0 Cylindrical screw Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
72 312 016 / 72 313 016	G1/8"	24.09	010	M5x4	7.59	011	T08	9.52	110	3.38	004

VertiClamp – Combi tool holder



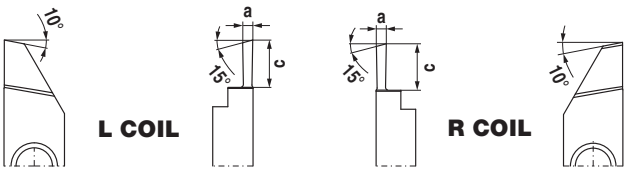
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	Insert	Left-hand X0 Article no. 72 306 ... £		Right-hand X0 Article no. 72 304 ... £	
3000-08x100 .C	8	8	100	30..	112.09	**008**	112.09	**008**
3000-10x100 .C	10	10	100	30..	122.32	**010**	122.32	**010**
3000-12x100 .C	12	12	100	30..	131.67	**012**	131.67	**012**
3000-16x125 .C	16	16	125	30..	159.56	**016**	159.56	**016**
3000-20x125 .C	20	20	125	30..	179.38	**020**	179.38	**020**

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £		2A Threaded sleeve Article no. 72 950 ... £	
72 304 008 / 72 306 008	T08	9.52	**110**	3.38	**003**	3.72	**008**
72 304 010 / 72 306 010	T08	9.52	**110**	3.38	**003**	3.72	**008**
72 304 012 / 72 306 012	T08	9.52	**110**	3.38	**003**	3.72	**008**
72 304 016 / 72 306 016	T08	9.52	**110**	3.38	**003**	3.72	**008**
72 304 020 / 72 306 020	T08	9.52	**110**	3.38	**003**	3.72	**008**

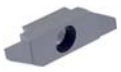
25L COIL / 25R COIL

Designation	a CW mm	c PDPT mm
25. COI. 0,8	0.8	3.0
25. COI. 1,0	1.0	4.5
25. COI. 1,5	1.5	6.2
25. COI. 2,0	2.0	6.2



25L COIL / 25R COIL

- for parting off

ISO	WPX 7615 25L COIL NEW X1 Article no. 72 607 ... £		WPX 7615  25R COIL NEW X1 Article no. 72 600 ... £	
25. COI. 0,8			44.60	208
25. COI. 1,0	44.60	210	44.60	210
25. COI. 1,5	43.40	215	43.40	215
Steel		●		●
Stainless steel		●		●
Cast iron		●		●
Non ferrous metals		●		●
Heat resistant alloys		●		●

25L COIL / 25R COIL

- for parting off

ISO	WUX 7620 25L COIL NEW X1 Article no. 72 607 ... £		WUX 7620 25R COIL NEW X1 Article no. 72 600 ... £	
25. COI. 0,8			41.40	108
25. COI. 1,0			41.40	110
25. COI. 2,0	40.00	120	40.00	120
Steel		●		●
Stainless steel		●		●
Cast iron		●		●
Non ferrous metals		●		●
Heat resistant alloys		●		●

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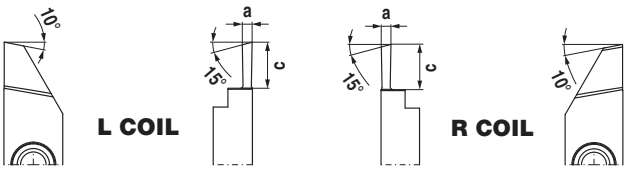
25CL COIL / 25CR COIL

Designation	a CW mm	c PDPT mm
25C. COI. 0,8	0.8	3.0
25C. COI. 1,0	1.0	4.5
25C. COI. 1,5	1.5	6.2
25C. COI. 2,0	2.0	6.2



25CL COIL / 25CR COIL

- For parting off
- Contra version

ISO	WPX 7615		WPX 7615	
	25CL COIL		25CR COIL	
	NEW X1		NEW X1	
	Article no. 72 637 ...		Article no. 72 628 ...	
	£		£	
25C. COI. 0,8			46.20	208
25C. COI. 1,0	46.80	210	46.20	210
25C. COI. 1,5	45.00	215	44.80	215
Steel		●		●
Stainless steel		●		●
Cast iron		●		●
Non ferrous metals		●		●
Heat resistant alloys		●		●

25CL COIL / 25CR COIL

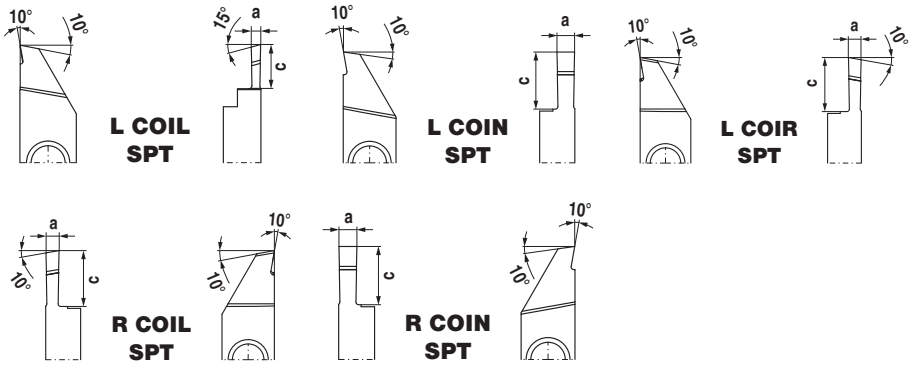
- For parting off
- Contra version

ISO	WUX 7620		WUX 7620	
	25CL COIL		25CR COIL	
	NEW X1		NEW X1	
	Article no. 72 637 ...		Article no. 72 628 ...	
	£		£	
25C. COI. 0,8			43.20	108
25C. COI. 1,0			43.20	110
25C. COI. 2,0	41.60	120	41.60	120
Steel		●		●
Stainless steel		●		●
Cast iron		●		●
Non ferrous metals		●		●
Heat resistant alloys		●		●

→ v_c Page 125–136

25L COIL / 25L COIN / 25L COIR / 25R COIL / 25R COIN

Designation	a CW mm	c PDPT mm
25. COI. 0,8	0.8	3.0
25. COI. 1,0	1.0	4.5
25. COI. 1,5	1.5	6.2
25. COI. 2,0	2.0	6.2



25L COIL / 25L COIN / 25L COIR / 25R COIL / 25R COIN

- for parting off

ISO	-SPT WPX 7615		-SPT WPX 7615		-SPT WPX 7615		-SPT WPX 7615		-SPT WPX 7615	
	25L COIL NEW X1		25L COIN NEW X1		25L COIR NEW X1		25R COIL NEW X1		25R COIN NEW X1	
	Article no. 72 601 ...		Article no. 72 605 ...		Article no. 72 603 ...		Article no. 72 602 ...		Article no. 72 604 ...	
	£		£		£		£		£	
25. COI. 0,8	44.60	208			44.60	208	44.60	208		
25. COI. 1,0	44.60	210	44.60	210					44.60	210
25. COI. 1,5	43.40	215	43.40	215			43.40	215	43.40	215
25. COI. 2,0	43.40	220					43.40	220	43.40	220
Steel	●		●		●		●		●	
Stainless steel	●		●		●		●		●	
Cast iron	●		●		●		●		●	
Non ferrous metals	●		●		●		●		●	
Heat resistant alloys	●		●		●		●		●	

25L COIL / 25L COIR / 25R COIL / 25R COIN

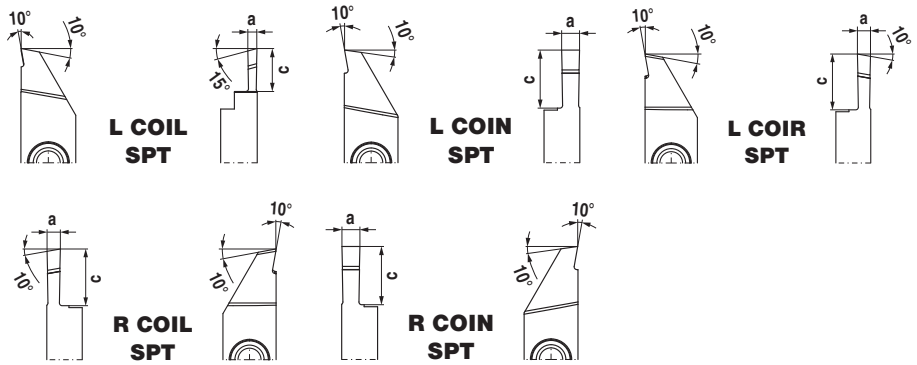
- for parting off

ISO	-SPT WUX 7620		-SPT WUX 7620		-SPT WUX 7620		-SPT WUX 7620	
	25L COIL NEW X1		25L COIR NEW X1		25R COIL NEW X1		25R COIN NEW X1	
	Article no. 72 601 ...		Article no. 72 603 ...		Article no. 72 602 ...		Article no. 72 604 ...	
	£		£		£		£	
25. COI. 0,8			41.40	108	41.40	108		
25. COI. 1,0							41.40	110
25. COI. 1,5	40.00	115			40.00	115	40.00	115
25. COI. 2,0							40.00	120
Steel	●		●		●		●	
Stainless steel	●		●		●		●	
Cast iron	●		●		●		●	
Non ferrous metals	●		●		●		●	
Heat resistant alloys	●		●		●		●	

→ v_c Page 125–136

25CL COIL / 25CR COIN / 25CL COIR / 25CR COIL / 25CL COIN

Designation	a CW mm	c PDPT mm
25C. COI. 0,8	0.8	3.0
25C. COI. 1,0	1.0	4.5
25C. COI. 1,5	1.5	6.2
25C. COI. 2,0	2.0	6.2



25CL COIL / 25CL COIN / 25CL COIR / 25CR COIL / 25CR COIN

- For parting off
- Contra version

ISO	-SPT WPX 7615		-SPT WPX 7615		-SPT WPX 7615		-SPT WPX 7615		-SPT WPX 7615	
	25CL COIL NEW X1 Article no. 72 635 ... £		25CL COIN NEW X1 Article no. 72 633 ... £		25CL COIR NEW X1 Article no. 72 631 ... £		25CR COIL NEW X1 Article no. 72 630 ... £		25CR COIN NEW X1 Article no. 72 632 ... £	
25C. COI. 0,8	46.20	208			46.20	208	46.20	208		
25C. COI. 1,0	46.20	210	46.20	210					46.20	210
25C. COI. 1,5	43.40	215	44.80	215			44.80	215	44.80	215
25C. COI. 2,0	45.00	220					44.80	220	44.80	220
Steel	●		●		●		●		●	
Stainless steel	●		●		●		●		●	
Cast iron	●		●		●		●		●	
Non ferrous metals	●		●		●		●		●	
Heat resistant alloys	●		●		●		●		●	

25CL COIL / 25CL COIR / 25CR COIL / 25CR COIN

- For parting off
- Contra version

ISO	-SPT WUX 7620		-SPT WUX 7620		-SPT WUX 7620		-SPT WUX 7620	
	25CL COIL NEW X1 Article no. 72 635 ... £		25CL COIR NEW X1 Article no. 72 631 ... £		25CR COIL NEW X1 Article no. 72 630 ... £		25CR COIN NEW X1 Article no. 72 632 ... £	
25C. COI. 0,8			46.20	108	46.20	108		
25C. COI. 1,0							43.20	110
25C. COI. 1,5	41.60	115			41.60	115	41.60	115
25C. COI. 2,0							41.60	120
Steel	●		●		●		●	
Stainless steel	●		●		●		●	
Cast iron	●		●		●		●	
Non ferrous metals	●		●		●		●	
Heat resistant alloys	●		●		●		●	

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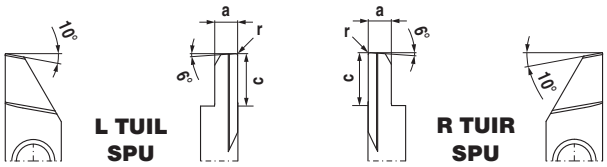
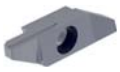
25L TUIL / 25R TUIR / 25CL TUIL / 25CR TUIR

Designation	a CW mm	c PDPT mm	r mm
25. TUI. 2,5	2.5	5.2	0.0
25. TUI. 2,5-0,2	2.5	5.2	0.2



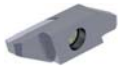
25L TUIL / 25R TUIR

- for front turning

ISO	-SPU WPX 7615		-SPU WPX 7615	
				
	25L TUIL NEW X1 Article no. 72 627 ...		25R TUIR NEW X1 Article no. 72 626 ...	
	£		£	
25. TUI. 2,5	43.40	200	43.40	200
25. TUI. 2,5-0,2	43.40	202	43.40	202
Steel	●		●	
Stainless steel	●		●	
Cast iron	●		●	
Non ferrous metals	●		●	
Heat resistant alloys	●		●	

25CL TUIL / 25CR TUIR

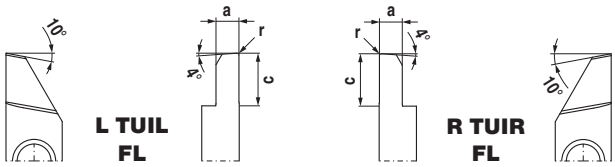
- For front turning
- Contra version

ISO	-SPU WPX 7615		-SPU WPX 7615	
				
	25CL TUIL NEW X1 Article no. 72 659 ...		25CR TUIR NEW X1 Article no. 72 658 ...	
	£		£	
25C. TUI. 2,5	44.80	200	44.80	200
25C. TUI. 2,5-0,2	44.80	202	44.80	202
Steel	●		●	
Stainless steel	●		●	
Cast iron	●		●	
Non ferrous metals	●		●	
Heat resistant alloys	●		●	

→ v_c Page 125–136

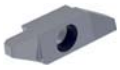
25L TUIL / 25R TUIR / 25CL TUIL / 25CR TUIR

Designation	a CW mm	c PDPT mm	r mm
25. TUI. 2,5	2.5	5.2	0.0
25. TUI. 2,5-0,2	2.5	5.2	0.2



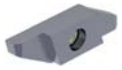
25L TUIL / 25R TUIR

- for front turning

ISO	-FL WPX 7615		-FL WPX 7615	
				
	25L TUIL		25R TUIR	
	NEW X1		NEW X1	
	Article no. 72 625 ...		Article no. 72 624 ...	
	£		£	
25. TUI. 2,5	41.60	200	41.60	200
25. TUI. 2,5-0,2	41.60	202	41.60	202
Steel	●		●	
Stainless steel	●		●	
Cast iron	●		●	
Non ferrous metals	●		●	
Heat resistant alloys	●		●	

25CL TUIL / 25CR TUIR

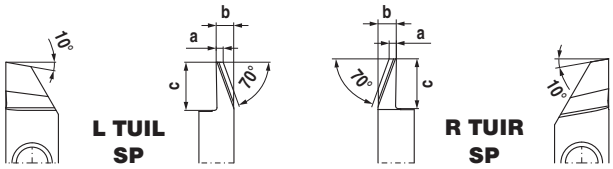
- For front turning
- Contra version

ISO	-FL WPX 7615		-FL WPX 7615	
				
	25CL TUIL		25CR TUIR	
	NEW X1		NEW X1	
	Article no. 72 657 ...		Article no. 72 656 ...	
	£		£	
25C. TUI. 2,5	43.40	200	43.40	200
25C. TUI. 2,5-0,2	43.40	202	43.40	202
Steel	●		●	
Stainless steel	●		●	
Cast iron	●		●	
Non ferrous metals	●		●	
Heat resistant alloys	●		●	

→ v_c Page 125–136

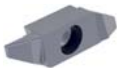
25L TUIL / 25R TUIR

Designation	a CW mm	c PDPT mm	b mm
25. TUI. 2,0	0.8	5	2



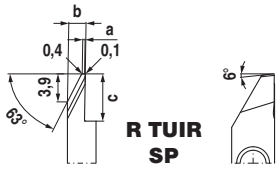
25L TUIL / 25R TUIR

- for back turning

ISO	-SP WPX 7615	-SP WPX 7615
		
	25L TUIL	25R TUIR
	NEW X1	NEW X1
	Article no. 72 613 ...	Article no. 72 616 ...
	£	£
25. TUI. 2,0	44.20 220	44.20 220
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●

25R TUIR

Designation	a CW mm	c PDPT mm	b mm
25. TUI. 2,5	0.5	6.2	2.5



25R TUIR

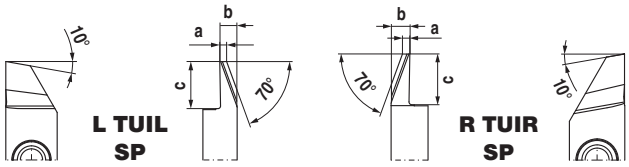
- for grooving and turning

ISO	-SP WPX 7630
	25R TUIR
	NEW X1
	Article no. 72 612 ...
	£
25. TUI. 2,5	52.40 325
Steel	●
Stainless steel	●
Cast iron	
Non ferrous metals	
Heat resistant alloys	

→ v_c Page 125–136

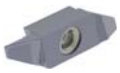
25CL TUIL / 25CR TUIR

Designation	a CW mm	c PDPT mm	b mm
25C. TUI. 2,0	0.8	5	2



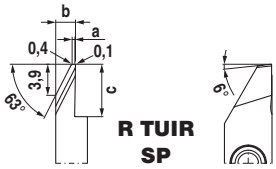
25CL TUIL / 25CR TUIR

- For back turning
- Contra version

ISO	-SP WPX 7615	-SP WPX 7615
		
	25CL TUIL	25CR TUIR
	NEW X1	NEW X1
	Article no. 72 649 ...	Article no. 72 648 ...
	£	£
25C. TUI. 2,0	45.60 220	45.60 220
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●

25CR TUIR

Designation	a CW mm	c PDPT mm	b mm
25C. TUI. 2,5	0.5	6.2	2.5



25CR TUIR

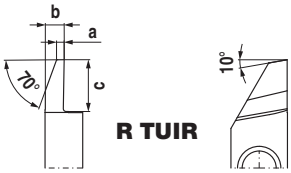
- For grooving and longitudinal turning
- Contra version

ISO	-SP WPX 7630
	25CR TUIR
	NEW X1
	Article no. 72 644 ...
	£
25C. TUI. 2,5	53.80 305
Steel	●
Stainless steel	●
Cast iron	
Non ferrous metals	
Heat resistant alloys	

→ v_c Page 125–136

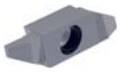
25R TUIR

Designation	a CW mm	c PDPT mm	b mm
25. TUI. 2,0	0.8	5	2



25R TUIR

- for back turning



ISO	WPX 7615 25R TUIR NEW X1 Article no. 72 614 ... £	
25. TUI. 2,0	41.60	220
Steel		●
Stainless steel		●
Cast iron		●
Non ferrous metals		●
Heat resistant alloys		●

25R TUIR

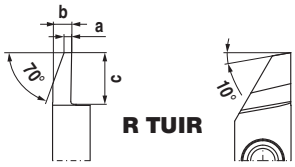
- for grooving and turning

ISO	WUX 7620 25R TUIR NEW X1 Article no. 72 614 ... £	
25. TUI. 2,0	38.60	120
Steel		●
Stainless steel		●
Cast iron		●
Non ferrous metals		●
Heat resistant alloys		●

→ v_c Page 125–136

25CR TUIR

Designation	a CW mm	c PDPT mm	b mm
25C. TUI. 2,0	0.8	5	2



25CR TUIR

- For back turning
- Contra version

WPX 7615

ISO	25CR TUIR NEW X1 Article no. 72 646 ... £	
25C. TUI. 2,0	43.40	220
Steel		●
Stainless steel		●
Cast iron		●
Non ferrous metals		●
Heat resistant alloys		●

25CR TUIR

- For back turning
- Contra version

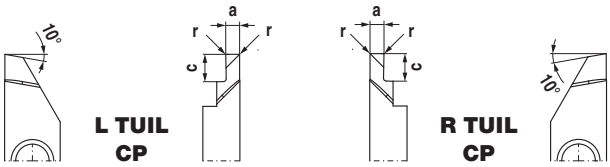
WUX 7620

ISO	25CR TUIR NEW X1 Article no. 72 646 ... £	
25C. TUI. 2,0	40.00	120
Steel		●
Stainless steel		●
Cast iron		●
Non ferrous metals		●
Heat resistant alloys		●

→ v_c Page 125–136

25L TUIL / 25R TUIR

Designation	a CW mm	c PDPT mm	r mm
25. TUI. 1,0	1.0	2.5	0.00
25. TUI. 1,5	1.5	2.5	0.00
25. TUI. 1,5-0,08	1.5	2.5	0.08
25. TUI. 2,0	2.0	3.0	0.00
25. TUI. 2,0-0,08	2.0	3.0	0.08



25L TUIL / 25R TUIR

- for grooving and turning

ISO	-CP WPX 7615 25L TUIL NEW X1 Article no. 72 609 ... £		-CP WPX 7615 25R TUIR NEW X1 Article no. 72 608 ... £	
25. TUI. 1,0	44.60	210	44.60	210
25. TUI. 1,5	44.60	215	44.60	215
25. TUI. 1,5-0,08			47.60	217
25. TUI. 2,0	43.40	220	43.40	220
25. TUI. 2,0-0,08			46.20	222
Steel	●		●	
Stainless steel	●		●	
Cast iron	●		●	
Non ferrous metals	●		●	
Heat resistant alloys	●		●	

25L TUIL / 25R TUIR

- for grooving and turning

ISO	-CP WUX 7620 25L TUIL NEW X1 Article no. 72 609 ... £		-CP WUX 7620 25R TUIR NEW X1 Article no. 72 608 ... £	
25. TUI. 1,0	41.40	110	41.40	110
25. TUI. 1,5			41.40	115
25. TUI. 2,0	40.00	120	40.00	120
Steel	●		●	
Stainless steel	●		●	
Cast iron	●		●	
Non ferrous metals	●		●	
Heat resistant alloys	●		●	

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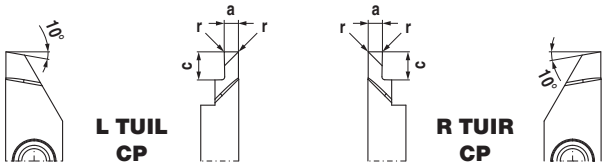
25CL TUIL / 25CR TUIR

Designation	a CW mm	c PDPT mm	r mm
25C. TUI. 1,0	1.0	2.5	0.00
25C. TUI. 1,5	1.5	2.5	0.00
25C. TUI. 1,5-0,08	1.5	2.5	0.08
25C. TUI. 2,0	2.0	3.0	0.00
25C. TUI. 2,0-0,08	2.0	3.0	0.08



25CL TUIL / 25CR TUIR

- For grooving and longitudinal turning
- Contra version

ISO	-CP WPX 7615		-CP WPX 7615	
	25CL TUIL NEW X1		25CR TUIR NEW X1	
	Article no. 72 639 ...		Article no. 72 638 ...	
	£		£	
25C. TUI. 1,0	46.20	210	46.20	210
25C. TUI. 1,5	46.20	215	46.20	215
25C. TUI. 1,5-0,08			49.20	217
25C. TUI. 2,0	44.80	220	44.80	220
25C. TUI. 2,0-0,08			47.80	222
Steel		●		●
Stainless steel		●		●
Cast iron		●		●
Non ferrous metals		●		●
Heat resistant alloys		●		●

25CL TUIL / 25CR TUIR

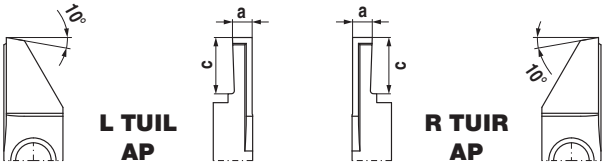
- For grooving and longitudinal turning
- Contra version

ISO	-CP WUX 7620		-CP WUX 7620	
	25CL TUIL NEW X1		25CR TUIR NEW X1	
	Article no. 72 639 ...		Article no. 72 638 ...	
	£		£	
25C. TUI. 1,0	43.20	110	43.20	110
25C. TUI. 1,5			43.20	115
25C. TUI. 2,0	41.60	120	41.60	120
Steel		●		●
Stainless steel		●		●
Cast iron		●		●
Non ferrous metals		●		●
Heat resistant alloys		●		●

→ v_c Page 125–136

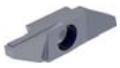
25L TUIL / 25R TUIR / 25CL TUIL / 25CR TUIR

Designation	a CW mm	c PDPT mm
25. TUI. 2,0	2	3



25L TUIL / 25R TUIR

- for grooving and turning

ISO	-AP WPX 7615	-AP WPX 7615
		
	25L TUIL	25R TUIR
	NEW X1	NEW X1
	Article no. 72 611 ...	Article no. 72 610 ...
	£	£
25. TUI. 2,0	44.60 220	44.60 220
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●

25CL TUIL / 25CR TUIR

- For grooving and longitudinal turning
- Contra version

ISO	-AP WPX 7615	-AP WPX 7615
	25CL TUIL	25CR TUIR
	NEW X1	NEW X1
	Article no. 72 641 ...	Article no. 72 640 ...
	£	£
25C. TUI. 2,0	46.20 220	46.20 220
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●

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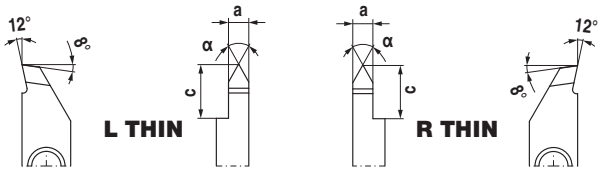
25L THIN / 25R THIN / 25CL THIN / 25CR THIN

Designation	a CW mm	c PDPT mm	α° PNA	Pitch TP mm
25. THIN-0,5-0,8/60	2.5	6.2	60	0,5 - 0,8
25. THIN-1,0-1,5/60	2.5	6.2	60	1,0 - 1,5



25L THIN / 25R THIN

- For thread turning (partial profile)

ISO	WPX 7630		WPX 7630	
	25L THIN NEW X1 Article no. 72 619 ... £		25R THIN NEW X1 Article no. 72 618 ... £	
25. THIN-0,5-0,8/60	53.00	305	53.00	305
25. THIN-1,0-1,5/60	53.00	310	53.00	310
Steel	●		●	
Stainless steel	●		●	
Cast iron	○		○	
Non ferrous metals	○		○	
Heat resistant alloys	●		●	

25CL THIN / 25CR THIN

- For thread turning (partial profile)
- Contra version

ISO	WPX 7630		WPX 7630	
	25CL THIN NEW X1 Article no. 72 651 ... £		25CR THIN NEW X1 Article no. 72 650 ... £	
25C. THIN-0,5-0,8/60	54.40	305	54.40	305
25C. THIN-1,0-1,5/60	54.40	310	54.40	310
Steel	●		●	
Stainless steel	●		●	
Cast iron	○		○	
Non ferrous metals	○		○	
Heat resistant alloys	●		●	

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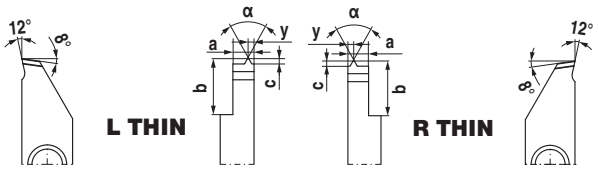
25L THIN / 25R THIN / 25CL THIN / 25CR THIN

Designation	a CW mm	c PDPT mm	α° PNA	Pitch TP mm	y PDX mm	b mm
25. THIN-0,5/60	2.5	0.31	60	0.50	0.4	6.2
25. THIN-0,7/60	2.5	0.43	60	0.70	0.6	6.2
25. THIN-0,75/60	2.5	0.46	60	0.75	0.6	6.2
25. THIN-0,8/60	2.5	0.49	60	0.80	0.6	6.2
25. THIN-1,0/60	2.5	0.61	60	1.00	0.7	6.2
25. THIN-1,25/60	2.5	0.77	60	1.25	0.9	6.2
25. THIN-1,5/60	2.5	0.92	60	1.50	1.0	6.2



25L THIN / 25R THIN

- For thread turning (full profile)

60° M

ISO	WPX 7630 25L THIN NEW X1 Article no. 72 623 ... £		WPX 7630 25R THIN NEW X1 Article no. 72 622 ... £	
25. THIN-0,5/60	74.00	305	74.00	305
25. THIN-0,7/60	74.00	307	74.00	307
25. THIN-0,75/60	74.00	317	74.00	317
25. THIN-0,8/60	74.00	308	74.00	308
25. THIN-1,0/60	74.00	310	74.00	310
25. THIN-1,25/60	76.80	312	76.80	312
25. THIN-1,5/60	76.80	315	76.80	315
Steel		●		●
Stainless steel		●		●
Cast iron		○		○
Non ferrous metals		○		○
Heat resistant alloys		●		●

25CL THIN / 25CR THIN

- For thread turning (full profile)
- Contra version

60° M

ISO	WPX 7630 25CL THIN NEW X1 Article no. 72 655 ... £		WPX 7630 25CR THIN NEW X1 Article no. 72 654 ... £	
25C. THIN-0,5/60	76.00	305	76.00	305
25C. THIN-0,7/60	76.00	307	76.00	307
25C. THIN-0,75/60	76.00	317	76.00	317
25C. THIN-0,8/60	76.00	308	76.00	308
25C. THIN-1,0/60	76.00	310	76.00	310
25C. THIN-1,25/60	78.60	312	78.60	312
25C. THIN-1,5/60	78.60	315	78.60	315
Steel		●		●
Stainless steel		●		●
Cast iron		○		○
Non ferrous metals		○		○
Heat resistant alloys		●		●

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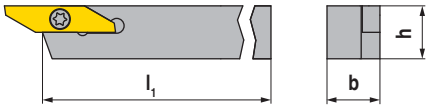
SH 25 – Turning tool holder



Illustrations show right-hand versions

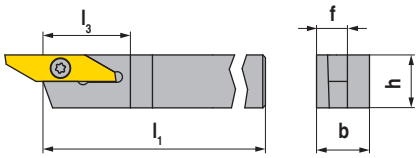
ISO designation	h H mm	b B mm	l_1 OAL mm	Insert	Left-hand NEW X0 Article no. 72 001 ... £		Right-hand NEW X0 Article no. 72 000 ... £	
SH R/L 08-25	8	8	140	25 R/L...	126.00	008	126.00	008
SH R/L 10-25	10	10	140	25 R/L...	130.00	010	130.00	010
SH R/L 12-25	12	12	140	25 R/L...	135.00	012	135.00	012
SH R/L 16-25	16	16	125	25 R/L...	145.00	016	145.00	016
SH R 20-25	25	20	125	25 R...			166.00	020

Spare parts for Article no.		X0 TORX® Screws Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £	
72 000 008 / 72 001 008	M3x8-30°	5.80	501	T08	9.52	110
72 000 010 / 72 001 010	M3x8-30°	5.80	501	T08	9.52	110
72 000 012 / 72 001 012	M3x8-30°	5.80	501	T08	9.52	110
72 000 016 / 72 001 016	M3x8-30°	5.80	501	T08	9.52	110
72 000 020	M3x8-30°	5.80	501	T08	9.52	110

3

SH 25 A – Offset turning tool holder

- For parting off with pick-up spindle

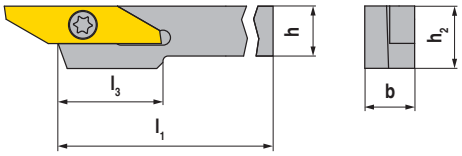


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	l_3 LH mm	Insert	Left-hand NEW X0 Article no. 72 009 ... £		Right-hand NEW X0 Article no. 72 008 ... £	
SH R/L 10-25 A	10	10	140	7	22	25 R/L...	143.00	010	143.00	010
SH R/L 12-25 A	12	12	140	7	22	25 R/L...	143.00	012	143.00	012
SH R/L 16-25 A	16	16	125	7	22	25 R/L...	161.00	016	161.00	016

Spare parts for Article no.		X0 TORX® Screws Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £	
72 008 010 / 72 009 010	M3x7-30°	5.80	504	T08	9.52	110
72 008 012 / 72 009 012	M3x7-30°	5.80	504	T08	9.52	110
72 008 016 / 72 009 016	M3x7-30°	5.80	504	T08	9.52	110

SH 25 RH – Reinforced turning tool holder

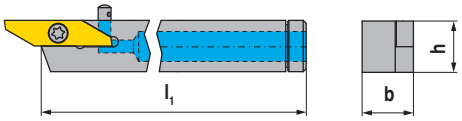


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	h_2 HF mm	l_3 LH mm	Insert	Left-hand NEW X0 Article no. 72 003 ...		Right-hand NEW X0 Article no. 72 002 ...	
							£		£	
SH R/L 08-25 RH	8	8	140	10	17	25 R/L...	151.00	008	151.00	008

Spare parts for Article no.		X0 TORX® Screws Article no. 72 950 ...			Y7 Key D Article no. 80 950 ...	
		£			£	
72 002 008 / 72 003 008	M3x8-30°	5.80	501	T08	9.52	110

SH 25 DC – Turning tool holder with rear coolant supply

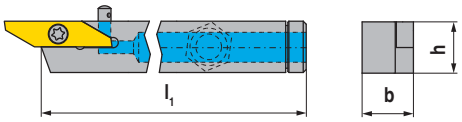


ISO designation	h H mm	b B mm	l_1 OAL mm	Insert	Right-hand NEW X0 Article no. 72 004 ...	
					£	
SH R 10-25 DC	10	10	110	25 R...	392.00	010

Spare parts for Article no.	X0 Coolant nozzle Article no. 72 950 ...			X0 Coolant connection Article no. 72 950 ...			X0 Clamping screw for CN Article no. 72 950 ...	
	£			£			£	
72 004 010	9.00	505	M6x1	10.00	507	SW2,5	8.00	506

for Article no.		X0 TORX® Screws Article no. 72 950 ...			Y7 Key D Article no. 80 950 ...	
		£			£	
72 004 010	M3x8-30°	5.80	501	T08	9.52	110

SH 25 DC-L – Turning tool holder with side and rear coolant supply



Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	Insert	Left-hand NEW X0 Article no. 72 007 ... £		Right-hand NEW X0 Article no. 72 006 ... £	
SH R/L 12-25 DC-L	12	12	95	25 R/L...	398.00	012	398.00	012

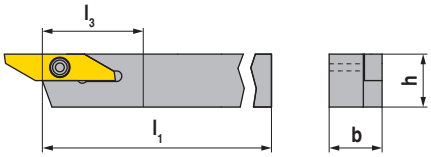
Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £		X0 Coolant nozzle Article no. 72 950 ... £			X0 Coolant connection Article no. 72 950 ... £			X0 Clamping screw for CN Article no. 72 950 ... £	
72 006 012 / 72 007 012	T08	9.52	110	9.00	505	M8x1	6.00	510	SW2,5	8.00	508

for Article no.						X0 Protection plugs Article no. 72 950 ... £			X0 TORX® Screws Article no. 72 950 ... £	
72 006 012 / 72 007 012						M8x1	5.00	509	M3x8-30°	5.80	501

3

SHC 25 – Tool holder - Contra version

- With offset insert seat for simplified changing of the indexable insert without removing the holder



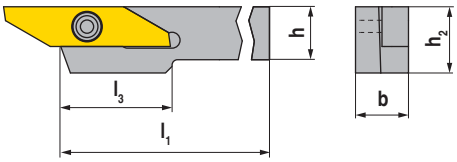
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	Insert	Left-hand NEW X0 Article no. 72 011 ... £		Right-hand NEW X0 Article no. 72 010 ... £	
SH R/L C 08-25	8	8	140	25C R/L...	126.00	008	126.00	008
SH R/L C 10-25	10	10	140	25C R/L...	130.00	010	130.00	010
SH R/L C 12-25	12	12	140	25C R/L...	135.00	012	135.00	012
SH R/L C 16-25	16	16	125	25C R/L...	145.00	016	145.00	016
SH R C 20-25	20	20	125	25C R...			166.00	020

Spare parts for Article no.		X0 TORX® Screws Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £	
72 010 008 / 72 011 008	M3x8	5.80	500	T09	10.84	111
72 010 010 / 72 011 010	M3x8	5.80	500	T09	10.84	111
72 010 012 / 72 011 012	M3x8	5.80	500	T09	10.84	111
72 010 016 / 72 011 016	M3x8	5.80	500	T09	10.84	111
72 010 020	M3x8	5.80	500	T09	10.84	111

SHC 25 RH – Reinforced turning tool holder - Contra version

- With offset insert seat for simplified changing of the indexable insert without removing the holder



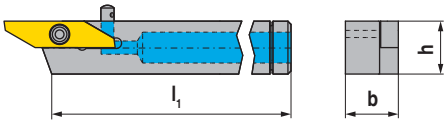
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	h_2 HF mm	l_3 LH mm	Insert	Left-hand NEW X0 Article no. 72 013 ... £		Right-hand NEW X0 Article no. 72 012 ... £	
SH R/L C 08-25 RH	8	8	140	10	17	25C R/L...	151.00	008	151.00	008

Spare parts for Article no.		X0 TORX® Screws Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £	
72 012 008 / 72 013 008	M3x8	5.80	500	T09	10.84	111

SHC 25 DC – Turning tool holder with rear coolant supply - Contra version

- With offset insert seat for simplified changing of the indexable insert without removing the holder



ISO designation	h H mm	b B mm	l_1 OAL mm	Insert	Right-hand NEW X0 Article no. 72 014 ... £	
SH R C 10-25 DC	10	10	110	25C R...	386.00	**010**

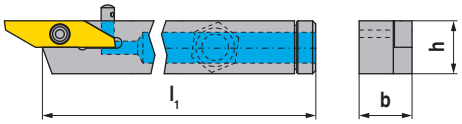
Spare parts for Article no.	X0 Coolant nozzle Article no. 72 950 ... £		X0 Coolant connection Article no. 72 950 ... £		X0 Clamping screw for CN Article no. 72 950 ... £	
72 014 010	9.00	**505**	M6x1 10.00	**507**	SW2,5 8.00	**506**

for Article no.	X0 TORX® Screws Article no. 72 950 ... £		Y7 Key D Article no. 80 950 ... £	
72 014 010	M3x8 5.80	**500**	T09 10.84	**111**

3

SHC 25 DC-L – Turning tool with side and rear coolant supply - Contra version

- With offset insert seat for simplified changing of the indexable insert without removing the holder



Illustrations show right-hand versions

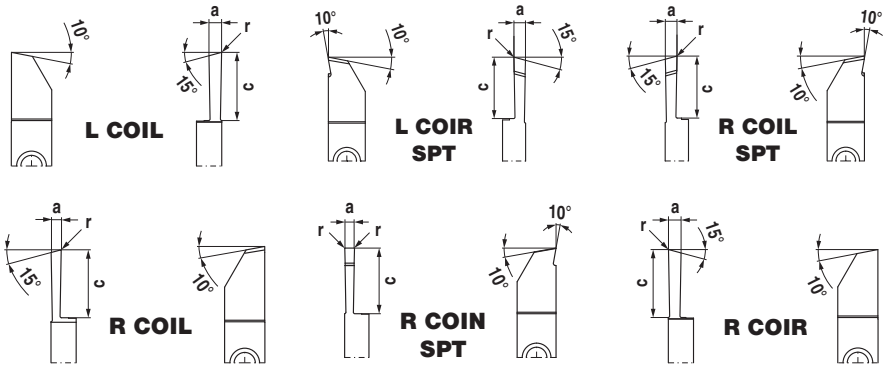
ISO designation	h H mm	b B mm	l_1 OAL mm	Insert	Left-hand NEW X0 Article no. 72 017 ... £		Right-hand NEW X0 Article no. 72 016 ... £	
SH R/L C 12-25 DC-L	12	12	95	25C R/L...	398.00	**012**	398.00	**012**

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £		X0 Coolant nozzle Article no. 72 950 ... £			X0 Coolant connection Article no. 72 950 ... £			X0 Clamping screw for CN Article no. 72 950 ... £	
72 016 012 / 72 017 012	T09	10.84	**111**	9.00	**505**	M8x1	6.00	**510**	SW2,5	8.00	**508**

for Article no.							X0 Protection plugs Article no. 72 950 ... £			X0 TORX® Screws Article no. 72 950 ... £	
72 016 012 / 72 017 012						M8x1	5.00	**509**	M3x8	5.80	**500**

45L COIL / 45R COIL / 45R COIR / 45L COIR / 45R COIN

Designation	a CW mm	c PDPT mm	r mm
45. COI. 2,0	2.0	13	0.00
45. COI. 2,0-0,08	2.0	13	0.08
45. COI. 2,5	2.5	13	0.00



45L COIL / 45R COIL / 45R COIR

- for parting off

ISO	WPX 7615		WPX 7615		WPX 7615	
	45L COIL		45R COIL		45R COIR	
	NEW X1		NEW X1		NEW X1	
	Article no. 72 667 ...		Article no. 72 673 ...		Article no. 72 666 ...	
	£		£		£	
45. COI. 2,0	68.40	220	68.40	220		
45. COI. 2,5	68.40	225	68.40	225	68.40	225
Steel		●		●		●
Stainless steel		●		●		●
Cast iron		●		●		●
Non ferrous metals		●		●		●
Heat resistant alloys		●		●		●

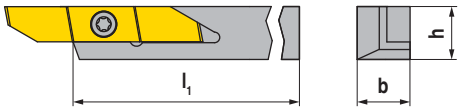
45L COIR / 45R COIL / 45R COIN

- for parting off

ISO	-SPT WPX 7615		-SPT WPX 7615		-SPT WPX 7615	
	45L COIR		45R COIL		45R COIN	
	NEW X1		NEW X1		NEW X1	
	Article no. 72 662 ...		Article no. 72 663 ...		Article no. 72 615 ...	
	£		£		£	
45. COI. 2,0-0,08					68.40	208
45. COI. 2,5	68.40	225	68.40	225		
Steel		●		●		●
Stainless steel		●		●		●
Cast iron		●		●		●
Non ferrous metals		●		●		●
Heat resistant alloys		●		●		●

→ v_c Page 125–136

SH 45 – Turning tool holder



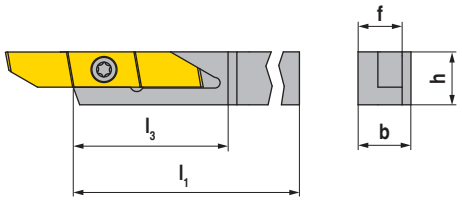
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	Insert	Left-hand NEW X0 Article no. 72 019 ... £		Right-hand NEW X0 Article no. 72 018 ... £	
SH R/L 12-45	12	12	140	45 R/L...	146.00	012	146.00	012
SH R/L 16-45	16	16	125	45 R/L...	150.00	016	150.00	016
SH R/L 20-45	20	20	125	45 R/L...	168.00	020	168.00	020

Spare parts for Article no.		X0 TORX® Screws Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £	
72 018 012 / 72 019 012	M4x11,5	4.40	513	T15	11.34	113
72 018 016 / 72 019 016	M4x11,5	4.40	513	T15	11.34	113
72 018 020 / 72 019 020	M4x11,5	4.40	513	T15	11.34	113

SH 45 A – Offset turning tool holder

- For parting off with pick-up spindle

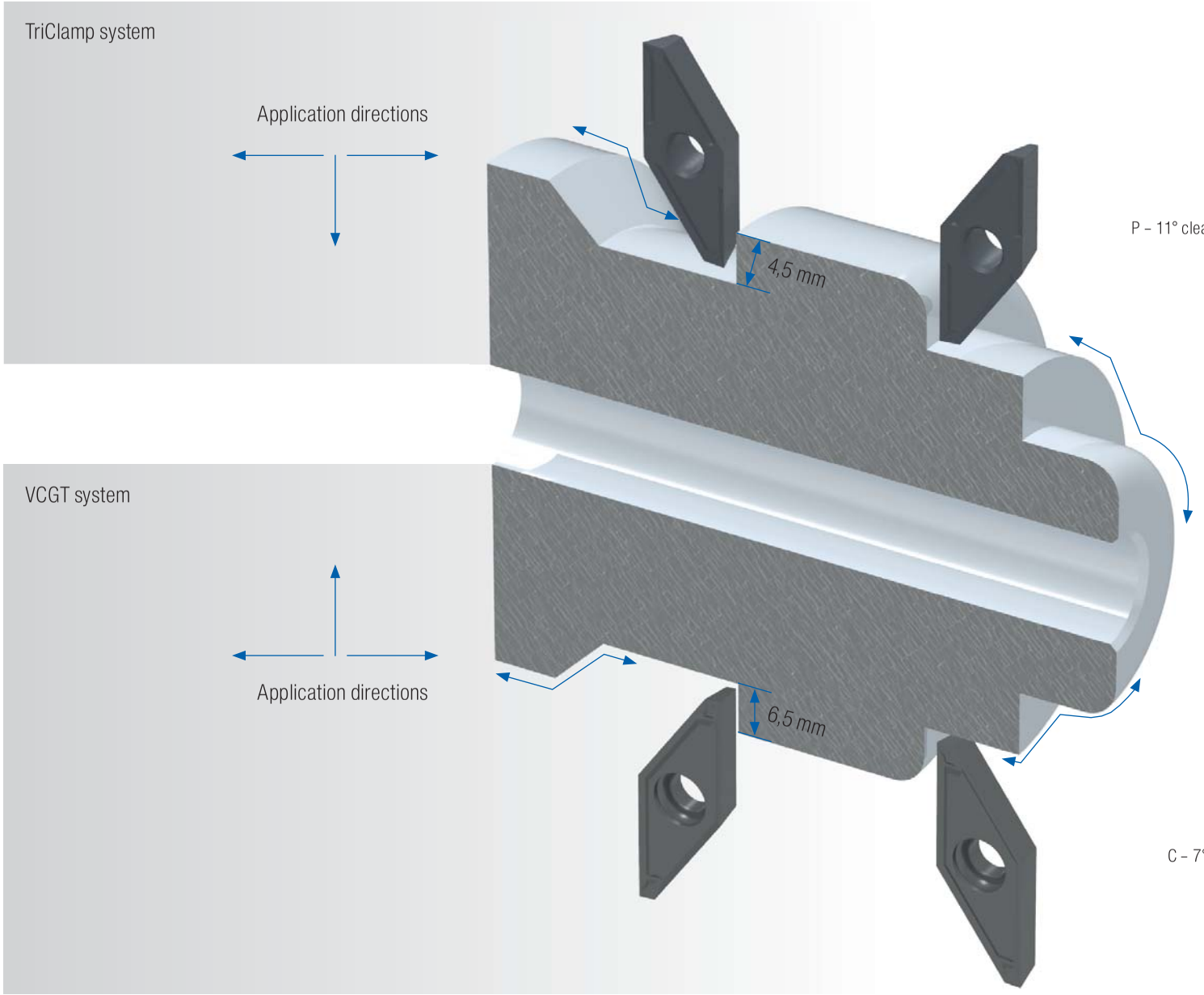


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	l_3 LH mm	Insert	Left-hand NEW X0 Article no. 72 021 ... £		Right-hand NEW X0 Article no. 72 020 ... £	
SH R/L 12-45 A	12	12	140	10	38	45 R/L...	153.00	012	153.00	012
SH R/L 16-45 A	16	16	125	10	38	45 R/L...	168.00	016	168.00	016
SH R/L 20-45 A	20	20	125	10	38	45 R/L...	173.00	020	173.00	020

Spare parts for Article no.		X0 TORX® Screws Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £	
72 020 012 / 72 021 012	M4x9,5	4.40	503	T15	11.34	113
72 020 016 / 72 021 016	M4x9,5	4.40	503	T15	11.34	113
72 020 020 / 72 021 020	M4x9,5	4.40	503	T15	11.34	113

WNT Toolfinder



TriClamp system

VPET	→ 112
VPGT	→ 111
VPXT	→ 113

Precision

P – 11° clearance angle

E – Extremely high precision
G – High precision
X – Precision sintered

Cutting depth

TriClamp	$a_{p\,max.}$ 4,5 mm
VCGT system	$a_{p\,max.}$ 6,5 mm

VCGT system

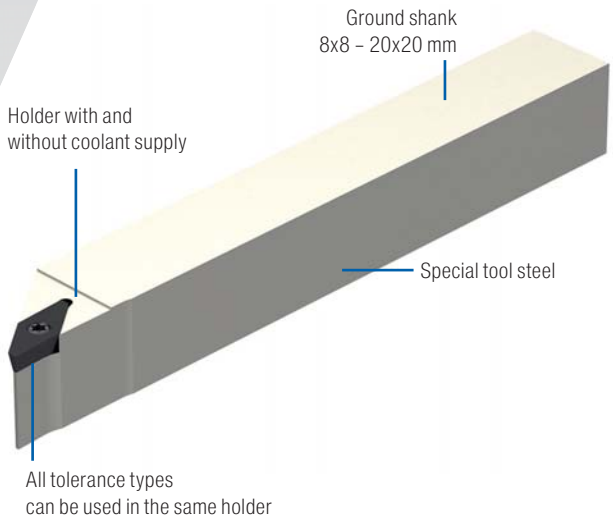
VCGT → 117

C – 7° clearance angle

G – High precision

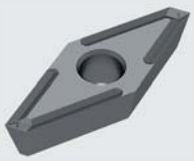
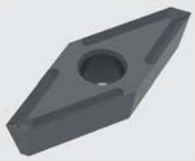
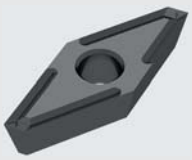
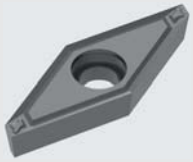
Highlights

- Indexable inserts with ground wiper geometry
  Improves surface quality or increases feed rate
- Turning in all three contour directions
  Maximum flexibility without changing the tool
- Smallest corner radii 0.0–0.2 mm
  Generates sharp edges
- Perfect chip control
  Reduces downtime
- High cutting depths can be achieved
  Reduces the retraction distance

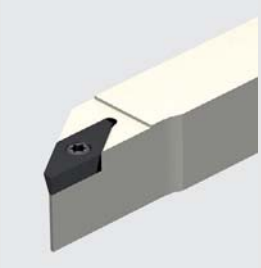
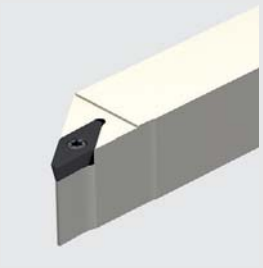


Overview

Inserts

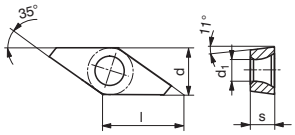
	VPGT 10	VPXT 10	VPET 10	VCGT 13
				
WNT MASTERTOOL PERFORMANCE	111	113	112	
WNT MASTERTOOL STANDARD				117

Tool holder

	90°	91°	93°
			
WNT MASTERTOOL PERFORMANCE	114	115	114–116
WNT MASTERTOOL STANDARD	118		118

VPGT / VPET / VPXT

Designation	l DC mm	s S mm	d_1 D1 mm	d IC mm
VP.T 1003..	10	3.18	4.4	6.35



VPGT

F	M	R

ISO	r RE mm	-FL WPU 7610 VPGT NEW X1 Article no. 72 405 ... £		-FR WPU 7610 VPGT NEW X1 Article no. 72 404 ... £		-FL TiAlN VPGT X1 Article no. 72 493 ... £		-FR TiAlN VPGT X1 Article no. 72 492 ... £	
1003ZZ	0.0	29.70	760 2)	29.70	760 1)	27.01	200 2)	27.01	200 1)
1003008	0.08	29.70	728 2)	29.70	728 1)	27.01	208 2)	27.01	208 1)
1003015	0.15	29.70	735 2)	29.70	735 1)	28.26	215 2)	28.26	215 1)
Steel							●		●
Stainless steel			○		○		●		●
Cast iron			●		●		●		●
Non ferrous metals			●		●		●		●
Heat resistant alloys			●		●		○		○

1) Note ! Right hand insert for right hand holder
2) Note ! Left hand insert for left hand holder

VPGT

F	M	R

ISO	r RE mm	-FL TiAlN+ VPGT X1 Article no. 72 493 ... £		-FR TiAlN+ VPGT X1 Article no. 72 492 ... £		-FL VPGT X1 Article no. 72 493 ... £		-FR VPGT X1 Article no. 72 492 ... £	
1003ZZ	0.0	31.10	500 2)	31.10	500 1)	23.56	000 2)	23.56	000 1)
1003008	0.08	31.10	508 2)	31.10	508 1)	23.56	008 2)	23.56	008 1)
1003015	0.15	31.10	515 2)	31.10	515 1)	24.05	015 2)	24.05	015 1)
Steel			●		●				
Stainless steel			●		●				
Cast iron			●		●				
Non ferrous metals			●		●		●		●
Heat resistant alloys			○		○		●		●

1) Note ! Right hand insert for right hand holder
2) Note ! Left hand insert for left hand holder

→ v_c Page 125–136

VPET

F	M	R

		-FL	-FL	-FL	-FL	-FL
		WUU 7610	WUU 7630	WPU 7610	WPU 7620	TiAlN
		VPET	VPET	VPET	VPET	VPET
		NEW X1	NEW X1	NEW X1	NEW X1	NEW X1
ISO	r RE mm	Article no. 72 403 ... £	Article no. 72 403 ... £	Article no. 72 403 ... £	Article no. 72 403 ... £	Article no. 72 403 ... £
1003ZZ	0.0	28.71 060 1)	28.71 660 1)	33.33 760 1)	34.56 560 1)	32.93 160 1)
1003008	0.08	28.71 028 1)	28.71 628 1)	33.33 728 1)	34.56 528 1)	32.93 128 1)
1003015	0.15	28.71 035 1)	28.71 635 1)	33.33 735 1)	34.56 535 1)	32.93 135 1)
Steel			●		●	●
Stainless steel			●	○	●	●
Cast iron				●	●	●
Non ferrous metals		●	○	●	●	●
Heat resistant alloys		●	○	●	○	○

1) Note ! Left hand insert for left hand holder

VPET

F	M	R

		-FR	-FR	-FR	-FR	-FR
		WUU 7610	WUU 7630	WPU 7610	WPU 7620	TiAlN
		VPET	VPET	VPET	VPET	VPET
		NEW X1	NEW X1	NEW X1	NEW X1	NEW X1
ISO	r RE mm	Article no. 72 402 ... £	Article no. 72 402 ... £	Article no. 72 402 ... £	Article no. 72 402 ... £	Article no. 72 402 ... £
1003ZZ	0.0	28.71 060 1)	28.71 660 1)	33.33 760 1)	34.56 560 1)	32.93 160 1)
1003008	0.08	28.71 028 1)	28.71 628 1)	33.33 728 1)	34.56 528 1)	32.93 128 1)
1003015	0.15	28.71 035 1)	28.71 635 1)	33.33 735 1)	34.56 535 1)	32.93 135 1)
Steel			●		●	●
Stainless steel			●	○	●	●
Cast iron				●	●	●
Non ferrous metals		●	○	●	●	●
Heat resistant alloys		●	○	●	○	○

1) Note ! Right hand insert for right hand holder

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VPXT

F	M	R

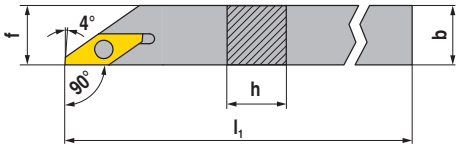
ISO	r RE mm	-EL TiAlN+ VPXT X1 Article no. 72 493 ... £		-ER TiAlN+ VPXT X1 Article no. 72 492 ... £	
1003015	0.15	22.22	615 [2]	22.22	615 [1]
1003035	0.35	22.22	635 [2]	22.22	635 [1]
Steel		●		●	
Stainless steel		●		●	
Cast iron		●		●	
Non ferrous metals		●		●	
Heat resistant alloys		○		○	

1) Note ! Right hand insert for right hand holder
2) Note ! Left hand insert for left hand holder

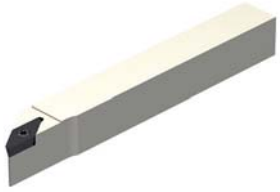
3

→ v_c Page 125–136

TriClamp – SVAP 90° – Toolholder with screw clamping



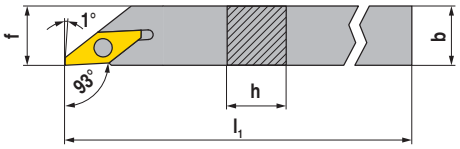
Illustrations show right-hand versions



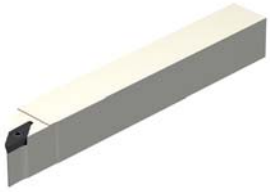
ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	Insert	Left-hand X0 Article no. 72 382 ... £		Right-hand X0 Article no. 72 380 ... £	
SVAP R/L 0808 H10	8	8	100	8	VP.. 1003	137.42	008	137.42	008
SVAP R/L 1010 H10	10	10	100	10	VP.. 1003	137.42	010	137.42	010
SVAP R/L 1212 H10	12	12	100	12	VP.. 1003	154.94	012	154.94	012

Spare parts Insert		Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
VP.. 1003	T08	9.52	110	4.32	002

TriClamp – SVJP 93° – Toolholder with screw clamping



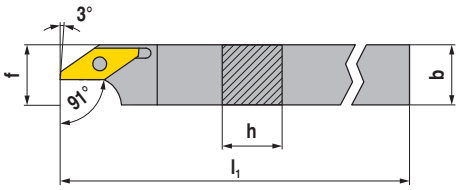
Illustrations show right-hand versions



ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	Insert	Left-hand X0 Article no. 72 386 ... £		Right-hand X0 Article no. 72 384 ... £	
SVJP R/L 0808 H10	8	8	100	8	VP.. 1003	137.42	008	137.42	008
SVJP R/L 1010 H10	10	10	100	10	VP.. 1003	137.42	010	137.42	010
SVJP R/L 1212 H10	12	12	100	12	VP.. 1003	154.94	012	154.94	012
SVJP R/L 1616 K10	16	16	125	16	VP.. 1003	173.51	016	173.51	016

Spare parts Insert		Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
VP.. 1003	T08	9.52	110	4.32	002

TriClamp – SVXP 91° – Toolholder with screw clamping

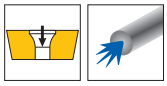


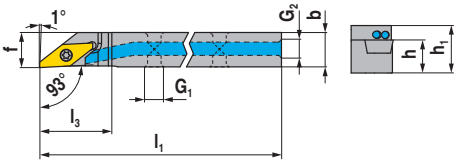
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	f WF mm	Insert	Left-hand X0 Article no. 72 390 ... £		Right-hand X0 Article no. 72 388 ... £	
SVXP R/L 0808 H10	8	8	100	8	VP.. 1003	137.42	008	137.42	008
SVXP R/L 1010 H10	10	10	100	10	VP.. 1003	137.42	010	137.42	010
SVXP R/L 1212 H10	12	12	100	12	VP.. 1003	154.94	012	154.94	012
SVXP R/L 1616 K10	16	16	125	16	VP.. 1003	173.51	016	173.51	016

Spare parts Insert		Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
VP.. 1003	T08	9.52	110	4.32	002

TriClamp – SVJP 93°-IC – Tool holder with screw clamping and thro' coolant



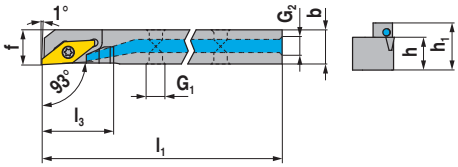


Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	h_1 OAH mm	G_1	G_2	Insert	Left-hand NEW X0 Article no. 72 361 ... £		Right-hand NEW X0 Article no. 72 360 ... £	
SVJP R/L 0810 H10 IC	8	10	100	21	10	11.5	M5	M5	VP.. 1003	410.85	008	410.85	008
SVJP R/L 1010 H10 IC	10	10	100	21	10	13.5	M5	M5	VP.. 1003	343.20	010	343.20	010
SVJP R/L 1212 H10 IC	12	12	100	21	12	15.5	M5	M5	VP.. 1003	396.00	012	396.00	012
SVJP R/L 1616 K10 IC	16	16	125	21	16	19.5	M5	G1/8"	VP.. 1003	381.15	016	381.15	016
SVJP R/L 2020 K10 IC	20	20	125	21	20	23.5	M5	G1/8"	VP.. 1003	397.65	020	397.65	020

Spare parts for Article no.		X0 Cylindrical screw Article no. 72 950 ... £			X0 Cylindrical screw Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
72 360 008 / 72 361 008					M5x4	7.59	011	T08	9.52	110	4.32	002
72 360 010 / 72 361 010					M5x4	7.59	011	T08	9.52	110	4.32	002
72 360 012 / 72 361 012					M5x4	7.59	011	T08	9.52	110	4.32	002
72 360 016 / 72 361 016	G1/8"	24.09	010		M5x4	7.59	011	T08	9.52	110	4.32	002
72 360 020 / 72 361 020	G1/8"	24.09	010		M5x4	7.59	011	T08	9.52	110	4.32	002

TriClamp – SVJP 93°-VIC – Reinforced tool holder with screw clamping and thro' coolant

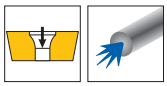


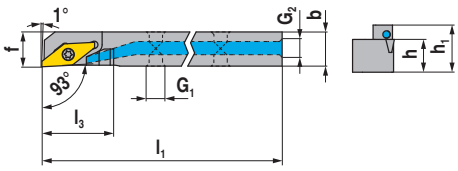
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	h_1 OAH mm	G_1	G_2	Insert	Left-hand NEW X0 Article no. 72 363 ... £		Right-hand NEW X0 Article no. 72 362 ... £	
SVJP R/L 0810 H10 VIC	8	10	100	21	10	11.5	M5	M5	VP.. 1003	410.85	008	410.85	008
SVJP R/L 1010 H10 VIC	10	10	100	21	10	13.5	M5	M5	VP.. 1003	343.20	010	343.20	010
SVJP R/L 1212 H10 VIC	12	12	100	21	12	15.5	M5	M5	VP.. 1003	396.00	012	396.00	012

Spare parts Insert		X0 Cylindrical screw Article no. 72 950 ... £		Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
VP.. 1003	M5x4	7.59	011	T08	9.52	110	4.32	002

TriClamp – SVJP 93°-VIC – Reinforced tool holder with screw clamping and thro' coolant





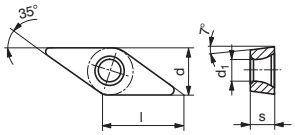
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	l_3 LH mm	f WF mm	h_1 OAH mm	G_1	G_2	Insert	Left-hand NEW X0 Article no. 72 365 ... £		Right-hand NEW X0 Article no. 72 364 ... £	
SVJP R/L 1616 K10 VIC	16	16	125	21	16	19.5	M5	G1/8"	VP.. 1003	381.15	016	381.15	016
SVJP R/L 2020 K10 VIC	20	20	125	21	20	23.5	M5	G1/8"	VP.. 1003	397.65	020	397.65	020

Spare parts Insert		X0 Cylindrical screw Article no. 72 950 ... £			X0 Cylindrical screw Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 72 950 ... £	
VP.. 1003	G1/8"	24.09	010	M5x4	7.59	011	T08	9.52	110	4.32	002

VCGT

Designation	l L mm	s S mm	d IC mm
VCGT 1303..	13.84	3.18	7.94



VCGT

ISO	r RE mm	-FN TiCN VCGT NEW X1 Article no. 72 668 ... £		-FN CERMET VCGT NEW X1 Article no. 72 668 ... £	
130300	0.0	37.60	400	34.00	500
130301	0.1	37.60	401	34.00	501
Steel			●		●
Stainless steel			●		○
Cast iron			●		●
Non ferrous metals			●		
Heat resistant alloys					
hardened materials					

3

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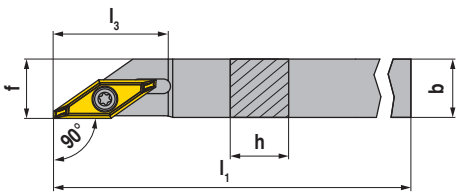
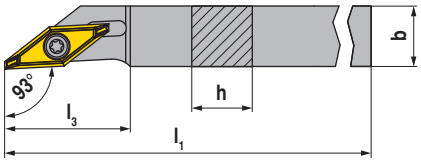
SVAC 90° – Toolholder with screw clamping



ISO designation	h H mm	b B mm	l1 OAL mm	f WF mm	l3 LH mm	Insert	Right-hand NEW X0 Article no. 72 030 ... £	
SVAC R 0808 L13	8	8	140	10	25	VCGT 1303..	145.00	**008**
SVAC R 1010 L13	10	10	140	10		VCGT 1303..	127.00	**010**
SVAC R 1212 L13	12	12	140	12		VCGT 1303..	128.00	**012**
SVAC R 1616 M13	16	16	125	16		VCGT 1303..	149.00	**016**
SVAC R 2020 M13	20	20	125	20		VCGT 1303..	181.00	**020**

Spare parts for Article no.		X0 TORX® Screws Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £	
72 030 008	M3x7,2	4.40	**502**	T09	10.84	**111**
72 030 010	M3x7,2	4.40	**502**	T09	10.84	**111**
72 030 012	M3x7,2	4.40	**502**	T09	10.84	**111**
72 030 016	M3x7,2	4.40	**502**	T09	10.84	**111**
72 030 020	M3x7,2	4.40	**502**	T09	10.84	**111**

SVJC 93° – Toolholder with screw clamping

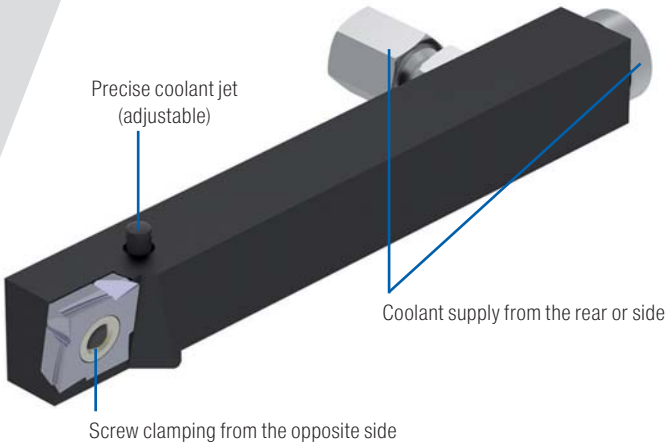


ISO designation	h H mm	b B mm	l1 OAL mm	f WF mm	l3 LH mm	Insert	Right-hand NEW X0 Article no. 72 032 ... £	
SVJC R 0808 L13	8	8	140	10	25	VCGT 1303..	145.00	**008**
SVJC R 1010 L13	10	10	140	10		VCGT 1303..	127.00	**010**
SVJC R 1212 L13	12	12	140	12		VCGT 1303..	128.00	**012**
SVJC R 1616 M13	16	16	125	16		VCGT 1303..	149.00	**016**
SVJC R 2020 M13	20	20	125	20		VCGT 1303..	181.00	**020**

Spare parts for Article no.		X0 TORX® Screws Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £	
72 032 008	M3x7,2	4.40	**502**	T09	10.84	**111**
72 032 010	M3x7,2	4.40	**502**	T09	10.84	**111**
72 032 012	M3x7,2	4.40	**502**	T09	10.84	**111**
72 032 016	M3x7,2	4.40	**502**	T09	10.84	**111**
72 032 020	M3x7,2	4.40	**502**	T09	10.84	**111**

Highlights

- Tangential installation position
  Significantly increases stability
- Four useable cutting edges
  Increases cost-effectiveness
- Sharp-ground cutting edges
  Reduced cutting pressure and maximum precision
- 90° shoulders can be achieved
  No rework required
- High cutting depths
  Reduced machining time due to fewer retractions
- Universal carbides
  Maximum flexibility



Overview

Inserts

SOGX 07

WPX 7615

120

WPX 7620

120

SOGX 11

WPX 7615

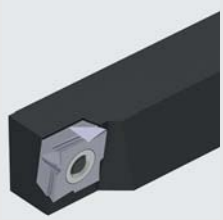
120

WPX 7620

120

Tool holder

SSAO 07

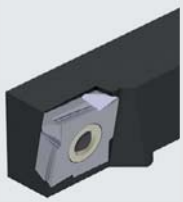


normal

121

with through coolant

SSAO 11



121

122

SOGX

Designation	a cw mm	s w1 mm	d ic mm
SOGX 0703..	1.3	3.5	7.5
SOGX 1104..	1.6	4.0	11.5

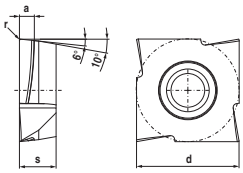


Diagram shows right hand version

SOGX

ISO	r mm	-FL WPX 7615 SOGX NEW X1 Article no. 72 671 ... £		-FR WPX 7615 SOGX NEW X1 Article no. 72 670 ... £		-FL WUX 7620 SOGX NEW X1 Article no. 72 671 ... £		-FR WUX 7620 SOGX NEW X1 Article no. 72 670 ... £	
070300	0.0	33.00	200	33.00	200	31.20	100	31.20	100
070302	0.2	33.00	202	33.00	202	31.20	102	31.20	102
070304	0.4	33.00	204	33.00	204	31.20	104		
Steel		●		●		●		●	
Stainless steel		●		●		●		●	
Cast iron		●		●		●		●	
Non ferrous metals		●		●		●		●	
Heat resistant alloys		●		●		●		●	

SOGX

ISO	r mm	-FL WPX 7615 SOGX NEW X1 Article no. 72 669 ... £		-FR WPX 7615 SOGX NEW X1 Article no. 72 668 ... £		-FL WUX 7620 SOGX NEW X1 Article no. 72 669 ... £		-FR WUX 7620 SOGX NEW X1 Article no. 72 668 ... £	
110400	0.0	37.60	200	37.60	200	35.80	100	35.80	100
110402	0.2	37.60	202	37.60	202	35.80	102	35.80	102
110404	0.4	37.60	204	37.60	204	35.80	104	35.80	104
Steel		●		●		●		●	
Stainless steel		●		●		●		●	
Cast iron		●		●		●		●	
Non ferrous metals		●		●		●		●	
Heat resistant alloys		●		●		●		●	

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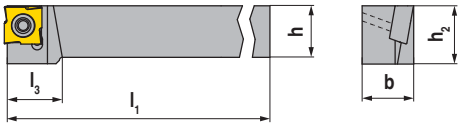
SSAO – Tangential tool holder



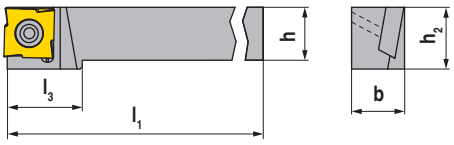
Illustrations show right-hand versions

ISO designation	h H mm	b B mm	l_1 OAL mm	h_2 HF mm	l_3 LH mm	Insert	Left-hand NEW X0 Article no. 72 029 ... £		Right-hand NEW X0 Article no. 72 028 ... £	
SSAO R/L 0808 Y07	8	8	120	10	12	SOGX 0703..	139.00	008	139.00	008
SSAO R/L 1010 L07	10	10	140	10		SOGX 0703..	113.00	010	113.00	010
SSAO R 1212 L07	12	12	140	12		SOGX 0703..			156.00	012

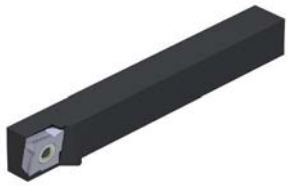
Spare parts for Article no.		X0 TORX® Screws Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £	
72 028 008 / 72 029 008	M3x7,2	4.40	502	T09	10.84	111
72 028 010 / 72 029 010	M3x7,2	4.40	502	T09	10.84	111
72 028 012	M3x7,2	4.40	502	T09	10.84	111

3

SSAO – Tangential tool holder



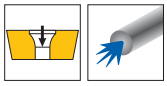
Illustrations show right-hand versions

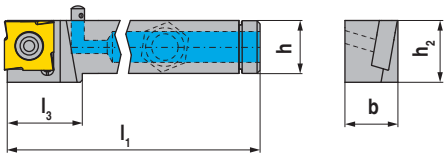


ISO designation	h H mm	b B mm	l_1 OAL mm	h_2 HF mm	l_3 LH mm	Insert	Left-hand NEW X0 Article no. 72 025 ... £		Right-hand NEW X0 Article no. 72 024 ... £	
SSAO R/L 1212 L11	12	12	140	14	17	SOGX 1104..	142.00	012	142.00	012
SSAO R/L 1616 K11	16	16	125	16		SOGX 1104..	143.00	016	143.00	016
SSAO R 2020 K11	20	20	125	20		SOGX 1104..			162.00	020

Spare parts for Article no.		X0 TORX® Screws Article no. 72 950 ... £			Y7 Key D Article no. 80 950 ... £	
72 024 012 / 72 025 012	M4x9,5	4.40	503	T15	11.34	113
72 024 016 / 72 025 016	M4x9,5	4.40	503	T15	11.34	113
72 024 020	M4x9,5	4.40	503	T15	11.34	113

SSAO – Tangential tool holder with thro' coolant





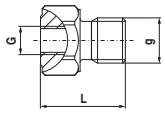
ISO designation	h H mm	b B mm	l_1 OAL mm	h_2 HF mm	l_3 LH mm	Insert	Right-hand NEW X0 Article no. 72 026 ... £	
SSAO R 1212 L11 DC-L	12	12	140	14	17	SOGX 1104..	394.00	**012**
SSAO R 1616 K11 DC-L	16	16	125	16		SOGX 1104..	386.00	**016**
SSAO R 2020 K11 DC-L	20	20	125	20		SOGX 1104..	404.00	**020**

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £		X0 Coolant nozzle Article no. 72 950 ... £		X0 Coolant con-nection Article no. 72 950 ... £		X0 Clamping screw for CN Article no. 72 950 ... £	
72 026 012	T15	11.34	**113**	9.00	**505**	M8x1	6.00	**510**	SW2,5	8.00	**508**
72 026 016	T15	11.34	**113**	9.00	**505**	M8x1	6.00	**510**	SW2,5	9.00	**511**
72 026 020	T15	11.34	**113**	9.00	**505**	M8x1	6.00	**510**	SW2,5	9.00	**511**

for Article no.		X0 Protection plugs Article no. 72 950 ... £		X0 TORX® Screws Article no. 72 950 ... £	
72 026 012	M8x1	5.00	**509**	M4x9,5	4.40	**503**
72 026 016	M10x1	8.00	**512**	M4x9,5	4.40	**503**
72 026 020	M10x1	8.00	**512**	M4x9,5	4.40	**503**

Reducer fitting

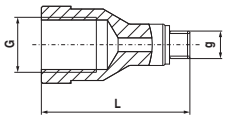
- Max. 200 bar/2900 psi
- No sealing ring required



Designation	G	g	L	NEW X0 Article no. 72 301 ...
			mm	£	
RV.100.G1/8-M5	M5	G1/8"	15	44.72	006
RV.100.M10x1-M5	M5	M10x1	15	44.72	007
RV.100.M6-M5	M5	M6	18	44.72	002
RV.100.M8x1-M5	M5	M8x1	15	44.72	008

Reducer fitting

- Max. 200 bar/2900 psi
- Includes sealing ring

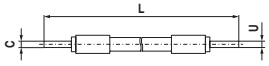


Designation	G	g	L	NEW X0 Article no. 72 301 ...
			mm	£	
RV.100.M5-G1/8	G1/8"	M5	27	44.72	004
RV.100.M5-M10x1	M10x1	M5	27	44.72	005
RV.100.M5-M6	M6	M5	15	44.72	001
RV.100.M5-M8x1	M8x1	M5	23	44.72	003

Spare parts for Article no.	X0 Sealing ring Article no. 72 950 ...	
	£	
72 301 004	1.85	009
72 301 005	1.85	009
72 301 001	1.85	009
72 301 003	1.85	009

Hose (connecting piece/connecting piece)

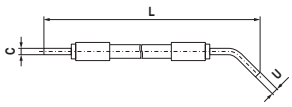
- Max. 200 bar/2900 psi



Designation	C	U	L	NEW X0 Article no. 72 305 ...
	mm	mm	mm	£	
HDKS.150.3-3	3	3	150	65.67	001
HDKS.150.4-4	4	4	150	67.16	003
HDKS.150.5-5	5	5	150	70.13	007
HDKS.150.6-4	6	4	150	71.28	008
HDKS.200.3-3	3	3	200	66.66	012
HDKS.200.4-4	4	4	200	67.98	014
HDKS.200.5-5	5	5	200	70.95	018
HDKS.200.6-4	6	4	200	72.11	019
HDKS.300.3-3	3	3	300	66.99	023
HDKS.300.4-4	4	4	300	68.31	025
HDKS.300.4-6	4	6	300	91.25	028
HDKS.300.5-5	5	5	300	71.28	030
HDKS.300.6-4	6	4	300	72.60	031
HDKS.500.3-3	3	3	500	69.30	035
HDKS.500.4-4	4	4	500	70.46	037
HDKS.500.4-6	4	6	500	74.58	040
HDKS.500.5-5	5	5	500	73.76	043

Hose (connecting piece/45° connecting piece)

- Max. 200 bar/2900 psi



Designation	C	U	L	NEW X0 Article no. 72 305 ...
	mm	mm	mm	£	
HDKS.150.3-45-3	3	3	150	75.57	002
HDKS.150.4-45-4	4	4	150	76.73	004
HDKS.150.4-45-6	4	6	150	81.35	005
HDKS.150.5-45-5	5	5	150	80.19	006
HDKS.200.3-45-3	3	3	200	76.23	013
HDKS.200.4-45-4	4	4	200	77.39	015
HDKS.200.4-45-6	4	6	200	82.17	016
HDKS.200.5-45-5	5	5	200	81.02	017
HDKS.300.3-45-3	3	3	300	76.89	024
HDKS.300.4-45-4	4	4	300	77.72	026
HDKS.300.4-45-6	4	6	300	82.67	027
HDKS.300.5-45-5	5	5	300	81.35	029
HDKS.500.3-45-3	3	3	500	78.87	036
HDKS.500.4-45-4	4	4	500	80.03	038
HDKS.500.4-45-6	4	6	500	84.81	039
HDKS.500.5-45-5	5	5	500	83.49	042

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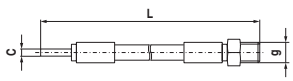
Coolant connections are supplied-to-order items

Hose (connecting piece/thread)

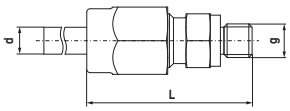
- Max. 200 bar/2900 psi
- No sealing ring required



Designation	C	g	L	NEW X0 Article no. 72 305 ...	
	mm		mm	£	
HDKS.150.M5-3	3	M5	150	71.61	009
HDKS.150.M5-4	4	M5	150	72.93	010
HDKS.150.M5-5	5	M5	150	76.07	011
HDKS.200.M5-3	3	M5	200	72.60	020
HDKS.200.M5-4	4	M5	200	73.76	021
HDKS.200.M5-5	5	M5	200	76.89	022
HDKS.300.M5-3	3	M5	300	72.77	032
HDKS.300.M5-4	4	M5	300	74.25	033
HDKS.300.M5-5	5	M5	300	77.22	034
HDKS.500.M5-3	3	M5	500	75.24	044
HDKS.500.M5-4	4	M5	500	76.23	045
HDKS.500.M5-5	5	M5	500	79.20	046

Straight fitting

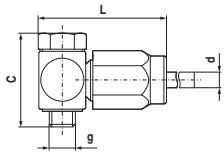
- Max. 200 bar/2900 psi



Designation	d	g	L	NEW X0 Article no. 72 307 ...	
	mm		mm	£	
KA. G1/8-2	2	G1/8"	25	47.03	001
KA. G1/8-3	3	G1/8"	26	47.19	002
KA. G1/8-4	4	G1/8"	32	39.44	003
KA. G1/8-5	5	G1/8"	32	39.60	004
KA. G1/8-6	6	G1/8"	32	38.28	005
KA. G1/8-8	8	G1/8"	34	50.00	006
KA. M5-2	2	M5	19	38.28	007
KA. M5-3	3	M5	21	38.94	008
KA. M5-4	4	M5	27	48.02	009
KA. M5-5	5	M5	27	48.02	010
KA. M5-6	6	M5	27	46.86	011

Swivel fitting

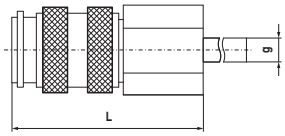
- Max. 200 bar/2900 psi



Designation	d	U	g	L	NEW X0 Article no. 72 307 ...	
	mm	mm		mm	£	
KA.SV.G1/8-4	4	30	G1/8"	37	143.55	012
KA.SV.G1/8-5	5	30	G1/8"	37	143.55	013
KA.SV.G1/8-6	6	30	G1/8"	37	142.56	014
KA.SV.G1/8-8	8	30	G1/8"	37	147.18	015
KA.SV.M5-3	3	21	M5	28	169.95	016
KA.SV.M5-4	4	21	M5	28	164.84	017
KA.SV.M5-5	5	21	M5	28	168.30	018

Quick connection (coupling)

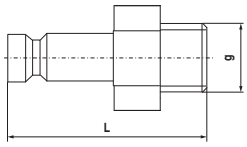
- Max. 200 bar/2900 psi



Designation	g	L	NEW X0 Article no. 72 319 ...	
		mm	£	
KIG.M5	M5	26	214.50	001

Quick connection (connector)

- Max. 200 bar/2900 psi
- No sealing ring required



Designation	g	L	NEW X0 Article no. 72 320 ...	
		mm	£	
SAG.M5	M5	20	73.76	001

Coolant connections are supplied-to-order items

Material examples referring to the WNT cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5% Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0,5-10% Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10-15% Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15% Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data standard values for fine machining (F) – (M)

Strategy: F – M chip breaker: -F32, -NF23 // -F23, -PF23, -F43, -ZF, SMF, -PF26, -SMQ, -FM37

	HCX1115	HCX1125	HCR1135	CCN2120	HCN2125	CWN2135	HCN2430	WUU7610	WUU7630	WPU7610	WPU7620	TiAlN
Index	v_c in m/min											
1.1	260–350	200–270	180–220		120–260	170–220	120–220		50-100		180-260	50-220
1.2	280–360	230–280	190–240		130–220	190–230	120–250		50-100		180-260	50-220
1.3	220–350	240–290	170–210		130–250	160–200	80–180		50-100		180-260	50-220
1.4	240–320	200–270	180–220		130–220	170–230	60–160		40-90		100-220	50-200
1.5	230–300	220–260	160–210		100–180	150–200	80–180		50-100		180-260	50-220
1.6	210–270	210–250	170–230		100–180	160–220	60–160		50-100		180-260	50-220
1.7	240–320	210–280	170–210		60–180	150–200	80–180		40-90		100-220	50-200
1.8	200–280	190–240	150–190		60–180	140–180	60–130		30-80		90-180	50-180
1.9	200–300	170–240	170–200		80–180	170–200	80–180		50-100		180-260	50-220
1.10	220–280	180–240	150–200		100–180	140–170	60–170		40-90		100-220	50-200
1.11	200–270	170–240	140–180		100–180	140–180	80–150		30-80		90-180	50-180
1.12	210–300	200–270	160–200		80–180	160–200	60–150		30-80		90-180	50-180
1.13	180–270	170–240	140–190		60–180	130–180	60–150		40-90		100-220	50-200
1.14	180–250	180–230	130–180		80–180	130–180			40-90		100-220	50-200
1.15	160–250	150–230	120–160		80–150	120–160	60–150		30-80		90-180	50-180
1.16	150–240	140–220	120–170		80–150	110–160	60–150		30-80		90-180	50-180
2.1	200–280	200–280	160–210	190–260	200–280	160–240	50–160		30-80	50-220	110-200	40-180
2.2	200–280	200–280	160–210	200–250	200–280	180–250	50–180		30-80	50-220	110-200	40-180
2.3	190–260	190–260	130–200	190–240	190–260	150–240	50–150		20-40	50-130	90-150	40-90
2.4	190 –240	190–240	120–200	140–210	190–240	160–230	50–160		20-40	50-130	90-150	40-90
2.5			100–150	110–190	100–220	150–230	50–130		20-40	50-130	90-150	40-90
2.6			60–80	80–160	100–220	120–170	50–120		30-80	50-220	110-200	40-180
2.7			60–80	80–140	40–100	120–160	50–120		20-40	50-130	90-150	40-90
3.1	220–280	200–260		140–180			120–200			90-150	90-150	90-150
3.2	200–270	190–250		110–170			100–180			90-150	90-150	90-150
3.3	180–250	170–240		130–180			120–200			90-150	90-150	90-150
3.4	180–260	140–190		160–240			100–180			90-150	90-120	90-150
3.5	260–320	240–290		160–230			90–160			90-120	90-120	90-120
3.6	200– 320	170–290		130–190			70–150			90-120	90-120	90-120
3.7	240–320	240–290		150–220			90–160			90-120	90-120	90-120
3.8	210–320	170–290		140–180			70–150			90-120	90-120	90-120
4.1				100–600			100–2000	120-2500	60-1500	160-3000		80-3000
4.2				100–600			100–1500	120-2500	60-1500	160-3000		80-3000
4.3				100–400			100–1500	120-2500	60-1500	160-3000		80-3000
4.4				100–400			100–1300	120-2500	60-1500	160-3000		80-3000
4.5				100–400			100–600	120-2500	60-1500	160-3000		80-3000
4.6				100–400			100–300			90-150	90-120	90-150
4.7				100–400			100–500			90-120	90-120	90-120
4.8				100–400			100–500			90-120	90-120	90-120
4.9				100–400			100–500			90-120	90-120	90-120
4.10				100–400			100–500			90-120	90-120	90-120
4.11							100–500	100-500	50-160	100-750		
4.12							100–290	100-500	50-160	100-750		
4.13							90–200					
4.14							60–160					
4.15							50–140					
4.16												
4.17												
4.18												
4.19												
5.1			20–40	15–30		20–40	20–90			25-70		
5.2			20–40	15–40		20–40	20–90			25-100		
5.3			8–25	20–35		15–35	20–80			30-80		
5.4			8–25	13–30		15–35	20–80			15-30		
5.5			4–15	15–35		8–25	20–80					
5.6			4–15	15–35		4–15	20–90					
5.7			4–15	60–100		4–15	20–80					
5.8			4–12	20–40		4–15	20–80					
5.9			80–130	80–140		80–130	40–100	50-80	25-70	50-150	60-140	40-120
5.10			15–35	25–45		15–35	30–90	50-80	25-70	50-150	60-140	40-120
5.11			15–35	25–45		15–35		50-80	25-70	50-150	60-140	40-120
6.1										25-35		
6.2												
6.3												
6.4												
6.5												

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values for medium machining (M) – (R)

Strategy: M – R chip breaker: -NM23, -NM15, -NM26, -M42, -M52, -NM19, - M81 // -ZM

	HCX1115	HCX1125	HCR1135	CCN2120	HCN2125	CWN2135	CWN2120
Index	v_c in m/min						
1.1	**250–340**	**200–260**	**170–210**		120–250	170–210	
1.2	**270–350**	**230–280**	**180–230**		120–220	180–230	
1.3	**220–350**	**240–290**	**160–200**		120–250	150–220	
1.4	**240–310**	**200–250**	**170–210**		130–200	170–210	
1.5	**230–300**	**210–250**	**150–200**		100–170	150–200	
1.6	**210–270**	**190–240**	**160–220**		100–170	150–210	
1.7	**240–300**	**200–270**	**160–200**		50– 160	150–200	
1.8	**190–270**	**180–230**	**140–180**		50– 160	130–170	
1.9	**190–280**	**160–220**	**160–190**		60– 160	160–190	
1.10	**200–260**	**180–230**	**140–190**		100–180	130–170	
1.11	**180–260**	**170–240**	**130–170**		80–180	130–170	
1.12	**200–280**	**190–260**	**150–200**		70–170	150–190	
1.13	**180–250**	**170–230**	**130–180**		60–170	120–180	
1.14	**170–230**	**170–210**	**120–160**		70–160	120–170	
1.15	**150–240**	**130–220**	**110–150**		60–120	100–150	
1.16	**130–220**	**130–220**	**110–150**		60–120	100–150	
2.1	200–280	200–280	150–210	180–240	**120–280**	**150–230**	**130–200**
2.2	200–280	200–280	150–200	180–230	**120–280**	**170–250**	**120–220**
2.3	190–260	190–260	120–200	170–220	**120–260**	**140–220**	**100–160**
2.4	190 –240	190–240	110–190	130–210	**120–240**	**140–210**	**80–180**
2.5			90–150	100–180	**100–220**	**120–210**	**90–140**
2.6			60–80	70–140	**100–220**	**100–140**	**80–150**
2.7			60–80	70–110	**40–100**	**100–140**	**80–120**
3.1	140–240	120–210		120–170			
3.2	160–250	160–200		100–150			
3.3	150–220	150–200		120–170			
3.4	140–200	130–190		150–240			
3.5	200–260	160–230		150–220			
3.6	180–240	150–210		110–170			
3.7	180–280	160–230		140–220			
3.8	160–260	150–210		120–170			
4.1				100–600			400–2000
4.2				100–600			400–2000
4.3				100–400			400–2000
4.4				100–400			200–1200
4.5				100–400			200–1000
4.6				100–400			250–1000
4.7				100–400			250–1000
4.8				100–400			250–1000
4.9				100–400			250–1000
4.10				100–400			250–1000
4.11							150–800
4.12							150–800
4.13							
4.14							
4.15							
4.16							
4.17							
4.18							
4.19							
5.1			20–40	**15–30**		**20–40**	
5.2			20–40	**15–40**		**20–40**	
5.3			8–25	**20–35**		**15–35**	
5.4			8–25	**13–30**		**15–35**	
5.5			4–15	**15–35**		**8–25**	
5.6			4–15	**15–35**		**4–15**	
5.7			4–15	**60–100**		**4–15**	
5.8			4–12	**20–40**		**4–15**	
5.9			80–130	**80–140**	80–130	**80–130**	
5.10			15–35	**25–45**	25–45	**15–35**	
5.11			15–35	**25–45**		**15–35**	
6.1							
6.2							
6.3							
6.4							
6.5							

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data values for aluminum chip breakers

Chip breakers: -23P -25P -25Q -AL

	CWK15	CWK20	CWK26	AMZ	CWN15
Index	v_c in m/min				
1.1				90–140	
1.2				110–160	
1.3				90–130	
1.4				80–120	
1.5				80–120	
1.6				90–110	
1.7				90–110	
1.8				70–90	
1.9				90–110	
1.10				70–90	
1.11				70–90	
1.12				70–110	
1.13				150–200	
1.14					
1.15				70–110	
1.16				70–110	
2.1				100–150	80–140
2.2					80–140
2.3					70–120
2.4					40–60
2.5					60–100
2.6				90–140	40–60
2.7					40–60
3.1	120–160	140–200	120–160	180–220	
3.2	90–140	100–160	90–140	140–180	
3.3	130–170	160–200	130–170	160–220	
3.4	90–130	110–150	90–130	120–180	
3.5	140–200	160–220	140–200	180–240	
3.6	120–160	140–180	120–160	160–200	
3.7	140–200	160–220	140–200	180–240	
3.8	120–160	140–180	120–160	160–200	
4.1	**300–2500**	**300–3200**	**300–2500**	**300–3200**	**300–3200**
4.2	**200–2500**	**400–1500**	**200–2000**	**200–2800**	**200–2800**
4.3	**400–2000**	**300–1000**	**400–1500**	**400–2000**	**400–2000**
4.4	**400–1800**	**200–500**	**400–1500**	**40–2000**	**40–2000**
4.5	**200–1000**	**200–500**	**200–800**	**200–1200**	**200–1200**
4.6	**150–300**	**150–400**	**150–300**	**250–1000**	**250–1000**
4.7	**250–600**	**250–800**	**150–400**	**200–1000**	**200–1000**
4.8	**150–400**	**250–800**	**150–400**	**200–1000**	**200–1000**
4.9	**150–400**	**250–800**	**150–400**	**200–1000**	**200–1000**
4.10	**150–400**	**250–800**	**150–400**	**200–1000**	**200–1000**
4.11	**150–300**	**200–800**	**200–600**	**150–800**	**150–800**
4.12	**130–350**	**150–400**	**150–400**	**150–500**	**150–500**
4.13	**100–200**	**80–320**	**100–200**	**100–250**	**100–250**
4.14	**80–180**	**80–320**	**80–180**	**80–200**	**80–200**
4.15	**60–150**	**80–200**	**60–150**	**80–220**	**80–220**
4.16					
4.17					
4.18	**60–140**				
4.19		**100–140**	**100–140**		
5.1		25–40	30–45		
5.2		25–40	20–35		
5.3		25–40	20–35		
5.4		20–30	15–25		
5.5		25–40	15–25		
5.6		20–30	15–25		
5.7		20–30	15–25		
5.8		15–25	15–25		
5.9	60–120	80–140	60–120		
5.10	30–80	40–100	30–80		
5.11	30–80	40–100	30–80		
6.1					
6.2					
6.3					
6.4					
6.5					

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data for machining non ferrous metals with carbide inserts

	Material group	Material examples			Machinability of aluminium alloys *	Comments	Cutting speed v_c in m/min
N	Pure aluminium	non hardenable	Al 99,5	W7	5	▪ Snarl chips ▪ Possibly bad surface ▪ Excessive built-up edge ▪ Long tool life ▪ Use coolant emulsion	300–3200
			Al 99,5	F13	4		
			Al 99	W8	5		
			Al 99	F14	4		
	Aluminium wrought alloys	non hardenable	Al Mn	W10	5	▪ Snarl, continuous or fragmented chip ▪ Large feed rates necessary for good swarf control ▪ Built-up edge ▪ Long tool life ▪ Emulsion coolant is advantageous	300–2500
			Al Mn	F16	4		
			Al Mg 1	W10	5		
			Al Mg 1	F19	4		
			Al Mg 3	W18	4		
			Al Mg 3	F25	3		
			Al Mg 5	W25	4		
			AL Mg 5	F28	2		
			Al Mg 4,5 Mn	W27	4		
			Al Mg 4,5 Mn	G35	3		
		hardenable	Al Mg Si 0,5	W	4	▪ Good swarf control with higher feed rates	200–2000
			Al Mg Si 0,5	F13-25	3		
			Al Mg Si 1	W	4		
			Al Mg Si 1	F21-30	3		
			Al Mg Si Pb	F20-28	2	▪ Very good swarf control ▪ No built up edge ▪ Very good surface quality	
			Al Cu Si Pb	F28-37	1		
			Al Cu Mg Pb	F34-37	1		
			Al Cu Mg 1	W	3	▪ Good swarf control ▪ Good surface quality ▪ Little built-up edge	
			Al Cu Mg 1	F33-40	2		
			Al Cu Mg 2	W	3		
			Al Cu Mg 2	F40-47	2		
			Al Cu Si Mn	W	3		
			Al Cu Si Mn	F43-46	2		
			Al Zn Mg Cu 1,5	F50-52	2		
			Al Sn 6 Cu		1		
	Cast Aluminium Alloys	non hardenable	G-Al Si 12		3	▪ Good swarf control ▪ Built-up edge ▪ Higher Si content results in lower tool life	Si content < 12 % 400–1500
			G-Al Si 10 Mg		3		
			G-Al Si 5 Mg		2		Si content ~ 12.5 % 300–1000
			G-Al Si 7 Mg (9 Mg)		2		
			G-Al Si Cu 3		2	▪ high wear of the carbide	Si content > 13 % 200–500
			G-Al Si 6 Cu 4		2		
			G-Al Mg 3 (Mg 5)		2	▪ Good swarf control ▪ Good surface quality ▪ Long tool life	200–1500
			G-Al Mg 9		2		
			G-Al Mg 10		2		
			G-Al Mg 3 Si (5 Si)		2		
			G-Al Cu 4 Ti (Mg)		2		
			G-Al Si 12 Cu Mg Ni		2		
	Copper wrought alloys		Cu Ag				300–1200
			Cu As				
			Cu Cd				
			Cu Cd Sn				
			Cu Mg				
			Cu Mn				
		brass	Cu Zn Al				300–1000
		bronze	Cu Sn				300–800
			Cu Sn Zn				
			Cu Ni				
			Cu Ni Fe				
			Cu Al				
	Non metal materials	Duroplastics					80–320
		Fibre-reinforced plastics					
		hard rubber					

* 1 = good machinability, 5 = bad machinability

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

3

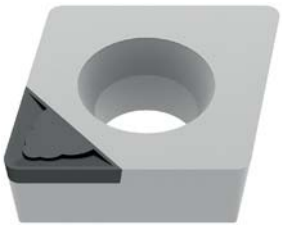
Cutting data values for polycrystaline diamond PCD / PCD-S /CVD

Material group		a_p = 0,04–0,4 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,04–0,4 mm Surface roughness R_z in µm 5,0–10	a_p = 0,4–1,0 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,4–1,0 mm Surface roughness R_z in µm 5,0–10	a_p = 0,4–2,5 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,4–2,5 mm Surface roughness R_z in µm 5,0–10
Aluminium wrought alloys without Si f=0.05-0.5 mm/rev.	Tap Material	PDC / CVD	PDC / CVD	PDC / CVD	PDC / CVD	PDC / CVD	PDC / CVD
	v_c in m/min	400–2500	400–2500	400–2000	400–2000	400–1600	400–1600
	Tap Material		PDC / CVD		PDC / CVD		PDC / CVD
	v_c in m/min		400–2500		400–2000		400–1600
	Tap Material	PDC / CVD	PDC / CVD	PDC / CVD	PDC / CVD	PDC / CVD	PDC / CVD
	v_c in m/min	400–2500	400–2500	400–2000	400–2000	400–1600	400–1600
Aluminium cast alloys Si=2-12% f=0.05-0.5 mm/rev.	Tap Material	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD
	v_c in m/min	600–2000	600–2200	600–1800	600–2000	600–1500	600–1800
	Tap Material	PDC / CVD	PDC-S / CVD	PDC / CVD	PDC-S / CVD	PDC / CVD	PDC-S / CVD
	v_c in m/min	400–2000	400–2200	400–1800	600–2000	400–1500	400–1800
	Tap Material	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD	
	v_c in m/min	600–2000	600–2200	600–1800	600–2000	600–1500	
Aluminium cast alloys Si=12-20% f=0.05-0.5 mm/rev.	Tap Material	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD
	v_c in m/min	800-1200	400–1800	700–1000	400–1500	600–900	400–1200
	Tap Material		PDC-S / CVD		PDC-S / CVD		PDC-S / CVD
	v_c in m/min		600–1800		600–1500		600–1200
	Tap Material		PDC-S / CVD		PDC-S / CVD		
	v_c in m/min		600–1800		600–1500		
Copper and copper wrought alloys f=0.05-0.5 mm/rev.	Tap Material	PDC / CVD	PDC / CVD	PDC / CVD	PDC-S / CVD	PDC / CVD	PDC-S / CVD
	v_c in m/min	400–1800	300–1600	400–1600	300–1600	400–1400	400–1500
	Tap Material		PDC / CVD	PDC / CVD	PDC-S / CVD	PDC / CVD	PDC-S / CVD
	v_c in m/min		300–1500	400–1600	300–1500	400–1500	300–1400
	Tap Material		PDC / CVD		PDC-S / CVD	PDC / CVD	PDC-S / CVD
	v_c in m/min		300–1800		300–1700	300–1600	200–1300
Plastic materials without reinforcement (acrylic glass) f=0.05-0.7 mm/rev.	Tap Material		PDC / CVD		PDC / CVD		PDC / CVD
	v_c in m/min		400–1200		300–1000		200–1000
	Tap Material		PDC / CVD		PDC / CVD		PDC-S / CVD
	v_c in m/min		300–1200		200–1000		200–900
	Tap Material		PDC / CVD		PDC / CVD		PDC / CVD
	v_c in m/min		400–1200		300–1000		200–1000
Plastic materials with reinforcement (glass-fibre, carbon-fibre reinforced) f=0.05-0.7 mm/rev.	Tap Material	PDC-S / CVD		PDC-S / CVD	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD
	v_c in m/min	500–1000		400–900	300–900	300–800	200–1200
	Tap Material	PDC-S / CVD		PDC-S / CVD	PDC-S / CVD	PDC-S / CVD	PDC-S / CVD
	v_c in m/min	400–900		300–800	200–900	200–800	200–1400
	Tap Material	PDC-S / CVD		PDC-S / CVD	PDC-S / CVD	PDC-S / CVD	
	v_c in m/min	500–1000		400–800	300–1000	300–800	

Smooth cut	Irregular cutting depth	Interrupted cut

Approximate cutting data values for machining non-ferrous metals

Polycrystaline Diamond PCD / PCD-S



3D-Chip Breaker -CB1				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,1 mm	0,05	0,30	0,02	0,05
0,2 mm	0,06	0,40	0,03	0,08
0,4 mm	0,10	0,80	0,04	0,15
0,8 mm	0,15	1,00	0,08	0,20
1,2 mm	0,30	1,50	0,12	0,25

CB1:

- Finish and Superfinish
- Extremely sharp cutting edge geometry
- Depth of Cut a_p: 0.05–1.5 mm
- Smallest cutting pressure for highest accuracies
- For machining of thin-walled and unstable workpieces

Polycrystaline Diamond PCD / PCD-S

3D-Chip Breaker -CB2				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,2 mm	0,50	0,80	0,08	0,12
0,4 mm	0,60	1,50	0,08	0,20
0,8 mm	0,70	1,50	0,15	0,30
1,2 mm	0,80	2,00	0,20	0,40

CB2:

- Semi-finish and Finish machining
- Negative edge preperation
- Cutting Depth a_p: 0,5–2,0 mm
- High surface quality and tight tolerances
- Machining of solid workpieces under stable conditions

For internal machining up to Ø 60 mm positive indexable inserts should be used. For applications where chip flow cannot be maintained, as a special production a chip developer can be eroded into the insert.

Cutting data standard values – VertiClamp system

			Parting					Turning					
			WPU7620	TiAlN	Fine	Medium	Rough	WPU7620	TiAlN		Fine	Medium	Rough
Index			v_c in m/min	v_c in m/min	F	F	F	v_c in m/min	v_c in m/min	a_p in mm	F	F	F
1.1		x	180-260	50-220	0,005-0,08	0,02-0,15	0,1-0,25	180-260	50-220	<3	0,005-0,08	0,02-0,15	0,1-0,25
1.2		x	180-260	50-220	0,005-0,08	0,02-0,15	0,1-0,25	180-260	50-220	<3	0,005-0,08	0,02-0,15	0,1-0,25
1.3		x	180-260	50-220	0,005-0,08	0,02-0,15	0,1-0,25	180-260	50-220	<3	0,005-0,08	0,02-0,15	0,1-0,25
1.4		x	100-220	50-200	0,005-0,08	0,02-0,15	0,1-0,25	100-220	50-200	<3	0,005-0,08	0,02-0,15	0,1-0,25
1.5		x	180-260	50-220	0,005-0,08	0,02-0,15	0,1-0,25	180-260	50-220	<3	0,005-0,08	0,02-0,15	0,1-0,25
1.6		x	180-260	50-220	0,005-0,08	0,02-0,15	0,1-0,25	180-260	50-220	<3	0,005-0,08	0,02-0,15	0,1-0,25
1.7		x	100-220	50-200	0,005-0,08	0,02-0,15	0,1-0,25	100-220	50-200	<3	0,005-0,08	0,02-0,15	0,1-0,25
1.8		x	90-180	50-180	0,005-0,08	0,02-0,15	0,1-0,25	90-180	50-180	<2,5	0,005-0,08	0,02-0,15	0,1-0,25
1.9		x	180-260	50-220	0,005-0,08	0,02-0,15	0,1-0,25	180-260	50-220	<3	0,005-0,08	0,02-0,15	0,1-0,25
1.10		x	100-220	50-200	0,005-0,08	0,02-0,15	0,1-0,25	100-220	50-200	<3	0,005-0,08	0,02-0,15	0,1-0,25
1.11		x	90-180	50-180	0,005-0,08	0,02-0,15	0,1-0,25	90-180	50-180	<2,5	0,005-0,08	0,02-0,15	0,1-0,25
1.12		x	90-180	50-180	0,005-0,08	0,02-0,15	0,1-0,25	90-180	50-180	<2,5	0,005-0,08	0,02-0,15	0,1-0,25
1.13		x	100-220	50-200	0,005-0,08	0,02-0,15	0,1-0,25	100-220	50-200	<3	0,005-0,08	0,02-0,15	0,1-0,25
1.14		x	100-220	50-200	0,005-0,08	0,02-0,15	0,1-0,25	100-220	50-200	<3	0,005-0,08	0,02-0,15	0,1-0,25
1.15		x	90-180	50-180	0,005-0,08	0,02-0,15	0,1-0,25	90-180	50-180	<2,5	0,005-0,08	0,02-0,15	0,1-0,25
1.16		x	90-180	50-180	0,005-0,08	0,02-0,15	0,1-0,25	90-180	50-180	<2,5	0,005-0,08	0,02-0,15	0,1-0,25
2.1		x	110-200	40-180	0,005-0,08	0,01-0,12	0,1-0,2	110-200	40-180	<2,5	0,005-0,08	0,01-0,12	0,1-0,2
2.2		x	110-200	40-180	0,005-0,08	0,01-0,12	0,1-0,2	110-200	40-180	<2,5	0,005-0,08	0,01-0,12	0,1-0,2
2.3		x	90-150	40-90	0,005-0,08	0,01-0,12	0,1-0,2	90-150	40-90	<2,5	0,005-0,08	0,01-0,12	0,1-0,2
2.4		x	90-150	40-90	0,005-0,08	0,01-0,12	0,1-0,2	90-150	40-90	<2,5	0,005-0,08	0,01-0,12	0,1-0,2
2.5		x	90-150	40-90	0,005-0,08	0,01-0,12	0,1-0,2	90-150	40-90	<2,5	0,005-0,08	0,01-0,12	0,1-0,2
2.6		x	110-200	40-180	0,005-0,08	0,01-0,12	0,1-0,2	110-200	40-180	<2,5	0,005-0,08	0,01-0,12	0,1-0,2
2.7		x	90-150	40-90	0,005-0,08	0,01-0,12	0,1-0,2	90-150	40-90	<2,5	0,005-0,08	0,01-0,12	0,1-0,2
3.1		x	90-150		0,005-0,08	0,01-0,12	0,1-0,2	90-150		<2,5	0,005-0,08	0,01-0,12	0,1-0,2
3.2		x	90-150		0,005-0,08	0,01-0,12	0,1-0,2	90-150		<2,5	0,005-0,08	0,01-0,12	0,1-0,2
3.3		x	90-150		0,005-0,08	0,01-0,12	0,1-0,2	90-150		<2,5	0,005-0,08	0,01-0,12	0,1-0,2
3.4		x	90-120		0,005-0,08	0,01-0,12	0,1-0,2	90-120		<2,5	0,005-0,08	0,01-0,12	0,1-0,2
3.5		x	90-120		0,005-0,08	0,01-0,12	0,1-0,2	90-120		<2,5	0,005-0,08	0,01-0,12	0,1-0,2
3.6		x	90-120		0,005-0,08	0,01-0,12	0,1-0,2	90-120		<2,5	0,005-0,08	0,01-0,12	0,1-0,2
3.7		x	90-120		0,005-0,08	0,01-0,12	0,1-0,2	90-120		<2,5	0,005-0,08	0,01-0,12	0,1-0,2
3.8		x	90-120		0,005-0,08	0,01-0,12	0,1-0,2	90-120		<2,5	0,005-0,08	0,01-0,12	0,1-0,2
4.1		x		80-3000	0,05-0,2	0,02-0,25	0,1-0,3		80-3000	<3	0,05-0,2	0,02-0,25	0,1-0,3
4.2		x		80-3000	0,05-0,2	0,02-0,25	0,1-0,3		80-3000	<3	0,05-0,2	0,02-0,25	0,1-0,3
4.3		x		80-3000	0,05-0,2	0,02-0,25	0,1-0,3		80-3000	<3	0,05-0,2	0,02-0,25	0,1-0,3
4.4		x		80-3000	0,05-0,2	0,02-0,25	0,1-0,3		80-3000	<3	0,05-0,2	0,02-0,25	0,1-0,3
4.5		x		80-3000	0,05-0,2	0,02-0,25	0,1-0,3		80-3000	<3	0,05-0,2	0,02-0,25	0,1-0,3
4.6		x	60-100	60-100				60-100	60-100	<2,5	0,005-0,08	0,01-0,12	0,1-0,2
4.7		x	60-100	60-100				60-100	60-100	<2,5	0,005-0,08	0,01-0,12	0,1-0,2
4.8		x	60-100	60-100				60-100	60-100	<2,5	0,005-0,08	0,01-0,12	0,1-0,2
4.9		x	60-100	60-100				60-100	60-100	<2,5	0,005-0,08	0,01-0,12	0,1-0,2
4.10		x	60-100	60-100				60-100	60-100	<2,5	0,005-0,08	0,01-0,12	0,1-0,2
4.11		x			0,005-0,1	0,02-0,15	0,1-0,3			<3	0,005-0,1	0,02-0,15	0,1-0,3
4.12		x			0,005-0,1	0,02-0,15	0,1-0,3			<3	0,005-0,1	0,02-0,15	0,1-0,3
4.13										<2,5			
4.14													
4.15													
4.16													
4.17													
4.18													
4.19													
5.1		x											
5.2		x											
5.3		x											
5.4		x											
5.5		x											
5.6		x											
5.7		x											
5.8		x											
5.9		x	60-140	40-120	0,005-0,06	0,02-0,08	0,1-0,25	60-140	40-120	<2,5	0,005-0,06	0,02-0,08	0,1-0,25
5.10		x	60-140	40-120	0,005-0,06	0,02-0,08	0,1-0,25	60-140	40-120	<2,5	0,005-0,06	0,02-0,08	0,1-0,25
5.11		x	60-140	40-120	0,005-0,06	0,02-0,08	0,1-0,25	60-140	40-120	<2,5	0,005-0,06	0,02-0,08	0,1-0,25
6.1		x											
6.2													
6.3													
6.4													
6.5													

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values – VertiClamp and TriClamp system

			VertiClamp system					TriClamp system						
			Grooving					Turning						
			WPU7620	TiAlN	Fine	Medium	Rough	WUU7610	WUU7630	WPU7610	WPU7620 TiAlN+	TiAlN		
Index			v_c in m/min	v_c in m/min	F	F	F	v_c in m/min	v_c in m/min	v_c in m/min	v_c in m/min	v_c in m/min	F	a_p in mm
1.1		x	**180-260**	**50-220**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**50-100**		**180-260**	50-220		
1.2		x	**180-260**	**50-220**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**50-100**		**180-260**	50-220		
1.3		x	**180-260**	**50-220**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**50-100**		**180-260**	50-220		
1.4		x	**100-220**	**50-200**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**40-90**		**100-220**	50-200		
1.5		x	**180-260**	**50-220**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**50-100**		**180-260**	50-220		
1.6		x	**180-260**	**50-220**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**50-100**		**180-260**	50-220		
1.7		x	**100-220**	**50-200**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**40-90**		**100-220**	50-200		
1.8		x	**90-180**	**50-180**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**30-80**		**90-180**	50-180		
1.9		x	**180-260**	**50-220**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**50-100**		**180-260**	50-220		
1.10		x	**100-220**	**50-200**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**40-90**		**100-220**	50-200		
1.11		x	**90-180**	**50-180**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**30-80**		**90-180**	50-180		
1.12		x	**90-180**	**50-180**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**30-80**		**90-180**	50-180		
1.13		x	**100-220**	**50-200**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**40-90**		**100-220**	50-200		
1.14		x	**100-220**	**50-200**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**40-90**		**100-220**	50-200		
1.15		x	**90-180**	**50-180**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**30-80**		**90-180**	50-180		
1.16		x	**90-180**	**50-180**	**0,005-0,08**	**0,02-0,15**	0,1-0,25		**30-80**		**90-180**	50-180		
2.1		x	**110-200**	**40-180**	0,005-0,08	0,01-0,12	0,1-0,2		**30-80**	50-220	110-200	40-180		
2.2		x	**110-200**	**40-180**	0,005-0,08	0,01-0,12	0,1-0,2		**30-80**	50-220	110-200	40-180		
2.3		x	**90-150**	**40-90**	0,005-0,08	0,01-0,12	0,1-0,2		**20-40**	50-130	90-150	40-90		
2.4		x	**90-150**	**40-90**	0,005-0,08	0,01-0,12	0,1-0,2		**20-40**	50-130	90-150	40-90		
2.5		x	**90-150**	**40-90**	0,005-0,08	0,01-0,12	0,1-0,2		**20-40**	50-130	90-150	40-90		
2.6		x	**110-200**	**40-180**	0,005-0,08	0,01-0,12	0,1-0,2		**30-80**	50-220	110-200	40-180		
2.7		x	**90-150**	**40-90**	0,005-0,08	0,01-0,12	0,1-0,2		**20-40**	50-130	90-150	40-90		
3.1		x	**90-150**		0,005-0,08	0,01-0,12	0,1-0,2			90-150	90-150	90-150	0,005-0,08	<2,5
3.2		x	**90-150**		0,005-0,08	0,01-0,12	0,1-0,2			90-150	90-150	90-150	0,005-0,08	<2,5
3.3		x	**90-150**		0,005-0,08	0,01-0,12	0,1-0,2			90-150	90-150	90-150	0,005-0,08	<2,5
3.4		x	**90-120**		0,005-0,08	0,01-0,12	0,1-0,2			90-150	90-120	90-150	0,005-0,08	<2,5
3.5		x	**90-120**		0,005-0,08	0,01-0,12	0,1-0,2			90-120	90-120	90-120	0,005-0,08	<2,5
3.6		x	**90-120**		0,005-0,08	0,01-0,12	0,1-0,2			90-120	90-120	90-120	0,005-0,08	<2,5
3.7		x	**90-120**		0,005-0,08	0,01-0,12	0,1-0,2			90-120	90-120	90-120	0,005-0,08	<2,5
3.8		x	**90-120**		0,005-0,08	0,01-0,12	0,1-0,2			90-120	90-120	90-120	0,005-0,08	<2,5
4.1		x		80-3000	0,05-0,2	0,02-0,25	0,1-0,3	120-2500	60-1500	160-3000		80-3000		
4.2		x		80-3000	0,05-0,2	0,02-0,25	0,1-0,3	120-2500	60-1500	160-3000		80-3000		
4.3		x		80-3000	0,05-0,2	0,02-0,25	0,1-0,3	120-2500	60-1500	160-3000		80-3000		
4.4		x		80-3000	0,05-0,2	0,02-0,25	0,1-0,3	120-2500	60-1500	160-3000		80-3000		
4.5		x		80-3000	0,05-0,2	0,02-0,25	0,1-0,3	120-2500	60-1500	160-3000		80-3000		
4.6		x	90-120	90-120	0,005-0,08	0,01-0,12	0,1-0,2			90-150	90-120	90-150	0,005-0,08	<2,5
4.7		x	90-120	90-120	0,005-0,08	0,01-0,12	0,1-0,2			90-120	90-120	90-120	0,005-0,08	<2,5
4.8		x	90-120	90-120	0,005-0,08	0,01-0,12	0,1-0,2			90-120	90-120	90-120	0,005-0,08	<2,5
4.9		x	90-120	90-120	0,005-0,08	0,01-0,12	0,1-0,2			90-120	90-120	90-120	0,005-0,08	<2,5
4.10		x	90-120	90-120	0,005-0,08	0,01-0,12	0,1-0,2			90-120	90-120	90-120	0,005-0,08	<2,5
4.11		x			0,005-0,1	0,02-0,15	0,1-0,3	100-500	50-160	100-750				
4.12		x			0,005-0,1	0,02-0,15	0,1-0,3	100-500	50-160	100-750				
4.13														
4.14														
4.15														
4.16														
4.17														
4.18														
4.19														
5.1		x								25-70			0,01	0,1-0,5
5.2		x								25-100			0,02	0,1-0,5
5.3		x								30-80			0,008	0,1-0,5
5.4		x								15-30			0,07	0,1-0,5
5.5		x								-				
5.6		x								-				
5.7		x								-				
5.8		x								-				
5.9		x	**60-140**	40-120	0,005-0,06	0,02-0,08	0,1-0,25	**50-80**	25-70	50-150	60-140	40-120		
5.10		x	**60-140**	40-120	0,005-0,06	0,02-0,08	0,1-0,25	**50-80**	25-70	50-150	60-140	40-120		
5.11		x	**60-140**	40-120	0,005-0,06	0,02-0,08	0,1-0,25	**50-80**	25-70	50-150	60-140	40-120		
6.1		x								25-35			0,008	0,02-0,05
6.2														
6.3														
6.4														
6.5														

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values – System 25 and System 45

			Parting					Turning					
			WPX7615	WUX7620	Fine	Medium	Rough	WPX7615	WPX7630	WUX7620	Fine	Medium	Rough
Index			v_c in m/min	v_c in m/min	F	F	F	v_c in m/min	v_c in m/min	v_c in m/min	F	F	F
1.1		x	70–100	35–85	0,01	0,025	0,04	50–120	30–80	30–80	0,04	0,1	0,17
1.2		x	80–140	50–100	0,02	0,04	0,08	70–160	40–100	40–100	0,04	0,1	0,18
1.3		x	70–110	50–80	0,01	0,025	0,035	50–100	40–80	40–80	0,02	0,04	0,1
1.4		x	50–100	30–80	0,01	0,02	0,03	40–90	30–80	40–80	0,02	0,04	0,08
1.5		x	70–120	40–80	0,01	0,02	0,04	40–90	30–80	30–70	0,02	0,04	0,08
1.6		x	60–110	25–70	0,007	0,01	0,02	35–80	30–70	30–70	0,02	0,04	0,08
1.7		x	50–100	30–80	0,007	0,01	0,02	35–80	30–70	30–70	0,01	0,03	0,07
1.8		x	20–50	15–50	0,005	0,01	0,02	25–60	25–50	25–50	0,01	0,03	0,05
1.9		x	30–50	20–40	0,007	0,02	0,04	30–50	25–50	25–50	0,02	0,04	0,1
1.10		x	25–45	20–40	0,007	0,015	0,03	30–50	25–50	20–40	0,02	0,04	0,05
1.11			25–45	20–40	0,005	0,01	0,02	25–45	20–40	20–40	0,01	0,03	0,08
1.12			30–80	40–70	0,005	0,01	0,02	60–80	30–70	30–70	0,01	0,03	0,08
1.13			30–70	20–50	0,005	0,01	0,02	30–80	30–70	20–60	0,01	0,03	0,08
1.14			25–45	15–30	0,005	0,01	0,02	20–50	20–40	15–35	0,01	0,03	0,08
1.15			30–80	30–70	0,007	0,015	0,025	40–80	30–70	15–35	0,01	0,03	0,06
1.16			40–80	30–70	0,005	0,01	0,02	40–80	30–70	15–35	0,01	0,03	0,06
2.1		x	40–100	30–80	0,02	0,04	0,06	50–100	30–70	30–80	0,02	0,05	0,1
2.2		x	40–130	30–80	0,02	0,04	0,06	50–130	30–70	30–80	0,03	0,06	0,15
2.3			25–60	25–70	0,005	0,01	0,015	25–80	25–70	25–70	0,01	0,03	0,08
2.4			25–60	20–40	0,005	0,01	0,015	25–80	25–70	20–40	0,01	0,03	0,08
2.5		x	40–120	30–50	0,01	0,03	0,05	50–130	30–70	30–50	0,02	0,04	0,1
2.6		x	40–120	30–50	0,01	0,03	0,05	50–130	30–70	30–50	0,02	0,04	0,1
2.7		x	30–60	25–50	0,005	0,01	0,02	30–60	25–70	25–50	0,01	0,03	0,06
3.1	x		70–200	50–180	0,01	0,03	0,05	70–200		40–120	0,03	0,1	0,25
3.2	x		70–150	50–120	0,01	0,03	0,05	70–200		40–120	0,03	0,1	0,25
3.3	x		70–200	40–120	0,01	0,03	0,05	70–200		40–120	0,03	0,1	0,3
3.4	x		70–180	40–120	0,01	0,03	0,05	70–200		40–120	0,03	0,1	0,3
3.5	x		70–200	30–120	0,01	0,03	0,05	70–200		40–120	0,03	0,1	0,3
3.6	x		70–200	30–120	0,01	0,03	0,05	70–200		40–120	0,03	0,1	0,3
3.7	x		70–200	30–120	0,01	0,03	0,05	70–200		40–120	0,03	0,1	0,3
3.8	x		70–200	30–120	0,01	0,03	0,05	70–200		40–120	0,03	0,1	0,3
4.1		x	80–300	80–250	0,02	0,08	0,15	80–300		60–200	0,03	0,15	0,35
4.2		x	80–250	80–250	0,03	0,06	0,1	80–250		60–200	0,03	0,12	0,3
4.3		x	80–250	80–200	0,02	0,04	0,1	80–250		60–200	0,03	0,12	0,3
4.4		x	80–250	60–200	0,02	0,04	0,08	80–250		60–200	0,03	0,12	0,3
4.5		x	80–200	60–150	0,015	0,035	0,07	80–250		60–200	0,03	0,12	0,3
4.6		x		50–200	0,02	0,04	0,1	80–250		100–200	0,03	0,12	0,3
4.7			100–200	80–180	0,02	0,035	0,08	80–250		100–200	0,03	0,12	0,3
4.8													
4.9													
4.10													
4.11		x		120–300	0,03	0,1	0,3			150–300	0,05	0,15	0,35
4.12		x	80–200		0,02	0,05	0,1			100–300	0,03	0,12	0,25
4.13	x			100–800	0,1	0,2	0,3			80–180	0,05	0,2	0,4
4.14	x			100–500	0,1	0,2	0,3			80–180	0,05	0,2	0,4
4.15		x											
4.16		x	80–300	80–250	0,03	0,1	0,2	80–300			0,05	0,15	0,35
4.17													
4.18													
4.19													
5.1													
5.2													
5.3													
5.4													
5.5													
5.6													
5.7													
5.8													
5.9		x	20–60		0,01	0,03	0,045			30–80	0,01	0,05	0,1
5.10		x		30–80	0,01	0,03	0,045			40–100	0,015	0,05	0,15
5.11		x	25–45		0,01	0,03	0,045			40–80	0,01	0,05	0,1
6.1													
6.2													
6.3													
6.4													
6.5													

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values – System 25 and System 45

			Grooving					Threading
			WPX7615	WUX7620	Fine	Medium	Rough	WPX7630
Index			v_c in m/min	v_c in m/min	F	F	F	v_c in m/min
1.1		x	70–100	35–85	0,01	0,025	0,04	15–65
1.2		x	80–140	50–100	0,02	0,05	0,1	20–70
1.3		x	70–110	50–80	0,01	0,025	0,04	20–60
1.4		x	50–100	30–80	0,01	0,02	0,04	15–65
1.5		x	70–120	40–80	0,01	0,025	0,04	20–70
1.6		x	60–110	25–70	0,007	0,01	0,025	20–60
1.7		x	50–100	30–80	0,007	0,01	0,02	15–65
1.8		x	20–50	15–50	0,005	0,01	0,02	15–50
1.9		x	30–50	20–40	0,007	0,02	0,04	15–40
1.10		x	25–45	20–40	0,007	0,015	0,03	15–35
1.11			25–45	20–40	0,005	0,01	0,03	15–35
1.12			60–80	40–70	0,005	0,01	0,03	15–50
1.13			30–70	20–50	0,005	0,01	0,03	15–40
1.14			25–45	15–30	0,005	0,01	0,03	15–35
1.15			60–80	30–70	0,007	0,015	0,03	20–60
1.16			50–80	30–70	0,007	0,015	0,03	20–60
2.1		x	40–100	30–80	0,02	0,04	0,08	15–35
2.2		x	40–130	30–80	0,02	0,04	0,08	15–40
2.3			25–80	25–70	0,015	0,012	0,02	15–35
2.4			25–80	20–40	0,005	0,012	0,02	15–35
2.5		x	40–120	30–50	0,008	0,012	0,025	15–40
2.6		x	40–120	30–50	0,01	0,04	0,08	15–40
2.7		x	30–60	25–50	0,01	0,02	0,04	15–35
3.1	x		70–200	50–180	0,01	0,03	0,08	20–90
3.2	x		70–150	50–120	0,01	0,035	0,08	20–90
3.3	x		70–200	40–120	0,01	0,035	0,08	20–90
3.4	x		70–180	40–120	0,01	0,035	0,08	20–90
3.5	x		70–200	30–120	0,01	0,035	0,08	20–90
3.6	x		70–200	30–120	0,01	0,035	0,08	20–90
3.7	x		70–200	30–120	0,01	0,035	0,08	20–90
3.8	x		70–200	30–120	0,01	0,035	0,08	20–90
4.1		x	80–300	80–250	0,03	0,08	0,15	35–100
4.2		x	80–250	80–250	0,03	0,05	0,1	35–80
4.3		x	80–250	80–200	0,02	0,04	0,1	35–80
4.4		x	80–250	60–200	0,02	0,04	0,08	35–80
4.5		x	80–200	60–150	0,015	0,035	0,07	35–80
4.6		x		50–200	0,02	0,04	0,08	30–70
4.7			100–200	80–180	0,02	0,035	0,08	30–70
4.8								
4.9								
4.10								
4.11		x		120–300	0,03	0,1	0,2	35–80
4.12		x	80–200		0,02	0,05	0,1	30–70
4.13	x			100–800	0,1	0,2	0,3	50–150
4.14	x			100–500	0,1	0,2	0,3	50–150
4.15		x						
4.16		x	80–300	80–250	0,03	0,1	0,2	35–80
4.17								
4.18								
4.19								
5.1								
5.2								
5.3								
5.4								
5.5								
5.6								
5.7								
5.8								
5.9		x	20–60		0,01	0,03	0,05	15–30
5.10		x		30–80	0,01	0,03	0,045	15–30
5.11		x	25–45		0,01	0,03	0,045	15–30
6.1								
6.2								
6.3								
6.4								
6.5								

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

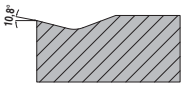
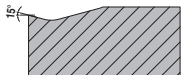
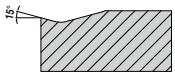
Cutting data standard values – VCGT system and SOGX system

			VCGT system				SOGX system			
			TiCN	Cermet			WPX7615	WUX7620		
Index			v_c in m/min	v_c in m/min	F		v_c in m/min	v_c in m/min	F	
1.1		x	80–180	100–380	0,05–0,3		35–100	35–85	0,03–0,1	
1.2		x	100–220	100–380	0,05–0,35		50–120	50–100	0,03–0,2	
1.3		x	80–180	80–350	0,05–0,2		50–100	50–80	0,03–0,18	
1.4		x	70–180	50–330	0,05–0,2		30–100	30–80	0,03–0,12	
1.5		x	50–150	80–330	0,05–0,2		50–120	40–80	0,03–0,12	
1.6		x	50–120	80–330	0,05–0,2		25–80	25–70	0,03–0,15	
1.7		x	50–100	50–300	0,05–0,2		25–80	30–80	0,03–0,15	
1.8		x	30–100	50–300	0,05–0,15		25–80	15–50	0,03–0,1	
1.9		x	80–200	60–200	0,05–0,2		50–150	20–40	0,03–0,15	
1.10		x	80–150	50–200	0,05–0,15		50–120	20–40	0,03–0,12	
1.11			80–150	50–200	0,05–0,15		50–120	20–40	0,03–0,12	
1.12			50–150	50–200	0,05–0,15		50–120	40–70	0,03–0,15	
1.13			40–120	40–180	0,05–0,15		35–100	20–50	0,03–0,15	
1.14			40–120		0,05–0,15		35–80	15–30	0,03–0,12	
1.15			30–100	40–170	0,05–0,15		40–80	30–70	0,03–0,12	
1.16			30–100	40–170	0,05–0,15		40–80	30–70	0,03–0,1	
2.1		x	80–150	80–240	0,05–0,3		40–130	30–80	0,03–0,2	
2.2		x	100–220	80–200	0,05–0,3		40–130	30–80	0,03–0,2	
2.3			40–80	50–100	0,05–0,25		2570	25–70	0,03–0,18	
2.4			30–80	50–100	0,05–0,25		25–60	20–40	0,03–0,18	
2.5		x	70–180	80–240	0,05–0,3		50–130	30–50	0,03–0,2	
2.6		x	70–180	80–240	0,05–0,3		50–130	30–50	0,03–0,18	
2.7		x	50–130	50–100	0,05–0,2		30–100	25–50	0,03–0,15	
3.1	x		100–250	80–300	0,05–0,4		70–200	50–180	0,03–0,3	
3.2	x		80–200	80–250	0,05–0,4		70–180	50–120	0,03–0,3	
3.3	x		80–200	80–300	0,05–0,4		70–170	40–120	0,03–0,3	
3.4	x		80–200	80–300	0,05–0,4		7–170	40–120	0,03–0,3	
3.5	x		100–200	80–300	0,05–0,4		70–180	30–120	0,03–0,3	
3.6	x		80–130	80–300	0,05–0,4		7–180	30–120	0,03–0,3	
3.7	x		80–180	80–300	0,05–0,4		7–130	30–120	0,03–0,3	
3.8	x		80–130	80–300	0,05–0,4		70–100	30–120	0,03–0,3	
4.1		x	150–350		0,05–0,4		80–200	80–200	0,03–0,3	
4.2		x	150–350		0,05–0,4		80–200	80–200	0,03–0,3	
4.3		x	150–300		0,05–0,3		80–200	80–200	0,03–0,3	
4.4		x	100–300		0,05–0,3		80–200	80–200	0,03–0,3	
4.5		x	100–300		0,05–0,3		80–200	80–200	0,03–0,3	
4.6		x					80–200	80–200	0,03–0,3	
4.7							80–200	80–200	0,03–0,3	
4.8										
4.9										
4.10										
4.11		x						80–200	0,03–0,4	
4.12		x					80–180	80–150	0,03–0,25	
4.13	x							100–400	0,03–0,3	
4.14	x							100–400	0,03–0,3	
4.15		x								
4.16		x					80–300	80–250	0,03–0,25	
4.17										
4.18										
4.19										
5.1										
5.2										
5.3										
5.4										
5.5										
5.6										
5.7										
5.8										
5.9		x						25–50	0,08	
5.10		x						25–80	0,15	
5.11		x					25–80	25–50	0,1	
6.1										
6.2										
6.3										
6.4										
6.5										

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Chip breakers / Applications

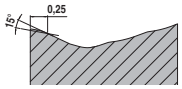
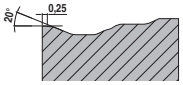
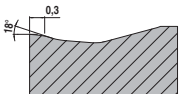
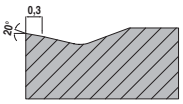
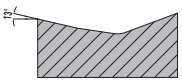
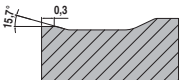
Negative – Fine

Model	Smooth cut	Irregular cutting depth	Interrupted cut	sectional illustration a_p mm	sectional illustration f mm	Geometry
-F32 ▪ For finishing stainless steel ▪ Also by application on general steels and superalloys		**CCN2120** CCN2120 **CCN2120**	**CCN2120** CCN2120	 0,05–4,0	0,05–0,25	DN..
-NF23 ▪ Finishing of stainless steels ▪ Continous cut ▪ High surface quality ▪ Good swarf control		HCN2125 **HCN2125**	HCN2125 **HCN2125**	 0,08–2,5	0,10–0,35	DN.. WN..
-NF15 ▪ Chip breaker for fine machining ▪ Steel and stainless steels ▪ Excellent chip control ▪ High surface quality		**HCX1115** HCX1115	**HCX1125** HCX1125	**HCR1135** HCR1135	 0,50–5,00	0,10–0,60	DN.. WN..

Sectional drawings and models correspond to CNMG120408

3

Chip breakers / Applications

Negative – Medium	Model	Smooth cut	Irregular cutting depth	Interrupted cut	sectional illustration		Geometry
					a_p mm	f mm	
-NM23 ▪ Option for stainless steel machining ▪ Good swarf control ▪ Little edg build up ▪ Low cutting forces ▪ Little built-up edge ▪ Applicable on unstable machines		HCN2125 **HCN2125**	HCN2125 **HCN2125**			1,00-4,50	0,15-0,40	DN.. WN..
-NM15 ▪ Medium machining ▪ First choice for steel machining ▪ Universal application ▪ Wide range of applications		**HCX1115 / HCX1125** **HCX1125** **HCX1115 / HCX1125**	HCX1115 / **HCX1125** **HCX1125** HCX1115 / **HCX1125**	**HCX1125** **HCX1125**		0,50–5,00	0,12–0,40	DN.. WN..
-NM26 ▪ Light to medium roughing ▪ Stable cutting edge ▪ Interrupted cut ▪ Forged skin and cast crust		HCN2125 **HCN2125**	HCN2125 **HCN2125** HCN2125	HCN2125 **HCN2125** HCN2125		1,50–6,00	0,25–0,50	DN.. WN..
-M42 ▪ For medium machining of stainless steels ▪ Also by application on general steels and superalloys		**CCN2120** CCN2120	**CWN2135**	**CWN2135**		1,00–4,00	0,20–0,40	DN.. WN..
-M52 ▪ Universal geometry for the machining of stainless steels ▪ Also applicable for super alloys		**CCN2120** **CCN2120**	**CCN2120**			1,50–4,00	0,20–0,38	DN.. WN..
-NM19 ▪ Light to medium rough machining ▪ Cast crust and forging skin ▪ Stable cutting edge ▪ Interrupted cut ▪ Raw materials and forgings		**HCX1115** **HCX1125** HCX1125	**HCX1125** / HXC1115	**HCX1125 / HCR1135** **HCX1125**		1,50–4,50	0,20–0,80	DN.. WN..

Sectional drawings and models correspond to CNMG120408

Chip breakers / Applications

Positive – Fine

Model	Smooth cut	Irregular cutting depth	Interrupted cut	sectional illustration	a_p mm	f mm	Geometry
-F23 ▪ Fine finishing (ground edge) ▪ Very high surface quality ▪ High repeatability ▪ Low depths of cut	**CCN2120** CCN2120 CCN2120 CCN2120	**CCN2120**		9°	0,10–2,00	0,06–0,13	CC.. DC.. VC..
-PF23 ▪ First choice for medium machining of stainless steels ▪ High surface quality ▪ Little built-up edge	HCN2125 **HCN2125**	HCN2125 **HCN2125**		0,1–0,15 10°	0,40–3,20	0,10–0,30	CC.. DC.. TC.. VC..
-F43 ▪ For the light to medium machining of all stainless steels, general steels and superalloys	**CWN2135**	**CWN2135**	**CWN2135**	0,06 10°	0,50 –2,50	0,05–0,25	CC.. DC.. TC..
-ZF ▪ Finishing / contour turning ▪ Good swarf control ▪ High surface quality ▪ Low cutting forces	**HCX1115** **HCX1125** HCX1125	**HCX1125** **CWN2135** **HCX1125** CWN2135	**HCX1125 / HCR1135** **CWN2135** **HCX1125**	15°	0,05–2,50	0,05–0,25	CC.. DC.. TC.. VC.. WC..
-SMF ▪ Finishing to medium machining ▪ Low cutting forces ▪ Good swarf control ▪ High surface quality	**HCX1115** **HCX1125** HCX1115 HCX1125	**HCX1125** **HCR1135**	**HCX1125 / HCR1135** **HCR1135**	13°	0,10–2,50	0,08–0,30	CC.. DC.. TC.. VC..
-PF26 ▪ First choice for medium machining to roughing of stainless steels ▪ Smooth to lightly interrupted cut ▪ Good swarf control ▪ Stable cutting edge	HCN2125 **HCN2125**	HCN2125 **HCN2125** HCN2125	HCN2125 HCN2125	0,15-0,2 16°	0,40–4,80	0,06–0,35	CC.. DC.. TC.. VC..

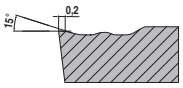
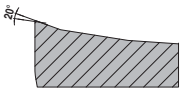
Sectional drawings and models correspond to CCMT 09T304

Model	Smooth cut	Irregular cutting depth	Interrupted cut	sectional illustration	a_p mm	f mm	Geometry
-FM37 ▪ Universal geometry for all materials ▪ Low cutting forces ▪ Ground radii ▪ Low built-up edge formation	**WPU7620** **WPU7610** **WPU7610** **WUU 7610 / WPU7610** **WUU 7610 / WPU7610**	**WPU7620** **WPU 7610 / WPU7620** **WPU 7610 / WPU7620** **WUU 7610 / WPU7610** **WUU 7610 / WPU7610**	**WPU7620** **WPU7620** **WPU7620** **WUU 7610 / WPU7620** **WPU7620**	30°	0,25–7,00	0,025–0,2	DC..

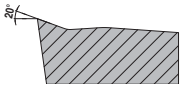
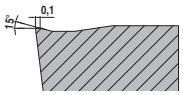
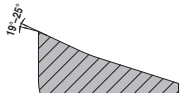
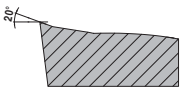
3

Chip breakers / Applications

Positive – Fine

Model	Smooth cut	Irregular cutting depth	Interrupted cut	sectional illustration		Geometry
				a_p mm	f mm	
-SMQ ▪ Positive wiper geometry ▪ Finishing to medium machining ▪ Very high feedrate ▪ High surface quality	**HCX1115**	HCX1125			1,00–4,00	0,15–0,45	CC.. DC..
	HCX1115	HCX1125				
	HCX1125 / HCX1115	HCX1125				
-25P ▪ Sharp cutting edge ▪ Good swarf control on soft aluminium alloys ▪ Low adhesion	AMZ	AMZ			0,50–4,50	0,05–0,60	CC.. DC.. VC..
	AMZ	AMZ				
	AMZ	**AMZ**				
	CWK26	**CWK26**	**CWK26**			
	AMZ	**AMZ**				

Positive – Medium

Model	Smooth cut	Irregular cutting depth	Interrupted cut	sectional illustration	a_p mm	f mm	Geometry
-25Q ▪ Wiper geometry ▪ High feed rates ▪ High surface quality ▪ Good swarf control on soft aluminium alloys ▪ Low adhesion					0,05–6,50	0,05–0,60	CC.. DC.. VC..
	CWK20 / AMZ	CWK20 / AMZ					
	CWK20 / AMZ	**CWK20 / AMZ**					
	CWK20 / AMZ	**CWK20 / AMZ**	**CWK20 / AMZ**				
	CWK20 / AMZ	**CWK20 / AMZ**					
-ZM ▪ Medium machining ▪ Universal application ▪ Stable cutting edge ▪ Varying depths of cut ▪ Wide range of applications	**HCX1115 / HCX1125**	**HCX1125 / HCR1135** HCX1115	**HCX1125 / HCR1135**		0,05–5,00	0,15–0,45	CC.. DC.. TC.. VC..
	HCX1125						
	HCX1115	**HCX1125**					
	HCX1115 / HCX1125						
-AL ▪ The universal Alu geometry ▪ Sharp cutting edge ▪ Extremely positive rake angle ▪ Low adhesion ▪ High feed rates	AMZ	AMZ			1,00–10,00	0,10–0,75	CC.. DC.. TC.. VC..
	AMZ	AMZ					
	AMZ	**AMZ**	**CWK26**				
	CWK15	**CWK15**	**CWK15**				
-M81 ▪ Dircetly pressed insert ▪ Positive rake angle ▪ Good swarf control ▪ For medium to rough machining					1,00–6,00	0,25–0,60	CC.. DC.. VC..
	CWN2120						
	CWN2120	CWN2120	CWN2120				

Sectional drawings and models correspond to CCMT 09T304

Functional principle – Wiper geometry

Relationship of feed rate to surface roughness

Improved Surface Quality

With the same feed rate an insert with wiper cutting edge reaches a roughness value R_t which is many times better than a conventional insert.

Shorter machining time

To achieve the same R_t-value as with a standard insert, double the feed rate can be applied for the insert with wiper cutting edge **(= shorter production time per component!)**

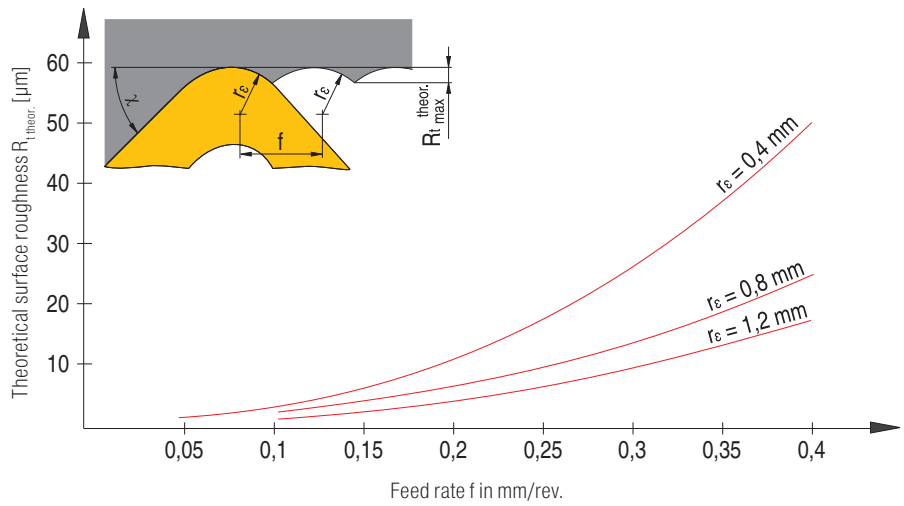
Theoretical Surface Quality

The maximum theoretical surface roughness with turning $Rt_{theor.}$ is the combination of feed rate and corner radius:

$$Rt_{theor.} = \left(r_\varepsilon - \sqrt{r_\varepsilon^2 - \frac{f^2}{4}}\right) \cdot 1000$$

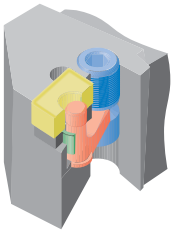
or approximately:

$$Rt_{theor.} = \frac{125 \cdot f^2}{r\varepsilon} \quad [\mu m]$$



Spare parts and torque values for holders for negative inserts

IsoClamp – Holder with lever clamping



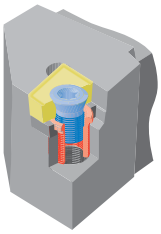
Indexable Insert	Carbide seat	Elbow lever	Clamping Screw	Shim	Installation tool	Key		Torque moment
DN.. 1104	without	70950125	70950126			SW2,5	70950175	3,0 Nm
DN.. 1104	70950120	70950121	70950208	70950122	70950191	SW2,5	70950175	3,0 Nm
WN.. 0604	without	70950129	70950217			SW02	70950177	2,2 Nm
WN.. 0604	70950127	70950185	70950208	70950122	70950191	SW2,5	70950175	3,0 Nm

IsoClamp – Holder with screw clamping

Indexable Insert	Clamping Screw		Torx key		Torque moment
DNGU 1104	M4x11 IP	72950007	T15IP	80950128	4,0 Nm

Spare parts and torque values for holders for positive inserts

IsoClamp – Holder with screw clamping

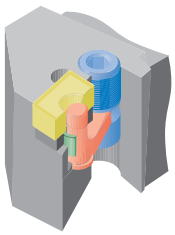


Indexable Insert	Carbide seat	Threaded sleeve	Clamping Screw		Combi key		Torque moment
CC.. 0602			M2,5x6	70950112	T08	80950110	1,2 Nm
CC.. 09T3	without		M3,5x11	70950113*	T15	80950113	3,2 Nm
CC.. 09T3	70950165	70950171	M3x5x11	70950113	T15/SW	70950398	3,2 Nm
DC.. 0702			M2,5x6	70950112	T08	80950110	1,2 Nm
DC.. 11T3	without		M3,5x11	70950113**	T15	80950113	3,2 Nm
DC.. 11T3	70950106	70950171	M3,5x11	70950113	T15/SW	70950398	3,2 Nm
TC.. 0902			M2,5x5	70950111	T07	80950109	1,0 Nm
TC.. 1102			M2,5x6	70950112	T08	80950110	1,2 Nm
VC.. 1103			M2,5x6	70950112	T08	80950110	1,2 Nm
WC.. 0201			M1,8x3,4	70950334	T06	80950108	0,4 Nm

* For boring bars with CC .. 09T3 without carbide seat and d2 = 16 mm or 20 mm, there are different lengths of clamping screws. Details can be found on the product page.

** For boring bars with DC .. 11T3 without carbide seat and d2 = 20 mm, there are different lengths of clamping screws. Details can be found on the product page.

IsoClamp – Holder with lever clamping



Carbide seat	Elbow lever	Clamping Screw	Shim	Installation tool	Key		Torque moment
70950215	70950178	70950208	70950197	70950191	SW2,5	70950175	3,0 Nm
70950384	70950387	70950390	70950169	70950192	SW0,3	70950176	4,0 Nm

ISO designation system for inserts

Insert shape

Included angle	35°	V
	55°	D
	75°	E
	80°	C
	86°	M
Included angle	55°	K
	82°	B
	85°	A
Other shapes	90°	L
	108°	P
	120°	H
	135°	O
	--	R
	90°	S
	60°	T
	80°	W

Clearance angle

3°	A	25°	F
5°	B	30°	G
7°	C	0°	N
15°	D	11°	P
20°	E		

Clearance angles not included within the standard for which particular information is necessary. } O

Tolerances

	d ±	m ±	s ±
A	0,025	0,005	0,025
F	0,013	0,005	0,025
C	0,025	0,013	0,025
H	0,013	0,013	0,025
E	0,025	0,025	0,025
G	0,025	0,025	0,13
J	0,05-0,15*	0,005	0,025
K	0,05-0,15*	0,013	0,025
L	0,05-0,15*	0,025	0,025
M	0,05-0,15*	0,08-0,20	0,13
N	0,05-0,15*	0,08-0,20	0,025
U	0,08-0,25*	0,13-0,38	0,13

Characteristics

N	
R	
F	
A	
M	
G / P	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special version

Cutting length

d mm
06 16
08 20
10 25
12 32

mm	inch	mm	mm
06	5/32	3,96	03
09	7/32	5,56	05
11	1/4	6,35	06
16	3/8	9,52	09
22	1/2	12,7	12
27	5/8	15,8	15
33	3/4	19,0	19
44	1	25,4	25

Insert thickness

inch	mm	Index
1/16	1,59	01
3/32	2,38	02
1/8	3,18	03
5/32	3,97	T3
3/16	4,76	04
7/32	5,56	05
1/4	6,35	06
5/16	7,94	07
3/8	9,52	09

Corner radius

7.1 Inserts with corner radii
RN 00 RC MO — 0,0 00 — 0,2 02
7.2 Inserts with secondary cutting edge
7.2.1 Angle of main cutting edge to secondary cutting edge
45° A 85° F
60° D 90° P
75° E
7.2.2 Clearance angle of secondary cutting edge according to position 2
7.3 Special version ZZ

Cutting edge

F sharp
E honed
T chamfered
S chamfered and honed
K double-chamfered
P double-chamfered and honed

Direction of cut

R
L
N

1	2	3	4	5_1	6_1	7_1	8	9
T	P	U	N	22	04	12		
				4	3	3		10

For special forms of the chip breaker an internal code can be stated in the 10th position.

Tolerances in inches

	d ±	m ±	s ±
A	0,0010	0,0002	0,001
F	0,0005	0,0002	0,001
C	0,0010	0,0005	0,001
H	0,0002	0,0005	0,001
E	0,0010	0,0010	0,001
G	0,0010	0,0010	0,005

	d ±	m ±	s ±
J	0,002–0,006 }*	0,0002	0,001
K	0,002–0,006 }*	0,0005	0,001
L	0,002–0,006 }*	0,0010	0,001
M	0,002–0,006 }*	0,003–0,008 }*	0,005
N	0,002–0,006 }*	0,003–0,008 }*	0,001
U	0,003–0,010 }*	0,005–0,015 }*	0,005

* Dependent on the insert size

ASA and BHMA deviation with regards to ISO
X = special version not according to ISO

Characteristics

Symbols as above. Changes at inscribed circle IK < 1/4

IK ³ 1/4“	IK < 1/4“
N / R / F	E
A / M / G	D
X	X

Cutting length

Code	inch
2	1/4
3	3/8
4	1/2
5	5/8
6	3/4
8	1

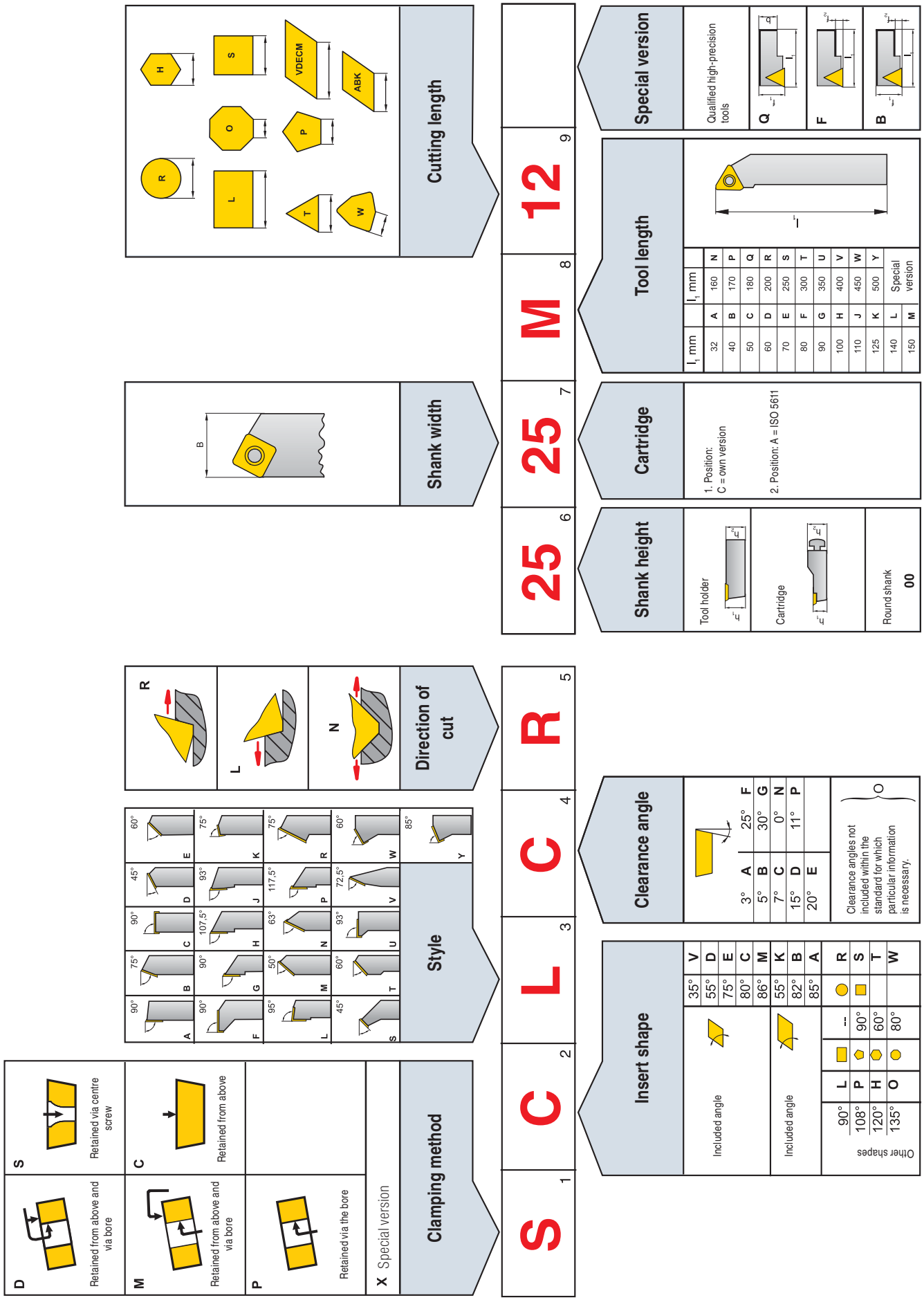
Insert thickness

Code	inch
1	1/16
2	1/8
3	3/16
4	1/4
5	5/16
6	3/8

Corner radius

Code	Corner radius in inches
0	max. 004
1	1/64
2	1/32
3	3/64
4	1/16
5	5/64
6	3/32
7	7/64
8	1/8
X	-

ISO designation system for tool holders



ISO designation system for boring bars

S	32	U	S	S	K	C	R	12
1	2	3	4	5	6	7	8	9

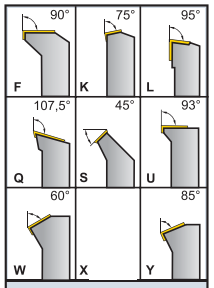
Shank type

S Steel shank	**E** As C with coolant hole
A Steel shank with coolant hole	**F** As C with antivibration system
B Steel shank with antivibration system	**G** As C with coolant hole and antivibration system
D Steel shank with coolant hole and antivibration system	**H** Heavy metal
C Carbide shank with steel head	**J** Heavy metal with coolant hole

Clamping method

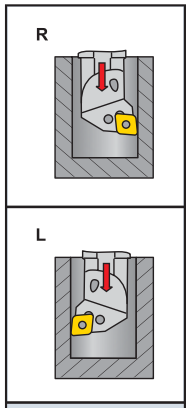
D Retained from above and via bore	**S** Retained via centre screw
M Retained from above and via bore	**C** Retained from above
P Retained via the bore	
X Special version	

Style

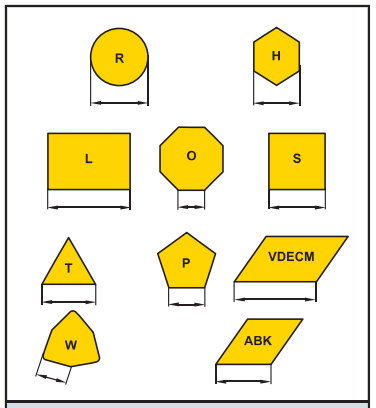


x) Special version

Direction of cut

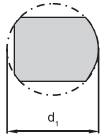


Cutting length



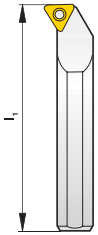
Shank Ø

d_1 mm
08
10
12
16
20
25
32
40
50
60



Tool length

l_1 mm	
80	F
100	H
110	J
125	K
140	L
150	M
160	N
170	P
180	Q
200	R
250	S
300	T
350	U
400	V
450	W
500	Y
Special version	X



Insert shape

Included angle	35°	V
	55°	D
	75°	E
	80°	C
	86°	M
Included angle	55°	K
	82°	B
	85°	A

Other shapes					
90°	L		--		R
108°	P		90°		S
120°	H		60°		T
135°	O		80°		W

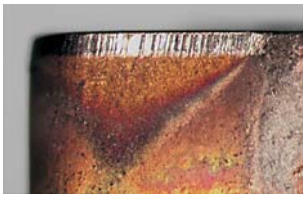
Clearance angle

3°	A	25°	F
5°	B	30°	G
7°	C	0°	N
15°	D	11°	P
20°	E		

Clearance angles not included within the standard for which particular information is necessary. } O

Types of wear

Wear on clearance face



Abrasion on flank: normal wear after a certain machining time

Cause
- Too high cutting speed
- Carbide grade with too low wear resistance
- Feed rate not adapted

Remedy
- Reduce cutting speed
- Use grade with higher wear resistance
- Adapt feed rate to cutting speed and cutting depth

Edge chipping

Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Cause
- Grade with too high wear resistance
- Vibration
- Too high cutting speed and / or feed rate
- Interrupted cut
- Swarf damage

Remedy
- Use tougher grade
- Use negative cutting edge geometry
- with chip groove
- Improve stability (tool, work piece)

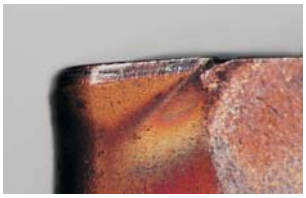
Cratering

The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

Cause
- Too high cutting speed and / or feed rate
- Rake angle too shallow
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed and / or feed rate
- Use grade with higher wear resistance
- Increase coolant quantity and / or pressure, optimise coolant supply
- Use grade which is more resistant to cratering

Plastic deformation

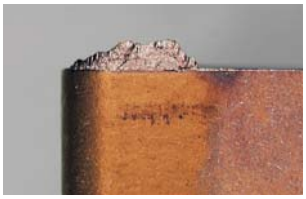


High machining temperature and simultaneous mechanical stress can lead to plastic deformation.

Cause
- Too high machining temperature resulting in softening of substrate
- Damage of coating
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed
- Use grade with higher wear resistance
- Provide cooling

Built-up edge



Built-up material / edges occur when the chip is not evacuated properly due to insufficient cutting temperature.

Cause
- Insufficient cutting speed
- Rake angle too shallow
- Wrong cutting material
- Lack of cooling / lubrication

Remedy
- Increase cutting speed
- Increase rake angle
- Apply TiN coating
- Use emulsion with higher concentration

Insert breakage

Excessive stress of the insert causes breakage.

Cause
- Excessive stress of cutting material
- Lack of stability
- Clearance angle too small

Remedy
- Use tougher grade
- Use protective edge chamfer
- Increase edge hone
- Use geometry with higher stability

Recommendation for Optimum Results

Type of problem															
Type of wear						Work piece problems				Swarf control					
Wear on clearance face	Cratering	Edge chipping	Plastic deformation	Insert breakage	Built-up edge	Vibration	Formation of pips and burrs	Chattered surface	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)				
↓↓	↓↓		↓↓		↓↓	↓			↑	↓		Cutting speed		Cutting data	Remedy measures
~		↓↓	↓	↓↓		↑		↓↓	↓↓	↑↑	↓↓	Feed rate			
↓	↓↓	↓↓	↓				↓↓	↓	↓			Feed rate at centre			
		↑↑	~		↓↓	~	↓↓	↓↓	↓	↓↓	↑↑	Chip groove	↑ ↓	Insert selection	
↑↑		↑↑	↑↑	↑		↓	↓↓	↓	↑			Corner radius	↑ larger / smaller ↓		
↑↑	↑↑	↓↓	↑↑	↓↓								Tap Material	↑ wear resistance / toughness ↓		
		~		~		~		~	~			Tool clamping		General criteria	
		~		~		~		~	~			Work piece clamping			
		~		~		~			↓			Overhang			
~		~				~	~		~			Tip height			
●	~		●		●		●		●	●		Cooling lubricant			

↑↑ raise, increase large influence

↑ raise, increase small influence

↓↓ avoid, reduce large influence

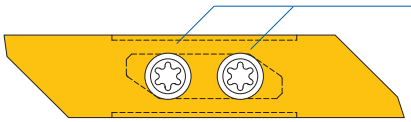
↓ avoid, reduce small influence

~ check, optimise

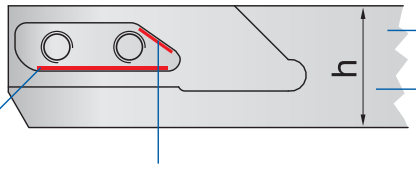
● use

VertiClamp

Features



Strong clamping thanks to two high-tensile screws



Shank sizes 08x08 – 20x20

Main location face

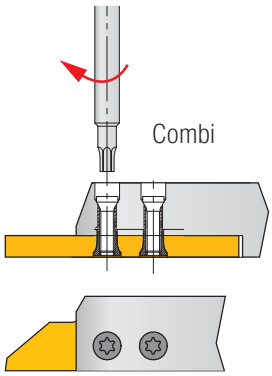
Axial insert location
Defined stop

Holder made from high-tensile material with hardened peripheral surface. The ground external face is also coated.

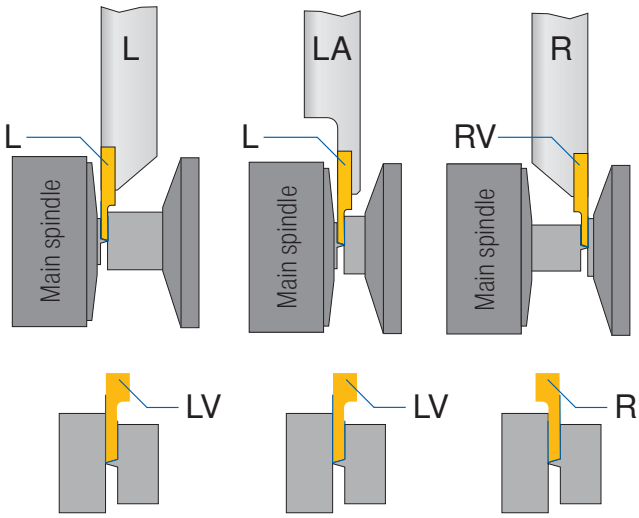
Advantages

- The connection between the indexable insert and holder guarantees optimum fixation
- The second cutting edge can always be used, even if the first cutting edge is broken off
- Shearing forces do not act on the screws
- For all cutting edge forms, the overhang of the cutting edge from the tool holder is identical
- Vertical insert orientation maintained thanks to large seating surface
- The indexable insert seat is completely protected against swarf
- Inserts are clamped through two high-tensile screws and a tapered axial stop of 30° in all cutting directions

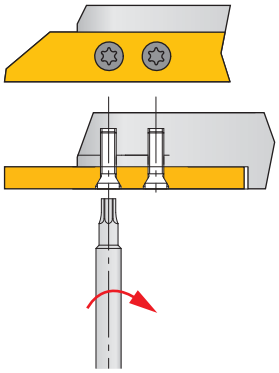
Clamping of cutting edge
With combi holders



Turning away from the spindle



Clamping of cutting edge
With standard holders

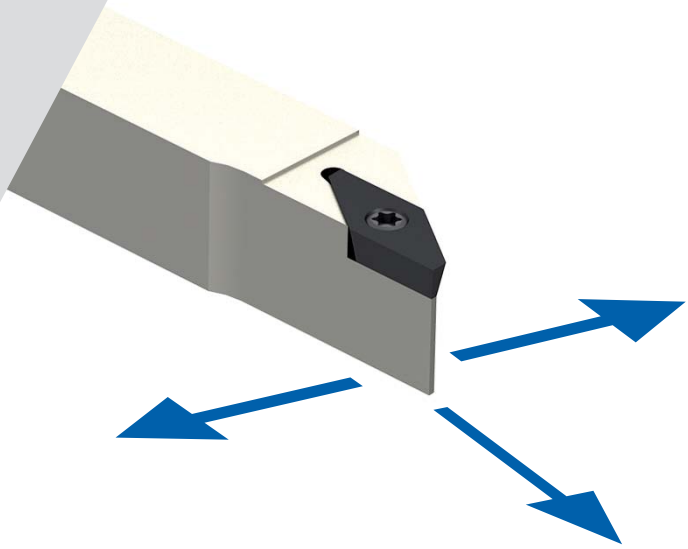


TriClamp

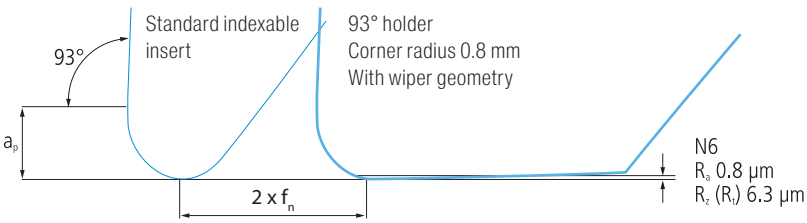
The feed rate can be doubled through the use of the TriClamp system with wiper geometry and 93° holder. This in turn allows machining times to be reduced considerably with no impact on quality, or the surface quality can be improved whilst retaining the same machining time. The ability to machine in a radial direction and in both axial directions makes this system particularly flexible.

Advantages

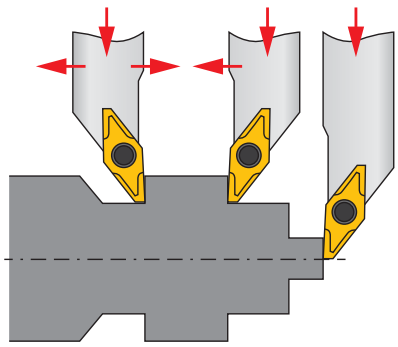
- Expansion of the ISO range
- Turning in three directions
- All cutting edges can easily be replaced
- Sharp positive cutting edges with 11° clearance angle
- Small corner radii 0.08 mm and 0.2 mm
- Perfect chip control
- Special holders for sliding head lathes (Cross-sections 8x8 mm to 16x16 mm)



Wiper geometry in detail:

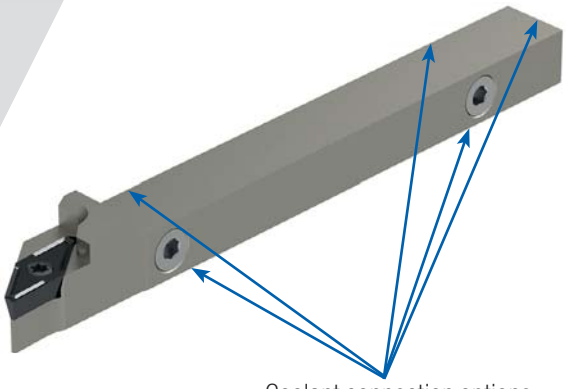


Applications:



Tool holders with a thro' coolant supply increase the performance of indexable inserts and improve the quality of components, particularly in the case of difficult-to-machine materials such as stainless steels and super alloys.

- All IC holders have five coolant supply options
- Made from highly tempered steel
- Precise coolant jet on the cutting edge
- Can be used at any coolant pressure



Coolant connection options

XheadClamp

The fast tool change with high repeatability has become a competitive advantage for series that usually have to be manufactured with the maximum chip evacuation possible. WNT has taken this production requirement into account with the newly developed XheadClamp holder system. Time savings and an extremely short setup process are key advantages of the system.
The XheadClamp system is also setting standards in terms of flexibility and ease of use.
With the XheadClamp, changing the indexable insert or geometry – e.g. switching from turning to grooving inserts – can be accomplished quickly, easily and with maximum precision.

Clamping method

- Extremely high clamping forces
- Release and clamping of an exchangeable head using only one screw
- Repeatability of less than ± 7.5 µm
- Maximum stability

Versatility

- All heads can be installed regardless of system size
- Tools can be adapted to the component
- Fastest indexable insert change thanks to exchangeable head

Accuracy

- No variable X and Y dimensions when changing the head
- Repeatability of less than ±7.5 µm
- Centre height is retained even when the insert size is changed
- Two-nose system guarantees the correct position

System 25 and System 45 tool holder naming convention

SH	R	12	-	25	DC	-	L

- SH: SH = Sliding Head Tool holder for longitudinal turning machines
- R: R = Right (right holder) L= Left (left holder)
- 12: Holder cross-section
- 25: System dimensions 25 mm = size 25 45 mm = size 45
- DC: Additional information: DC = Direct Cooling (system with coolant supply) RH = Reinforced Head (reinforced head variant) A = Offset Holder
- L: Position of the connection thread for coolant transfer

System 25 and System 45 indexable insert naming convention

25	R	TU	I	L	2,5	0.02	-	SPU	WPX7615

- 25: System dimensions 25 mm = size 25 45 mm = size 45
- R: R = Right (right holder) L= Left (left holder)
- TU: Application range CO = CutOff (parting off) TU = Turning TH = Threading
- I: I = Insert (indexable insert)
- L: Application direction/ finish direction L = Left R = Right N = Neutral

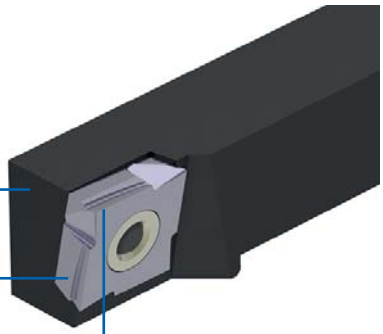
  R/L/N for COxx inserts = Cutting direction
- 2,5: Width of indexable insert. For THxx inserts = pitch
- 0.02: Additional information Corner radius/angle
- SPU: Chip groove
- WPX7615: Carbide Grade

SOGX system

The SOGX indexable insert system is based on a tangential indexable insert arrangement. As a result, there is a higher volume of solid carbide underneath the cutting edge, which increases stability. The force cross-section is more stable.
The SOGX system not only impresses with a tangential arrangement, but also with an extremely sharp cutting edge. Cutting pressures are therefore reduced further, improving the machining process. Indexable insert sizes 07 and 11 are available for various applications using four-edged indexable inserts, with the option of producing 90° shoulders.

Advantages

- Easy changing of indexable inserts in the machine
- High cutting depths can be achieved
- Available in a coated or uncoated grade (e.g. titanium coating)

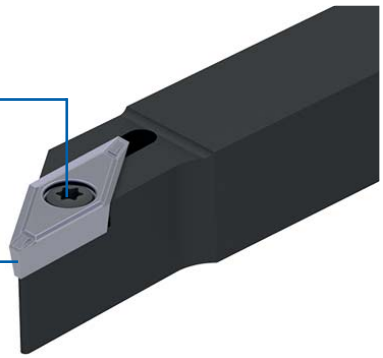


VCGT system

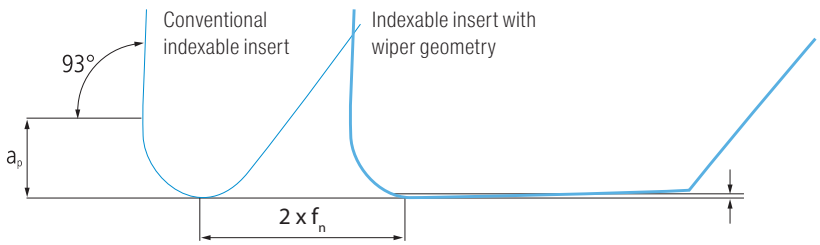
The VCGT system produces an excellent surface quality with an extremely sharp cutting edge, thanks to the wiper geometry.
Feeds can be increased two-fold during the process (this decreases the surface quality to the value of a standard indexable insert due to complete utilisation of the wiper geometry width).

Advantages

- Cutting depths of up to 6.5 mm improve chip removal rate
- Excellent surface quality after the first cut reduces number of work steps
- Excellent chip control reduces machine downtime or workpiece damage



The following example explains the principle in detail:



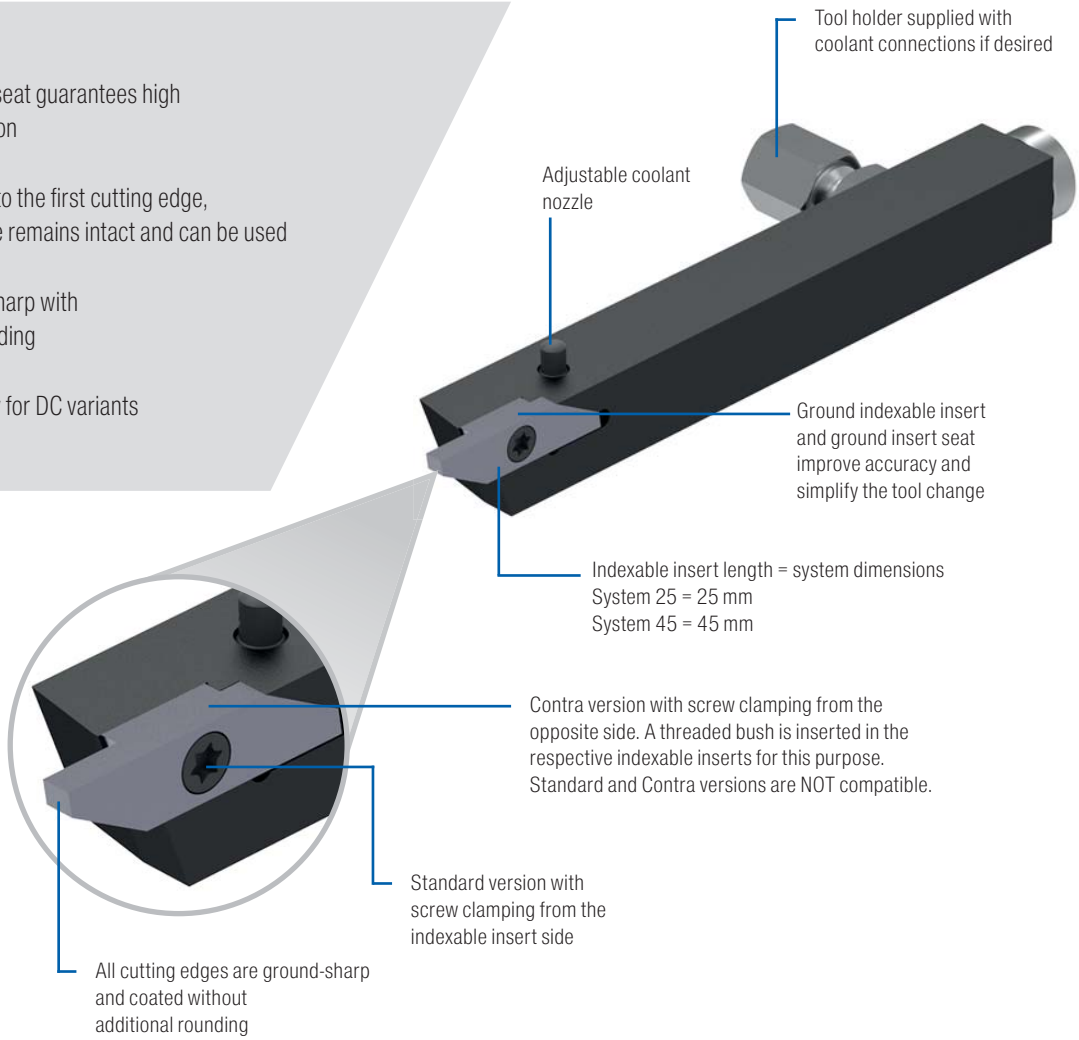
System 25 and System 45

System

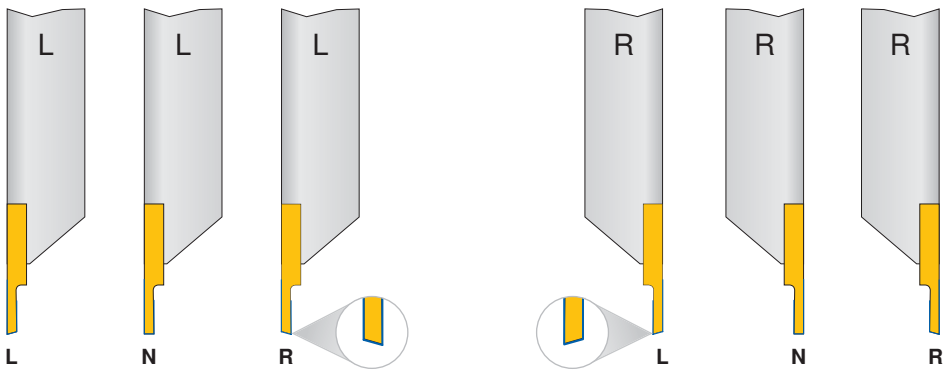
Systems 25 and 45 feature a tangential indexable insert tool holder. This clamping technology ensures that the cutting edge is almost in line with the external surface of the tool holder. The indexable insert can be turned in three directions, meaning that it can be used for machining in a radial direction and in both axial directions. All cutting edges on both System 25 and System 45 are sharpened. System 25 is ideal for small and extremely small diameters.

Advantages

- Ground rhombic insert seat guarantees high tool changeover precision
- In the event of damage to the first cutting edge, the second cutting edge remains intact and can be used
- All inserts are ground-sharp with no additional edge rounding
- Targeted coolant supply for DC variants in all pressure ranges



Useable directions

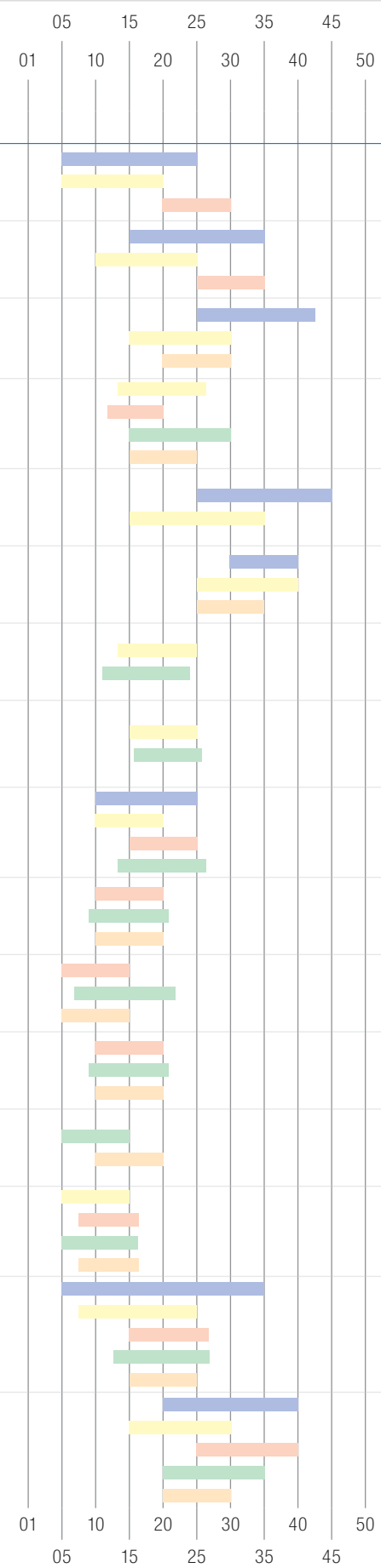


"Left" installation direction

"Right" installation direction

Grades Overview

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S
ISO indexable inserts							
HCX 1115	HC-P15 HC-M10 HC-K25		●	○	○		
HCX 1125	HC-P25 HC-M20 HC-K30		●	○	○		
HCR 1135	HC-P35 HC-M25 HC-S25		●	○			○
CCN 2120	HC-M20 HC-K15 HC-N20 HC-S20			●	○	○	●
HCN 2125	HC-P35 HC-M25		○	●			
CWN 2135	HC-P35 HC-M30 HC-S20		○	●			●
CWN 2120	HC-M20 HC-N20			●		○	
CWN 15	HC-M20 HC-N20			○		●	
AMZ	HC-P15 HC-M15 HC-K20 HC-N20		○	○	○	●	
CWK 15	HW-K15 HW-N15 HW-S15				○	●	○
CWK 20	HW-K10 HW-N10 HW-S10				○	●	○
CWK 26	HW-K15 HW-N15 HW-S15				○	●	○
WUU 7610	HW-N10 HW-S15					●	●
WPU 7610	HC-M10 HC-K10 HC-N10 HC-S10			●	●	●	○
WPU 7620	HC-P20 HC-M15 HC-K20 HC-N20 HC-S20		●	●	●	○	●
TiAlN	HC-P30 HC-M20 HC-K30 HC-N30 HC-S25		●	●	●	●	○

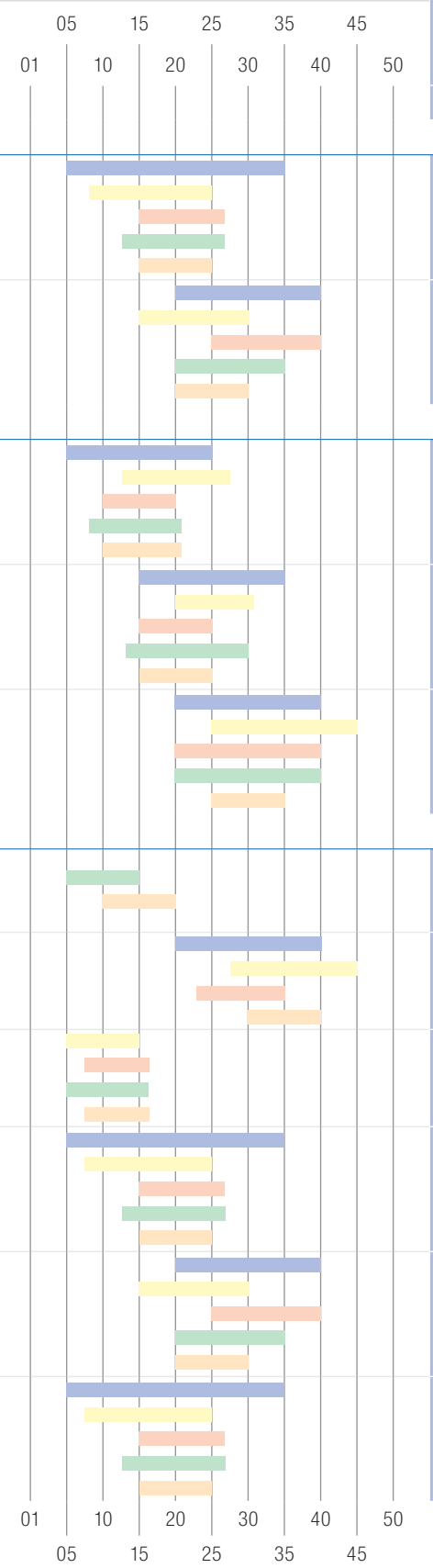


● Main Application
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

Grades Overview

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S
VertiClamp							
WPU 7620	HC-P20 HC-M35 HC-K20 HC-N20 HC-S20		●	●	●	○	●
TiAlN	HC-P30 HC-M20 HC-K30 HC-N30 HC-S25		●	●		○	○
System 25 & 45							
WPX 7615	HC-P15 HC-M20 HC-K15 HC-N15 HC-S15		●	●	●	●	●
WUX 7620	HW-P20 HW-M25 HW-K20 HW-N20 HW-S20		●	●	●	●	●
WPX 7630	HC-P30 HC-M35 HC-K30 HC-N30 HC-S30		●	●	○	○	●
TriClamp							
WUU 7610	HW-N10 HW-S15					●	●
WUU 7630	HW-P30 HW-M35 HW-N30 HW-S35		●	●		○	○
WPU 7610	HC-M10 HC-K10 HC-N10 HC-S10			●	●	●	○
WPU 7620	HC-P20 HC-M15 HC-K20 HC-N20 HC-S20		●	●	●	○	●
TiAlN	HC-P30 HC-M20 HC-K30 HC-N30 HC-S25		●	●	●	●	○
TiAlN+	HC-P20 HC-M15 HC-K20 HC-N20 HC-S20		●	●	●	●	○



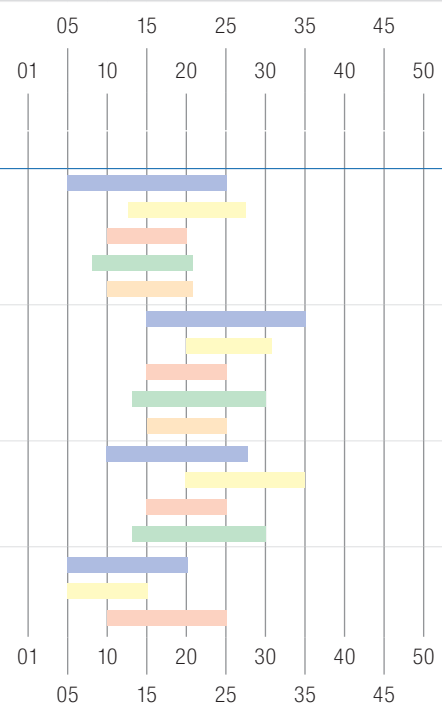
● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

3

Grades Overview

Grade designation	Standard designation	ISO application range	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant
			P	M	K	N	S
SOGX & VCGT							
WPX 7615	HC-P15 HC-M20 HC-K15 HC-N15 HC-S15		●	●	●	●	○
WUX 7620	HW-P20 HW-M25 HW-K20 HW-N20 HW-S20		●	●	●	●	●
TiCN	HC-P20 HC-M25 HC-K20 HC-N20		●	●	●	●	
Cermet	HT-P15 HT-M10 HT-K15		●	○	●		



● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

Grade designation

HCX 1115	Carbide, Dragonskin coating, ISO – P15 with stable conditions and continuous cut
HCX 1125	Carbide, Dragonskin coating, ISO – P25 universal, usable with a wide range of applications
HCR 1135	Carbide, Dragonskin coating, ISO – P35 with unstable and difficult conditions
CCN 2120	Carbide, TiALN coating, ISO – M20 for stainless steel and super alloys
CWN 2120	Carbide, TiN coating, ISO – K20 for stainless steel High performance for aluminium
HCN 2125	Carbide, Dragonskin coating, ISO – M25 Universal for stainless
CWN 2135	Carbide, Al_2O_3-TiN-coating, ISO – M35 for stainless steel
CWK 15	Carbide, uncoated, ISO – K15 Roughing of aluminium
CWK 20	Carbide, uncoated, ISO – K20 high cutting speed
CWK 26	Carbide, uncoated, ISO – K20 Multi-purpose grade
CWN 15	Carbide, TiN coating, ISO – K15 for abrasive aluminium alloys
HCN 2430	Carbide, Dragonskin coating, ISO – M25 Multi-use grade

AMZ	Carbide, TiALN coating, ISO – K20 Multi-purpose grade, stainless steel and aluminium finishing
WUU 7610	Carbide, ISO – K10, uncoated Tailored for non-ferrous metals
WPU 7610	Carbide, ISO – K10 / M10, PVD-AlTiN For stainless steels and super alloys
WUU 7630	Carbide, ISO – K30 / M20, uncoated Universal, main application non-ferrous metals
WPU 7620	Carbide, ISO – P20 / M20, PVD-AlTiN For steels and stainless steels
TiAlN	Carbide, ISO – K30 / M20, PVD-TiAlN Universal grade for all materials
TiAlN+	Carbide, ISO – K20 / M20, PVD-TiAlN Universal grade for all materials
WPX 7615	Carbide, ISO – P/M/K15, PVD-TiAlN Universal grade for all materials
WPX 7630	Carbide, ISO – P/M/K30, PVD-TiN Universal with high toughness reserve
WUX 7620	Carbide, ISO – P/M/K20, uncoated Universal application
TiCN	Carbide, ISO – P/M/K15, PVD-TiCN Ideal for difficult-to-machine materials
Cermet	Cermet, ISO – P10, uncoated For steels

Grade designation

H C X 1 1 2 5 (Example)

Main application - material

1 Steel
2 Stainless steel
3 Cast iron
4 Light and non ferrous metals
5 Super alloys, titanium
6 Hard materials

Application

1 Turning
2 Milling
3 Grooving
4 Drilling
5 Thread turning
6 Others

Degree of hardness

05 ISO K/M/P 05
10 ISO K/M/P 10
15 ISO K/M/P 15
...

3

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WNT MASTERTOOL PERFORMANCE

Premium quality tools for high performance.

The premium quality tools from the **WNT Mastertool Performance** product line have been designed for specific applications and are distinguished by their outstanding performance.
If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

System overview

EcoCut Mini

Drilling into solid material and subsequent turning from a bore diameter of 4.0 mm and a maximum depth of 4xD.

→ 162+163

EcoCut Classic

Full functionality as an indexable insert tool for diameters ranging from 8.0 mm to 16.0 mm at depths of 1.5xD, 2.25xD and 3xD.

→ 165–167

EcoCut ProfileMaster

Also possible to perform grooving and undercut turning from 10.0 mm to 16.0 mm at depths of 1.5xD and 2.25xD.

→ 169+170

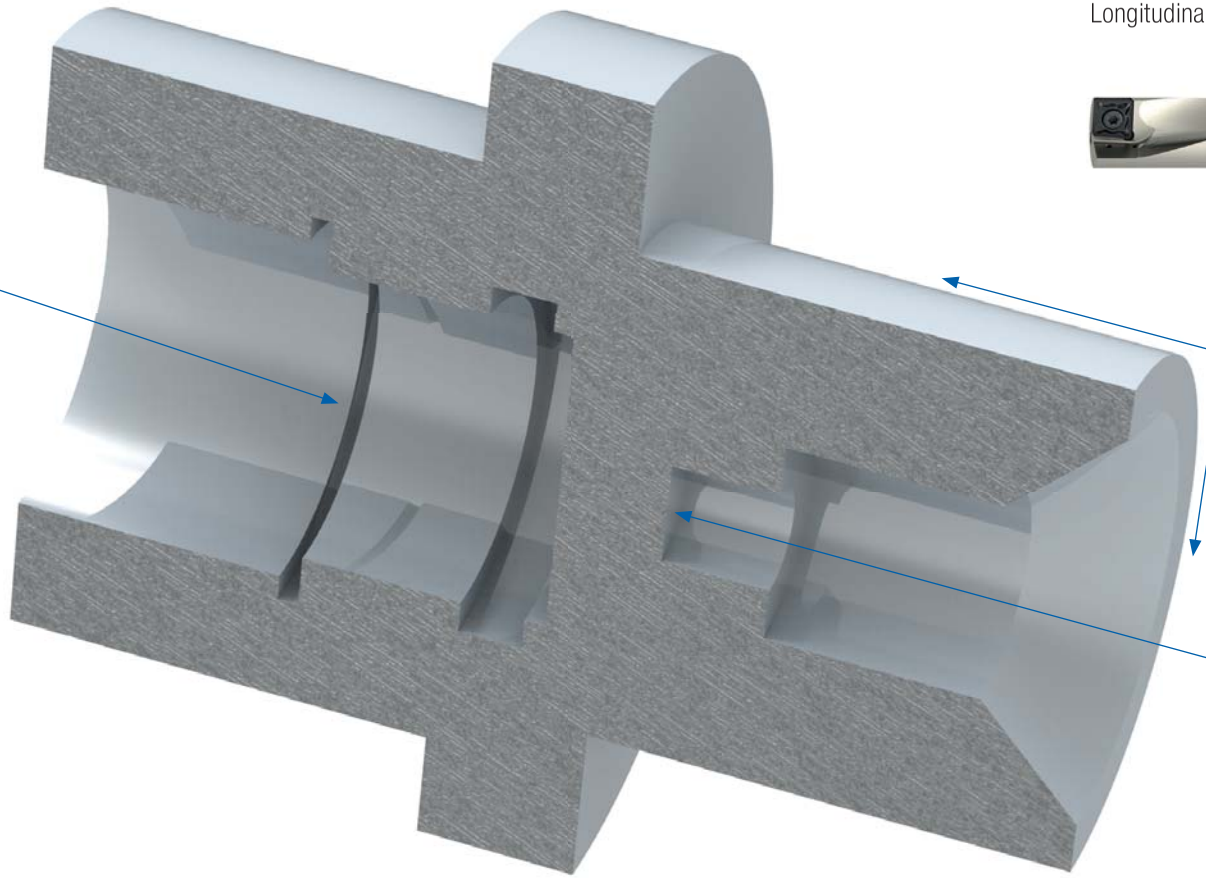
WNT Toolfinder – EcoCut

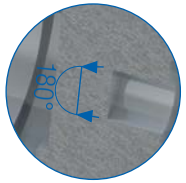
EcoCut Classic

Longitudinal and face turning

EcoCut ProfileMaster

Drilling with flat bottom hole and groove turning





EcoCut Mini

Drilling with flat bottom hole

All applications can be performed by every EcoCut tool.

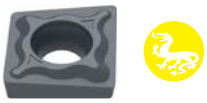
Highlights

- Drilling into solid material with flat bottom hole
  Reduced costs as no secondary operation required
- Internal and longitudinal turning
  Turning can take place straight after drilling, with high material removal rates
- Internal and contour turning
  To create chamfers
- External and longitudinal turning
  Production of external diameter
- External and face turning
  Fewer tools required
- Drilling from centre
  Reduces investment costs for tools with a fixed diameter

Overview

	Tool design			Applications				
	Dimension	Hole Ø mm	max. bore depth	Drilling into full material	Turning	Face turning	Groove turning	Pages
EcoCut Mini	2,25xD	4–8	18	✓	✓	✓		162+163
	4,0xD	4–8	32	✓	✓	✓		162+163
EcoCut Classic	1,5xD	8–16	24,0	✓	✓	✓		165
	2,25xD	8–16	36,0	✓	✓	✓		166
	3,0xD	8–16	48,0	✓	✓	✓		167
EcoCut Profilmaster	1,5xD	10–16	24,0	✓	✓	✓	✓	169
	2,25xD	10–16	36,0	✓	✓	✓	✓	170

Overview EcoCut Mini and EcoCut Inserts

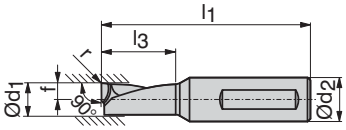
Type	Smooth cut	Irregular cutting depth	Interrupted cut	Grade	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Radius r in mm	coated	uncoated	Pages
EcoCut Mini														
	○	○	●	HCN 1435	●	●	○	○	●		0,2	■		162
	○	●	○	CWK 4425			○	●	○		0,2		□	162
EcoCut Classic														
	○	●	○	HCR 1425	●	○	●				0,2–0,4	■		164
	○	○	●	HCR 1435	●	○	○				0,2–0,4	■		164
	○	○	●	HCN 2430	●	●	○	○	●		0,2–0,4	■		164
	○	●	○	CWK 26			○	●			0,2–0,4		□	164
	○	●	○	CWK 20			○	●			0,2–0,4		□	164
EcoCut ProfileMaster														
	○	○	●	HCN 2430	●	●	○	○	●		0,4	■		168

● = **Main Application**
○ = Extended application

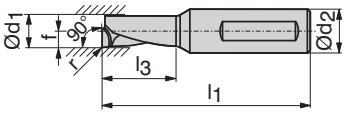
EcoCut – Mini

- Drilling and turning tool for small diameters

≥ Ø4 mm



Left-hand



Right-hand

HCN 1435

HCN 1435

CWK 4425

CWK 4425

Designation	d_1 DC mm	d_2 DCONMS mm	l_1 OAL mm	l_3 LU mm	f WF mm	r RE mm	Solid carbide Left-hand 2B Article no. 70 805 ... £		Solid carbide Right-hand 2B Article no. 70 804 ... £		Solid carbide Left-hand 2B Article no. 70 805 ... £		Solid carbide Right-hand 2B Article no. 70 804 ... £	
ECM 04 R/L 2,25D	4	6	35	9.00	2.0	0.2	50.18	**300**	50.18	**300**				
ECM 04 R/L 2,25D AL	4	6	35	9.00	2.0	0.2					44.22	**450**	44.22	**450**
ECM 04 R/L 4,00D	4	6	41	16.00	2.0	0.2	52.68	**301**	52.68	**301**				
ECM 04 R/L 4,00D AL	4	6	41	16.00	2.0	0.2					46.43	**451**	46.43	**451**
ECM 05 R/L 2,25D	5	6	37	11.25	2.5	0.2	51.92	**302**	51.92	**302**				
ECM 05 R/L 2,25D AL	5	6	37	11.25	2.5	0.2					45.46	**452**	45.46	**452**
ECM 05 R/L 4,00D	5	6	45	20.00	2.5	0.2	54.32	**303**	54.32	**303**				
ECM 05 R/L 4,00D AL	5	6	45	20.00	2.5	0.2					47.67	**453**	47.67	**453**
ECM 06 R/L 2,25D	6	8	38	13.50	3.0	0.2	53.26	**306**	53.26	**306**				
ECM 06 R/L 2,25D AL	6	8	38	13.50	3.0	0.2					47.00	**456**	47.00	**456**
ECM 06 R/L 4,00D	6	8	49	24.00	3.0	0.2	55.95	**312**	55.95	**312**				
ECM 06 R/L 4,00D AL	6	8	49	24.00	3.0	0.2					49.12	**462**	49.12	**462**
ECM 07 R/L 2,25D	7	8	42	15.75	3.5	0.2	54.91	**308**	54.91	**308**				
ECM 07 R/L 2,25D AL	7	8	42	15.75	3.5	0.2					48.45	**458**	48.45	**458**
ECM 07 R/L 4,00D	7	8	53	28.00	3.5	0.2	57.78	**314**	57.78	**314**				
ECM 07 R/L 4,00D AL	7	8	53	28.00	3.5	0.2					50.66	**464**	50.66	**464**
ECM 08 R/L 2,25D	8	8	45	18.00	4.0	0.2	56.73	**310**	56.73	**310**				
ECM 08 R/L 2,25D AL	8	8	45	18.00	4.0	0.2					49.79	**460**	49.79	**460**
ECM 08 R/L 4,00D	8	8	57	32.00	4.0	0.2	59.43	**316**	59.43	**316**				
ECM 08 R/L 4,00D AL	8	8	57	32.00	4.0	0.2					52.21	**466**	52.21	**466**

Steel	●	●		
Stainless steel	●	●		
Cast iron	○	○	○	○
Non ferrous metals	○	○	●	●
Heat resistant alloys	●	●	○	○

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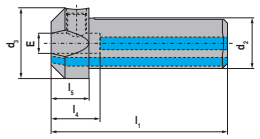
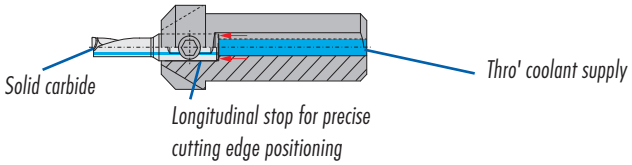
EcoCut – Adapter Mini





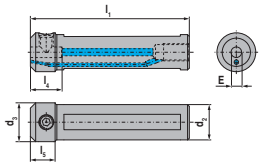
Designation	E DCONWS mm	d_2 DCONMS mm	d_3 BD mm	l_1 OAL mm	l_5 LFSF mm	l_4 LSC mm	2B Article no. 70 800 ... £	
EC-ADX16-06	6	16.00	22	59.0	14	18	163.50	976
EC-ADX12-06-E 3/4"	6	19.05	25	63.5	14	18	163.50	986
EC-ADX20-06	6	20.00	25	64.0	14	18	163.50	996
EC-ADX16-08	8	16.00	22	59.0	14	18	163.50	978
EC-ADX12-08-E 3/4"	8	19.05	25	63.5	14	18	163.50	988
EC-ADX20-08	8	20.00	25	64.0	14	18	163.50	998

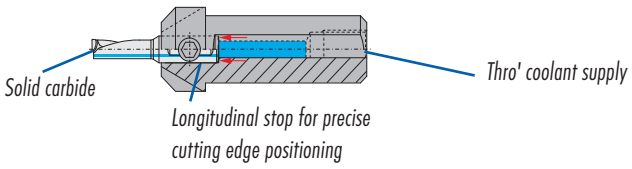
2A

Clamping screw

Spare parts for Article no.		Article no. 70 950 ... £	
70 800 976	M8x1x8 - SW4	2.59	123
70 800 986	M8x1x8 - SW4	2.59	123
70 800 996	M8x1x8 - SW4	2.59	123
70 800 978	M8x1x8 - SW4	2.59	123
70 800 988	M8x1x8 - SW4	2.59	123
70 800 998	M8x1x8 - SW4	2.59	123

EcoCut – Mini adapter with direct coolant connection thread





Designation	E DCONWS mm	d_2 DCONMS mm	d_3 BD mm	l_1 OAL mm	l_5 LFSF mm	l_4 LSC mm	Thread	2B Article no. 70 801 ... £	
ECA 16-06	6	16.00	22.0	75	14	18	G 1/8	85.96	816
ECA 0750-06 3/4"	6	19.05	22.0	100	14	18	G 1/8	87.72	819
ECA 20-06	6	20.00	22.0	90	14	18	G 1/8	87.72	820
ECA 22-06	6	22.00	22.0	110		18	G 1/8	90.35	822
ECA 25-06	6	25.00	25.0	110		18	G 1/8	91.23	825
ECA 1000-06 1/1"	6	25.40	25.4	110		18	G 1/8	91.23	826
ECA 16-08	8	16.00	22.0	75	14	18	G 1/8	85.96	916
ECA 0750-08 3/4"	8	19.05	22.0	100	14	18	G 1/8	87.72	919
ECA 20-08	8	20.00	22.0	90	14	18	G 1/8	87.72	920
ECA 22-08	8	22.00	22.0	110		18	G 1/8	90.35	922
ECA 25-08	8	25.00	25.0	110		18	G 1/8	91.23	925
ECA 1000-08 1/1"	8	25.40	25.4	110		18	G 1/8	91.23	926

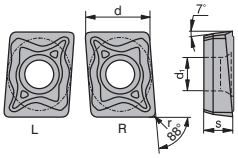
2A

Clamping screw

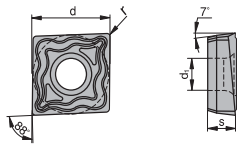
Spare parts for Article no.		Article no. 70 950 ... £	
70 801 816	M8x1x8 - SW4	2.59	123
70 801 819	M8x1x8 - SW4	2.59	123
70 801 820	M8x1x8 - SW4	2.59	123
70 801 822	M8x1x8 - SW4	2.59	123
70 801 825	M8x1x8 - SW4	2.59	123
70 801 826	M8x1x8 - SW4	2.59	123
70 801 916	M8x1x8 - SW4	2.59	123
70 801 919	M8x1x8 - SW4	2.59	123
70 801 920	M8x1x8 - SW4	2.59	123
70 801 922	M8x1x8 - SW4	2.59	123
70 801 925	M8x1x8 - SW4	2.59	123
70 801 926	M8x1x8 - SW4	2.59	123

XCNT / XCET

Designation	s S mm	d_1 D1 mm	d IC mm
XC.T 0401..	1.80	2.10	4.5
XC.T 0502..	2.10	2.25	5.8
XC.T 0602..	2.38	2.50	6.5
XC.T 0703..	3.18	2.80	7.6
XC.T 0803..	3.18	3.40	8.5

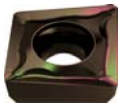
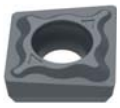


XC. T 04..



XC. T 05../06../07../08../09../10../13../17..

XCNT / XCET

			-M50Q						-ALP		-ALQ	
		HCR 1425		HCR 1425		HCR 1435		HCN 2430		CWK 26		CWK 20	
													
		XCNT		XCNT		XCNT		XCNT		XCET		XCET	
		1D		1D		1D		1D		1D		1D	
ISO	r RE mm	Article no. 70 386 ... £		Article no. 70 386 ... £		Article no. 70 386 ... £		Article no. 70 386 ... £		Article no. 70 286 ... £		Article no. 70 286 ... £	
040102EL	0.2	13.00	720			13.00	820	13.00	920				
040102ER	0.2	13.00	722			13.00	822	13.00	922				
040102FL	0.2									14.54	620	15.12	120
040102FR	0.2									14.54	622	15.12	122
040104EL	0.4	13.00	700	13.57	750	13.00	800	13.00	900				
040104ER	0.4	13.00	702	13.57	752	13.00	802	13.00	902				
040104FL	0.4									14.54	600	15.12	100
040104FR	0.4									14.54	602	15.12	102
050202EN	0.2	13.00	723			13.00	823	13.00	923				
050202FN	0.2									14.54	623	15.12	123
050204EN	0.4	13.00	703	13.57	753	13.00	803	13.00	903				
050204FN	0.4									14.54	603	15.12	103
060202EN	0.2	13.00	724			13.00	824	13.00	924				
060202FN	0.2									14.54	624	15.12	124
060204EN	0.4	13.00	704	13.57	754	13.00	804	13.00	904				
060204FN	0.4									14.54	604	15.12	104
070304EN	0.4	13.00	705	13.57	755	13.00	805	13.00	905				
070304FN	0.4									14.54	605	15.12	105
080304EN	0.4	13.20	706	13.78	756	13.20	806	13.20	906				
080304FN	0.4									14.75	606	15.32	106
Steel		●		●		●		●					
Stainless steel		○		○		○		●					
Cast iron		●		●		○		○		○		○	
Non ferrous metals								○		●		●	
Heat resistant alloys								●					

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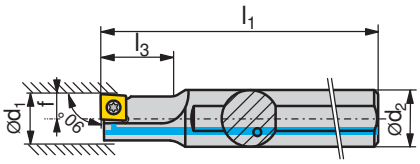
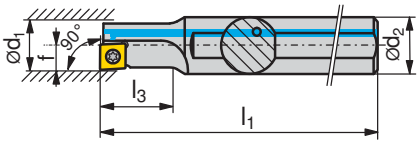
EcoCut – Classic 1.5xD

- Drilling and turning tool

Scope of supply:
Toolholder with 1 clamping screw + 2 spare screws and screwdriver



Left-hand



Right-hand

Left-hand

Right-hand

Designation	d_1 DC mm	d_2 DCONMS mm	l_1 OAL mm	l_3 LU mm	f WF mm	Insert	Left-hand 2B Article no. 70 805 ... £		Right-hand 2B Article no. 70 804 ... £	
ECC 08 L 1,5D 04	8	12	80	12	4	XC.T 0401..EL	137.73	008 [2]		
ECC 08 R 1,5D 04	8	12	80	12	4	XC.T 0401..ER			137.73	008 [1]
ECC 10 R/L 1,5D 05	10	12	90	15	5	XC.T 0502..	137.73	010	137.73	010
ECC 12 R/L 1,5D 06	12	16	100	18	6	XC.T 0602..	139.96	012	139.96	012
ECC 14 R/L 1,5D 07	14	16	110	21	7	XC.T 0703..	143.31	014	143.31	014
ECC 16 R/L 1,5D 08	16	20	125	24	8	XC.T 0803..	145.63	016	145.63	016

1) Note! right hand insert on right hand tool → **Page 181**
2) Note! left hand insert on left hand tool → **Page 181**

Key D

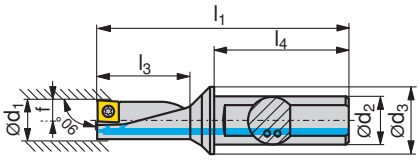
Clamping screw

Spare parts for Article no.		Y7 Article no. 80 950 ... £			2A Article no. 70 950 ... £	
70 805 008	T06 - IP	12.65	123	M1,8x3,6 - IP	3.19	862
70 804 008	T06 - IP	12.65	123	M1,8x3,6 - IP	3.19	862
70 805 010 / 70 804 010	T06 - IP	12.65	123	M2x4,3 - IP	2.85	863
70 805 012 / 70 804 012	T07 - IP	12.48	124	M2,2x5 - IP	2.75	856
70 805 014 / 70 804 014	T08 - IP	12.48	125	M2,5x6 - IP	3.54	857
70 805 016 / 70 804 016	T09 - IP	13.66	126	M3x7 - IP	2.71	819

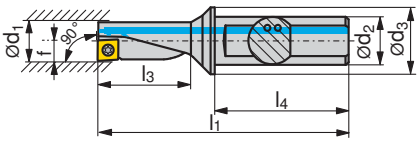
EcoCut – Classic 2.25xD

- Drilling and turning tool

Scope of supply:
Toolholder with 1 clamping screw + 2 spare screws and screwdriver



Left-hand



Right-hand

Left-hand

Right-hand

Designation	d_1 DC mm	d_2 DCONMS mm	d_3 DF mm	l_1 OAL mm	l_3 LU mm	l_4 LS mm	f WF mm	Insert	Left-hand 2B Article no. 70 805 ... £		Right-hand 2B Article no. 70 804 ... £	
ECC 08 L 2,25D 04	8	10	12	60.0	18.0	38	4	XC.T 0401..EL	204.92	**108** [2]		
ECC 08 R 2,25D 04	8	10	12	60.0	18.0	38	4	XC.T 0401..ER			204.92	**108** [1]
ECC 10 R/L 2,25D 05	10	12	16	69.5	22.5	42	5	XC.T 0502..	204.92	**110**	204.92	**110**
ECC 12 R/L 2,25D 06	12	16	20	78.0	27.0	45	6	XC.T 0602..	210.51	**112**	210.51	**112**
ECC 14 R/L 2,25D 07	14	16	20	83.5	31.5	45	7	XC.T 0703..	215.16	**114**	215.16	**114**
ECC 16 R/L 2,25D 08	16	20	25	94.0	36.0	50	8	XC.T 0803..	219.62	**116**	219.62	**116**

1) Note! right hand insert on right hand tool → **Page 181**
2) Note! left hand insert on left hand tool → **Page 181**

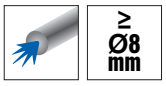
Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 805 108	T06 - IP	12.65	**123**	M1,8x3,6 - IP	3.19	**862**
70 804 108	T06 - IP	12.65	**123**	M1,8x3,6 - IP	3.19	**862**
70 805 110 / 70 804 110	T06 - IP	12.65	**123**	M2x4,3 - IP	2.85	**863**
70 805 112 / 70 804 112	T07 - IP	12.48	**124**	M2,2x5 - IP	2.75	**856**
70 805 114 / 70 804 114	T08 - IP	12.48	**125**	M2,5x6 - IP	3.54	**857**
70 805 116 / 70 804 116	T09 - IP	13.66	**126**	M3x7 - IP	2.71	**819**

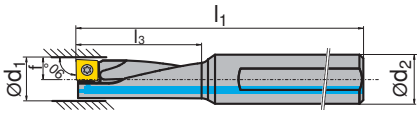
EcoCut – Classic 3xD – Heavy metal

- Drilling and turning tool
- vibration-damped

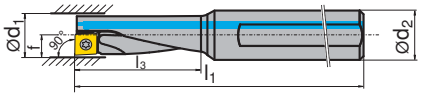
Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver





Left-hand



Right-hand

Left-hand

Right-hand

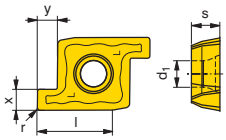
Designation	d_1 DC mm	d_2 DCONMS mm	l_1 OAL mm	l_3 LU mm	f WF mm	Insert	Left-hand 2B Article no. 70 805 ... £		Right-hand 2B Article no. 70 804 ... £	
ECC 08 L 3,00D 04 H	8	12	80	24	4	XC.T 0401..EL	505.34	**608** [2]		
ECC 08 R 3,00D 04 H	8	12	80	24	4	XC.T 0401..ER			505.34	**608** [1]
ECC 10 R/L 3,00D 05 H	10	12	85	30	5	XC.T 0502..	507.63	**610**	507.63	**610**
ECC 12 R/L 3,00D 06 H	12	16	95	36	6	XC.T 0602..	547.98	**612**	547.98	**612**
ECC 14 R/L 3,00D 07 H	14	16	100	42	7	XC.T 0703..	560.64	**614**	560.64	**614**
ECC 16 R/L 3,00D 08 H	16	20	110	48	8	XC.T 0803..	614.79	**616**	614.79	**616**

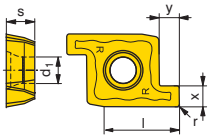
1) Note! right hand insert on right hand tool → **Page 181**
2) Note! left hand insert on left hand tool → **Page 181**

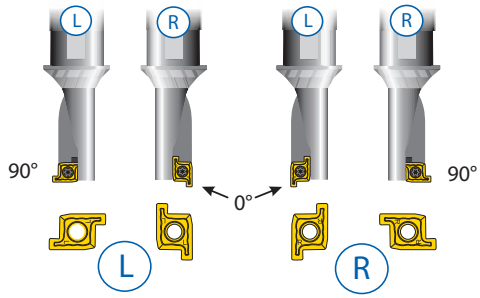
Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 805 608	T06 - IP	12.65	**123**	M1,8x3,6 - IP	3.19	**862**
70 804 608	T06 - IP	12.65	**123**	M1,8x3,6 - IP	3.19	**862**
70 805 610 / 70 804 610	T06 - IP	12.65	**123**	M2x4,3 - IP	2.85	**863**
70 805 612 / 70 804 612	T07 - IP	12.48	**124**	M2,2x5 - IP	2.75	**856**
70 805 614 / 70 804 614	T08 - IP	12.48	**125**	M2,5x6 - IP	3.54	**857**
70 805 616 / 70 804 616	T09 - IP	13.66	**126**	M3x7 - IP	2.71	**819**

PM-L / PM-R

Designation	x CW mm	y PDPT mm	l L mm	s S mm	d_1 D1 mm	r RE mm
PM 10 G 201504	2.0	1.5	5	2.10	2.1	0.4
PM 12 G 201804	2.0	1.8	6	2.30	2.5	0.4
PM 16 G 252004	2.5	2.0	8	2.80	3.4	0.4







PM-L / PM-R

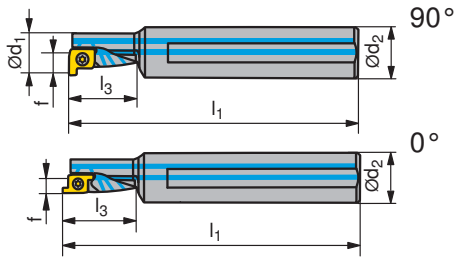
ISO	r RE mm	-M20 HCN 2430 PM-L NEW 1F Article no. 70 289 ... £		-M20 HCN 2430 PM-R NEW 1F Article no. 70 289 ... £	
PM 10 G 201504	0.4	14.00	510	14.00	511
PM 12 G 201804	0.4	14.10	515	14.10	516
PM 16 G 252004	0.4	14.28	520	14.28	521
Steel		●		●	
Stainless steel		●		●	
Cast iron		○		○	
Non ferrous metals		○		○	
Heat resistant alloys		●		●	

→ v_c Page 177

EcoCut – ProfileMaster 1.5xD

- Drilling, turning and grooving tool

Scope of supply:
Toolholder with one clamping screw and one screwdriver



Diagrams show right hand versions

Designation	d_1 DC mm	d_2 DCONMS mm	l_1 (90°) OAL mm	l_3 (90°) LU mm	f (90°) DC mm	l_1 (0°) OAL mm	l_3 (0°) LU mm	f (0)° WF mm	Insert	Left-hand NEW 2G Article no. 70 821 ... £		Right-hand NEW 2G Article no. 70 820 ... £	
PMC 10 R/L 1,5D	10	12	80	15	5				PM 10R/L	148.53	**010** 1)	148.53	**010** 1)
PMC 12 R/L 1,5D	12	16	90	18	6				PM 12R/L	153.98	**012** 1)	153.98	**012** 1)
PMC 16 R/L 1,5D	16	20	125	24	8	127.3	26.3	5.7	PM 16R/L	162.88	**016**	162.88	**016**

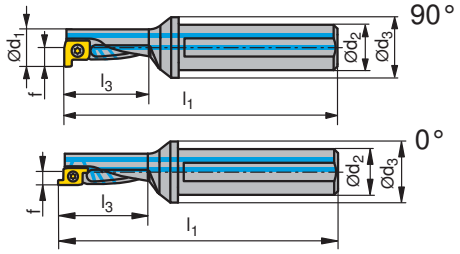
1) only usable as 90° version

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 820 010 / 70 821 010	T06 - IP	12.65	**123**	M1,8x3,6 - IP	3.19	**862**
70 820 012 / 70 821 012	T07 - IP	12.48	**124**	M2,2x4,2 - IP	2.75	**137**
70 820 016 / 70 821 016	T09 - IP	13.66	**126**	M3x5,7 - IP	2.71	**008**

EcoCut – ProfileMaster 2.25xD

- Drilling, turning and grooving tool

Scope of supply:
Toolholder with one clamping screw and one screwdriver



Diagrams show right hand versions

Designation	d_1 DC mm	d_2 DCONMS mm	d_3 DF mm	l_1 (90°) OAL mm	l_3 (90°) LU mm	f (90°) DC mm	l_1 (0°) OAL mm	l_3 (0°) LU mm	f (0)° WF mm	Insert	Left-hand NEW 2G Article no. 70 821 ... £		Right-hand NEW 2G Article no. 70 820 ... £	
PMC 10 R/L 2,25D	10	12	18	72.4	22.5	5				PM 10R/L	218.44	**110** [1]	218.44	**110** [1]
PMC 12 R/L 2,25D	12	16	22	78.0	27.0	6				PM 12R/L	222.98	**112** [1]	222.98	**112** [1]
PMC 16 R/L 2,25D	16	20	28	96.5	36.0	8	98.8	38.3	5.7	PM 16R/L	234.97	**116**	234.97	**116**

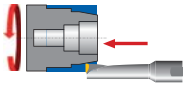
1) only usable as 90° version

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 820 110 / 70 821 110	T06 - IP	12.65	**123**	M1,8x3,6 - IP	3.19	**862**
70 820 112 / 70 821 112	T07 - IP	12.48	**124**	M2,2x4,2 - IP	2.75	**137**
70 820 116 / 70 821 116	T09 - IP	13.66	**126**	M3x5,7 - IP	2.71	**008**

Depth of Cut and Feedrate for EcoCut Mini

Turning

2.25xD

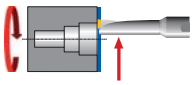


EcoCut Mini Size	Depth of Cut a_p in mm							
	0,5	1	1,5	2	2,5	3	3,5	4
	Feed rate f in mm/rev.							
ECM 04..	0,04–0,1	0,04–0,1	0,03–0,07	0,01–0,05				
ECM 05..	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04		
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04	
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04

4.0xD

EcoCut Mini Size	Depth of Cut a_p in mm							
	0,5	1	1,5	2	2,5	3	3,5	4
	Feed rate f in mm/rev.							
ECM 04..	0,04–0,1	0,03–0,08	0,01–0,05					
ECM 05..	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 06..	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 07..	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,095	0,03–0,8	0,02–0,06	0,01–0,04		

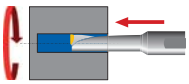
Face turning



EcoCut Mini Size	2,25xD		4xD	
	$a_{p\,max.}$ in mm	f in mm/rev.	$a_{p\,max.}$ in mm	f in mm/rev.
ECM 04..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 05..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 06..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 07..	1,00	0,04–0,08	1,00	0,03–0,06
ECM 08..	1,00	0,04–0,08	1,00	0,03–0,06

Drilling

Feed rate



EcoCut Mini Size	2,25xD	4xD
	f in mm/rev.	f in mm/rev.
ECM 04..	0,005–0,030	0,005–0,020
ECM 05..	0,005–0,030	0,005–0,020
ECM 06..	0,005–0,030	0,005–0,020
ECM 07..	0,005–0,035	0,005–0,025
ECM 08..	0,005–0,040	0,005–0,030

Maximum hole depth

EcoCut Mini Size	2,25xD	4xD
	Max. hole depth in mm	Max. hole depth in mm
ECM 04..	9,0	16,0
ECM 05..	11,25	20,0
ECM 06..	13,5	24,0
ECM 07..	15,75	28,0
ECM 08..	18,0	32,0

Depth of Cut and Feedrate for EcoCut Classic

Turning

1.5xD

EcoCut Classic Size	Depth of Cut a_p in mm											
	1	2	3	4	5	6	7	8	9	10	12	14
	Feed rate f in mm/rev.											
ECC 08	0,06–0,12	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,07–0,15	0,05–0,13	0,04–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,10–0,20	0,10–0,20	0,08–0,18	0,06–0,16	0,04–0,14	0,02–0,12				

Feed f may be increased by 50–75 % when using M50Q a nd ALQ.

2.25xD

EcoCut Classic Size	Depth of Cut a_p in mm										
	1	2	2,5	3	3,5	4	4,5	5	5,5	6	7
	Feed rate f in mm/rev.										
ECC 08	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,05–0,13	0,03–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,04–0,13	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,09–0,19	0,07–0,17	0,05–0,15	0,03–0,13					

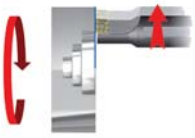
Feed f may be increased by 50–75 % when using M50Q and ALQ.

3.0xD

EcoCut Classic Size	Depth of Cut a_p in mm								
	1	2	2,5	3	3,5	4	5	6	7
	Feed rate f in mm/rev.								
ECC 08	0,05–0,10	0,02–0,06							
ECC 10	0,06–0,11	0,03–0,07							
ECC 12	0,06–0,12	0,04–0,10	0,02–0,08						
ECC 14	0,07–0,13	0,05–0,11	0,02–0,09						
ECC 16	0,07–0,15	0,06–0,14	0,04–0,12	0,02–0,09					

Depth of Cut and Feedrate for EcoCut Classic

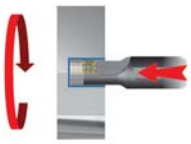
Face turning



EcoCut Classic Size	1,5xD		2,25xD		3xD	
	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.
ECC 08	2,00	0,05–0,10	1,90	0,04–0,09	1,10	0,04–0,07
ECC 10	2,50	0,06–0,12	2,20	0,05–0,10	1,20	0,04–0,09
ECC 12	3,00	0,07–0,14	2,60	0,06–0,12	1,40	0,05–0,11
ECC 14	3,50	0,08–0,16	3,00	0,07–0,14	1,60	0,06–0,12
ECC 16	4,00	0,09–0,18	3,40	0,08–0,16	1,90	0,06–0,13

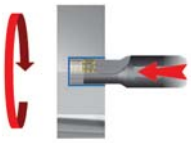
Drilling

Feed rate



EcoCut Classic Size	1,5xD	2,25xD	3xD
	f in mm/rev.	f in mm/rev.	f in mm/rev.
ECC 08	0,01–0,04	0,01–0,04	0,01–0,02
ECC 10	0,01–0,05	0,01–0,05	0,01–0,03
ECC 12	0,01–0,05	0,01–0,05	0,01–0,04
ECC 14	0,01–0,07	0,01–0,07	0,01–0,05
ECC 16	0,02–0,08	0,02–0,08	0,02–0,06

Max. bore depth



EcoCut Classic Size	1,5xD	2,25xD	3xD
	Max. hole depth in mm	Max. hole depth in mm	Max. hole depth in mm
ECC 08	12,0	18,0	24,0
ECC 10	15,0	22,5	30,0
ECC 12	18,0	27,0	36,0
ECC 14	21,0	31,5	42,0
ECC 16	24,0	36,0	48,0

Depth of Cut and Feedrate for EcoCut ProfileMaster 90°

Turning

1,5xD

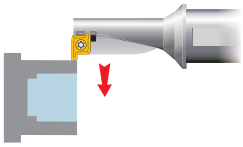
EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC–PM 10	0,07–0,20	0,05–0,17	0,02–0,12					
EC–PM 12	0,07–0,20	0,05–0,17	0,02–0,12					
EC–PM 16	0,10–0,25	0,07–0,23	0,05–0,21	0,02–0,17				

2,25xD

EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC–PM 10	0,07–0,19	0,02–0,13						
EC–PM 12	0,07–0,19	0,02–0,13						
EC–PM 16	0,10–0,25	0,07–0,21	0,02–0,13					

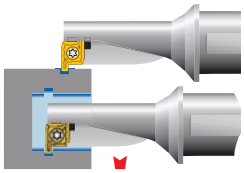
Face turning

1,5xD and 2,25xD



EcoCut ProfileMaster Size	Depth of Cut a_p in mm					
	1	1,5	2	2,5	3	3,5
	Feed rate f in mm/rev.					
EC–PM 10	0,02–0,15	0,02–0,15				
EC–PM 12	0,02–0,15	0,02–0,15				
EC–PM 16	0,05–0,20	0,05–0,20	0,05–0,20			

Internal + external – radial grooving

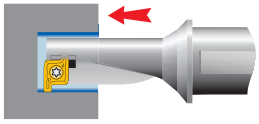


EcoCut ProfileMaster Size	1,5xD
	f in mm/rev.
EC–PM 10	0,01–0,08
EC–PM 12	0,02–0,10
EC–PM 16	0,04–0,15

EcoCut ProfileMaster Size	2,25xD
	f in mm/rev.
EC–PM 10	0,01–0,08
EC–PM 12	0,02–0,10
EC–PM 16	0,04–0,15

Drilling

Feed and max. hole depth



EcoCut ProfileMaster Size	1,5xD	
	f in mm/rev.	Max. hole depth in mm
EC–PM 10	0,01–0,05	15,0
EC–PM 12	0,01–0,06	18,0
EC–PM 16	0,02–0,09	24,0

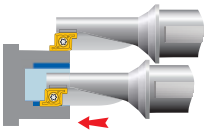
EcoCut ProfileMaster Size	2,25xD	
	f in mm/rev.	Max. hole depth in mm
EC–PM 10	0,01–0,05	22,5
EC–PM 12	0,01–0,06	27,0
EC–PM 16	0,02–0,09	36,0

Depth of Cut and Feedrate for EcoCut ProfileMaster 0°

EcoCut ProfileMaster sizes 10 and 12 cannot be used as a 0° version.

Turning

1,5xD



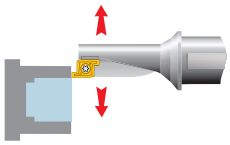
EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1	1,5	2	2,5	3	3,5
	Feed rate f in mm/rev.					
EC–PM 16	0,04–0,20	0,04–0,20	0,04–0,20			

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1	1,5	2	2,5	3	3,5
	Feed rate f in mm/rev.					
EC–PM 16	0,04–0,20	0,04–0,20	0,04–0,20			

Face turning

1,5xD

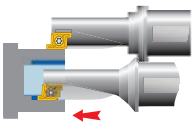


EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1	1,5	2	2,5	3	3,5	4,0
	Feed rate f in mm/rev.						
EC–PM 16	0,05–0,20	0,05–0,20	0,05–0,20				

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1	1,5	2	2,5	3	3,5	4,0
	Feed rate f in mm/rev.						
EC–PM 16	0,05–0,20	0,05–0,20	0,05–0,20				

Axial grooving external + internal



EcoCut ProfileMaster Size	1,5xD
	Max. hole depth in mm
EC–PM 16	0,02–0,12

EcoCut ProfileMaster Size	2,25xD
	Max. hole depth in mm
EC–PM 16	0,02–0,12

Material examples referring to the WNT cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5% Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0,5 - 10% Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10 - 15% Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15% Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

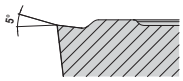
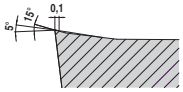
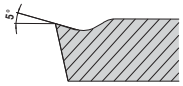
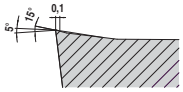
Cutting data appoximate values

Index	EcoCut Mini CWK4425	EcoCut Mini HCN1435	EcoCut Classic HCR1425	EcoCut Classic HCR1435	EcoCut Classic HCN2430	EcoCut Classic CWK20	EcoCut Classic CWK26	EcoCut ProfileMaster HCN 2430
	v_c in m/min							
1.1		80–160	120–250	120–240	120–220			120–220
1.2		80–230	150–300	150–300	120–250			120–250
1.3		80–230	120–220	120–220	80–180			80–180
1.4		80–230	100–200	100–180	60–160			60–160
1.5		60–130	120–220	110–200	80–180			80–180
1.6		60–120	100–180	100–180	60–160			60–160
1.7		60–120	120–200	100–180	80–180			80–180
1.8		50–100	80–150	70–140	60–130			60–130
1.9		60–120	110–190	80–150	80–180			80–180
1.10		50–150	100–180	100–180	60–170			60–170
1.11		50–150	80–150	50–150	80–150			80–150
1.12		80–140	90–150	80–150	60–150			60–150
1.13		60–120	70–150	60–140	60–150			60–150
1.14								
1.15		50–150	80–150	80–150	60–150			60–150
1.16		50–150	80–150	80–150	60–150			60–150
2.1		50–200	100-200	100-180	50–160			50–160
2.2		50–180	120-220	100-200	50–180			50–180
2.3		50–180	120-200	100-200	50–150			50–150
2.4		50–180	100-200	100-180	50–160			50–160
2.5		50–100			50–130			50–130
2.6		50–80			50–120			50–120
2.7		50–80			50–120			50–120
3.1	100-150	100-170	130–280	120-250	120-200	140-200	100-150	120-200
3.2	100-150	100-170	130–280	120-250	100-180	100-160	100-150	100-180
3.3	100-140	100-160	120–280	110-250	120-200	160-200	100-140	120-200
3.4	100-140	100-160	120–280	110-250	100-180	110-150	100-140	100-180
3.5	100-160	100-180	110–280	100-250	90-160	160-220	100-160	90-160
3.6	100-160	100-170	110–280	100-250	70-150	140-180	100-160	70-150
3.7	100-160	100-170	110–280	100-250	90-160	160-220	100-160	90-160
3.8	100-160	100-170	110–280	100-250	70-150	140-180	100-160	70-150
4.1	100–2000	100-2000			100-2000	300–3000	100–500	100-2000
4.2	100–1500	100-1500			100-1500	200–2500	100–500	100-1500
4.3	100–1500	100-1500			100-1500	400–2000	100–300	100-1500
4.4	100–1300	100-1300			100-1300	200–1000	100–300	100-1300
4.5	100–600	100-600			100-600	250–800	100–300	100-600
4.6	100–300	100-300			100-300	150–400	100–300	100-300
4.7	100–500	100-500			100-500	200–400	100–500	100-500
4.8	100–500	100-500			100-500	150–400	100–300	100-500
4.9	100–500	100-500			100-500	150–400	100–300	100-500
4.10	100–500	100-500			100-500	150–400	100–300	100-500
4.11	100–500	100-500			100-500	200–800	100–500	100-500
4.12	100–290	100-290			100-290	150–600	100–300	100-290
4.13	90–200	90-200			90-200	150–280	120–200	90-200
4.14	60–160	60-160			60-160	100–220	80–180	60-160
4.15	50–140	50-140			50-140	80–200	60–150	50-140
4.16								
4.17								
4.18								
4.19								
5.1		20–50			20–90			20–90
5.2		15–25			20–90			20–90
5.3		15–25			20–80			20–80
5.4		10–20			20–80			20–80
5.5		10–20			20–80			20–80
5.6		10–20			20–90			20–90
5.7		10–20			20–80			20–80
5.8		10–20			20–80			20–80
5.9	15-120	50–120			40–100			40–100
5.10	30-50	30–50			30–90			30–90
5.11	30-50	30–50						
6.1								
6.2								
6.3								
6.4								
6.5								

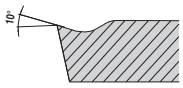
The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Chip Breakers Overview

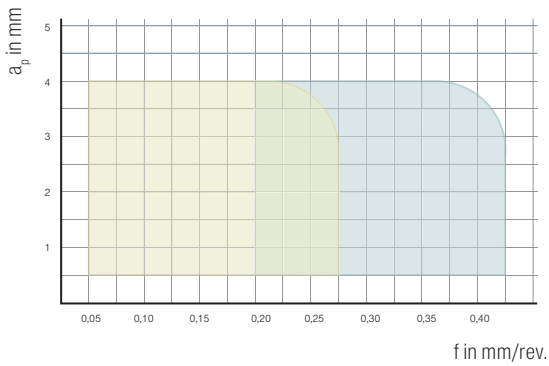
EcoCut Classic

	Model	Smooth cut	Irregular cutting depth	Interrupted cut	sectional illustration f mm
-EN ▪ Universal geometry ▪ Excellent chip breakage ▪ Positive cutting edge ▪ Low to medium feeds		**HCR1425** **HCR1435** **HCR1425** HCN2430	**HCR1435** **HCN2430** **HCR1435** HCN2430	**HCN2430** **HCN2430** HCN2430	 0,05–0,75
-M50Q ▪ With wiper geometry ▪ Excellent surface qualities ▪ Good chip formation ▪ Medium to high feeds		**HCR1425** HCR1425 **HCR1425** 	**HCR1425** HCR1425 	 	 0,2–0,425
-ALP ▪ Positive cutting edge ▪ Periphery ground ▪ Polished rake face ▪ First choice for non-ferrous metals		 	 **CWK 26** 	 	 0,1–0,4
-ALQ ▪ With wiper geometry ▪ Extremely positive geometry ▪ Periphery ground ▪ Low adhesion		 	 **CWK 20** 	 	 0,2–0,5

EcoCut ProfileMaster

-M20 ▪ Positive geometry ▪ Universal application ▪ Low to medium feeds		HCN2430 **HCN2430** HCN2430 HCN2430 **HCN2430**	**HCN2430** **HCN2430** HCN2430 HCN2430 HCN2430	**HCN2430** **HCN2430** HCN2430 HCN2430 	 0,05–0,25

Application area of -EN and -M50Q chip breakers



EcoCut Classic 2.25xD – ECC16 – XCNT 080304

= -M50Q

= Standard

EcoCut Classic – Application as the most stable boring tool

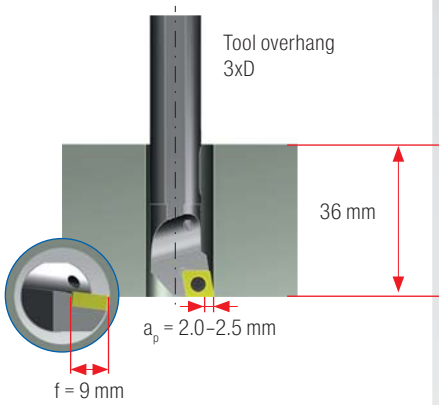
EcoCut can be used not only as a multifunctional tool. In comparison with a boring bar EcoCut used as a pure boring tool gives the user enormous benefits.

Example: Machining bores, 16 mm diameter by 36 mm depth

Differences in the tool

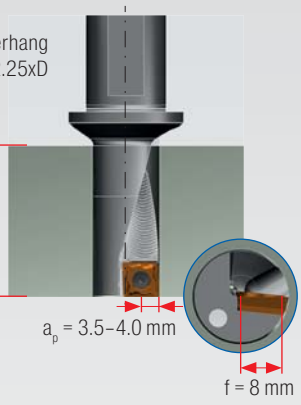
Boring Bar

A12K SCFCR 06



EcoCut Classic

ECC 16R-2.25D 08



Your Advantages

Large, stable toolholder

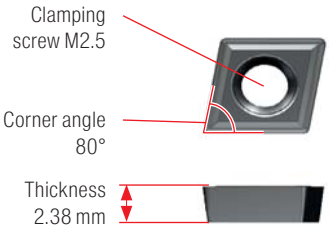
- Absorption of high cutting forces
- Low vibration
- Chip Booster for perfect cooling and chip evacuation

Benefits

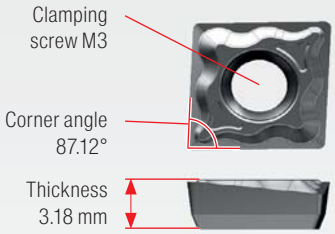
- High surface quality
- Perfect chip control
- Max. process security

Differences in the insert

CCMT 060204



XCNT 080304



Large and stable insert

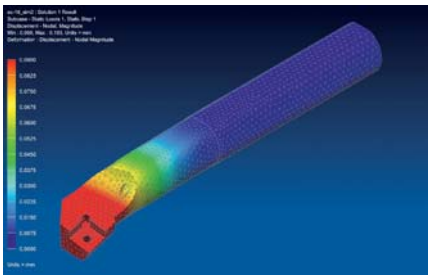
- Increased process security
- Enables large depths of cut
- Higher cutting data
- Higher tool life

Benefits

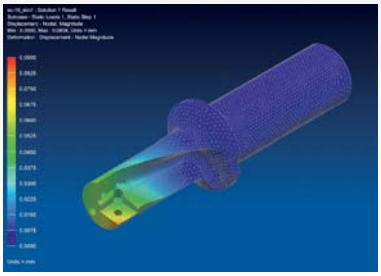
- Reduction in machining time
- Increased productivity
- Reduced tooling costs

Stability Comparison

Calculation using FEM
A load of 1000 N on the insert seat corresponds to an approx. a_p of 2.0 mm and f 0.2 mm



Deflection 0.19 mm

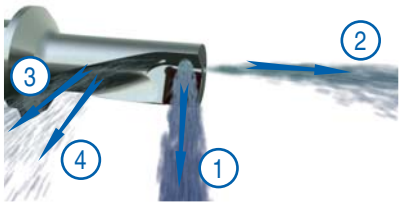


Deflection 0.08 mm

Practical experience shows:

- Reduced machining time by up to **75 %**
- Increase in tool life by **400 %** possible

Innovative chip removal – Chip-Booster

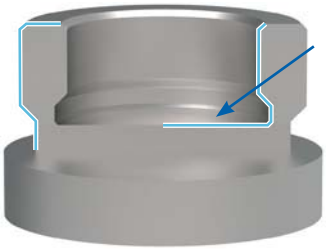


EcoCut tools are equipped with a unique coolant and chip removal system.

1. Cooling of the indexable insert
2. General coolant stream
3. Chip booster for improved chip transport
4. Chip booster prevents chips from getting stuck between tool and workpiece

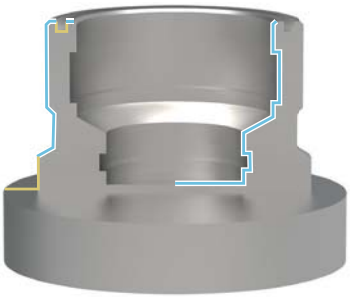
For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

EcoCut ProfileMaster – the highlight with regard to efficiency



Right hand tools

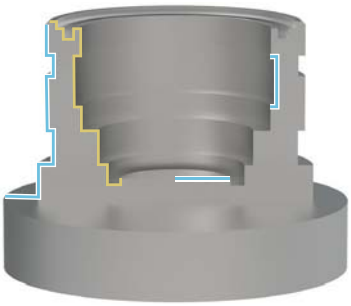
Right hand insert



Right hand tools

Left hand insert

Right hand insert

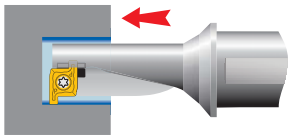


Left hand tool

Right hand tools

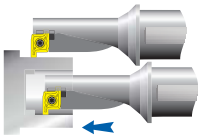
Right hand insert

Version 90°



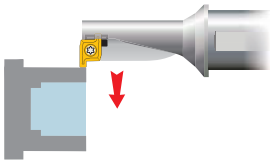
Drilling into solid material with flat bottom hole

Drilling

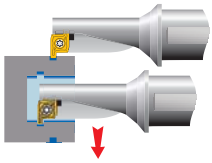


Turning External Diameters

Turning Internal Diameters



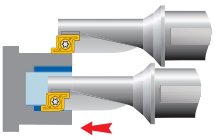
Turning Profiles



External radial grooving

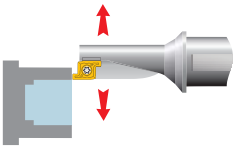
Internal radial grooving

Version 0°



Turning External Diameters

Turning Internal Diameters



Turning Profiles

Axial grooving external

Axial grooving internal

For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

Application Tips

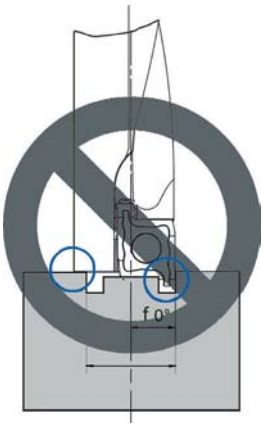
Drilling Off centre

Due to the special construction of the EcoCut tool and insert, off-centre drilling is possible.
Deviations from the tool nominal Ø, can be achieved (see adjacent table).

EcoCut Mini	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECM 04 R/L - 2,25D	4	3,90	4,20
ECM 05 R/L - 2,25D	5	4,90	5,20
ECM 06 R/L - 2,25D	6	5,90	6,20
ECM 07 R/L - 2,25D	7	6,90	7,20
ECM 08 R/L - 2,25D	8	7,90	8,20

EcoCut Classic	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECC 08 R/L - ... 04	8	7,85	8,30
ECC 10 R/L - ... 05	10	9,85	10,50
ECC 12 R/L - ... 06	12	11,85	12,50
ECC 14 R/L - ... 07	14	13,85	14,50
ECC 16 R/L - ... 08	16	15,85	16,50

EcoCut ProfileMaster	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
PM 10R/L ...	10	9,85	12
PM 12R/L ...	12	11,85	15
PM 16R/L ...	16	15,85	19

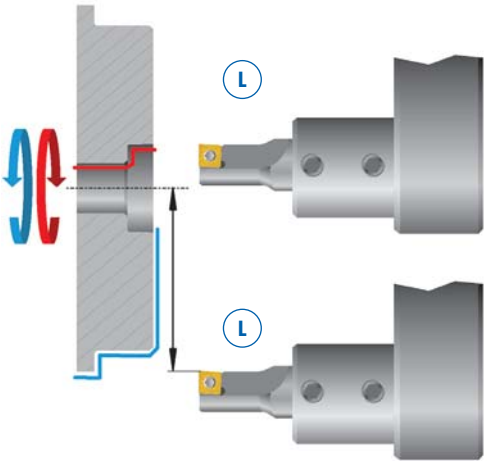


ProfileMaster 0°
Not suitable for drilling!

Machining over centre

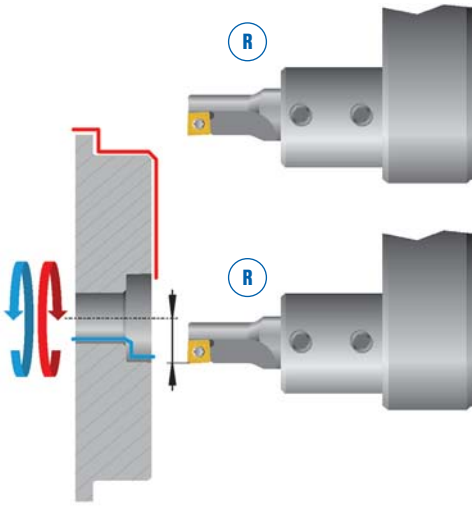
Problem

In case of insufficient movement of the machine across the centre line, the external diameter can not be machined with the same tool.



Solution

Use a right hand EcoCut tool.

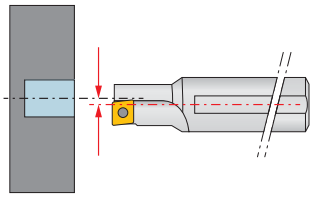


Application Tips

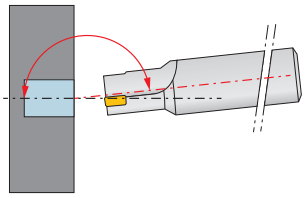
With axial displacement there is the danger of collision!

Problems

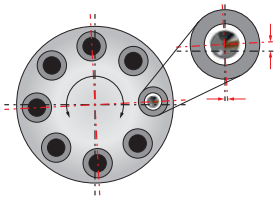
Displacement in x-direction:



Angular error:



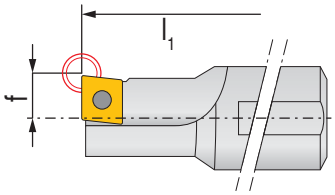
Turret position error:



Remedy

When pre-setting the tool:

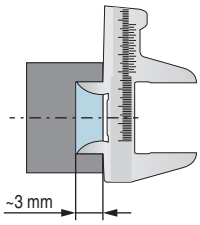
- Definition as an internal turning tool for programming



- Enter the tool nominal Ø as bore target Ø

At the machine:

- Make measuring cut, approx. 3 mm deep
- Measure drilled diameter produced



- If necessary correct drilling Ø
- Start machining

Clamping torque for EcoCut Classic and EcoCut ProfileMaster

Clamping Screw	Torx	Torque settings	
		Nm	in. lbs
M1,8	T06IP	0,4	3,6
M2,0	T06IP	0,7	6,2
M2,2	T07IP	1,0	8,9
M2,5	T08IP	1,2	10,6
M3,0	T09IP	2,2	19,5

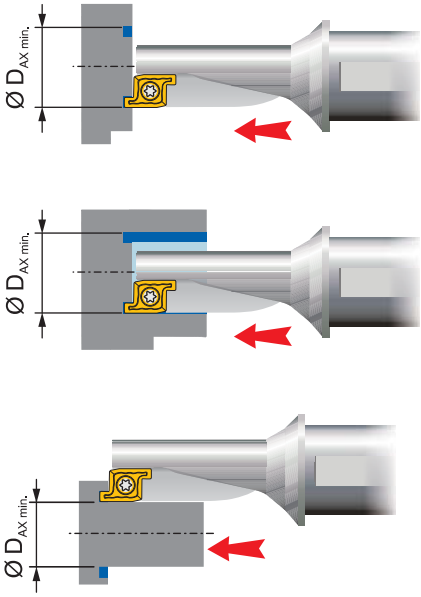
Mounting of the insert for EcoCut Classic

For Ø 8 mm tools, right-hand and left-hand indexable inserts are required.
Neutral indexable inserts are used from Ø 10–16 mm.

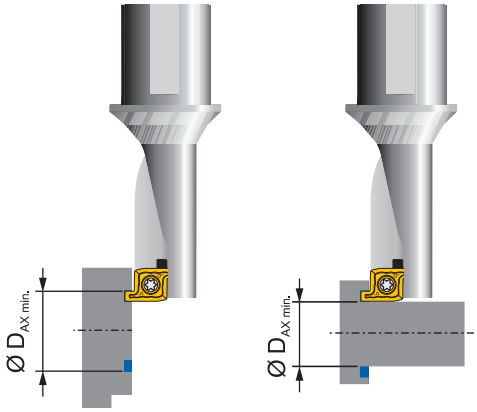
Caution!
Ensure correct orientation upon installation.

EcoCut ProfileMaster – Axial Grooving

0° (from Ø 16 mm)

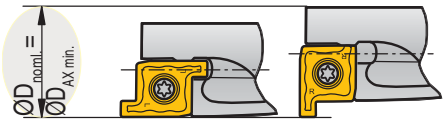


90°



EcoCut ProfileMaster	$ØD_{noml.}$ mm	$ØD_{AX\ min.}$ mm	$ØD_{AX\ max.}$ mm
PM 10R/L 1,5D	10	10	> 10
PM 10R/L 2,25D	10	10	> 10
PM 12R/L 1,5D	12	12	> 12
PM 12R/L 2,25D	12	12	> 12
PM 16R/L 1,5D	16	16	> 16
PM 16R/L 2,25D	16	16	> 16

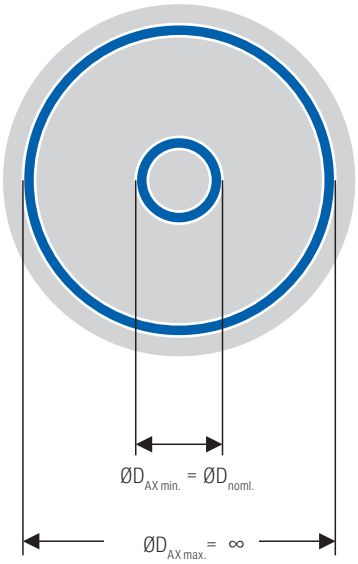
$ØD_{AX\ min.} = ØD_{noml.}$



$ØD_{noml.}$ = Nominal tool diameter

$ØD_{AX\ min.}$ = smallest diameter for axial grooving

$ØD_{AX\ max.}$ = largest diameter for axial grooving



3

Application Tips

Recommendation for Optimum Results

Remedy measures		Type of problem: Type of wear				Work piece problems		Swarf control	
		Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)
Cutting data	Cutting speed		↑	↓	↓	↓	↑	↓	
Cutting data	Feed rate	↓		~	↓	↑	↓	↑	↓
Insert selection	Corner radius (↑ larger, ↓ smaller)	↑		↑	↑	↓	↑		
Insert selection	Tap Material (↑ wear resistance, ↓ toughness)	↓		↑	↑				
General criteria	Tool clamping	~				~	~		
General criteria	Work piece clamping	~				~	~		
General criteria	Overhang	~				~	↓		
General criteria	Tip height	~		~		~	~		
General criteria	Cooling lubricant		●	●	●		●	●	

↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ control, optimize
● use

Application and Grade Comparison

EcoCut Classic

HCR 1425	Carbide, Ti+AL_2O_3 coated, ISO-P25 Hard grade for ideal conditions
HCR 1435	Carbide, Ti+AL_2O_3-TiN coated, ISO-P35 1st choice in steel even in tough conditions
HCN 2430	Carbide, TiALN-coated, universal grade, ISO-M25 1st choice for stainless and heat resistant materials, including steel and cast iron
CWK 20	Carbide, uncoated, ISO-K10 More wear-resistant grade for non-ferrous metals
CWK 26	Carbide, uncoated, ISO-K20 1st Choice for non-ferrous metals at high v_c

EcoCut Mini

HCN 1435	Carbide, TiALN-coated, ISO-P35 Wear resistant universal grade, ideal for steel, stainless steel and all other materials.
CWK 4425	CWK4425 – uncoated and sharp geometry for aluminium and non-ferrous metals

EcoCut ProfileMaster

HCN 2430	Carbide, TiALN-coated, universal grade, ISO-M25 1st choice for stainless and heat resistant materials, including steel and cast iron

Grade designation	Standard designation	ISO application range (01 10 20 30 40 50 / 05 15 25 35 45)	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H
EcoCut Mini								
CWK4425	N25				○	●	○	
HCN1435	P35		●					
	M30			●				
	S30				○	○	●	
EcoCut Classic								
HCR1425	P25		●					
	M20			○				
	K30				●			
HCR1435	P35		●					
	M30			○				
	K40				○			
HCN2430	P30		●					
	M30			●				
	S25				○	○	●	
CWK 26	K15				○	●		
CWK 20	K10				○	●		
EcoCut ProfileMaster								
HCN2430	P30		●					
	M30			●				
	S25				○	○	●	

● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

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WNT MASTERTOOL PERFORMANCE

Premium quality tools for high performance.

The premium quality tools from the **WNT Mastertool Performance** product line have been designed for specific applications and are distinguished by their outstanding performance.
If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

System overview

System SX

SX

High-performance, single-edged grooving system with extremely stable indexable insert clamping. Ideal for parting off. Copy turning is a secondary application.

System FX

FX

Conventional single-edged grooving system for parting off and grooving. The speed at which the indexable insert can be changed and the system's high flexibility set it apart.

System GX

GX

Double-edged grooving system demonstrating maximum flexibility during parting off, grooving and groove turning. Available in three system sizes for maximum flexibility.

System TC

TC

Double-edged thread turning system with unique advantages. Can be used on shoulders without having to correct the approach angle. Perfect chip control.

MaxiClick system

Maxi Click

Five-edged grooving system with special cutting edge change feature. Grooving and parting off from a groove width of 1.0 mm. Can be used on all materials.

Symbol explanation

F	M	R

F: Fine Machining
M: Medium Machining
R: Rough Machining

Smooth cut
Irregular cutting depth
Interrupted cut

HCX 1125 Carbide Grade

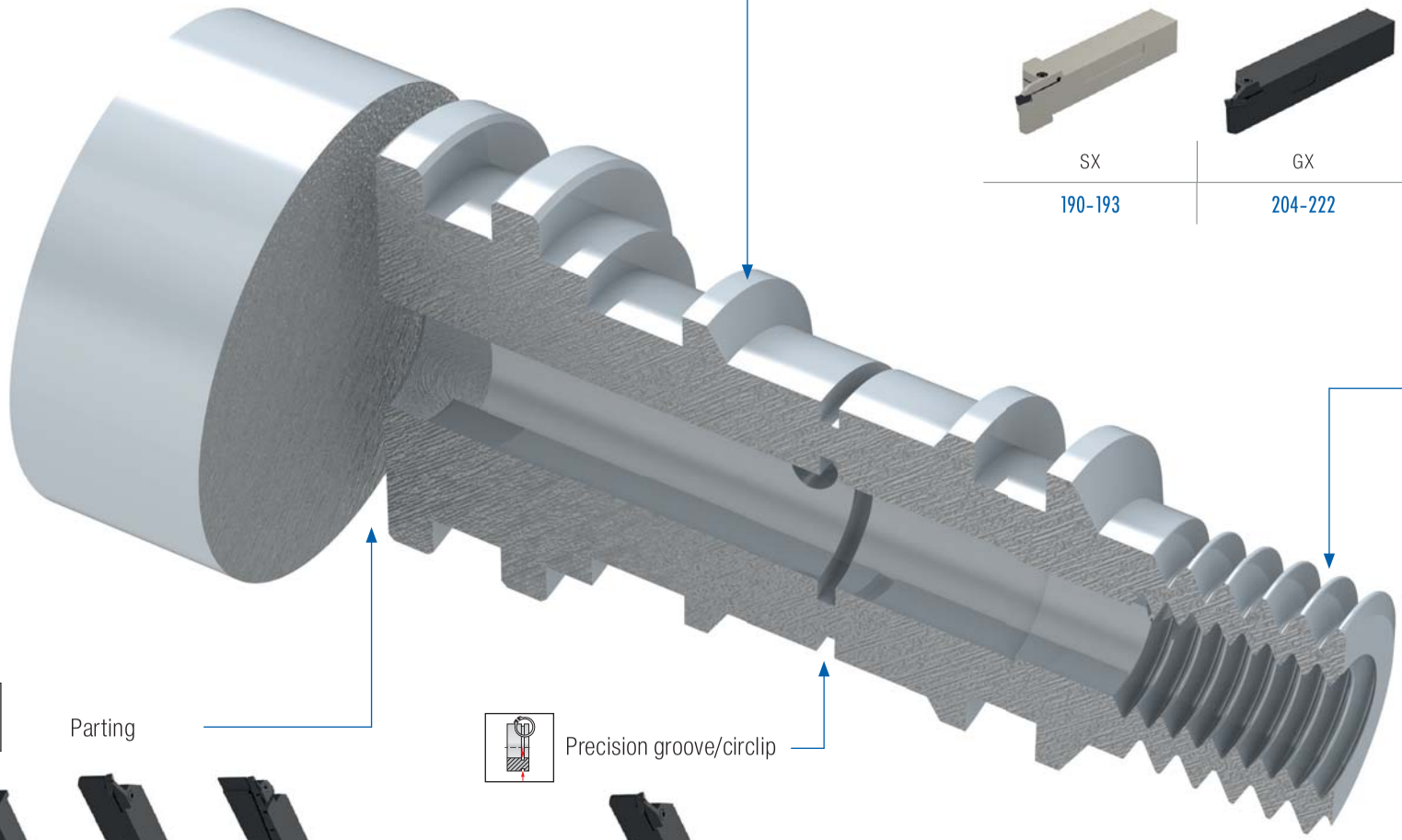
Application

- Parting
- Axial Grooving and Turning
- External metric thread
- Internal metric thread
- Internal and External Whitworth thread
- Circlip Grooves
- Grooving
- Grooving and Turning
- Copy Turning
- Grooving
- Turning
- Face turning
- Axial grooving
- Main Application
- Extended application
- Repeatability

Coatings

HCR 1325	Carbide, Dragonskin coating, ISO-P25 High performance grade for steel and cast iron
HCR 1335	Carbide Dragonskin Coating, IOS-P35 High-performance grade for steel and cast iron materials
HCN 1345	Carbide Dragonskin Coating, ISO-P45 For difficult conditions, steel and stainless steel materials
DPX 1520	Carbide, Dragonskin coating, ISO-P20/M15 High-performance grade specifically for steel and stainless steel
CWK 26	Carbide, uncoated, ISO-N15 Multi-use grade for non-ferrous metals
AMZ	Carbide, TiAlN coating, ISO-N10 Multi-use grade for non-ferrous metals
CCN 1340	Carbide, Dragonskin-coating, ISO-P40 Universal type for Steel, stainless steel, non-ferrous metals and super alloys
DPX 1535	Carbide, Dragonskin coating, ISO-P35/M30 Universal grade for steel, stainless steel, non-ferrous metals and super alloys

WNT Toolfinder – Grooving



Groove turning

SX	GX
190–193	204–222

Threading

TC thread

226–230

Parting

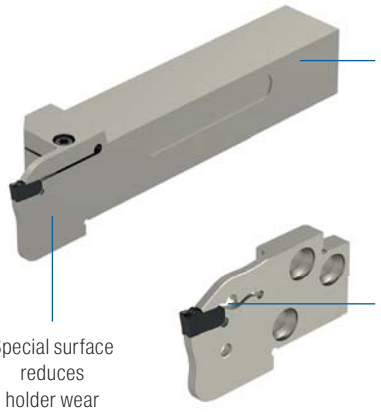
SX	FX	GX	MaxiClick
190–193	197–200	204–222	235–237

Precision groove/circlip

GX
206

Highlights

- Extremely stable clamping of the indexable insert
  High process security
- Universal grooving system
  Can be used for a huge range of requirements
- Copy turning applications are possible
  Reduces the number of tools
- High-quality holder material
  Longer service life
- Excellent chip control
  Prevents downtimes



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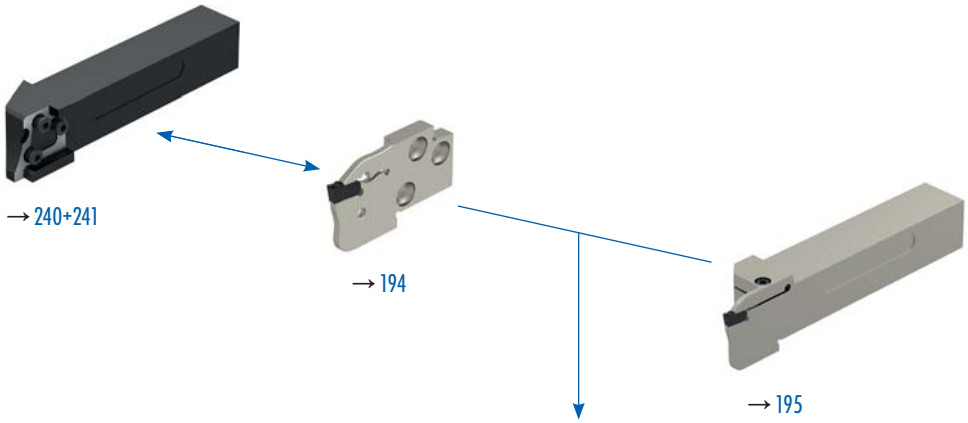
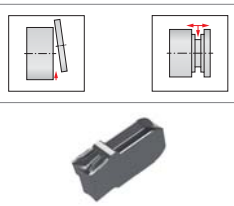
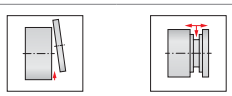
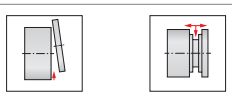


sharp ← → stable

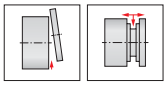
- ALP	- F2	- M2	- M1
			
→ 190	→ 191	→ 192	→ 193

	- ALP	- F2	- M2	- M1
Steel		●	●	●
Stainless steel		●	●	●
Cast iron	○	●	●	●
Non-ferrous metals	●	○	○	○
Heat-resistant	○	●	●	●

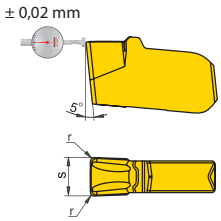
Further dimensions can be found in our **main catalogue → Chapter 10 Grooving**

Insert SX -ALP

- Insert with highly positive cutting edge geometry and sharp cutting edge
- Specialist for aluminum and other soft long-chipping non-ferrous metals



F	M	R



CWK 26

Designation	s +/-0,02 CW mm	r +/-0,05 RER mm	for tool holder	1C Article no. 70 349 ... £	
SX E2.00 N 0.20	2	0.2	-SX2	12.03	**122**
SX E3.00 N 0.30	3	0.3	-SX3	12.88	**123**

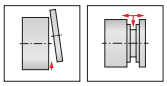
Steel	
Stainless steel	
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	○

→ v_c Page 243
→ Application recommendation on page 244

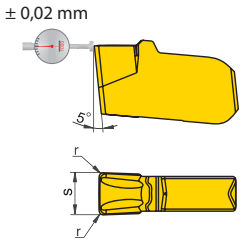
Internal machining		*External machining*						
		→ 194	→ 195					

Insert SX -F2

- High Precision polished geometry



F	M	R



Designation	s +/-0,02 CW mm	r +/-0,05 RER mm	for tool holder	HCR 1325		HCR 1335		HCN 1345		CCN 1340	
				NEW 1C Article no. 70 346 ... £		1C Article no. 70 346 ... £		1C Article no. 70 346 ... £		1C Article no. 70 346 ... £	
SX E2.00 N 0.20	2	0.2	-SX2					15.12	**822**	15.12	**622**
SX E3.00 N 0.30	3	0.3	-SX3	16.26	**923**	16.26	**523**	16.26	**823**	16.26	**623**
Steel				●		●		●		●	
Stainless steel				○		○		●		●	
Cast iron				●		●					
Non ferrous metals										○	
Heat resistant alloys				○				●		●	

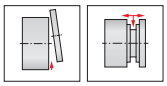
→ v_c Page 243
→ Application recommendation on page 244

Internal machining		*External machining*						
		→ 194	→ 195					

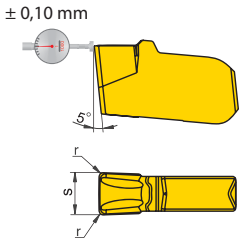
3

Insert SX -M2

- All purpose geometry for parting, grooving & turning.



F	M	R



Designation	s +/-0,05 CW mm	r +/-0,05 RER mm	for tool holder	HCR 1325		HCR 1335		HCN 1345		CCN 1340	
				NEW 1C		1C		1C		1C	
				Article no. 70 343 ...		Article no. 70 343 ...		Article no. 70 343 ...		Article no. 70 343 ...	
	mm	mm		£		£		£		£	
SX E2.00 N 0.20	2	0.2	-SX2	10.15	**922**	10.15	**522**	10.15	**822**	10.15	**622**
SX E3.00 N 0.30	3	0.3	-SX3	10.81	**923**	10.81	**523**	10.81	**823**	10.81	**623**

Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●		
Non ferrous metals				○
Heat resistant alloys	○		●	●

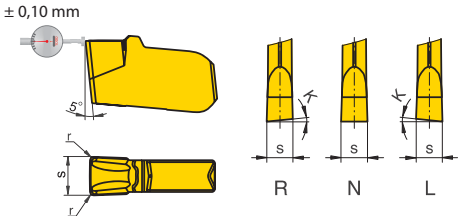
→ v_c Page 243
→ Application recommendation on page 244

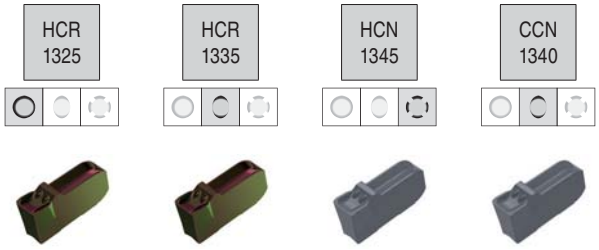
Internal machining	*External machining*	
	→ 194	→ 195

Insert SX -M1

- Specially developed geometry with negative edge-chamfers available in right, left and neutral types

F	M	R





Designation	R/L/N IH	s +/-0,05 CW mm	K° KCHR	r +/-0,05 RER mm	for tool holder	HCR 1325 NEW 1C Article no. 70 342 ... £		HCR 1335 1C Article no. 70 342 ... £		HCN 1345 1C Article no. 70 342 ... £		CCN 1340 1C Article no. 70 342 ... £	
SX E2.00 L 6	L	2	6	0.2	-SX2							10.15	612
SX E3.00 L 6	L	3	6	0.2	-SX3	10.81	913					10.81	613
SX E2.00 N 0.20	N	2	0	0.2	-SX2	10.15	922			10.15	822	10.15	622
SX E3.00 N 0.20	N	3	0	0.2	-SX3	10.81	923	10.81	523	10.81	823	10.81	623
SX E2.00 R 6	R	2	6	0.2	-SX2							10.15	602
SX E3.00 R 6	R	3	6	0.2	-SX3	10.81	903					10.81	603

	HCR 1325	HCR 1335	HCN 1345	CCN 1340
Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●		
Non ferrous metals				○
Heat resistant alloys	○		●	●

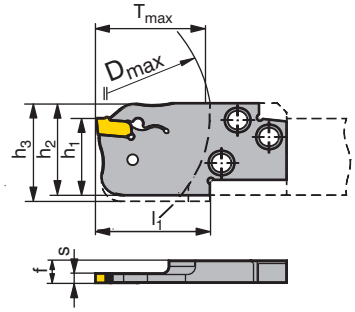
→ v_c Page 243
→ Application recommendation on page 244

Note: reduce feed rate by 20–50 % with R/L version!

Internal machining		*External machining*	
		→ 194	→ 195

ModularClamp – Radial grooving module SX

- for parting, grooving and finish turning



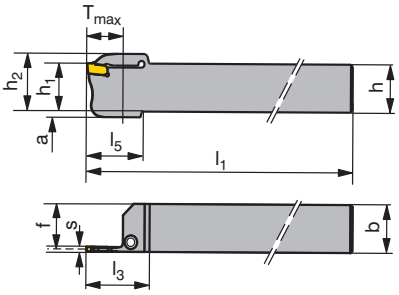
Illustrations show right-hand versions

Designation	h_1 HF mm	s CW mm	f WF mm	l_1 LF mm	h_2 H mm	h_3 mm	D_{max} CODX mm	$T_{max.}$ CDX mm	for grooving inserts	Left-hand 2C Article no. 70 897 ... £		Right-hand 2C Article no. 70 896 ... £	
E20 R/L 20-SX2	20	2	4.82	22	24	27	60	20	SX .2..	74.35	**020**	74.35	**020**
E20 R/L 20-SX3	20	3	4.45	22	24	27	60	20	SX .3..	74.35	**120**	74.35	**120**

Spare parts for grooving inserts		2A Ejector SX Article no. 70 950 ... £	
SX .2..	SX 2-3	23.03	**836**
SX .3..	SX 2-3	23.03	**836**

→ 190–193 → 240+241

MonoClamp – Radial Monoholder SX



Illustrations show right-hand versions

Designation	h = h1 H mm	b B mm	s CW mm	f WF mm	l1 OAL mm	l3 LH mm	l5 mm	h2 OAH mm	Tmax. CDX mm	a mm	for grooving inserts	Left-hand 2C Article no. 70 899 ... £		Right-hand 2C Article no. 70 898 ... £	
E16 R/L 0016-1616K-SX2	16	16	2	15.2	125	31	25	21	16	7	SX .2..	85.71	**216**	85.71	**216**
E20 R/L 0016-2020K-SX2	20	20	2	19.2	125	31	25	25	16	3	SX .2..	99.50	**220**	99.50	**220**
E16 R/L 0020-1616K-SX3	16	16	3	14.8	125	36	30	21	20	7	SX .3..	85.71	**316**	85.71	**316**
E20 R/L 0020-2020K-SX3	20	20	3	18.8	125	38	30	25	20	3	SX .3..	99.50	**320**	99.50	**320**

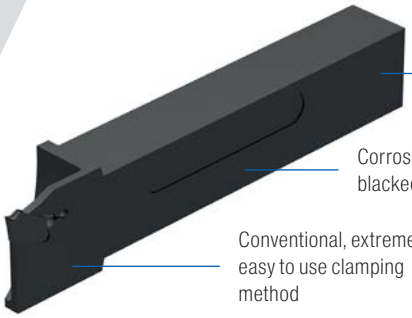
Spare parts for grooving inserts		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
SX .2..	T20	12.13	**114**	M4x18	4.12	**204**
SX .3..	T20	12.13	**114**	M4x18	4.12	**204**

→ 190–193

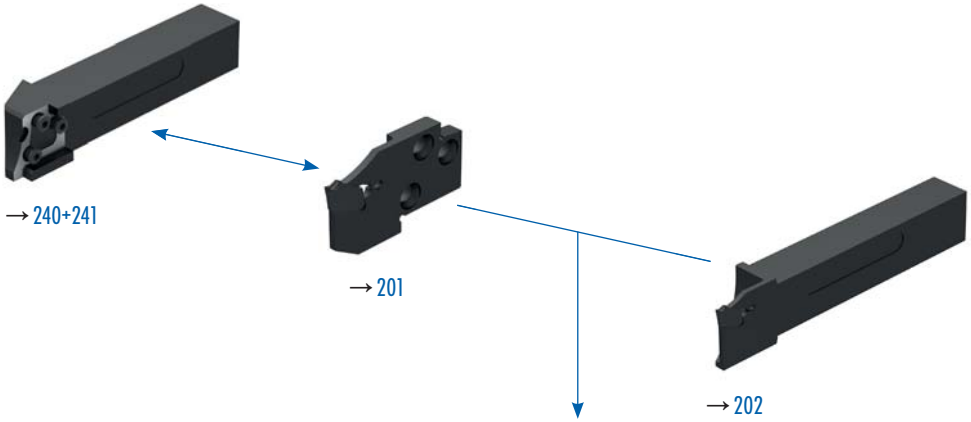
3

Highlights

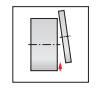
- Conventional, single-edged grooving system
  Quick insert changing
- Extremely sharp cutting edges available
  Low cutting forces
- Good chip control
  High process security
- Self-clamping system
  No clamping screws required
- Specialised chip geometries
  For all material groups



List of contents



sharp ← → stable

- ALP	- F1	- M1
		
→ 197	→ 198	→ 199+200

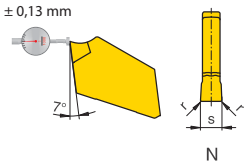
	- ALP	- F1	- M1
Steel		●	●
Stainless steel		●	●
Cast iron	○	●	●
Non-ferrous metals	●	○	○
Heat-resistant	○	●	●

Further dimensions can be found in our **main catalogue → Chapter 10 Grooving**

Insert FX -ALP

- Insert with highly positive cutting edge geometry and sharp cutting edge
- Reduced built-up edge

F	M	R



CWK 26

Designation	R/L/N IH	s -0,1 CW mm	r +/-0,05 RER mm	for tool holder	1A Article no. 70 334 ... £	
FX 2.2 N 0.10	N	2.2	0.10	E.. R/L ..-FX 2.2	10.81	**650**
FX 3.1 N 0.15	N	3.1	0.15	E.. R/L ..-FX 3.1	10.81	**652**

Steel	
Stainless steel	
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	○

→ v_c Page 243
→ Application recommendation on page 244

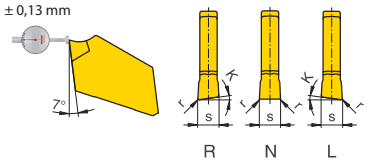
Internal machining		*External machining*						
		→ 201	→ 202					

3

Insert FX -F1

- Excellent cutting geometry with low cutting forces
- Very good swarf control also with low feed rates
- Reduced built-up edge

F	M	R



HCR 1325	HCN 1345	CCN 1340

Designation	R/L/N IH	$s_{-0,1}$ CW mm	K° KCHR	$r_{+/-0,05}$ RER mm	for tool holder	NEW 1A Article no. 70 331 ... £		1A Article no. 70 331 ... £		1A Article no. 70 331 ... £	
FX 2.2 L 5-F1	L	2.2	5	0.15	E.. R/L ..-FX 2.2			11.56	847	11.56	647
FX 3.1 L 5-F1	L	3.1	5	0.20	E.. R/L ..-FX 3.1			11.56	851	11.56	651
FX 3.1 L 8-F1	L	3.1	8	0.20	E.. R/L ..-FX 3.1			11.56	855		
FX 2.2 N 0.15-F1	N	2.2	0	0.15	E.. R/L ..-FX 2.2	11.56	998	11.56	848	11.56	648
FX 3.1 N 0.20-F1	N	3.1	0	0.20	E.. R/L ..-FX 3.1	11.56	902	11.56	852	11.56	652
FX 3.1 N 0.40-F1	N	3.1	0	0.40	E.. R/L ..-FX 3.1	11.56	906	11.56	856	11.56	656
FX 2.2 R 5-F1	R	2.2	5	0.15	E.. R/L ..-FX 2.2			11.56	849	11.56	649
FX 3.1 R 5-F1	R	3.1	5	0.20	E.. R/L ..-FX 3.1			11.56	853	11.56	653
FX 3.1 R 8-F1	R	3.1	8	0.20	E.. R/L ..-FX 3.1			11.56	857		

Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●		
Non ferrous metals			○
Heat resistant alloys	○	●	●

→ v_c Page 243
→ Application recommendation on page 244

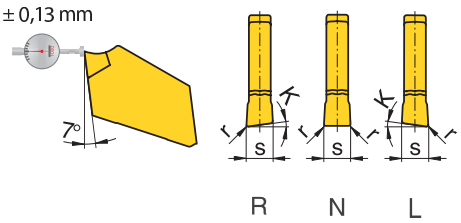
Note: reduce feed rate by 20–50 % with R/L version!

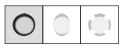
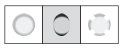
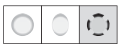
Internal machining		*External machining*						
		→ 201	→ 202					

Insert FX -M1

▪ narrow version

F	M	R



	HCR 1325	HCR 1335	HCN 1345	CCN 1340
				
	1A	1A	1A	1A
	NEW Article no. 70 330 ... £	Article no. 70 330 ... £	Article no. 70 330 ... £	Article no. 70 330 ... £

Designation	R/L/N IH	s -0,1 CW mm	K° KCHR	r +/-0,05 RER mm	for tool holder	HCR 1325 £	HCR 1325	HCR 1335 £	HCR 1335	HCN 1345 £	HCN 1345	CCN 1340 £	CCN 1340
FX 2.2 L 4-M1	L	2.2	4	0.1	E.. R/L ..-FX 2.2			11.56	550	11.56	800	11.56	600
FX 2.2 N 0.10-M1	N	2.2	0	0.1	E.. R/L ..-FX 2.2	11.56	902	11.56	552	11.56	802	11.84	602
FX 2.2 R 4-M1	R	2.2	4	0.1	E.. R/L ..-FX 2.2			11.56	554	11.56	804	11.56	604

	HCR 1325	HCR 1335	HCN 1345	CCN 1340
Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●		
Non ferrous metals				○
Heat resistant alloys	○		●	●

→ v_c Page 243
→ Application recommendation on page 244

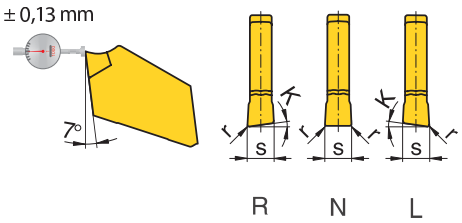
Note: reduce feed rate by 20–50 % with R/L version!

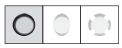
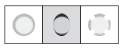
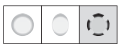
Internal machining	*External machining*	
	→ 201	→ 202

Insert FX -M1

▪ wide version

F	M	R



	HCR 1325	HCR 1335	HCN 1345	CCN 1340
				
	1A	1A	1A	1A
	NEW			

Designation	R/L/N IH	s +/-0,05 CW mm	K° KCHR	r +/-0,05 RER mm	for tool holder	HCR 1325 Article no. 70 332 ...	£	HCR 1335 Article no. 70 332 ...	£	HCN 1345 Article no. 70 332 ...	£	CCN 1340 Article no. 70 332 ...	£
FX 3.1 L 6-M1	L	3.1	6	0.15	E.. R/L ..-FX 3.1	11.56	**900**	11.56	**550**	11.56	**800**	11.56	**600**
FX 3.1 N 0.15-M1	N	3.1	0	0.15	E.. R/L ..-FX 3.1	11.56	**902**	11.56	**552**	11.56	**802**	11.56	**602**
FX 3.1 R 6-M1	R	3.1	6	0.15	E.. R/L ..-FX 3.1	11.56	**904**	11.56	**554**	11.56	**804**	11.56	**604**

	HCR 1325	HCR 1335	HCN 1345	CCN 1340
Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●		
Non ferrous metals				○
Heat resistant alloys	○		●	●

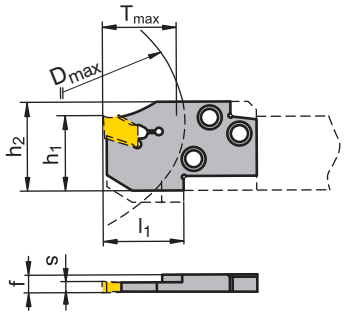
→ v_c Page 243
→ Application recommendation on page 244

Note: reduce feed rate by 20–50 % with R/L version!

Internal machining	*External machining*	
	→ 201	→ 202

ModularClamp – Radial grooving module FX short/long

- For parting and grooving



Illustrations show right-hand versions

Designation	h_1 HF mm	s CW mm	f WF mm	l_1 LF mm	h_2 H mm	D_{max} CODX mm	$T_{max.}$ CDX mm	for grooving inserts	Left-hand 2C Article no. 70 876 ... £		Right-hand 2C Article no. 70 875 ... £	
E20 R/L 20-FX 2.2	23	2.2	4.67	22	27	60	20	FX 2.2 ..	74.35	020	74.35	020
E20 R/L 20-FX 3.1	23	3.1	4.75	22	27	60	20	FX 3.1 ..	74.35	120	74.35	120

Spare parts for grooving inserts	2A Ejector Article no. 70 950 ... £	
FX 2.2 ..	3.77	375
FX 3.1 ..	3.77	376

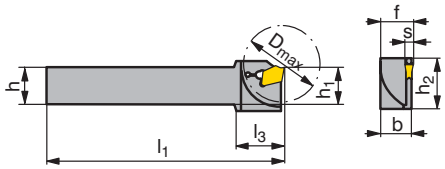
→ 197–200 → 240+241

3

MonoClamp – Radial Monoholder FX

Scope of supply:

Blade and ejector



Illustrations show right-hand versions

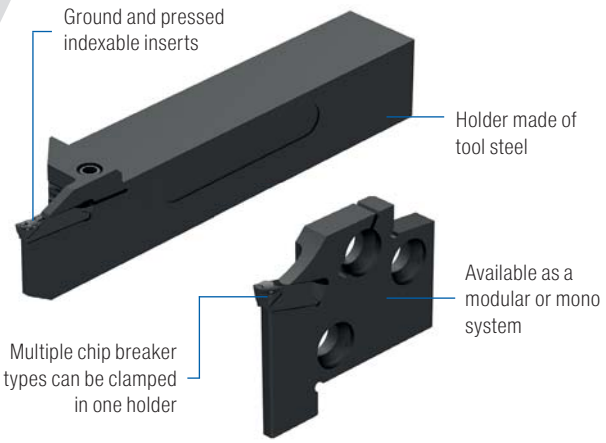
Designation	$h = h_1$ H mm	b B mm	l_1 OAL mm	l_3 LH mm	h_2 OAH mm	s CW mm	f WF mm	D_{max} DAXX mm	for grooving inserts	Left-hand 2A Article no. 70 837 ... £		Right-hand 2A Article no. 70 836 ... £	
XLCE R/L 1010 M-FX2.2	10	10	150	19.4	21	2.2	10.25	30	FX 2.2 ..	85.98	101	85.98	101
XLCE R/L 1212 F-FX2.2	12	12	80	21.0	21	2.2	12.25	30	FX 2.2 ..	85.98	102	81.71	102
XLCE R/L 1212 M-FX2.2	12	12	150	19.4	21	2.2	12.25	30	FX 2.2 ..	85.98	103	85.98	103
XLCE R/L 1414 M-FX2.2	14	14	150	19.4	21	2.2	14.25	30	FX 2.2 ..	88.61	104	88.61	104
XLCE R/L 1612 H-FX2.2	16	12	100	21.0	21	2.2	12.25	30	FX 2.2 ..	81.71	105	81.71	105
XLCF R/L 1612 H-FX3.1	16	12	100	21.4	25	3.1	12.35	35	FX 3.1 ..	81.71	106	81.71	106
XLCF R/L 2016 K-FX3.1	20	16	125	26.4	26	3.1	16.35	40	FX 3.1 ..	91.15	107	91.15	107

Spare parts for grooving inserts	2A Ejector Article no. 70 950 ... £	
FX 2.2 ..	3.77	375
FX 3.1 ..	3.77	376

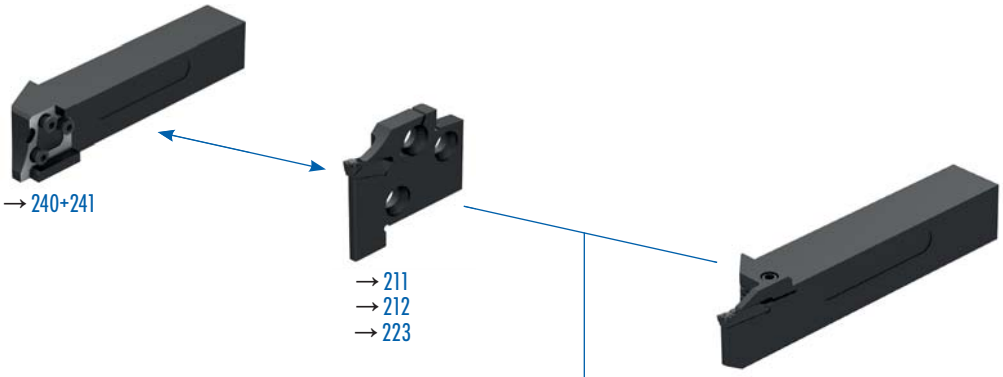
→ 197–200

Highlights

- Stable, double-edged grooving/turning system
  Covers many component requirements
- Wide range of chip geometries
  Can be ideally tailored to the application
- Good chip control
  High process security
- Simple indexable insert changing
  Minimal changing time required
- Available in three sizes
  Tailored to the required groove depths



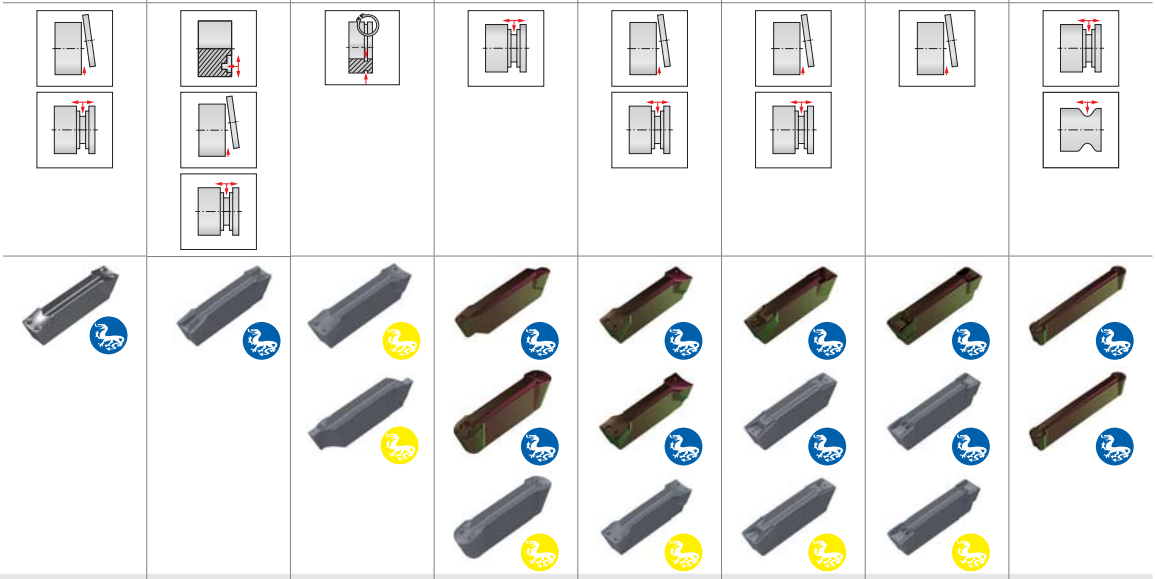
List of contents



→ 240+241
→ 211
→ 212
→ 223

External holder → 213+214 → 224
Internal holder → 215+216

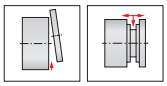
sharp ← → stable

-ALP	-F2	-Standard (circlip)	-Radius	-Standard / -E	-M40	-M1	-M3
							
GX 09		→ 205	→ 206	→ 207	→ 208	→ 209	
GX 16	→ 204	→ 205	→ 206	→ 207	→ 208	→ 209	→ 210	
GX 24	→ 217	→ 218			→ 219	→ 220	→ 221	→ 222
Steel		●	●	●	●	●	●	●
Stainless steel		●	●	●	●	●	●	○
Cast iron	○	●		●	●	●	●	●
Non-ferrous metals	●	○	○	○	○	○	○	
Heat-resistant	○	●	●	●	●	●	●	○

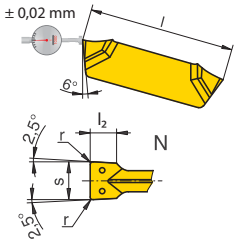
Further dimensions can be found in our **main catalogue → Chapter 10 Grooving**

Insert GX 16 -ALP

- Insert with highly positive cutting edge geometry and sharp cutting edge
- ground periphery



F	M	R



CWK 26

Designation	l INSL mm	s +/-0,02 CW mm	r +/-0,05 RER mm	l_2 PDPT mm	for tool holder	1C Article no. 70 350 ... £	
GX 16-1 E2.00 N 0.20	16	2	0.2	2.5	GX 16-1	16.54	650
GX 16-2 E3.00 N 0.30	16	3	0.3	3.0	GX 16-2	16.54	658

Steel	
Stainless steel	
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	○

→ v_c Page 243
→ Application recommendation on page 245

Internal machining

→ 216

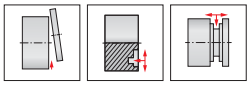
External machining

→ 211+212

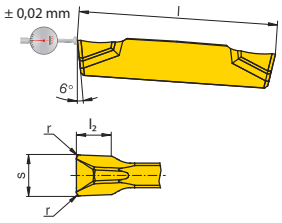
→ 213

Insert GX 09/16 -F2

- Insert with ground periphery
- Suitable also for parting off tubes and thin-walled workpieces



F	M	R



CCN 1340

Designation	l INSL mm	s +/-0,02 CW mm	r +/-0,05 RER mm	l_2 PDPT mm	for tool holder	1C Article no. 70 360 ... £	
GX 09-1 E2.00 N 0.20	9	2.0	0.2	1.5	GX 09-1	21.42	**600**
GX 09-1 E2.50 N 0.20	9	2.5	0.2	1.5	GX 09-1	21.42	**602**
GX 09-2 E3.00 N 0.30	9	3.0	0.3	2.0	GX 09-2	21.42	**604**
GX 16-1 E2.00 N 0.20	16	2.0	0.2	2.5	GX 16-1	21.80	**650**
GX 16-2 E3.00 N 0.30	16	3.0	0.3	3.0	GX 16-2	21.80	**652**

Steel	●
Stainless steel	●
Cast iron	
Non ferrous metals	○
Heat resistant alloys	●

→ v_c Page 243
→ Application recommendation on page 245

Internal machining

→ 215+216

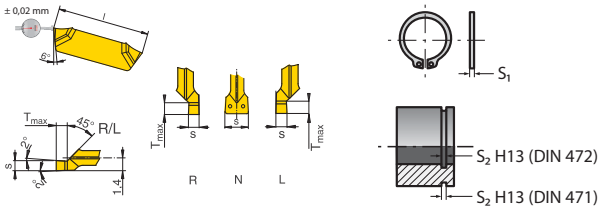
External machining

→ 211+212

→ 213+214

Circlip groove insert GX 09/16 – Standard

F	M	R



CCN 1340

CCN 1340

Designation	R/L/N IH	l INSL mm	s_1 mm	s_2 mm	r +/-0,05 RER mm	s +/-0,02 CW mm	$T_{max.}$ PDPT mm	for tool holder	1C Article no. 70 352 ... £		1C Article no. 70 352 ... £	
GX 09-1 S0.60 L	L	9	0.40	0.50	0.0	0.60	0.75	R 02-GX 09-1			21.42	679
GX 09-1 S0.80 L	L	9	0.60	0.70	0.0	0.80	0.94	R 02-GX 09-1			21.42	681
GX 09-1 S0.90 L	L	9	0.70	0.80	0.0	0.90	1.04	R 02-GX 09-1			21.42	683
GX 09-1 S1.00 L	L	9	0.80	0.90	0.0	1.00	1.14	R 02-GX 09-1			21.42	684
GX 09-1 S1.20 L	L	9	1.00	1.10	0.0	1.20	1.34	R 02-GX 09-1			21.42	686
GX 09-1 S1.40 L	L	9	1.20	1.30	0.0	1.40	1.53	R 02-GX 09-1			21.42	688
GX 09-1 S1.70 L	L	9	1.50	1.60	0.0	1.70	1.82	R 02-GX 09-1			21.42	690
GX 16-2 S0.60 L	L	16	0.40	0.50	0.0	0.60	0.75	R 03-GX 16-2			21.80	607
GX 16-2 S0.80 L	L	16	0.60	0.70	0.0	0.80	0.94	R 03-GX 16-2			21.80	609
GX 16-2 S0.90 L	L	16	0.70	0.80	0.0	0.90	1.04	R 03-GX 16-2			21.80	611
GX 16-2 S1.00 L	L	16	0.80	0.90	0.0	1.00	1.14	R 03-GX 16-2			21.80	612
GX 16-2 S1.20 L	L	16	1.00	1.10	0.0	1.20	1.34	R 03-GX 16-2			21.80	614
GX 16-2 S1.40 L	L	16	1.20	1.30	0.0	1.40	1.53	R 03-GX 16-2			21.80	616
GX 16-2 S1.70 L	L	16	1.50	1.60	0.0	1.70	1.82	R 03-GX 16-2			21.80	618
GX 16-2 S1.95 L	L	16	1.75	1.85	0.0	1.95	2.07	R 03-GX 16-2			21.80	620
GX 16-2 S2.25 L	L	16	2.00	2.15	0.0	2.25	2.36	R 03-GX 16-2			21.80	622
GX 09-1 S1.95 N	N	9	1.75	1.85	0.1	1.95		GX 09-1	21.42	692		
GX 09-1 S2.25 N	N	9	2.00	2.15	0.1	2.25		GX 09-1	21.42	694		
GX 09-2 S2.75 N	N	9	2.50	2.65	0.1	2.75		GX 09-2	21.42	696		
GX 09-2 S3.25 N	N	9	3.00	3.15	0.1	3.25		GX 09-2	21.42	698		
GX 16-2 S2.75 N	N	16	2.50	2.65	0.1	2.75		GX 16-2	21.80	624		
GX 16-2 S3.25 N	N	16	3.00	3.15	0.1	3.25		GX 16-2	21.80	626		
GX 09-1 S0.60 R	R	9	0.40	0.50	0.0	0.60	0.75	L 02-GX 09-1			21.42	670
GX 09-1 S0.80 R	R	9	0.60	0.70	0.0	0.80	0.94	L 02-GX 09-1			21.42	672
GX 09-1 S0.90 R	R	9	0.70	0.80	0.0	0.90	1.04	L 02-GX 09-1			21.42	674
GX 09-1 S1.00 R	R	9	0.80	0.90	0.0	1.00	1.14	L 02-GX 09-1			21.42	676
GX 09-1 S1.20 R	R	9	1.00	1.10	0.0	1.20	1.34	L 02-GX 09-1			21.42	678
GX 09-1 S1.40 R	R	9	1.20	1.30	0.0	1.40	1.53	L 02-GX 09-1			21.42	680
GX 09-1 S1.70 R	R	9	1.50	1.60	0.0	1.70	1.82	L 02-GX 09-1			21.42	682
GX 16-2 S0.60 R	R	16	0.40	0.50	0.0	0.60	0.75	L 03-GX 16-2			21.80	695
GX 16-2 S0.80 R	R	16	0.60	0.70	0.0	0.80	0.94	L 03-GX 16-2			21.80	697
GX 16-2 S0.90 R	R	16	0.70	0.80	0.0	0.90	1.04	L 03-GX 16-2			21.80	699
GX 16-2 S1.00 R	R	16	0.80	0.90	0.0	1.00	1.14	L 03-GX 16-2			21.80	600
GX 16-2 S1.20 R	R	16	1.00	1.10	0.0	1.20	1.34	L 03-GX 16-2			21.80	602
GX 16-2 S1.40 R	R	16	1.20	1.30	0.0	1.40	1.53	L 03-GX 16-2			21.80	604
GX 16-2 S1.70 R	R	16	1.50	1.60	0.0	1.70	1.82	L 03-GX 16-2			21.80	606
GX 16-2 S1.95 R	R	16	1.75	1.85	0.0	1.95	2.07	L 03-GX 16-2			21.80	608
GX 16-2 S2.25 R	R	16	2.00	2.15	0.0	2.25	2.36	L 03-GX 16-2			21.80	610

Steel	●	●
Stainless steel	●	●
Cast iron		
Non ferrous metals	○	○
Heat resistant alloys	●	●

→ v_c Page 243
→ Application recommendation on page 245

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining

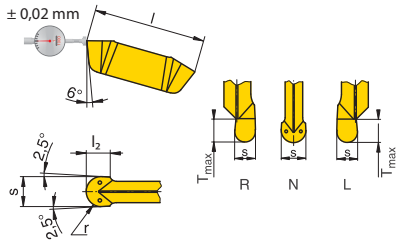
→ 215+216

External machining

→ 211+212 → 213+214

Radius groove insert GX 09/16

F	M	R



HCR 1325	HCR 1325	CCN 1340

Designation	R/L/N IH	l INSL mm	s +/-0,02 CW mm	r +/-0,05 CRE mm	l_2 PDPT mm	$T_{max.}$ PDPT mm	for tool holder	NEW 1C Article no. 70 354 ... £		NEW 1C Article no. 70 354 ... £		1C Article no. 70 354 ... £	
GX 09-1 R0.80 L	L	9	1.6	0.8		1.78	R 02-GX 09-1	25.83	988				
GX 16-2 R0.80 L	L	16	1.6	0.8		1.78	R 03-GX 16-2	26.51	912				
GX 16-2 R1.00 L	L	16	2.0	1.0		2.18	R 03-GX 16-2	26.51	916				
GX 16-2 R1.20 L	L	16	2.4	1.2		2.58	R 03-GX 16-2	26.51	920				
GX 09-1 R1.00 N	N	9	2.0	1.0	1.0		GX 09-1			25.83	992		
GX 09-1 R1.20 N	N	9	2.4	1.2	1.2		GX 09-1			25.83	996		
GX 16-2 R1.50 N	N	16	3.0	1.5	1.5		GX 16-2			26.51	924	26.51	624
GX 09-1 R0.80 R	R	9	1.6	0.8		1.78	L 02-GX 09-1	25.83	984				
GX 16-2 R0.80 R	R	16	1.6	0.8		1.78	L 03-GX 16-2	26.51	900				
GX 16-2 R1.00 R	R	16	2.0	1.0		2.18	L 03-GX 16-2	26.51	904				
GX 16-2 R1.20 R	R	16	2.4	1.2		2.58	L 03-GX 16-2	26.51	908				

Steel	●	●	●
Stainless steel	○	○	●
Cast iron	●	●	
Non ferrous metals			○
Heat resistant alloys	○	○	●

→ v_c Page 243
→ Application recommendation on page 245

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining

→ 215+216

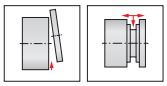
External machining

→ 211+212

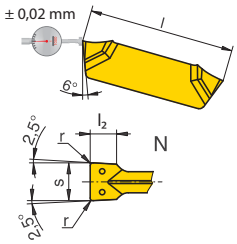
→ 213+214

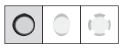
Insert GX 09/16 – Standard

- Suitable for parting thin-walled workpieces



F	M	R



Designation	l INSL mm	s +/-0,02 CW mm	r +/-0,05 RER mm	l2 PDPT mm	for tool holder	HCR 1325 NEW 1C Article no. 70 350 ... £		HCR 1335 1C Article no. 70 350 ... £		CCN 1340 1C Article no. 70 350 ... £	
											
GX 09-1 E2.00 N 0.20	9	2.0	0.2	1.5	GX 09-1	21.42	**984**			21.42	**634**
GX 09-1 E2.50 N 0.20	9	2.5	0.2	1.5	GX 09-1	21.42	**988**			21.42	**638**
GX 09-2 E3.00 N 0.30	9	3.0	0.3	2.0	GX 09-2	21.42	**992**			21.42	**642**
GX 16-1 E2.00 N 0.20	16	2.0	0.2	2.5	GX 16-1	21.80	**900**	21.80	**500**	21.80	**600**
GX 16-1 E2.50 N 0.20	16	2.5	0.2	2.5	GX 16-1	21.80	**904**	21.80	**504**	21.80	**604**
GX 16-2 E3.00 N 0.30	16	3.0	0.3	3.0	GX 16-2	21.80	**908**	21.80	**508**	21.80	**608**
GX 16-2 E3.00 N 0.50	16	3.0	0.5	3.0	GX 16-2	21.80	**910**				
Steel						●		●		●	
Stainless steel						○		○		●	
Cast iron						●		●			
Non ferrous metals										○	
Heat resistant alloys						○				●	

→ v_c Page 243
→ Application recommendation on page 245

Internal machining

→ 215+216

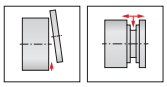
External machining

→ 211+212

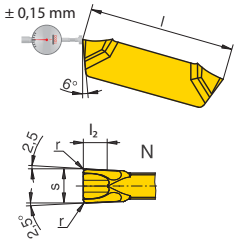
→ 213+214

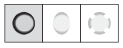
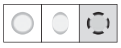
Insert GX 09/16 -M40

- Very good swarf control



F	M	R



	HCR 1325	HCN 1345	CCN 1340
			
	NEW 1C	1C	1C
	Article no. 70 351 ...	Article no. 70 351 ...	Article no. 70 351 ...

Designation	l INSL mm	s +/-0,05 CW mm	r +/-0,05 RER mm	l_2 PDPT mm	for tool holder	£		£		£	
GX 09-1 E2.00 N 0.20	9	2	0.2	1.5	GX 09-1	14.00	**986**	14.00	**886**	14.00	**686**
GX 09-2 E3.00 N 0.30	9	3	0.3	2.0	GX 09-2	14.00	**994**	14.00	**894**	14.00	**694**
GX 16-1 E2.00 N 0.20	16	2	0.2	2.5	GX 16-1	14.19	**902**	14.19	**802**	14.19	**602**
GX 16-2 E3.00 N 0.30	16	3	0.3	3.0	GX 16-2	14.19	**910**	14.19	**810**	14.19	**610**

Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●		
Non ferrous metals			○
Heat resistant alloys	○	●	●

→ v_c Page 243
→ Application recommendation on page 245

Internal machining

→ 215+216

External machining

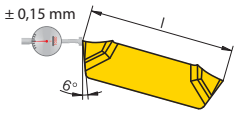
→ 211+212

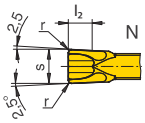
→ 213+214

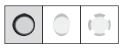
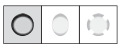
Insert GX 16 -M1

- Very good swarf control

F	M	R





	HCR 1325	HCN 1345	CCN 1340
			
	1C	1C	1C
	NEW Article no. 70 362 ... £	Article no. 70 362 ... £	Article no. 70 362 ... £

Designation	l INSL mm	s +/-0,05 CW mm	r +/-0,05 RER mm	l_2 PDPT mm	for tool holder	HCR 1325 £	HCR 1325 Article no.	HCN 1345 £	HCN 1345 Article no.	CCN 1340 £	CCN 1340 Article no.
GX 16-1 E2.00 N 0.20	16	2	0.2	2.0	GX 16-1			14.40	**800**	14.19	**600**
GX 16-2 E3.00 N 0.20	16	3	0.2	2.5	GX 16-2	14.19	**902**	14.40	**802**	14.19	**602**

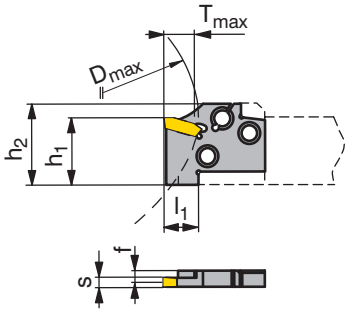
	HCR 1325	HCN 1345	CCN 1340
Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●		
Non ferrous metals			○
Heat resistant alloys	○	●	●

→ v_c Page 243
→ Application recommendation on page 245

Internal machining		*External machining*						
→ 216		→ 211+212	→ 213					

ModularClamp – Radial grooving module GX 09/16

- For circlip grooves = 2,25 mm
- For radius grooves up to = 1,2 mm
- For external recessing



Illustrations show right-hand versions

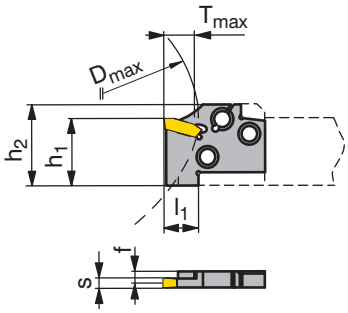
Designation	s mm	f WF mm	l_1 LF mm	h_1 HF mm	h_2 H mm	D_{max} CODX mm	$T_{max.}$ CDX mm	for grooving inserts	Left-hand 2C Article no. 70 871 ... £		Right-hand 2C Article no. 70 870 ... £	
E12 R/L 02-GX 09-1	<1,95	3.15	8	12	14.5	36	2	GX 09-1 ..R/L	73.54	**112**	73.54	**112**
E16 R/L 02-GX 09-1	<1,95	3.15	8	16	19.5	48	2	GX 09-1 ..R/L	74.35	**116**	74.35	**116**
E20 R/L 03-GX 16-2	<2,75	3.40	13	20	24.0	60	3	GX 16-2 ..R/L	74.35	**120**	74.35	**120**

→ 206+207

→ 240+241

ModularClamp – Radial grooving module GX 09/16

- For grooving and turning
- For circlip grooves = 5,25 mm
- For radius grooves up to = 2,5 mm
- For external recessing



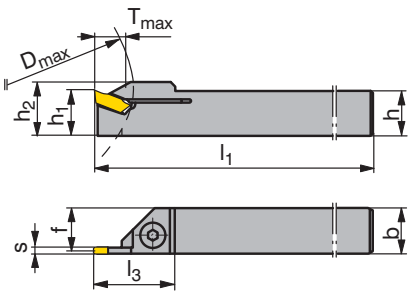
Illustrations show right-hand versions

Designation	s mm	f WF mm	l_1 LF mm	h_1 HF mm	h_2 H mm	D_{max} CODX mm	$T_{max.}$ CDX mm	for grooving inserts	Left-hand 2C Article no. 70 866 ... £		Right-hand 2C Article no. 70 865 ... £	
E12 R/L 07-GX 09-1	2,00 - 2,75	3.15	8	12	14.5	36	7	GX 09-1 ..N	73.54	**012**	73.54	**012**
E12 R/L 07-GX 09-2	2,76 - 3,75	2.80	8	12	14.5	36	7	GX 09-2 ..N	73.54	**112**	73.54	**112**
E16 R/L 07-GX 09-1	2,00 - 2,75	3.15	8	16	19.5	48	7	GX 09-1 ..N	74.35	**016**	74.35	**016**
E16 R/L 07-GX 09-2	2,76 - 3,75	2.80	8	16	19.5	48	7	GX 09-2 ..N	74.35	**116**	74.35	**116**
E20 R/L 12-GX 16-1	2,00 - 2,75	3.75	13	20	24.0	60	12	GX 16-1 ..N	74.35	**020**	74.35	**020**
E20 R/L 12-GX 16-2	2,76 - 3,75	3.40	13	20	24.0	60	12	GX 16-2 ..N	74.35	**120**	74.35	**120**

→ 204–210

→ 240+241

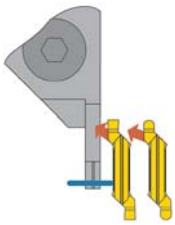
MonoClamp – Radial Monoholder GX 09



Illustrations show right-hand versions

Designation	h = h1 H mm	b B mm	s mm	f WF mm	h2 OAH mm	l1 OAL mm	l3 LH mm	Dmax DAXX mm	Tmax. CDX mm	for grooving inserts	Left-hand 2C Article no. 70 863 ... £		Right-hand 2C Article no. 70 862 ... £	
E10 R/L 00-1010M-GX09	10	10	2,00 - 3,50	9.35	12	150	18	30	7	GX 09 ..	106.95	010	106.95	010

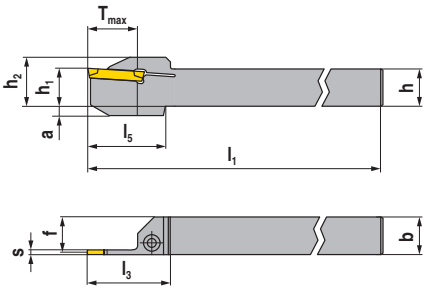
When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clerance.



Spare parts for grooving inserts		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
GX 09 ..	T15	11.34	113	M4x11	8.95	442

→ 205–209

MonoClamp – Radial Monoholder GX 16



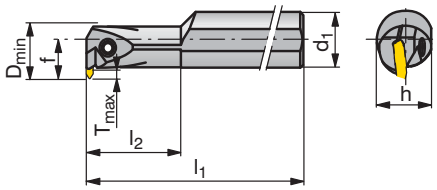
Illustrations show right-hand versions

Designation	h = h1 H mm	b B mm	s mm	f WF mm	h2 OAH mm	l1 OAL mm	l3 LH mm	l5 mm	a mm	T max. CDX mm	for grooving inserts	Left-hand 2C Article no. 70 889 ... £		Right-hand 2C Article no. 70 888 ... £	
E12 R/L 0012-1212K-GX16-1	12	12	2,00 - 2,75	11.35	17	125	26	24	4	12	GX 16-1	78.90	**212**	78.90	**212**
E12 R/L 0012-1212K-GX16-2	12	12	2,76 - 3,75	11.00	17	125	26	24	4	12	GX 16-2	78.90	**312**	78.90	**312**
E16 R/L 0012-1616K-GX16-1	16	16	2,00 - 2,75	15.35	21	125	26	24	4	12	GX 16-1	84.25	**216**	84.25	**216**
E16 R/L 0012-1616K-GX16-2	16	16	2,76 - 3,75	15.00	21	125	26	24	4	12	GX 16-2	84.25	**316**	84.25	**316**
E20 R/L 0012-2020K-GX16-1	20	20	2,00 - 2,75	19.35	25	125	26			12	GX 16-1	96.96	**220**	96.96	**220**
E20 R/L 0012-2020K-GX16-2	20	20	2,76 - 3,75	19.00	25	125	26			12	GX 16-2	96.96	**320**	96.96	**320**

Spare parts for grooving inserts		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
GX 16-1	T15	11.34	**113**	M3,5x14	3.54	**160**
GX 16-2	T15	11.34	**113**	M3,5x14	3.54	**160**

→ 204–210

MonoClamp – Radial Mono-boring bars GX 09

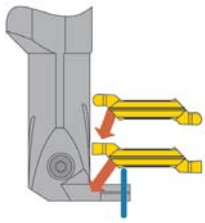


Illustrations show right-hand versions

Designation	f WF mm	d_1 DCONMS mm	h H mm	l_1 OAL mm	l_2 LH mm	$T_{max.}$ CDX mm	D_{min} DAXN mm	for grooving inserts	Left-hand 2C Article no. 70 859 ... £		Right-hand 2C Article no. 70 858 ... £	
I12 R/L 90-2,5D-GX09	11	16	15.25	150	30	3	16	GX 09 ..	131.10	**012**	131.10	**012**

Right hand boring bar→ left hand insert only
Left hand boring bar→ right hand insert only

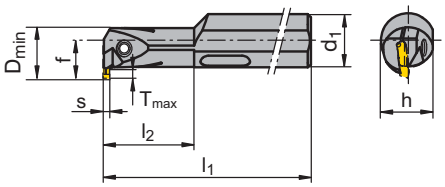
When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



Spare parts for grooving inserts		Y7 Key D Article no. 80 950 ... £		2A Clamping screw Article no. 70 950 ... £	
GX 09 ..	T15	11.34	**113**	M3,5x12,5	7.77	**441**

→ 205–209

MonoClamp – Radial Mono-boring bars GX 16

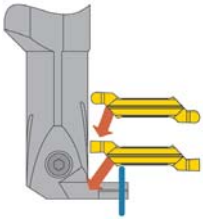


Illustrations show right-hand versions

Designation	h H mm	d1 DCONMS mm	Dmin DAXN mm	s mm	Tmax. CDX mm	f WF mm	l1 OAL mm	l2 LH mm	for grooving inserts	Left-hand 2C Article no. 70 893 ... £		Right-hand 2C Article no. 70 892 ... £	
I16 R/L 90-2.0D-GX16-1	15.25	16	20.5	2,00 - 2,75	5.0	13.5	150	32	GX 16-1	115.39	**516**	115.39	**516**
I16 R/L 90-2.0D-GX16-2	15.25	16	20.5	2,76 - 3,75	5.0	13.5	150	32	GX 16-2	115.39	**616**	115.39	**616**
I20 R/L 90-2.0D-GX16-2	19.00	20	25.0	2,76 - 3,75	5.5	15.5	180	40	GX 16-2	124.66	**620**	124.66	**620**

Right hand boring bar→ left hand insert only
Left hand boring bar→ right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.

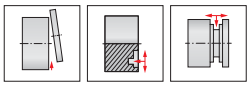


Spare parts for grooving inserts		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
GX 16-1	T15	11.34	**113**	M4x14	7.43	**403**
GX 16-2	T15	11.34	**113**	M4x14	7.43	**403**

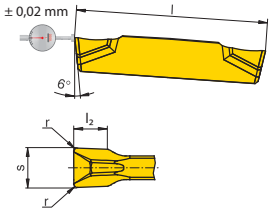
→ 204–210

Insert GX 24 -ALP

- Insert with highly positive cutting edge geometry and sharp cutting edge
- ground periphery



F	M	R



CWK 26

Designation	l INSL mm	s +/-0,02 CW mm	r +/-0,05 RER mm	l_2 PDPT mm	for tool holder	1C Article no. 70 350 ... £	
GX 24-2 E3.00 N 0.30	24	3	0.3	2.5	GX 24-2	18.04	682

Steel	
Stainless steel	
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	○

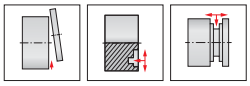
→ v_c Page 243
→ Application recommendation on page 245

Internal machining		*External machining*						
		→ 223	→ 224					

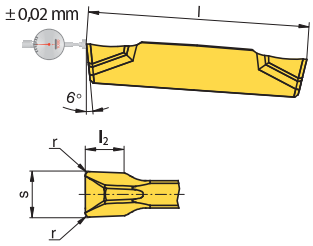
3

Insert GX 24 -F2

- Insert with ground periphery
- Suitable also for parting off tubes and thin-walled workpieces



F	M	R



HCR 1325	HCN 1345	CCN 1340

Designation	l INSL mm	s +/-0,02 CW mm	r +/-0,05 RER mm	l_2 PDPT mm	for tool holder	NEW 1C Article no. 70 350 ... £		1C Article no. 70 350 ... £		1C Article no. 70 350 ... £	
GX 24-2 E3.00 N 0.30	24	3.0	0.3	2.5	GX 24-2	22.46	962	22.46	862	22.46	662
GX 24-2 E3.50 N 0.30	24	3.5	0.3	2.5	GX 24-2			22.46	864		

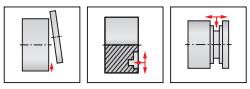
Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●		
Non ferrous metals			○
Heat resistant alloys	○	●	●

→ v_c Page 243
→ Application recommendation on page 245

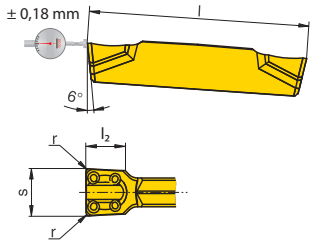
Internal machining | *External machining*

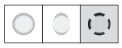
→ 223 → 224

Insert GX 24 -E



F	M	R



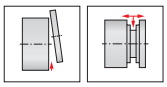
Designation	l INSL mm	s +/-0,05 CW mm	r +/-0,05 RER mm	l_2 PDPT mm	for tool holder	HCR 1325	HCR 1335	HCN 1345	CCN 1340
									
						NEW 1C	1C	1C	1C
						Article no. 70 350 ... £	Article no. 70 350 ... £	Article no. 70 350 ... £	Article no. 70 350 ... £
GX 24-2 E3.00 N 0.30	24	3	0.3	2.5	GX 24-2	15.12 932	15.12 532	15.12 832	15.12 632
Steel						●	●	●	●
Stainless steel						○	○	●	●
Cast iron						●	●		
Non ferrous metals									○
Heat resistant alloys						○		●	●

→ v_c Page 243
→ Application recommendation on page 245

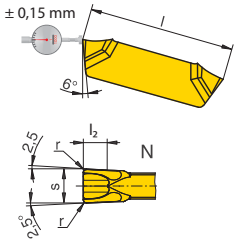
Internal machining		*External machining*						
		→ 223	→ 224					

Insert GX 24 -M40

- Very good swarf control



F	M	R



	HCR 1325	HCN 1345	CCN 1340
	NEW 1C	1C	1C
	Article no. 70 364 ...	Article no. 70 364 ...	Article no. 70 364 ...
	£	£	£

Designation	l INSL mm	s +/-0,05 CW mm	r +/-0,05 RER mm	l_2 PDPT mm	for tool holder	HCR 1325 £	HCR 1325 Article no.	HCN 1345 £	HCN 1345 Article no.	CCN 1340 £	CCN 1340 Article no.
GX 24-2 E3.00 N 0.30	24	3	0.3	3.5	GX 24-2	15.12	900	15.12	800	15.12	600

	HCR 1325	HCN 1345	CCN 1340
Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●		
Non ferrous metals			○
Heat resistant alloys	○	●	●

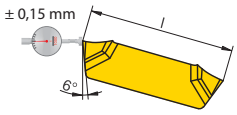
→ v_c Page 243
→ Application recommendation on page 245

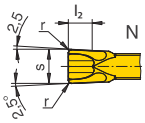
Internal machining		*External machining*						
		→ 223	→ 224					

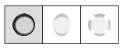
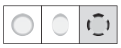
Insert GX 24 -M1

- Very good swarf control

F	M	R





	HCR 1325	HCN 1345	CCN 1340
			
	NEW 1C	1C	1C
	Article no. 70 363 ...	Article no. 70 363 ...	Article no. 70 363 ...
	£	£	£

Designation	l INSL mm	s +/-0,05 CW mm	r +/-0,05 RER mm	l_2 PDPT mm	for tool holder	HCR 1325 £	HCR 1325 Article no.	HCN 1345 £	HCN 1345 Article no.	CCN 1340 £	CCN 1340 Article no.
GX 24-1 E2.00 N 0.20	24	2	0.2	2.5	GX 24-1	15.12	**900**	15.12	**800**	15.12	**600**
GX 24-2 E3.00 N 0.20	24	3	0.2	2.5	GX 24-2	15.12	**902**	15.12	**802**	15.12	**602**

	HCR 1325	HCN 1345	CCN 1340
Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●		
Non ferrous metals			○
Heat resistant alloys	○	●	●

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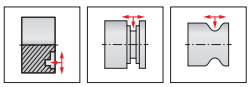
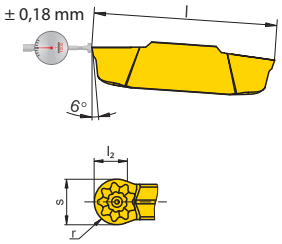
→ Application recommendation on page 245

Internal machining	*External machining*						
		→ 223	→ 224				

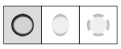
Radius groove insert GX 24 -M3



F	M	R



HCR 1325



HCR 1335

Designation	l INSL mm	s +/-0,05 CW mm	r +/-0,05 CRE mm	l_2 PDPT mm	for tool holder	NEW 1C Article no. 70 354 ... £		1C Article no. 70 354 ... £	
GX 24-2 R1.50 N	24.4	3	1.5	1.5	GX 24-2	20.11	952	20.11	552
Steel							●		●
Stainless steel							○		○
Cast iron							●		●
Non ferrous metals									
Heat resistant alloys							○		

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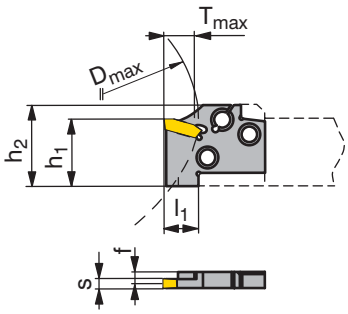
→ Application recommendation on page 245

Internal machining | *External machining*

→ 223 → 224

ModularClamp – Radial grooving module GX 24

- For deep radial parting and grooving
- For turning



Illustrations show right-hand versions

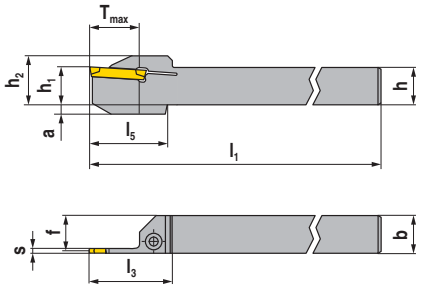
Designation	s mm	f WF mm	l_1 LF mm	h_1 HF mm	h_2 H mm	D_{max} CODX mm	$T_{max.}$ CDX mm	for grooving inserts	Left-hand 2C Article no. 70 868 ... £		Right-hand 2C Article no. 70 867 ... £	
E20 R/L 21-GX 24-1	2,00 - 2,75	3.6	22	20	24	60	21	GX 24-1	74.35	**020**	74.35	**020**
E20 R/L 21-GX 24-2	3	3.4	22	20	24	60	21	GX 24-2	74.35	**120**	74.35	**120**

→ 217–221

→ 240+241

3

MonoClamp – Radial Monoholder GX 24



Illustrations show right-hand versions

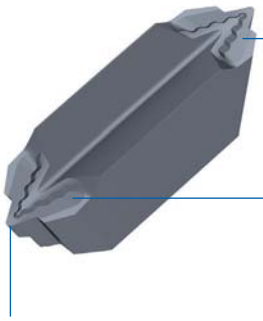
Designation	h = h1 H mm	b B mm	s mm	f WF mm	h2 OAH mm	l1 OAL mm	l3 LH mm	l5 mm	a mm	T max. CDX mm	for grooving inserts	Left-hand 2C Article no. 70 863 ... £		Right-hand 2C Article no. 70 862 ... £	
E16 R/L 0021-1616K-GX24-1	16	16	2,00 - 2,75	15.2	21	125	35	32	4	21	GX 24-1	90.52	**160**	90.52	**160**
E16 R/L 0021-1616K-GX24-2	16	16	2,76 - 3,75	15.0	21	125	35	32	4	21	GX 24-2	90.52	**016**	90.52	**016**
E20 R/L 0021-2020K-GX24-2	20	20	2,76 - 3,75	19.0	25	125	35			21	GX 24-2	104.22	**020**	104.22	**020**
E20 R/L 0021-2020K-GX24-1	20	20	2,00 - 2,75	19.2	25	125	35			21	GX 24-1	104.22	**200**	104.22	**200**

Spare parts for grooving inserts		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
GX 24-1	T20	12.13	**114**	M4x18	4.12	**204**
GX 24-2	T20	12.13	**114**	M4x18	4.12	**204**

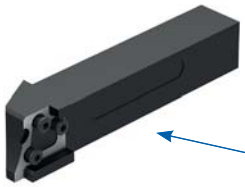
→ 217–221

Highlights

- Stable, double-edged thread turning system
  Cost-effective production of threads
- Includes sintered chip breaker
  Maximum chip control
- Ground cutting edges
  Low cutting forces
- No approach angle correction required
  Threads produced more quickly
- Thread in front of or behind a flange
  Ideal for restricted spaces



List of contents



→ 240+241

→ 231

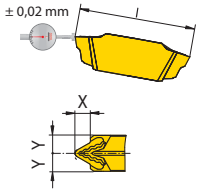
External holder → 232
Internal holder → 233

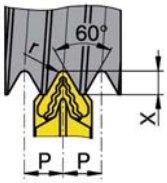
	60° Full profile	60° Partial profile	55° Full profile	55° Partial profile
External thread	→ 226	→ 228	→ 229	→ 230
Internal thread	→ 227	→ 228	→ 229	→ 230
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	○	○
Non-ferrous metals	●	●	●	●
Heat-resistant	●	●	●	●

Further dimensions can be found in our **main catalogue → Chapter 10 Grooving**

Threading inserts TC full profile – External thread 60°

F	M	R





DPX 1520 | DPX 1535 | CWK 26

Designation	Size	p TP mm	l INSL mm	X PDPT mm	Y PDX mm	r CRE mm	for tool holder	NEW 1C Article no. 70 357 ... £		NEW 1C Article no. 70 357 ... £		1C Article no. 70 357 ... £	
TC 16-1 E 0.5 ISO	TC 16-1 ...	0.50	16	0.32	1.05	0.06	E.. R/L TC 16-1	18.04	**010**	18.04	**110**	14.56	**610**
TC 16-1 E 0.75 ISO	TC 16-1 ...	0.75	16	0.48	1.05	0.09	E.. R/L TC 16-1	18.04	**012**	18.04	**112**	14.56	**612**
TC 16-1 E 1.0 ISO	TC 16-1 ...	1.00	16	0.64	1.05	0.12	E.. R/L TC 16-1	18.04	**014**	18.04	**114**	14.56	**614**
TC 16-1 E 1.25 ISO	TC 16-1 ...	1.25	16	0.80	1.05	0.15	E.. R/L TC 16-1	18.04	**016**	18.04	**116**	14.56	**616**
TC 16-1 E 1.5 ISO	TC 16-1 ...	1.50	16	0.95	1.05	0.18	E.. R/L TC 16-1	18.04	**018**	18.04	**118**	14.56	**618**
TC 16-2 E 1.75 ISO	TC 16-2 ...	1.75	16	1.10	2.15	0.22	E.. R/L/N TC 16-2	18.04	**030**	18.04	**130**	14.56	**630**
TC 16-2 E 2.0 ISO	TC 16-2 ...	2.00	16	1.26	2.15	0.25	E.. R/L/N TC 16-2	18.04	**032**	18.04	**132**	14.56	**632**
TC 16-2 E 2.5 ISO	TC 16-2 ...	2.50	16	1.58	2.15	0.32	E.. R/L/N TC 16-2	18.04	**034**	18.04	**134**	14.56	**634**
TC 16-2 E 3.0 ISO	TC 16-2 ...	3.00	16	1.89	2.15	0.38	E.. R/L/N TC 16-2	18.04	**036**	18.04	**136**	14.56	**636**

Steel	●	●	
Stainless steel	●	●	
Cast iron	○		○
Non ferrous metals	●	○	●
Heat resistant alloys	○	●	○

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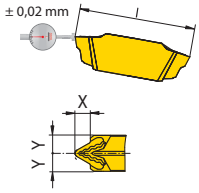
→ Application recommendation on page 247

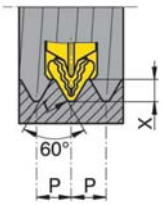
Internal machining | *External machining*

→ 231 → 232

Threading inserts TC full profile – Internal thread 60°

F	M	R





DPX 1520	DPX 1535	CWK 26

Designation	Size	p TP mm	l INSL mm	X PDPT mm	Y PDX mm	r CRE mm	for tool holder	NEW 1C Article no. 70 358 ... £		NEW 1C Article no. 70 358 ... £		1C Article no. 70 358 ... £	
TC 16-1 I 1.0 ISO	TC 16-1 ...	1.00	16	0.59	1.05	0.06	I32 R/L TC 16-1	18.04	**014**	18.04	**114**		
TC 16-1 I 1.25 ISO	TC 16-1 ...	1.25	16	0.74	1.05	0.07	I32 R/L TC 16-1	18.04	**016**				
TC 16-1 I 1.5 ISO	TC 16-1 ...	1.50	16	0.89	1.05	0.09	I32 R/L TC 16-1	18.04	**018**	18.04	**118**	14.56	**618**
TC 16-2 I 1.75 ISO	TC 16-2 ...	1.75	16	1.02	2.15	0.11	I32 R/L TC 16-2	18.04	**030**				
TC 16-2 I 2.0 ISO	TC 16-2 ...	2.00	16	1.17	2.15	0.13	I32 R/L TC 16-2	18.04	**032**	18.04	**132**		
TC 16-2 I 3.0 ISO	TC 16-2 ...	3.00	16	1.76	2.15	0.19	I32 R/L TC 16-2	18.04	**036**	18.04	**136**	14.56	**636**

Steel	●	●	
Stainless steel	●	●	
Cast iron			○
Non ferrous metals	●	○	●
Heat resistant alloys	○	●	○

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→ Application recommendation on page 247

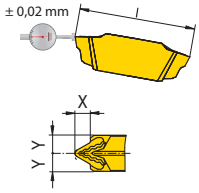
Internal machining | *External machining*

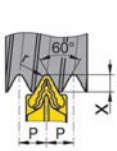
→ 233

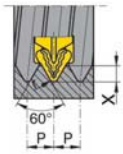
3

Threading inserts TC partial profile 60°

F	M	R







DPX 1520

DPX 1535

CWK 26

Designation	Size	p mm	l INSL mm	X PDPT mm	Y PDX mm	r CRE mm	for tool holder	NEW 1C Article no. 70 355 ... £		NEW 1C Article no. 70 355 ... £		1C Article no. 70 355 ... £	
TC 16-1 EI A 60	TC 16-1 ...	0,5 - 1,5	16	1.27	1.05	0.03	E/I.. R/L TC 16-1	18.04	**010**	18.04	**110**	14.56	**610**
TC 16-2 EI AG 60	TC 16-2 ...	0,5 - 3,0	16	2.57	2.15	0.03	E/I.. R/L/N TC 16-2	18.04	**032**	18.04	**132**	14.56	**632**
TC 16-2 EI G 60	TC 16-2 ...	1,75 - 3,0	16	2.49	2.15	0.11	E/I.. R/L/N TC 16-2	18.04	**030**	18.04	**130**	14.56	**630**

Steel	●	●	
Stainless steel	●	●	
Cast iron	○		○
Non ferrous metals	●	○	●
Heat resistant alloys	○	●	○

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→ Application recommendation on page 247

Internal machining

→ 233

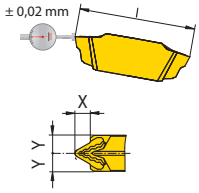
External machining

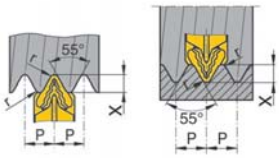
→ 231

→ 232

Threading inserts TC full profile 55°

F	M	R





DPX 1520	DPX 1535	CWK 26

Designation	Size	p TPI 1/"	l INSL mm	X PDPT mm	Y PDX mm	r CRE mm	for tool holder	NEW 1C Article no. 70 359 ... £		NEW 1C Article no. 70 359 ... £		1C Article no. 70 359 ... £	
TC 16-1 EI 28 W	TC 16-1 ...	28	16	0.60	1.05	0.12	E/I.. R/L TC 16-1	18.04	**010**	18.04	**110**		
TC 16-1 EI 20 W	TC 16-1 ...	20	16	0.84	1.05	0.17	E/I.. R/L TC 16-1	18.04	**016**				
TC 16-1 EI 19 W	TC 16-1 ...	19	16	0.88	1.05	0.17	E/I.. R/L TC 16-1	18.04	**018**	18.04	**118**	14.56	**618**
TC 16-1 EI 16 W	TC 16-1 ...	16	16	1.05	1.05	0.21	E/I.. R/L TC 16-1	18.04	**022**				
TC 16-2 EI 14 W	TC 16-2 ...	14	16	1.20	2.15	0.23	E/I.. R/L/N TC 16-2	18.04	**030**	18.04	**130**	14.56	**630**
TC 16-2 EI 12 W	TC 16-2 ...	12	16	1.40	2.15	0.27	E/I.. R/L/N TC 16-2			18.04	**132**		
TC 16-2 EI 11 W	TC 16-2 ...	11	16	1.53	2.15	0.30	E/I.. R/L/N TC 16-2	18.04	**034**	18.04	**134**	14.56	**634**

Steel	●	●	
Stainless steel	●	●	
Cast iron			○
Non ferrous metals	●	○	●
Heat resistant alloys	○	●	○

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→ Application recommendation on page 247

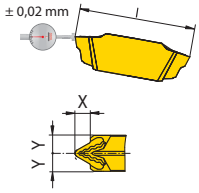
Internal machining | *External machining*

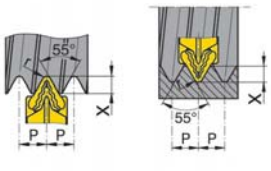
→ 233 → 231 → 232

3

Threading inserts TC partial profile 55°

F	M	R





DPX 1520

DPX 1535

Designation	Size	p 1/"	l INSL mm	X PDPT mm	Y PDX mm	r CRE mm	for tool holder	NEW 1C Article no. 70 356 ... £		NEW 1C Article no. 70 356 ... £	
TC 16-1 EI A 55	TC 16-1 ...	28 - 16	16	1.39	1.05	0.12	E/I.. R/L TC 16-1	18.04	010	18.04	110
TC 16-2 EI AG 55	TC 16-2 ...	28 - 8	16	2.91	2.15	0.12	E/I.. R/L/N TC 16-2	18.04	032	18.04	132
TC 16-2 EI G 55	TC 16-2 ...	14 - 8	16	2.78	2.15	0.23	E/I.. R/L/N TC 16-2	18.04	030	18.04	130

Steel	●	●
Stainless steel	●	●
Cast iron	○	
Non ferrous metals	●	○
Heat resistant alloys	○	●

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→ Application recommendation on page 247

Internal machining

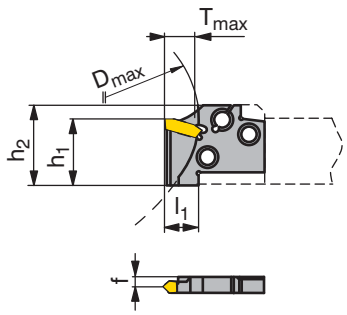
→ 233

External machining

→ 231

→ 232

ModularClamp – Threading module TC for external threads



Illustrations show right-hand versions

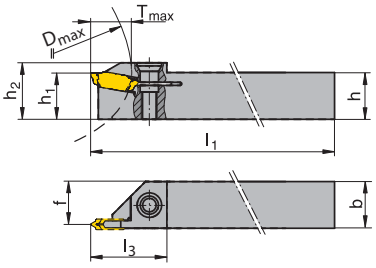
Designation	p mm	p 1/"	f WF mm	h_1 HF mm	l_1 LF mm	h_2 H mm	D_{max} CODX mm	$T_{max.}$ CDX mm	for grooving inserts	Left-hand 2C Article no. 70 872 ... £		Neutral 2C Article no. 70 872 ... £		Right-hand 2C Article no. 70 872 ... £	
E20 R/L TC 16-1	0,5 - 1,5	28 - 16	3.45	13	20	24	60	8	TC 16-1 ...	74.35	**120**			74.35	**020**
E20 N TC 16-2	1,75 - 3,0	14 - 8	2.20	13	20	24		12	TC 16-2 ...			74.35	**220**		

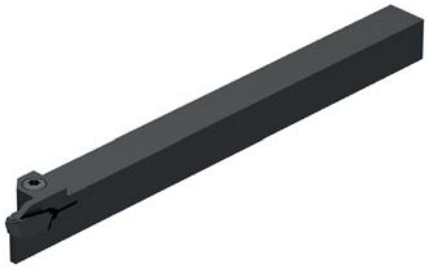
→ 226–230

→ 240+241

3

MonoClamp – Monobloc tool TC for external thread cutting





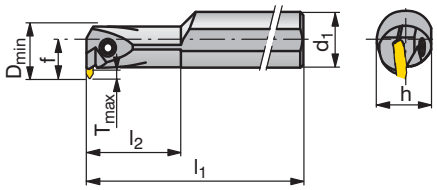
Illustrations show right-hand versions

Designation	p mm	p 1/"	h = h1 H mm	b B mm	l1 OAL mm	l3 LH mm	h2 OAH mm	f WF mm	Dmax DAXX mm	for grooving inserts	Left-hand 2C Article no. 70 883 ... £		Right-hand 2C Article no. 70 882 ... £	
E12 R/L 00-1212 TC16	0,5 - 3	28 - 8	12	12	150	20	14.5	11	30	TC16-1/2..	110.31	**012**	110.31	**012**

Spare parts for grooving inserts		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
TC16-1/2..	T15	11.34	**113**	M4x11	8.95	**442**

→ 226–230 → 240+241

MonoClamp – Monobloc Boring bar TC for internal thread cutting



Illustrations show right-hand versions

Designation	f WF mm	d_1 DCONMS mm	h H mm	l_1 OAL mm	l_2 LH mm	$T_{max.}$ CDX mm	D_{min} DAXN mm	for grooving inserts	Left-hand 2C Article no. 70 857 ... £		Right-hand 2C Article no. 70 856 ... £	
I16 L 90-2D TC16	14.0	20	18	180	32	4	20	TC16-1/2..	120.11	**016**		
I20 R/L 90-2D TC16	17.5	25	23	200	40	5	25	TC16-..	132.28	**020**	132.28	**020**

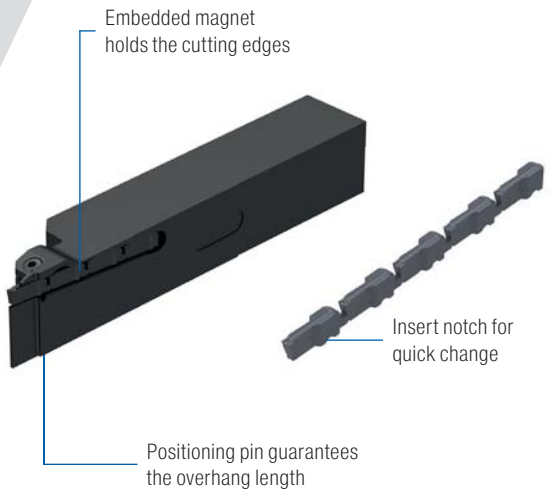
Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 857 016	T15	11.34	**113**	M4x14	7.43	**403**
70 856 020 / 70 857 020	T20	12.13	**114**	M5x18	4.96	**404**

→ 226–230

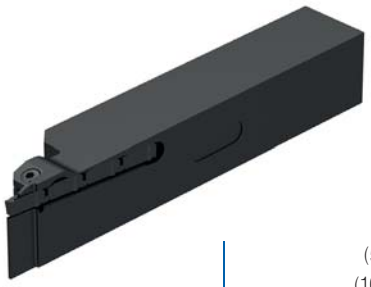
3

Highlights

- Five- or four-edged grooving system
  Cost-effective production of threads
- Unique cutting edge changing system
  Quickest change guaranteed
- Groove width from 1.0 mm
  Reduces material losses
- Excellent chip control
  High process security
- Groove depths up to 10 mm
  Ideal for small components



List of contents



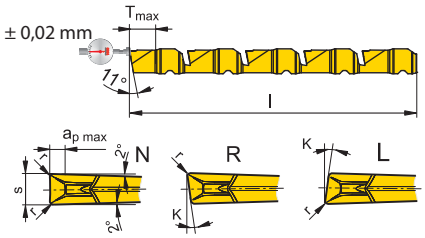
(5 mm groove depth) → 238
(10 mm groove depth) → 239

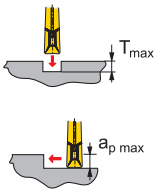
	-F2 (5 mm groove depth)	-F2 (10 mm groove depth)	-F3 (10 mm groove depth)
	→ 235	→ 236	→ 237
Steel	●	●	●
Stainless steel	●	●	●
Cast iron			
Non-ferrous metals	○	○	○
Heat-resistant	●	●	●

MaxiClick – Insert – cutting depth 5 mm -F2

- 5 cutting edges

F	M	R





CCN 1340

Designation	R/L/N IH	s CW mm	l INSL mm	r RER mm	K° KCHR	$a_{p\,max}$ mm	$T_{max.}$ PDPT mm	for tool holder	1C Article no. 70 338 ... £	
MC 05-5-1.00 L 07-F2	L	1.0	59.2	0.1	7		5	MC 05 R/L	29.23	**250**
MC 05-5-1.50 L 07-F2	L	1.5	59.2	0.1	7		5	MC 05 R/L	29.23	**260**
MC 05-5-1.00 N 0.10-F2	N	1.0	59.2	0.1	0	0.5	5	MC 05 R/L	29.23	**210**
MC 05-5-1.50 N 0.10-F2	N	1.5	59.2	0.1	0	1.0	5	MC 05 R/L	29.23	**220**
MC 05-5-1.00 R 07-F2	R	1.0	59.2	0.1	7		5	MC 05 R/L	29.23	**230**
MC 05-5-1.50 R 07-F2	R	1.5	59.2	0.1	7		5	MC 05 R/L	29.23	**240**

Steel	●
Stainless steel	●
Cast iron	
Non ferrous metals	○
Heat resistant alloys	●

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→ Application recommendation on page 246

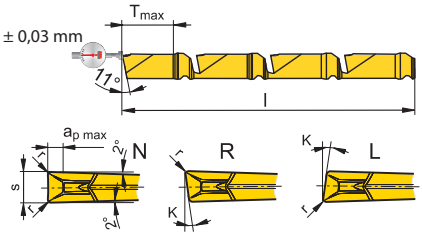
Internal machining	*External machining*
	→ 238

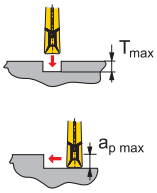
3

MaxiClick – Insert – cutting depth 10 mm -F2

- 4 cutting edges

F	M	R





CCN 1340

Designation	R/L/N IH	s CW mm	l INSL mm	r RER mm	K° KCHR	$a_{p\,max}$ mm	$T_{max.}$ PDPT mm	for tool holder	1C Article no. 70 339 ... £	
MC 10-4-1.50 L 07-F2	L	1.5	59.2	0.1	7		10	MC 10 R/L	24.06	**270**
MC 10-4-2.00 L 07-F2	L	2.0	59.2	0.1	7		10	MC 10 R/L	24.06	**280**
MC 10-4-2.50 L 07-F2	L	2.5	59.2	0.1	7		10	MC 10 R/L	24.06	**290**
MC 10-4-1.50 N 0.10-F2	N	1.5	59.2	0.1	0	1.0	10	MC 10 R/L	24.06	**210**
MC 10-4-2.00 N 0.10-F2	N	2.0	59.2	0.1	0	1.5	10	MC 10 R/L	24.06	**220**
MC 10-4-2.50 N 0.10-F2	N	2.5	59.2	0.1	0	2.0	10	MC 10 R/L	24.06	**230**
MC 10-4-1.50 R 07-F2	R	1.5	59.2	0.1	7		10	MC 10 R/L	24.06	**240**
MC 10-4-2.00 R 07-F2	R	2.0	59.2	0.1	7		10	MC 10 R/L	24.06	**250**
MC 10-4-2.50 R 07-F2	R	2.5	59.2	0.1	7		10	MC 10 R/L	24.06	**260**

Steel	●
Stainless steel	●
Cast iron	
Non ferrous metals	○
Heat resistant alloys	●

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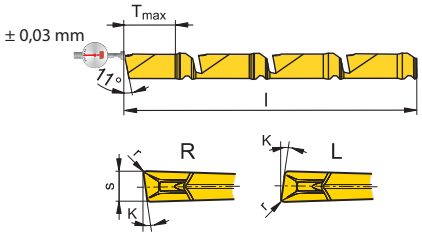
→ Application recommendation on page 246

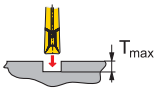
Internal machining	*External machining*
	→ 239

MaxiClick – Insert – cutting depth 10 mm -F3

- 4 cutting edges

F	M	R





CCN 1340

Designation	R/L/N IH	s CW mm	l INSL mm	r RER mm	K° KCHR	$T_{max.}$ PDPT mm	for tool holder	1C Article no. 70 340 ... £	
MC 10-4-1.50 L 12-F3	L	1.5	59.2	0.1	12	10	MC 10 R/L	24.06	**270**
MC 10-4-2.00 L 12-F3	L	2.0	59.2	0.1	12	10	MC 10 R/L	24.06	**280**
MC 10-4-2.50 L 12-F3	L	2.5	59.2	0.1	12	10	MC 10 R/L	24.06	**290**
MC 10-4-1.50 R 12-F3	R	1.5	59.2	0.1	12	10	MC 10 R/L	24.06	**240**
MC 10-4-2.00 R 12-F3	R	2.0	59.2	0.1	12	10	MC 10 R/L	24.06	**250**
MC 10-4-2.50 R 12-F3	R	2.5	59.2	0.1	12	10	MC 10 R/L	24.06	**260**

Steel	●
Stainless steel	●
Cast iron	
Non ferrous metals	○
Heat resistant alloys	●

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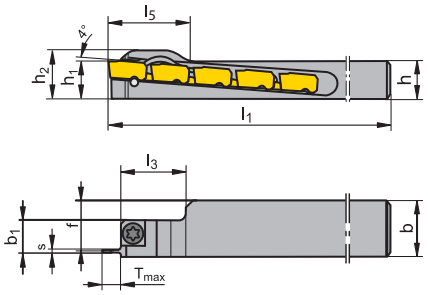
→ Application recommendation on page 246

Internal machining	*External machining*
	→ 239

MaxiClick – Toolholder – cutting depth 5 mm



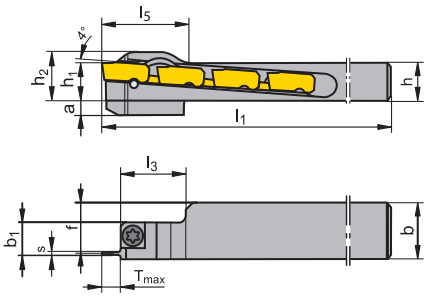
Illustrations show right-hand versions

Designation	h = h1 H mm	h2 OAH mm	b B mm	b1 mm	s mm	T max. CDX mm	f WF mm	l1 OAL mm	l3 LH mm	l5 mm	for grooving inserts	Left-hand 2C Article no. 70 873 ... £		Right-hand 2C Article no. 70 873 ... £	
MC 05 R/L -1010K	10	13	10	10	1,00 - 1,50	5	8.5	125	23	27	MC 05	76.71	**210**	76.71	**110**
MC 05 R/L -1212K	12	15	12	12	1,00 - 1,50	5	10.5	125	23	27	MC 05	76.71	**212**	76.71	**112**
MC 05 R/L -1616K	16	19	16	12	1,00 - 1,50	5	14.5	125	23	20	MC 05	76.71	**216**	76.71	**116**
MC 05 R/L -2020K	20	23	20	12	1,00 - 1,50	5	18.8	125	23	20	MC 05	89.15	**220**	89.15	**120**

Spare parts for grooving inserts		2A Key-T Article no. 70 950 ... £			2A Clamping screw Article no. 70 950 ... £	
MC 05	T15	5.55	**738**	M4x11	2.94	**174**

→ 235

MaxiClick – Toolholder – cutting depth 10 mm



Illustrations show right-hand versions

Designation	h = h1 H mm	h2 OAH mm	b B mm	b1 mm	a mm	s mm	T max. CDX mm	f WF mm	l1 OAL mm	l3 LH mm	l5 mm	for grooving inserts	Left-hand 2C Article no. 70 874 ... £		Right-hand 2C Article no. 70 874 ... £	
MC 10 R/L -1010K	10	13	10	10		1,50 - 2,50	10	8.5	125	28		MC 10	76.71	**210**	76.71	**110**
MC 10 R/L -1010K-S	10	13	10	10	6	1,50 - 2,50	10	8.5	125	28	27	MC 10	76.71	**410** 1)	76.71	**310** 1)
MC 10 R/L -1212K	12	15	12	12		1,50 - 2,50	10	10.5	125	28		MC 10	76.71	**212**	76.71	**112**
MC 10 R/L -1212K-S	12	15	12	12	4	1,50 - 2,50	10	10.5	125	28	27	MC 10	76.71	**412** 1)	76.71	**312** 1)
MC 10 R -1616K	16	19	16	12		1,50 - 2,50	10	14.5	125	28	20	MC 10			76.71	**116**
MC 10 R/L -2020K	20	23	20	12		1,50 - 2,50	10	18.8	125	28	20	MC 10	89.15	**220**	89.15	**120**

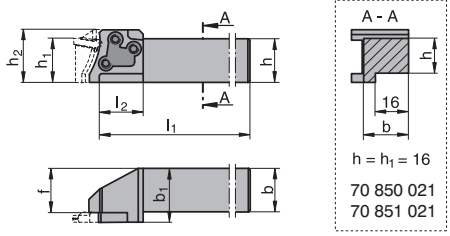
1) -S = strengthened variant

Spare parts for grooving inserts		2A Key-T Article no. 70 950 ... £			2A Clamping screw Article no. 70 950 ... £	
MC 10	T15	5.55	**738**	M4x11	2.94	**174**

→ 236–237

3

ModularClamp – Tool holder 0°



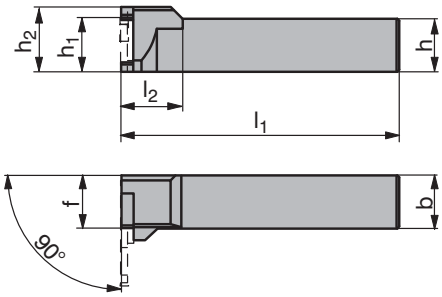
Illustrations show right-hand versions

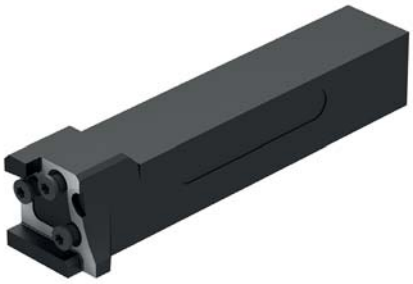
Designation	h = h_1 H mm	b B mm	b_1 OAW mm	h_2 OAH mm	f WF mm	l_1 mm	l_2 mm	for modules	Left-hand 2C Article no. 70 851 ... £		Right-hand 2C Article no. 70 850 ... £	
E12 R/L 00-1212E	12	12	15.25	14.5	11.75	70	12	E12 R/L ...	113.58	**012**	113.58	**012**
E16 R/L 00-1616G	16	16	19.25	19.5	15.75	90	16	E16 R/L ...	114.76	**016**	114.76	**016**
E20 R/L 00-1620G	16	20	24.25	24.0	20.15	90	20	E20 R/L ...	115.75	**021** 1)	115.75	**021** 1)
E20 R/L 00-2020J	20	20	24.25	24.0	20.15	110	20	E20 R/L ...	115.75	**020**	115.75	**020**

1) see view A-A

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 850 012 / 70 851 012	T08	9.52	**110**	M2,5x10	6.14	**440**
70 850 016 / 70 851 016	T15	11.34	**113**	M3,5x12,5	7.77	**441**
70 850 021 / 70 851 021	T15	11.34	**113**	M4x14	7.43	**403**
70 850 020 / 70 851 020	T15	11.34	**113**	M4x14	7.43	**403**

ModularClamp – Tool holder 90°





Illustrations show right-hand versions

Designation	h = h1 H mm	b B mm	h2 OAH mm	f WF mm	l1 OAL mm	l2 mm	for modules	Left-hand 2C Article no. 70 855 ... £		Right-hand 2C Article no. 70 854 ... £	
E20 R/L 90-2020J	20	20	24	24.5	110	20	E20 R/L ...	115.75	**020**	115.75	**020**

Spare parts for Article no.		Y7 Key D Article no. 80 950 ... £			2A Clamping screw Article no. 70 950 ... £	
70 854 020 / 70 855 020	T15	11.34	**113**	M4x14	7.43	**403**

3

Material examples referring to the WNT cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5% Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0,5-10% Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10-15% Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15% Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

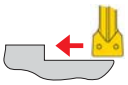
Cutting data standard values for grooving inserts GX/FX/SX/TC

	HCR 1325	HCR 1335	HCN 1345	CCN 1340	DPX 1520	DPX 1535	CWK 26
Index	v_c in m/min.						
1.1	**130–260**	**110–190**	**80–150**	**80–180**	**150–200**	**80–150**	
1.2	**150–300**	**130–250**	**110–190**	**120–250**	**150–240**	**110–170**	
1.3	**130–260**	**110–190**	**80–150**	**60–150**	**100–200**	**80–150**	
1.4	**140–240**	**80– 170**	**70–140**	**120–200**	**130–180**	**70–130**	
1.5	**150–300**	**70–170**	**70–140**	**80–180**	**140–220**	**70–130**	
1.6	**130–200**	**70–170**	**60–180**	**60–150**	**100–160**	**60–170**	
1.7	**150–230**	**110–220**	**70–130**	**80–180**	**140–190**	**70–130**	
1.8	**100–180**	**90–210**	**60–110**	**50–120**	**100–150**	**60–110**	
1.9	**120–180**	**90–180**	**70–130**	**80–150**	**120–170**	**60–100**	
1.10	**120–180**	**70–160**	**60–110**	**50–120**	**120–170**	**70–120**	
1.11	**100–160**	**70–160**	**60–110**	**50–120**	**100–150**	**60–110**	
1.12	**100–160**	**70–160**	**60–110**	**50–120**	**100–150**	**60–110**	
1.13	**60–110**					**60–110**	
1.14	**60–110**						
1.15	**60–110**	**70–160**	**60–100**	**50–120**	**60–100**	**60–100**	
1.16	**60–110**	**70–160**	**60–100**	**50–120**	**60–100**	**60–100**	
2.1	140–230	120-200	**100–180**	**50–200**	**110–180**	**50–150**	
2.2	140–230	120-190	**100–180**	**50–180**	**110–180**	**50–140**	
2.3	120–210	120-170	**80–150**	**50–180**	**70–140**	**50–130**	
2.4	60–110	60-90	**60–90**	**50–80**	**70–100**	**50–80**	
2.5	80–140	70-110	**70–110**	**50–100**	**70–100**	**50–90**	
2.6	80–140	70-110	**70–110**	**50–100**	**70–100**	**50–90**	
2.7	60–110	60-90	**60–90**	**50–80**		**50–80**	
3.1	**120–210**	**90–180**			180-220		110-180
3.2	**100–170**	**80–150**			140-180		90-150
3.3	**130–210**	**100–160**			160-200		110-180
3.4	**100–170**	**70–140**			120-180		80-140
3.5	**120–250**	**100–200**			180-240		100-200
3.6	**90–190**	**80–150**			160-200		70-160
3.7	**120–240**	**100–200**			180-240		100-200
3.8	**90–190**	**80–150**			160-200		70-160
4.1				100-500	**100–1000**	100-500	**100–800**
4.2				100-500	**100–800**	100-500	**80–800**
4.3				100-500	**100–500**	100-500	**50–500**
4.4				100-300	**100–500**	100-300	
4.5				100-200	**100–350**	100-300	
4.6				100-300		100-300	**80–300**
4.7				100-300		100-300	**200–600**
4.8				100-300		100-300	**150–400**
4.9				100-300		100-300	**150–400**
4.10				100-300		100-300	**150–400**
4.11				100-500	**80–250**	100-500	**200–600**
4.12				100-370		100-370	**200–600**
4.13							
4.14				80-180	**80–500**	80-180	**80–500**
4.15				60-150	**80–200**	60-150	**60–150**
4.16							
4.17							
4.18							
4.19							
5.1	25–50				25-45		
5.2	20–45		**20–40**	**20–35**	20-40	**20–35**	
5.3	15–25		**20–30**	**20–40**	15-25	**20–40**	
5.4	15–25		**20–30**	**20–40**	15-25	**20–40**	
5.5	10–20			**15–25**	10-20	**15–25**	
5.6	10–20			**15–25**	10-20	**15–25**	
5.7	10–20			**10–20**	10-20	**10–20**	
5.8	10–20			**10–20**	10-20	**10–20**	
5.9				**50–120**		**50–120**	90-140
5.10				**30–50**		**30–50**	30-60
5.11				**30–50**		**30–50**	30-60
6.1							
6.2							
6.3							
6.4							
6.5							

SX – Depths of cut and feed rates

SX-F2

Turning



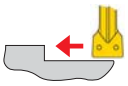
	Depth of Cut a_p in mm			
SX-F2	**0,50**	**0,75**	**1,00**	**1,25**
Cutting width in mm	Feed rate f in mm/rev.			
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15

Parting / Grooving

SX-F2
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20

SX-M2

Turning



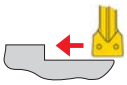
	Depth of Cut a_p in mm			
SX–M2	**0,5**	**1,0**	**1,5**	**2,0**
Cutting width in mm	Feed rate f in mm/rev.			
2	0,05–0,17	0,05–0,13	0,05–0,10	
3	0,07–0,20	0,07–0,20	0,07–0,18	0,07–0,15

Parting / Grooving

SX–M2
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20

SX-ALP

Turning



	Depth of Cut a_p in mm				
SX-ALP	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**
Cutting width in mm	Feed rate f in mm/rev.				
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20	
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20

Parting / Grooving

SX-ALP
Feed rate f in mm/rev.
0,05–0,20
0,05–0,25

SX-M1

Parting / Grooving

SX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,15
3	0,10–0,20

FX – Cutting depths and feeds

FX-F1

Parting / Grooving

FX-F1	
Cutting width in mm	Feed rate f in mm/rev.
2,2	0,025–0,10
3,1	0,05–0,15

FX-M1

Parting / Grooving

FX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2,20	0,05–0,15
3,10	0,08–0,18

FX-ALP

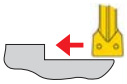
Parting / Grooving

FX-ALP	
Cutting width in mm	Feed rate f in mm/rev.
2,20	0,01–0,10
3,10	0,015–0,125

GX – Depths of cut and feed rates

GX Standard / GX-E

Turning



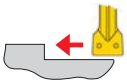
	Depth of Cut a_p in mm				
GX Standard / GX-E	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**
Cutting width in mm	Feed rate f in mm/rev.				
2	0,10–0,15	0,05–0,15	0,05–0,12	0,05–0,10	
3	0,10–0,17	0,05–0,17	0,05–0,17	0,05–0,15	0,05–0,12

Parting / Grooving

GX Standard / GX-E
Feed rate f in mm/rev.
0,05–0,20
0,10–0,25

GX-F2

Turning



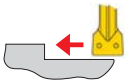
	Depth of Cut a_p in mm			
GX-F2	**0,50**	**0,75**	**1,00**	**1,25**
Cutting width in mm	Feed rate f in mm/rev.			
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15

Parting / Grooving

GX-F2
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20

GX-M40

Turning



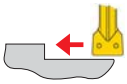
	Depth of Cut a_p in mm				
GX-M40	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**
Cutting width in mm	Feed rate f in mm/rev.				
2	0,10–0,20	0,05–0,20	0,05–0,17	0,05–0,15	
3	0,10–0,22	0,10–0,22	0,10–0,21	0,10–0,20	0,10–0,17

Parting / Grooving

GX-M40
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20

GX-ALP

Turning



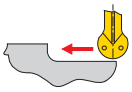
	Depth of Cut a_p in mm				
GX-ALP	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**
Cutting width in mm	Feed rate f in mm/rev.				
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20	
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20

Parting / Grooving

GX-ALP
Feed rate f in mm/rev.
0,05–0,20
0,05–0,25

GX-M3

Turning



	Depth of Cut a_p in mm		
GX–M3	**0,5**	**1,0**	**1,5**
Radius r in mm	Feed rate f in mm/rev.		
1,5	0,15–0,35	0,15–0,35	0,15–0,30

Parting / Grooving

GX–M3
Feed rate f in mm/rev.
0,05–0,20

GX-M1

Parting / Grooving

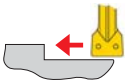
GX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,15
3	0,10–0,20

3

MaxiClick – Depths of cut and feed rates

MaxiClick 05

Turning



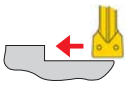
	Depth of Cut a_p in mm		
MaxiClick 05	**0,25**	**0,50**	**0,75**
Cutting width in mm	Feed rate f in mm/rev.		
1	0,02–0,15	0,02–0,10	
1,5	0,02–0,20	0,02–0,20	0,02–0,14

Parting / Grooving

MaxiClick 05
Feed rate f in mm/rev.
0,03–0,10
0,03–0,11

MaxiClick 10

Turning

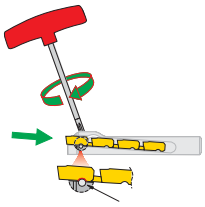


	Depth of Cut a_p in mm				
MaxiClick 10	**0,50**	**0,75**	**1,00**	**1,25**	**1,50**
Cutting width in mm	Feed rate f in mm/rev.				
1,5	0,02–0,20	0,02–0,15	0,02–0,10		
2	0,02–0,20	0,02–0,20	0,02–0,14	0,02–0,10	
2,5	0,02–0,20	0,02–0,20	0,02–0,17	0,02–0,13	0,02–0,10

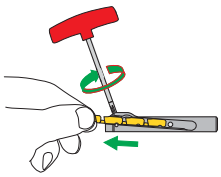
Parting / Grooving

MaxiClick 10
Feed rate f in mm/rev.
0,03–0,11
0,03–0,12
0,03–0,15

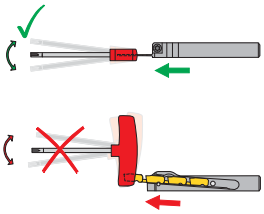
MaxiClick – System function



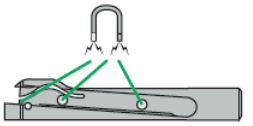
Correct insert location in the seat



Withdraw cutting insert



Worn-out cutting edge is broken off towards the left or right side



Magnets prevent the cutting insert from falling out of the tool holder during positioning

TC – Reference values for profile depth and number of passes

All listed values are guide values for steel machining

Metric ISO 60° external thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0
Number/cuts	4–6	4–7	4–8	5–9	6–10	7–11	8–12	9–14	10–18
Thread profile depth in mm	0,32	0,48	0,64	0,8	0,95	1,10	1,26	1,58	1,89

Metric ISO 60° internal thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0
Number/cuts	4–6	4–7	4–8	5–9	6–10	7–11	8–12	9–14	10–18
Thread profile depth in mm	0,30	0,45	0,59	0,74	0,89	1,02	1,17	1,46	1,76

Whitworth 55° external and internal thread

TPI	28	26	24	20	19	18	16	14	12	11	10	9	8
Number/cuts	5–8	5–8	5–9	5–9	6–10	6–10	7–11	8–12	9–14	9–14	10–17	10–18	10–18
Thread profile depth in mm	0,60	0,65	0,70	0,84	0,88	0,93	1,05	1,20	1,40	1,53	1,68	1,87	2,11

Partial profile 60° external and internal thread

External	TC 16-2EI-AG60												
	TC 16-1EI-A60									TC 16-2EI-G60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0
Number/cuts	4–6	4–7	5–9	6–10	7–11	8–12	9–14	10–15	12–19	8–12	9–14	10–15	12–20
Thread profile depth in mm	0,33	0,52	0,71	0,90	1,09	1,28	1,47	1,84	2,22	1,23	1,42	1,79	2,17

Internal	TC 16-2EI-AG60												
	TC 16-1EI-A60									TC 16-2EI-G60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0
Number/cuts	4–6	4–7	5–9	6–10	7–11	8–12	9–14	10–15	12–19	8–12	9–14	10–15	12–20
Thread profile depth in mm	0,27	0,44	0,60	0,76	0,92	1,09	1,25	1,57	1,90	1,04	1,20	1,52	1,85

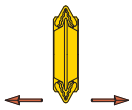
Partial profile 55° external and internal thread

External	TC 16-2EI-AG55												
	TC 16-1EI-A55												
TPI	28	26	24	20	19	18	16	14	12	11	10	9	8
Thread profile depth in mm	5–8	5–8	6–9	6–9	7–12	7–12	8–14	9–14	10–16	10–16	11–18	12–20	12–20
Thread profile depth in mm	0,66	0,72	0,79	0,95	1,01	1,07	1,21	1,39	1,63	1,79	1,97	2,20	2,48

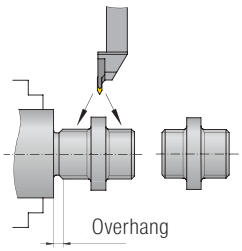
Internal	TC 16-2EI-G55					
TPI	14	12	11	10	9	8
Number/cuts	8–12	9–14	10–15	11–18	12–20	12–20
Thread profile depth in mm	1,22	1,46	1,56	1,80	2,03	2,31

Comparison threading system with TC and conventional

TC

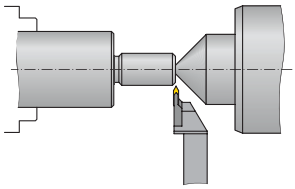


- Neutral configuration of insert makes operation in both directions possible
- Only one threading insert per pitch for partial profile and Whitworth thread; only two threading inserts (internal – external) per pitch for ISO threads
- Reduced stock holding
- good chip formation due to chip breaker with rake angle + 10 °

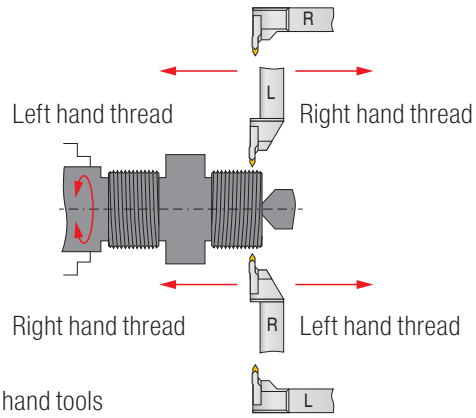


Greater efficiency through:

- shorter operating time
- Less tool changing
- High stability wih small overhang
- Material saving
- Thread turning between shoulders
- Fewer tools and indexable inserts



- Very good access to workpiece, therefore use of tailstock also possible with small thread diameters

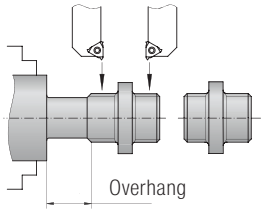


R = Right hand tools
L = Left hand tool

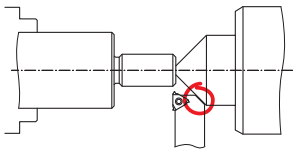
- ease of use, as the tools have no pitch angle correction they can be used in both directions

Conventional

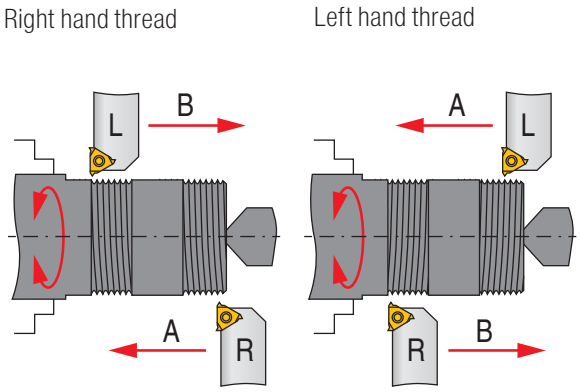
- Right-hand and left-hand version of indexable insert, therefore operation only in one direction
- For every pitch 4 threading inserts are necessary (right – left, internal – external)



- For this machining method 2 tools are required
- additional material and stability loss with large overhang



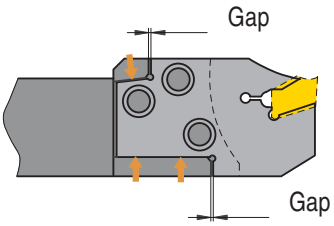
- poor accessibility
- Collision danger



- With conventional thread turning the correction of the helix angle is necessary, therefore a high degree of application know-how is required
- Can only be operated in one direction

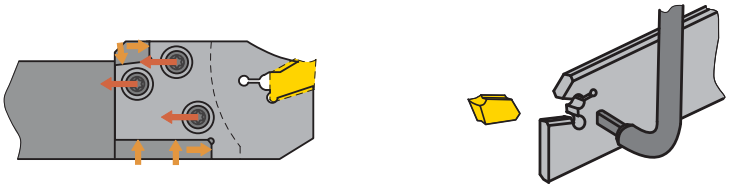
Clamping function – ModularClamp-Module

Module unclamped



- Gap between module and support face for axial clamping

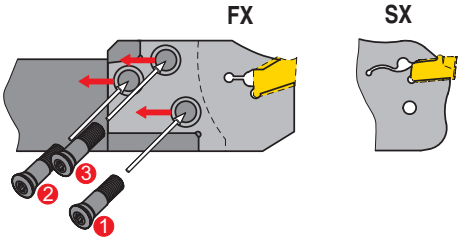
Module clamped



- Axial clamping with support face
- Connection free from play, therefore maximum stability

FX SX

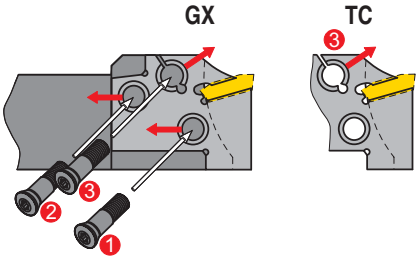
Self clamping of the insert



Clamping screws 1, 2 and 3 are used for clamping the module.
The insert is self-clamping.

GX TC

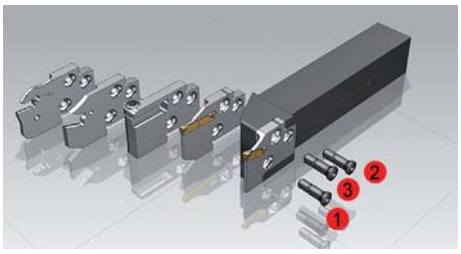
Active insert clamping



Clamping screws 1 and 2 are used for clamping the module.
Important: first tighten clamp screws 1 and 2.
Then clamp the insert with screw 3.

Torque Moment ModularClamp Module Screws

ModularClamp – Tool holder

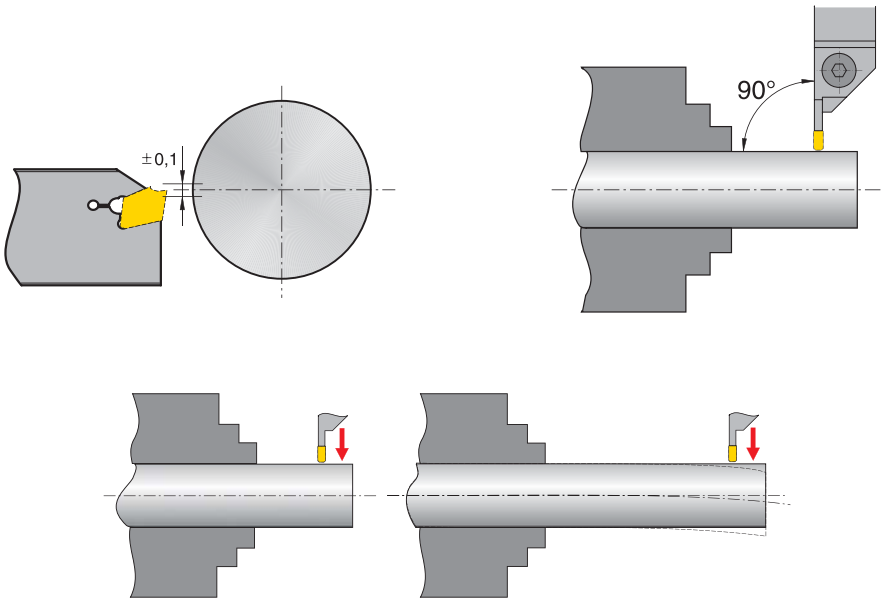


Order for the pre-and tightening of the screws!

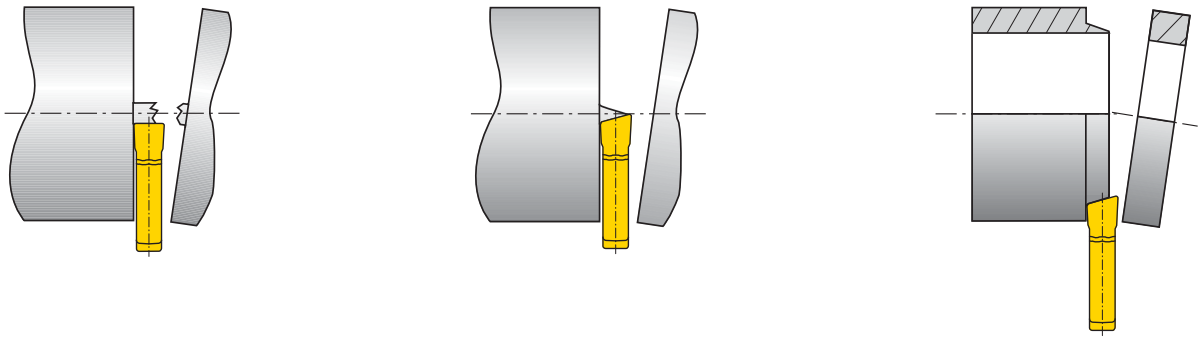
ModularClamp – Tool holder	Screw	Torx	Torque	
			Nm	in.lbs
E12..	M2,5x10	T08	1,2	10,6
E16..	M3,5x12,5	T15	3,2	28,3
E20..	M4x14	T15	4,0	35,4

General references

Tool position



References for Parting off

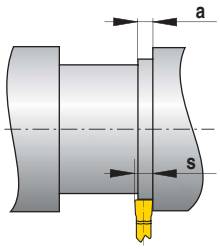


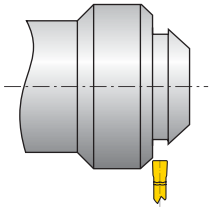
From Ø 5 mm on, reduce feed “f“ by approx. 50 %. No parting across centre (risk of breakage).

For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.

In order to prevent ring formation, use R or L inserts. Reduce feed “f“ because of lateral deflection by approx. 20 %–50 %.

References for grooving





When grooving with an axial displacement the width “**a**“ should amount to at least 70 % of the grooving width “**s**“ .

When grooving oblique surfaces the feed should be reduced by approx. 20 %–50 % until fully engaged.

Troubleshooting guide for grooving FX/SX/GX

Type of problem												
Type of wear				Work piece problems				Swarf control				
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Formation of pips and burrs	Chattered surface	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)			
	↑	↓	↓	↓			↑	↓		Cutting speed	Cutting data	Remedy measures
↓			↓	↑		↓	↓	↑	↓	Feed rate		
↓		↓	↓		↓	↓	↓			Feed rate at centre (-R, -F, -M) ↑ ↓		
↑	↓		~	~	↓	↓	↓	↓	↑	Chip groove	Insert selection	
					●					R/L execution		
↑		↑	↑	↓	↓	↓	↑			Corner radius (larger ↑, smaller ↓)		
↓		↑	↑							Tap Material (wear resistance ↑, toughness ↓)		
				↓		↑	↑			Groove width		
~				~		~	~			Tool clamping	General criteria	
~				~		~	~			Work piece clamping		
~				~			↓			Overhang		
~		~		~	~		~			Tip height		
	●	●	●		●		●	●		Cooling lubricant		

↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ check, optimise
● use

3

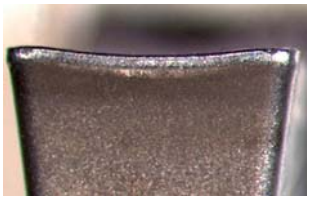
Trouble shooting guide for TC threading

Type of problem													
Type of wear				Workpiece				Swarf control					
Wear on clearance face	Break out cut	Plastic deformation	Built-up edge	Formation of a shoulder at the external thread Ø	Profile	Surface quality	Chatter marks, vibrations	Chip too thick	Chip too thin	Chip shape (snarl chip)			
↓		↓	↑			↑	↓				Cutting speed	Cutting data	Remedy measures
a, b	a, b		a, b	a, b		a, b	a, b	a, b		a, b	Feed (a – over the flanks; b – Alternating flanks)	Cutting data	Remedy measures
↑	↓	↓		↓	↓	↓	↓	↓	↑	~	Feed (Cutting depth)	Cutting data	Remedy measures
↓	↑	↑		~	~	↑	~	↑	↓	↓	Number of passes	Cutting data	Remedy measures
				●	●	●					Spring cut (Air cut)	Cutting data	Remedy measures
			●			●	●			●	Chip groove	Indexable insert selection	Remedy measures
↑	↓	↑									Tap Material (wear resistance ↑ toughness ↓)	Indexable insert selection	Remedy measures
				●	●	●					Full profile	Indexable insert selection	Remedy measures
											Partial profile	Indexable insert selection	Remedy measures
	~					~	~				Stable tool holder / insert	Various criteria	Remedy measures
	~					~	~				Stable workpiece	Various criteria	Remedy measures
	↓					↓	↓				Overhang	Various criteria	Remedy measures
~	~	~			~	~	~				Tip height	Various criteria	Remedy measures
●	●	●	●	●		●					Cooling lubricant	Various criteria	Remedy measures

↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ check, optimise
● use

Wear causes

Wear on clearance face



Abrasion on the flank, normal wear after a given operation time.

Cause
- cutting speed too high
- grade with too low wear resistance
- insufficient coolant

Remedy
- Reduce the cutting speed
- select a more wear resistant grade
- Improve/check coolant feed

Edge chipping

Excessive mechanical stress on the cutting edge causing carbide particles to break out.

Cause
- too hard grade
- vibration
- too high feed and depth of cut
- chip impact

Remedy
- use tougher grade
- use negative geometry with chip breaker
- reduce overhang, check center height
- stabilize the cutting edge

Cratering

The outgoing hot chip causes cratering of the insert on the clamping surface.

Cause
- too high cutting speed, feed, or both
- too low rake angle
- grade with too low wear resistance
- incorrectly supplied cooling

Remedy
- Reduce cutting speed and / or feed
- Check coolant flow and / or increase pressure
- Use harder grade

Plastic deformation

Large mechanical load produces high temperature machining, this can lead to plastic deformation.

Cause
- too high operating temperature, thus softening the base material
- unsuitable grade
- inadequate coolant supply

Remedy
- Reduce the cutting speed
- select a more wear resistant grade
- use coolant

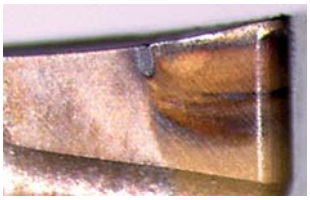
Built-up edge

Weld deposits of material on the cutting edge occurs when the chip does not flow caused by low average temperature.

Cause
- too low cutting speed
- too low rake angle
- Incorrect grade
- lack of cooling / lubrication

Remedy
- Increase the cutting speed
- Increase rake angle
- Use TiN coating
- increase coolant strength

Notch wear



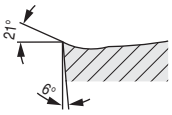
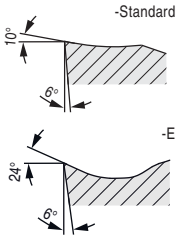
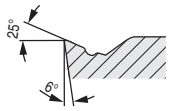
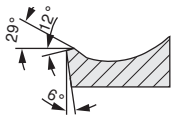
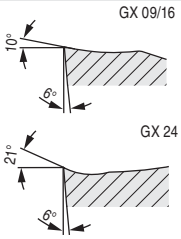
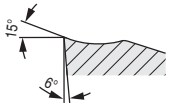
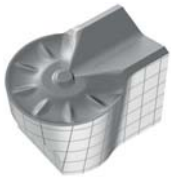
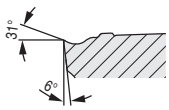
Contraction at maximum cutting depth.

Cause
- Oxidation at the cutting edge
- Too high a temperature at the edge

Remedy
- Use different cutting depths
- Reduce cutting speed
- Improve/check coolant feed

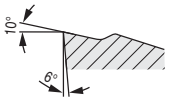
Chip breakers / Applications

System GX

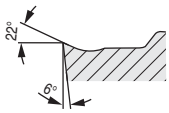
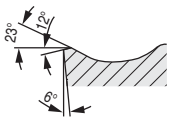
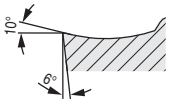
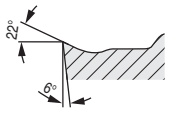
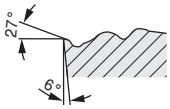
		Smooth cut	Irregular cut	Interrupted cut	Model	f in mm/rev.
-F2 ▪ very positive geometry ▪ honed cutting edge ▪ low feed rates ▪ low cutting forces ▪ first choice for stainless materials		**HCR1325** **CCN1340** HCR1325 CCN1340	**CCN1340** **CCN1340/HCN1345** CCN1340 CCN1340/HCN1345	**HCN1345** **HCN1345** 		0,05–0,15
-Standard / -E ▪ positive geometry ▪ low-medium feed rates ▪ low cutting forces ▪ universal application ▪ first choice for axial grooving		**HCR1325** **CCN1340** HCR1325 CCN1340	**HCR1335/CCN1340** **CCN1340/HCN1345** **HCR1335/CCN1340** CCN1340	**HCN1345** HCN1345 **CCN1340** HCN1345		0,05–0,17
-M40 ▪ stable geometry ▪ medium feed rates ▪ universal application ▪ good chip control		**HCR1325** CCN1340 **HCR1325** CCN1340	**CCN1340** CCN1340/HCN1345 **HCR1335/CCN1340** CCN1340	**HCN1345** HCN1345 **CCN1340** HCN1345		0,075–0,20
-M1 ▪ very stable cutting edge ▪ medium-high feed rates ▪ for intterrupted cut ▪ for high tensile materials ▪ first choice for parting off		**HCR1325** CCN1340 **HCR1325** CCN1340	**CCN1340** CCN1340/HCN1345 **HCR1335/CCN1340** CCN1340	**HCN1345** HCN1345 **CCN1340** HCN1345		0,1–0,20
-ALP ▪ very positive geometry ▪ ground periphery ▪ sharp cutting edge ▪ polished chip breaker ▪ first choice for non-ferrous metals		 CWK26 	 CWK26 	 CWK26 		0,05–0,25
Standard – Radius ▪ positive geometry ▪ honed cutting edge ▪ low-medium feed rates ▪ low cutting forces ▪ Radius grooving/copy turning		**HCR1325** **CCN1340** HCR1325 CCN1340	**HCR1335/CCN1340** **CCN1340/HCR1345** **HCR1325/CCN1340** CCN1340	**CCN1340** CCN1340 **CCN1340** 		0,05–0,20
-M3 – Radius ▪ stable geometry ▪ medium-high feed rates ▪ high surface quality ▪ Radius grooving/copy turning		**HCR1325** HCR1335 **HCR1325** 	**HCR1325/HCR1335** HCR1335 **HCR1325/HCR1335** 	**HCR1335** HCR1345 **HCR1335** 		0,07–0,20

Chip breakers / Applications

GX system – Circlip grooving

	Smooth cut	Irregular cut	Interrupted cut	Model	f in mm/rev.
Standard ▪ positive geometry ▪ honed cuttign edge ▪ low feed rates ▪ small corner radius ▪ Circlip grooves	**CCN1340**	**CCN1340**			0,05–0,30
	CCN1340	**CCN1340**			
	CCN1340	**CCN1340**			
	CCN1340	CCN1340			
	CCN1340	CCN1340			

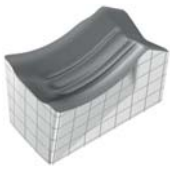
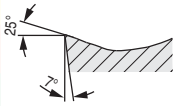
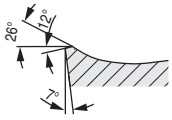
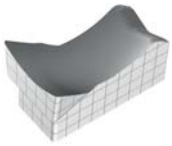
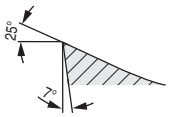
System SX

-F2 ▪ very positive geometry ▪ honed cutting edge ▪ low feed rates ▪ low cutting forces ▪ first choice for stainless materials	**CCN1340**	**CCN1340**	**HCR1345**		0,05–0,15
	CCN1340	**CCN1340/HCR1345**	**HCR1345**		
	HCR1325	CCN1340			
	CCN1340	CCN1340/HCR1345			
-M1 ▪ very stable cutting edge ▪ medium-high feed rates ▪ for intterrupted cut ▪ for high tensile materials ▪ first choice for parting off	**HCR1325**	**HCR 1335/CCN1340**	**HCR1345**		0,10–0,20
	HCR 1335	CCN1340	HCR1345		
	HCR1325	**HCR1325**	**HCR1325**		
	CCN1340	CCN1340	HCR1345		
-M2 ▪ stable geometry ▪ medium feed rates ▪ universal application ▪ good chip control	**HCR1325**	**HCR 1335/CCN1340**	**HCR1345**		0,075–0,20
	HCR 1335	CCN1340	HCR1345		
	HCR1325	HCR1325	HCR 1335		
	CCN1340	CCN1340	CCN1340		
-ALP ▪ very positive geometry ▪ ground periphery ▪ sharp cutting edge ▪ polished chip breaker ▪ first choice for non-ferrous metals					0,05–0,25
	CWK26	CWK26	CWK26		
-M3 – Radius ▪ stable geometry ▪ medium-high feed rates ▪ high surface quality ▪ Radius grooving / Copy turning	**HCR1335**	**HCR 1335/CCN1340**	**CCN1340**		0,05–0,20
	HCR1335	**HCR 1335/CCN1340**	**CCN1340**		
	HCR1325	**HCR 1335/CCN1340**	**CCN1340**		
	CCN1340	CCN1340	CCN1340		

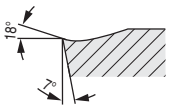
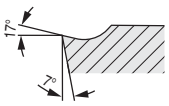
3

Chip breakers / Applications

System FX

		Smooth cut	Irregular cut	Interrupted cut	Model	f in mm/rev.
-F1 ▪ very positive geometry ▪ low-medium feed rates ▪ low cutting forces ▪ good chip control ▪ low cutting edge build up		**HCR1325** **CCN1340** HCR1325 CCN1340	**CCN1340** **CCN1340/HCR1345** HCR1325/CCN1340 CCN1340/HCR1345	**HCR1345** **HCR1345** HCR1345		0,05–0,15
-M1 ▪ very stable cutting edge ▪ medium-high feed rates ▪ for intterrupted cut ▪ for high tensile materials ▪ first choice for parting off		**HCR1325** **CCN1340** HCR1325 CCN1340	**HCR1335/CCN1340** **CCN1340/HCR1345** **HCR1325** CCN1340	**HCR1345** HCR1345 **HCR1335** HCR1345		0,08–0,20
-ALP ▪ very positive geometry ▪ ground periphery ▪ sharp cutting edge ▪ polished chip breaker ▪ first choice for non-ferrous metals		 **CWK26** 	 **CWK26** 	 **CWK26** 		0,03–0,13

MaxiClick system

-F2 ▪ very positive geometry ▪ honed cutting edge ▪ low feed rates ▪ low cutting forces ▪ first choice for stainless materials		**CCN1340** **CCN1340** CCN1340 **CCN1340**	**CCN1340** **CCN1340** CCN1340 **CCN1340**	**CCN1340** **CCN1340** CCN1340 		0,05–0,10
-F3 ▪ very positive geometry ▪ honed cutting edge ▪ low feed rates ▪ low cutting forces ▪ reduced burrs / edge build up		**CCN1340** **CCN1340** CCN1340 CCN1340 **CCN1340**	**CCN1340** **CCN1340** CCN1340 CCN1340 **CCN1340**	 		0,02–0,06

Example of Coding Grooving Tools

Grooving insert

GX	16	2	E	3.00	N	0.50
Grooving system (GX)	Insert length (16 mm)	Width class of the holder / module or support surface (2 mm)	Type of insert, application	Groove width (3.0 mm)	Insert seat N=Neutral L=Left Handed R=Right Handed	Corner radius size (0.5 mm)

Module

E	25	R	12	GX	16	2
Application E = external I = internal	Size (25 mm)	Module version R=Right Handed L=Left Handed	Maximum groove depth (12 mm)	Grooving system (GX)	Insert size (16 mm)	Width class 2

Basic holder

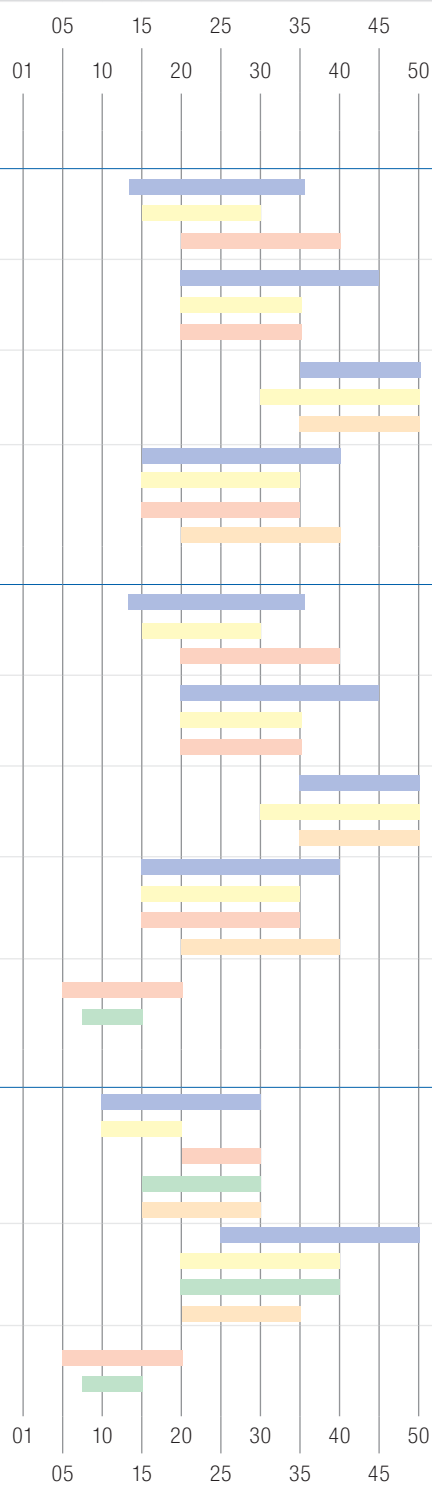
E	25	R	00	2525	L
Application E = external I = internal	Size (25 mm)	Holder version R=Right Handed L=Left Handed	Approach angle 0°	Shank type 25x25 mm	Shank length L = (sh. ISO)

Compilation

Basic holder	Module	Grooving insert
E25 R 00 - 2525L	E25 R 12 - GX 16-2	GX 16-2 E3.00 N 0.50

Grades Overview

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S
Parting							
HCR 1325	P25 M20 K30		●	○	●		○
HCR 1335	P35 M30 K35		●	○	●		
HCN 1345	P45 M40 S40		●	●			●
CCN 1340	P30 M25 K30 S30		●	●		○	●
Groove turning							
HCR 1325	P25 M20 K30		●	○	●		○
HCR 1335	P35 K35 M30		●	○	●		
HCN 1345	P45 M40 S40		●	●			●
CCN 1340	P30 M25 K30 S30		●	●		○	●
CWK 26	K15 N15				○	●	○
TC Threading System							
DPX 1520	P20 M15 K25 N25 S25		●	●	○	●	○
DPX 1535	P35 M30 N30 S30		●	●		○	●
CWK 26	K15 N15				○	●	○



● Main Application
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

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WNT Toolfinder	262
Content overview and highlights	
UltraMini	263
MiniCut	295
Product programme	
UltraMini	264–294
MiniCut	296–312
Technical Information	
Cutting Data	313–315

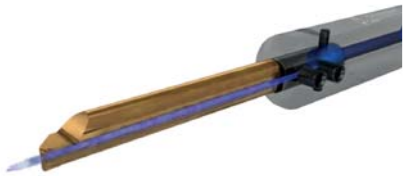
WNT MASTERTOOL PERFORMANCE

Premium quality tools for high performance.

The premium quality tools from the **WNT Mastertool Performance** product line have been designed for specific applications and are distinguished by their outstanding performance.
If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

System overview

UltraMini



Advantages / Benefits

- From a bore diameter of 0.5 mm
- Axial grooving to a depth of 40 mm
- Precision-ground shank
- Easy cutting insert assembly/removal
- Coolant supply directly to the cutting edge
- Optimum cutting insert location

MiniCut

Advantages / Benefits

- From a bore diameter of 7.8 mm
- Interchangeable inserts
- 3 rib insert location
- Precise cutting edge position
- Perfect power transmission
- Optimum stability
- Simple use
- Coolant directly to the cutting edge

Symbol explanation

UltraMini

Internal turning and profiling

High-feed turning

Turning and profile turning – super alloys

Internal turning

Back boring

Turning and chamfering

Pre-parting and chamfering

Groove turning

Internal Undercuts

Groove and profile turning

Internal thread turning

Axial grooving

MiniCut

Internal turning and profiling

Internal turning

Back boring

Turning and chamfering

Pre-parting and chamfering

Groove turning

Internal Undercuts

Groove and profile turning

Internal thread turning

Axial grooving

Coatings

TiAlN+	▪ Coating with an excellent hot hardness, resistance to oxidation and thermal insulating properties.
TiN	▪ Universal PVD TIN coating. This all-round grade is suitable for low and medium cutting speeds with limitations on non-ferrous metals.
TiAlN	▪ Universal TiAlN coating with high heat resistance with high hardness. Very well suited for non-ferrous metals.
CWX 500	▪ Universal grade that is distinguished by good toughness / hardness ratio.
DPX 77S	▪ Universal PVD-TiAlN+X coating (Dragonskin) ▪ Low coefficient of friction
DPX 57S	▪ Dragonskin coating for super alloys ▪ PVD-TiCrN coating with high temperature-resistance

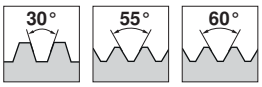
Thread types

M Metric ISO standard thread

MF Metric ISO fine thread

G Whitworth thread

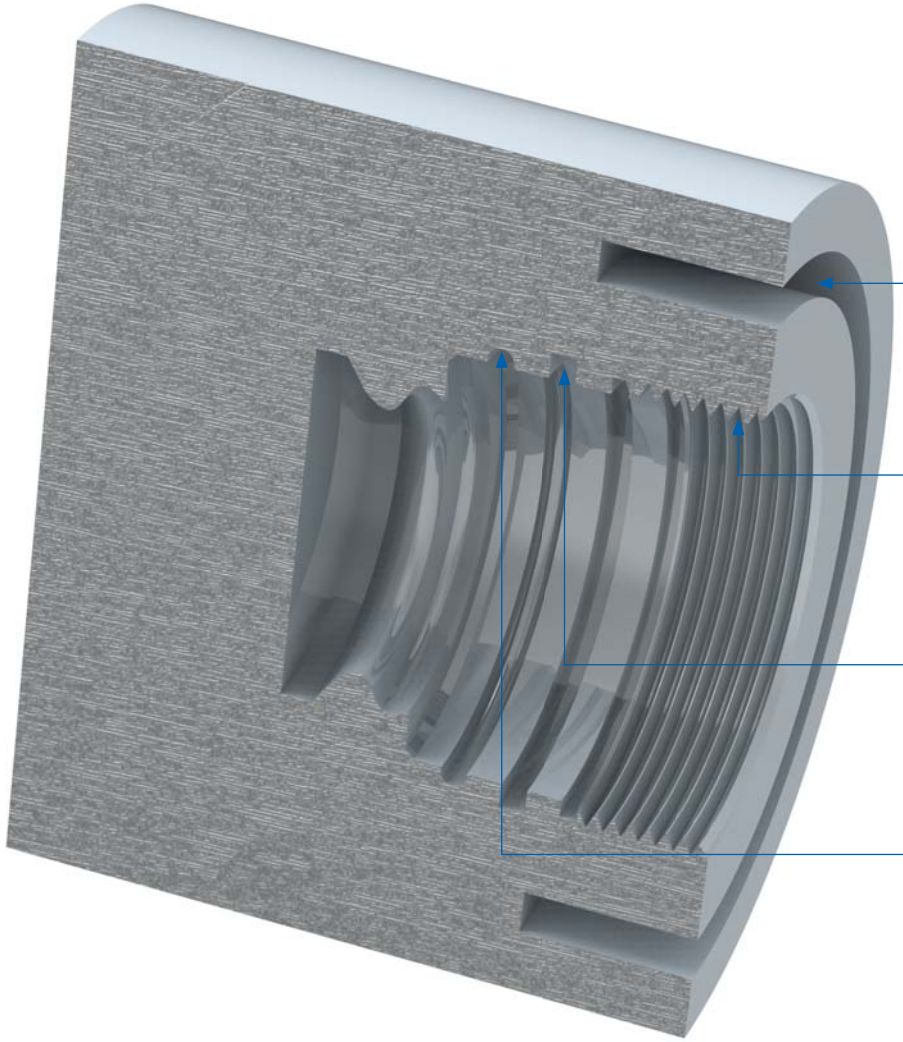
Thread flank angle



Coolant

with thro' coolant

WNT Toolfinder – Miniature turning tools



UltraMini

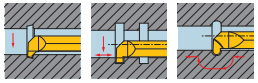
Axial grooving

282–287

Thread turning

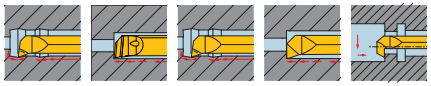
278–281

Grooving

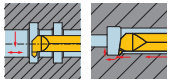


272 273–275 277

Internal turning and profiling



264–267 268 269 270 271



272 276

MiniCut

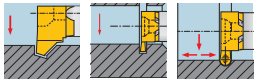
Axial grooving

282+308

Thread turning

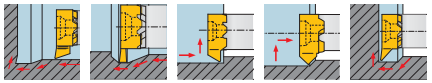
304–306

Grooving



299 300+301 303

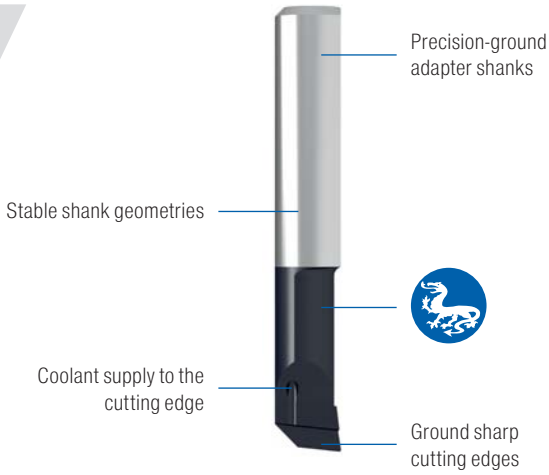
Internal turning and profiling



296 297 298 298 302

UltraMini – Highlights

- Precision turning from a diameter of 0.5 mm
  Any component application can be covered
- Covers many internal profiles
  Maximum flexibility
- Easy to change the cutting edge
  Reduces tool change times
- High repeatability
  Minimal adjustment times
- Precise centre height
  Improves component accuracy



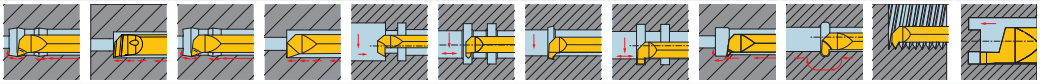
Special quick change tool holder

- Shank with coolant hole and connection thread
- One-handed quick change
- Repeatability < 5 µm

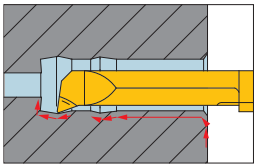
Shank diameter in mm	Adapter diameter in mm	Pages
12,0	4,0/ 5,0/ 6,0/ 7,0	290
16,0		
19,05		
20,0		
22,0		
25,0		
25,4		
28,0		

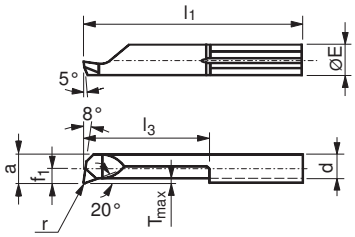
3

List of contents

Hole diameter in mm	Applications												suitable holder
	Internal turning and profiling	High-feed turning	Turning and profile turning – super alloys	Internal turning	Back boring	Turning and chamfering	Pre-parting and chamfering	Groove turning	Internal Undercuts	Groove and profile turning	Internal thread turning	Axial grooving	
UltraMini													
≥ 0,5	264-267												288-294
≥ 2	264-267	268	269					273-275	276				288-294
≥ 2,4	264-267		269								278-281		288-294
≥ 2,5			269										
≥ 2,8	264-267	268		270					276				288-294
≥ 3					271			273-275					288-294
≥ 3,5			269										
≥ 4	264-267	268	269	270	271		272	273-275	276	277	278-281		288-294
≥ 5	264-267	268		270	271	272	272	273-275	276	277	278-281	282-287	288-294
≥ 6	264-267	268			271	272	272	273-275	276	277	278-281	282-287	288-294
≥ 8												282-287	288-294
≥ 16												282-287	288-294

UltraMini – Inserts for internal turning and profiling





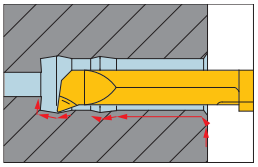
Illustrations show right-hand versions

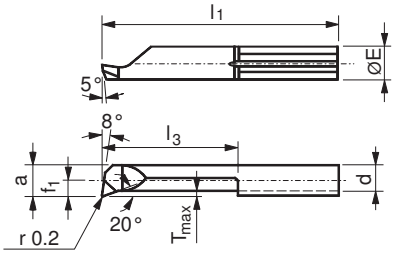
Designation	Ø E h6 DCONMS mm	f1 mm	Dmin DAXN mm	a WF mm	l1 OAL mm	l3 LDRED mm	T max. PDPT mm	d BDRED mm	r RE mm	Standard tool holder	Left-hand Y5 Article no. 73 005 ... £		Right-hand Y5 Article no. 73 004 ... £		Left-hand Y5 Article no. 73 005 ... £		Right-hand Y5 Article no. 73 004 ... £	
R/L 050.05-2	4		0.5	0.4	20	2	0.06	0.32	0.2	645.00..-D	57.07	500	57.07	500				
R/L 050.06-2	4		0.6	0.5	20	2	0.08	0.40	0.2	645.00..-D	57.07	510	57.07	510				
R/L 050.06-3	4		0.6	0.5	20	3	0.08	0.40	0.2	645.00..-D	58.92	511	58.92	511				
R/L 050.08-4	4		0.8	0.7	20	4	0.08	0.60	0.04	645.00..-D					57.43	812	57.43	812
R/L 050.1-8	4		1.0	0.9	22	8	0.10	0.75	0.05	645.00..-D					56.88	813	56.88	813
R/L 050.15-5	4		1.5	1.3	19	5	0.10	1.15	0.2	645.00..-D	54.44	515	54.44	515				
R/L 050.15-10	4		1.5	1.3	24	10	0.10	1.15	0.2	645.00..-D	54.95	516	54.95	516				
R/L 050.15-12	4		1.5	1.3	26	12	0.10	1.15	0.05	645.00..-D					56.88	818	56.88	818
R/L 050.2-5	4		2.0	1.7	19	5	0.10	1.50	0.2	645.00..-D	46.26	520	42.44	520				
R/L 050.2-10	4		2.0	1.7	24	10	0.10	1.50	0.2	645.00..-D	46.80	521	46.26	521				
R/L 050.2-15	4		2.0	1.7	29	15	0.10	1.50	0.2	645.00..-D	50.23	522	45.87	522				
R/L 050.3-10	4	0.6	2.8	2.6	24	10	0.20	2.30	0.2	645.00..-D	50.23	531	48.78	531				
R/L 050.3-16	4	0.6	2.8	2.6	30	16	0.20	2.30	0.2	645.00..-D	55.09	530	53.51	530				
R/L 050.3-20	4	0.6	2.8	2.6	34	20	0.20	2.30	0.2	645.00..-D	52.33	532	53.44	532				
R/L 050.35-10	4	1.1	3.5	3.1	24	10	0.25	2.80	0.1	645.00..-D					44.99	835	44.99	835
R/L 050.35-16	4	1.1	3.5	3.1	30	16	0.25	2.80	0.1	645.00..-D					47.43	836	47.43	836
R/L 050.35-20	4	1.1	3.5	3.1	34	20	0.25	2.80	0.1	645.00..-D					56.99	837	56.99	837
R/L 050.35-24	4	1.1	3.5	3.1	38	24	0.25	2.80	0.1	645.00..-D					62.43	838	62.43	838
R/L 050.4-10	4	1.5	4.0	3.5	24	10	0.30	3.00	0.2	645.00..-D	50.49	541	48.10	541	46.14	841	46.14	841
R/L 050.4-16	4	1.5	4.0	3.5	30	16	0.30	3.00	0.2	645.00..-D	50.49	540	48.10	540	48.78	840	48.78	840
R/L 050.4-20	4	1.5	4.0	3.5	34	20	0.30	3.00	0.2	645.00..-D	51.58	542	51.27	542	54.55	842	54.55	842
R/L 050.4-24	4	1.5	4.0	3.5	38	24	0.30	3.00	0.2	645.00..-D	61.93	545	60.10	545	61.93	845	61.93	845
R/L 050.4-28	4	1.5	4.0	3.5	42	28	0.30	3.00	0.2	645.00..-D	68.93	546	65.81	546	68.93	846	68.93	846
R/L 050.5-10	5	1.9	5.0	4.4	25	10	0.50	3.80	0.2	645.00..-D	49.91	551	45.51	551	43.22	851	43.22	851
R/L 050.5-15	5	1.9	5.0	4.4	30	15	0.50	3.80	0.2	645.00..-D	50.68	552	48.49	552	46.14	852	46.14	852
R/L 050.5-20	5	1.9	5.0	4.4	35	20	0.50	3.80	0.2	645.00..-D	51.08	550	49.78	550	53.12	850	53.12	850
R/L 050.5-25	5	1.9	5.0	4.4	40	25	0.50	3.80	0.2	645.00..-D	58.83	553	56.23	553	60.10	853	60.10	853
R/L 050.5-30	5	1.9	5.0	4.4	45	30	0.50	3.80	0.2	645.00..-D	63.40	554	61.82	554	67.75	854	67.75	854
R/L 050.5-35	5	1.9	5.0	4.4	50	35	0.50	3.80	0.2	645.00..-D	75.13	556	71.76	556	75.13	856	75.13	856
R/L 050.5-40	5	1.9	5.0	4.4	55	40	0.50	3.80	0.15	645.00..-D					81.65	857	81.65	857
R/L 050.6-15	6	2.3	6.0	5.3	30	15	0.50	4.50	0.2	676.00..-D	51.92	561	47.59	561	46.14	861	46.14	861
R/L 050.6-22	6	2.3	6.0	5.3	37	22	0.50	4.50	0.2	676.00..-D	53.24	560	51.81	560	53.12	860	53.12	860
R/L 050.6-25	6	2.3	6.0	5.3	40	25	0.50	4.50	0.2	676.00..-D	60.25	562	55.09	562	60.10	862	60.10	862
R/L 050.6-30	6	2.3	6.0	5.3	45	30	0.50	4.50	0.2	676.00..-D	64.34	563	62.61	563	67.75	863	67.75	863
R/L 050.6-35	6	2.3	6.0	5.3	50	35	0.50	4.50	0.2	676.00..-D	75.13	564	71.76	564	75.13	864	75.13	864
R/L 050.6-42	6	2.3	6.0	5.3	57	42	0.50	4.50	0.2	676.00..-D	83.96	565	81.59	565	83.96	865	83.96	865
R/L 050.7-20	7	2.8	6.8	6.3	35	20	0.60	5.50	0.2	676.00..-D	54.44	572	52.86	572	52.36	872	52.36	872
R/L 050.7-25	7	2.8	6.8	6.3	40	25	0.60	5.50	0.2	676.00..-D	68.14	573	65.37	573	60.76	873	60.76	873
R/L 050.7-30	7	2.8	6.8	6.3	45	30	0.60	5.50	0.2	676.00..-D	67.88	574	66.29	574	67.48	874	67.48	874
R/L 050.7-35	7	2.8	7.0	6.3	50	35	0.60	5.50	0.2	676.00..-D	76.43	575	76.43	575	76.43	875	76.43	875
R/L 050.7-40	7	2.8	7.0	6.3	55	40	0.60	5.50	0.2	676.00..-D	85.14	576	85.14	576	85.14	876	85.14	876
R/L 050.7-45	7	2.8	7.0	6.3	60	45	0.60	5.50	0.2	676.00..-D	88.56	577	88.56	577	88.56	877	88.56	877
R/L 050.7-50	7	2.8	7.0	6.3	65	50	0.60	5.50	0.2	676.00..-D	97.13	578	97.13	578	97.13	878	97.13	878

Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials				

→ v_c Page 314

UltraMini – Inserts for internal turning and profiling





Illustrations show right-hand versions

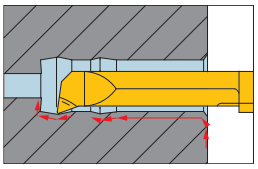
Designation	Ø E h6 DCONMS mm	f1 mm	Dmin DAXN mm	a WF mm	l1 OAL mm	l3 LDRED mm	T max. PDPT mm	d BDRED mm	Standard tool holder	Left-hand Y5 Article no. 73 005 ... £		Right-hand Y5 Article no. 73 004 ... £	
R/L 050.2-10	4		2.0	1.7	24	10	0.1	1.5	645.00..-D	38.76	021	38.76	021
R/L 050.2-15	4		2.0	1.7	29	15	0.1	1.5	645.00..-D	41.39	022	41.39	022
R/L 050.2-5	4		2.0	1.7	19	5	0.1	1.5	645.00..-D	36.98	020	36.98	020
R/L 050.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	645.00..-D	39.16	031	39.16	031
R/L 050.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	645.00..-D	46.24	032	46.24	032
R/L 050.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	645.00..-D	45.13	030	45.13	030
R/L 050.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	645.00..-D	40.74	040	40.74	040
R/L 050.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	645.00..-D	43.22	042	42.69	042
R/L 050.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	645.00..-D	39.28	041	39.28	041
R/L 050.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	645.00..-D	39.55	051	39.55	051
R/L 050.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	645.00..-D	49.91	053	49.91	053
R/L 050.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	645.00..-D	41.64	052	41.64	052
R/L 050.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	645.00..-D	54.04	054	54.76	054
R/L 050.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	645.00..-D	43.10	050	43.10	050
R/L 050.6-15	6	2.3	6.0	5.3	30	15	0.5	4.5	676.00..-D	42.69	061	42.69	061
R/L 050.6-25	6	2.3	6.0	5.3	40	25	0.5	4.5	676.00..-D	51.58	062	51.58	062
R/L 050.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	676.00..-D	55.62	063	54.83	063
R/L 050.6-22	6	2.3	6.0	5.3	37	22	0.5	4.5	676.00..-D	43.44	060	43.44	060
R/L 050.7-20	7	2.8	6.8	6.3	35	20	0.6	5.5	676.00..-D	45.87	072	45.87	072
R/L 050.7-30	7	2.8	6.8	6.3	45	30	0.6	5.5	676.00..-D	61.15	074	56.23	074
R/L 050.7-25	7	2.8	6.8	6.3	40	25	0.6	5.5	676.00..-D	52.36	073	52.36	073

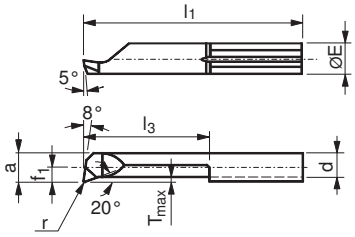
Steel	○	○
Stainless steel		
Cast iron	○	○
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

→ v_c Page 314

UltraMini – Inserts for internal turning and profiling

- with corner radius ≤ 0.05 mm





Illustrations show right-hand versions

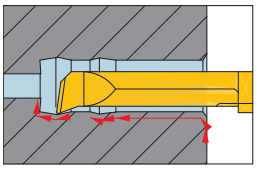
Designation	Ø E h6 DCONMS mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	$T_{max.}$ PDPT mm	d BDRED mm	r RE mm	Standard tool holder	Left-hand Y5 Article no. 73 021 ... £		Right-hand Y5 Article no. 73 020 ... £		Left-hand Y5 Article no. 73 023 ... £		Right-hand Y5 Article no. 73 022 ... £	
R/L 053.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.03	645.00..-D	49.82	310	49.82	310				
R/L 053.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.03	645.00..-D	52.45	316	52.45	316				
R/L 053.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.03	645.00..-D	61.03	320	61.03	320				
R/L 053.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.03	645.00..-D	49.82	410	49.82	410				
R/L 053.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.03	645.00..-D	52.45	416	52.45	416				
R/L 053.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.03	645.00..-D	59.32	420	59.32	420				
R/L 053.4-24	4	1.5	4.0	3.5	38	24	0.3	3.0	0.03	645.00..-D	65.64	424	65.64	424				
R/L 053.4-28	4	1.5	4.0	3.5	42	28	0.3	3.0	0.03	645.00..-D	71.37	428	71.37	428				
R/L 055.2-10	4		2.0	1.7	24	10	0.1	1.5	0.05	645.00..-D					50.30	210	50.30	210
R/L 055.2-15	4		2.0	1.7	29	15	0.1	1.5	0.05	645.00..-D					53.77	215	53.77	215
R/L 055.2-5	4		2.0	1.7	19	5	0.1	1.5	0.05	645.00..-D					49.82	205	49.82	205
R/L 055.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.05	645.00..-D					49.82	310	49.82	310
R/L 055.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.05	645.00..-D					52.45	316	52.45	316
R/L 055.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.05	645.00..-D					62.34	320	62.34	320
R/L 055.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.05	645.00..-D					49.82	410	49.82	410
R/L 055.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.05	645.00..-D					52.45	416	52.45	416
R/L 055.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.05	645.00..-D					59.32	420	59.32	420
R/L 055.4-24	4	1.5	4.0	3.5	38	24	0.3	3.0	0.05	645.00..-D					65.64	424	65.64	424
R/L 055.4-28	4	1.5	4.0	3.5	42	28	0.3	3.0	0.05	645.00..-D					71.37	428	71.37	428
R/L 055.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.05	645.00..-D					47.04	510	44.83	510
R/L 055.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.05	645.00..-D					49.82	515	49.82	515
R/L 055.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.05	645.00..-D					56.68	520	56.68	520
R/L 055.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	0.05	645.00..-D					62.70	525	62.70	525
R/L 055.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.05	645.00..-D					71.31	530	71.31	530
R/L 055.5-35	5	1.9	5.0	4.4	50	35	0.5	3.8	0.05	645.00..-D					78.82	535	78.82	535
R/L 055.6-15	6	2.3	6.0	5.3	30	15	0.5	4.5	0.05	676.00..-D					49.82	615	49.82	615
R/L 055.6-22	6	2.3	6.0	5.3	37	22	0.5	4.5	0.05	676.00..-D					55.47	622	55.47	622
R/L 055.6-25	6	2.3	6.0	5.3	40	25	0.5	4.5	0.05	676.00..-D					62.70	625	62.70	625
R/L 055.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	0.05	676.00..-D					71.31	630	71.31	630
R/L 055.6-35	6	2.3	6.0	5.3	50	35	0.5	4.5	0.05	676.00..-D					78.82	635	78.82	635
R/L 055.6-42	6	2.3	6.0	5.3	57	42	0.5	4.5	0.05	676.00..-D					85.98	642	85.98	642

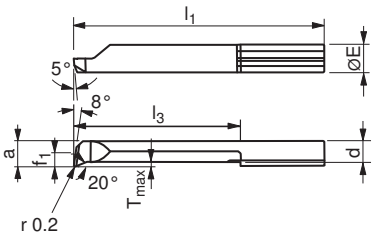
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	●	●	●	●
Non ferrous metals	●	●	●	●
Heat resistant alloys	●	●	●	●
hardened materials				

→ v_c Page 314

UltraMini – Inserts for internal turning and profiling

- with chip former





TiAlN

TiAlN

Illustrations show right-hand versions

Designation	Ø E_{h6} DCONMS mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	$T_{max.}$ PDPT mm	d BDRED mm	Standard tool holder	Left-hand Y5 Article no. 73 017 ...	£	Right-hand Y5 Article no. 73 016 ...	£
R/L 050.4-10C	4	1.5	4	3.5	24	10	0.3	3.0	645.00..-D	46.14	410	46.14	410
R/L 050.4-16C	4	1.5	4	3.5	30	16	0.3	3.0	645.00..-D	48.78	416	48.78	416
R/L 050.4-20C	4	1.5	4	3.5	34	20	0.3	3.0	645.00..-D	54.55	420	54.55	420
R/L 050.4-24C	4	1.5	4	3.5	38	24	0.3	3.0	645.00..-D	61.93	424	61.93	424
R/L 050.4-28C	4	1.5	4	3.5	42	28	0.3	3.0	645.00..-D	68.93	428	68.93	428
R/L 050.5-10C	5	1.9	5	4.4	25	10	0.5	3.8	645.00..-D	43.22	510	43.22	510
R/L 050.5-15C	5	1.9	5	4.4	30	15	0.5	3.8	645.00..-D	46.14	515	46.14	515
R/L 050.5-20C	5	1.9	5	4.4	35	20	0.5	3.8	645.00..-D	53.12	520	53.12	520
R/L 050.5-25C	5	1.9	5	4.4	40	25	0.5	3.8	645.00..-D	60.10	525	60.10	525
R/L 050.5-30C	5	1.9	5	4.4	45	30	0.5	3.8	645.00..-D	67.75	530	67.75	530
R/L 050.5-35C	5	1.9	5	4.4	50	35	0.5	3.8	645.00..-D	75.13	535	75.13	535
R/L 050.6-15C	6	2.3	6	5.3	30	15	0.5	4.5	676.00..-D	46.14	615	46.14	615
R/L 050.6-22C	6	2.3	6	5.3	37	22	0.5	4.5	676.00..-D	53.12	622	53.12	622
R/L 050.6-25C	6	2.3	6	5.3	40	25	0.5	4.5	676.00..-D	60.10	625	60.10	625
R/L 050.6-30C	6	2.3	6	5.3	45	30	0.5	4.5	676.00..-D	67.75	630	67.75	630
R/L 050.6-35C	6	2.3	6	5.3	50	35	0.5	4.5	676.00..-D	75.13	635	75.13	635
R/L 050.6-42C	6	2.3	6	5.3	57	42	0.5	4.5	676.00..-D	83.96	642	83.96	642
R/L 050.7-20C	7	2.8	7	6.3	35	20	0.6	5.5	676.00..-D	52.36	720	52.36	720
R/L 050.7-25C	7	2.8	7	6.3	40	25	0.6	5.5	676.00..-D	60.76	725	60.76	725
R/L 050.7-30C	7	2.8	7	6.3	45	30	0.6	5.5	676.00..-D	67.48	730	67.48	730
R/L 050.7-35C	7	2.8	7	6.3	50	35	0.6	5.5	676.00..-D	76.43	735	76.43	735
R/L 050.7-40C	7	2.8	7	6.3	55	40	0.6	5.5	676.00..-D	85.14	740	85.14	740
R/L 050.7-45C	7	2.8	7	6.3	60	45	0.6	5.5	676.00..-D	88.56	745	88.56	745
R/L 050.7-50C	7	2.8	7	6.3	65	50	0.6	5.5	676.00..-D	97.13	750	97.13	750

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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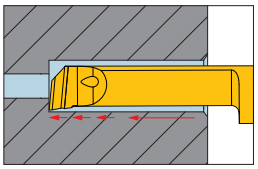
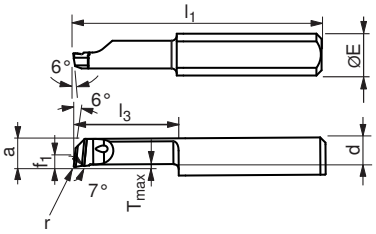
UltraMini – Inserts for internal turning

- with chip former





Illustrations show right-hand versions

DPX 77S

Left-hand

DPX 77S

Right-hand

Designation	Ø E h6 DCONMS mm	f1 mm	Dmin DAXN mm	a WF mm	l1 OAL mm	l3 LDRED mm	T max. PDPT mm	d BDRED mm	r RE mm	Standard tool holder	NEW Y5 Article no. 73 001 ... £		NEW Y5 Article no. 73 000 ... £	
R/L X050.1-5	4		1.0	0.90	20	5	0.03	0.85	0.05	645.00..-D	41.30	121	41.30	121
R/L X050.15-7	4		1.5	1.35	22	7	0.05	1.25	0.1	645.00..-D	47.20	233	47.20	233
R/L X050.2-5	4		2.0	1.80	19	5	0.10	1.60	0.15	645.00..-D	35.91	245	35.91	245
R/L X050.2-10	4		2.0	1.80	24	10	0.10	1.60	0.05	645.00..-D	36.85	215	36.85	215
R/L X050.2-10	4		2.0	1.80	24	10	0.10	1.60	0.15	645.00..-D	36.85	241	36.85	241
R/L X050.3-10	4	0.7	3.0	2.70	24	10	0.15	2.55	0.05	645.00..-D	35.81	341	35.81	341
R/L X050.3-10	4	0.7	3.0	2.70	24	10	0.15	2.55	0.2	645.00..-D	35.81	347	35.81	347
R/L X050.3-16	4	0.7	3.0	2.70	30	16	0.15	2.55	0.05	645.00..-D	37.78	371	37.78	371
R/L X050.3-16	4	0.7	3.0	2.70	30	16	0.15	2.55	0.1	645.00..-D	37.78	373	37.78	373
R/L X050.3-16	4	0.7	3.0	2.70	30	16	0.15	2.55	0.2	645.00..-D	37.78	377	37.78	377
R/L X050.4-10	4	1.6	4.0	3.60	24	10	0.20	3.20	0.1	645.00..-D	35.81	403	35.81	403
R/L X050.4-10	4	1.6	4.0	3.60	24	10	0.20	3.20	0.2	645.00..-D	35.81	407	35.81	407
R/L X050.4-16	4	1.6	4.0	3.60	30	16	0.20	3.20	0.05	645.00..-D	37.78	431	37.78	431
R/L X050.4-16	4	1.6	4.0	3.60	30	16	0.20	3.20	0.1	645.00..-D	37.78	433	37.78	433
R/L X050.4-16	4	1.6	4.0	3.60	30	16	0.20	3.20	0.2	645.00..-D	37.78	437	37.78	437
R/L X050.4-24	4	1.6	4.0	3.60	38	24	0.20	3.20	0.1	645.00..-D	48.02	463	48.02	463
R/L X050.4-24	4	1.6	4.0	3.60	38	24	0.20	3.20	0.2	645.00..-D	48.02	467	48.02	467
R/L X050.5-15	5	2.1	5.0	4.60	30	15	0.30	4.05	0.05	645.00..-D	35.81	511	35.81	511
R/L X050.5-15	5	2.1	5.0	4.60	30	15	0.30	4.05	0.1	645.00..-D	35.81	513	35.81	513
R/L X050.5-15	5	2.1	5.0	4.60	30	15	0.30	4.05	0.2	645.00..-D	35.81	517	35.81	517
R/L X050.5-25	5	2.1	5.0	4.60	40	25	0.30	4.05	0.1	645.00..-D	46.68	543	46.68	543
R/L X050.5-25	5	2.1	5.0	4.60	40	25	0.30	4.05	0.2	645.00..-D	46.68	547	46.68	547
R/L X050.5-30	5	2.1	5.0	4.60	45	30	0.30	4.05	0.1	645.00..-D	52.79	553	52.79	553
R/L X050.5-30	5	2.1	5.0	4.60	45	30	0.30	4.05	0.2	645.00..-D	52.79	557	52.79	557
R/L X050.6-15	6	2.5	6.0	5.50	30	15	0.40	4.90	0.05	676.00..-D	35.81	611	35.81	611
R/L X050.6-15	6	2.5	6.0	5.50	30	15	0.40	4.90	0.1	676.00..-D	35.81	613	35.81	613
R/L X050.6-15	6	2.5	6.0	5.50	30	15	0.40	4.90	0.2	676.00..-D	35.81	617	35.81	617
R/L X050.6-22	6	2.5	6.0	5.50	37	22	0.40	4.90	0.2	676.00..-D	41.19	637	41.19	637
R/L X050.6-30	6	2.5	6.0	5.50	45	30	0.40	4.90	0.2	676.00..-D	52.79	657	52.79	657
R/L X050.6-35	6	2.5	6.0	5.50	50	35	0.40	4.90	0.2	676.00..-D	58.37	667	58.37	667
R/L X050.6-50	6	2.5	6.0	5.50	65	50	0.40	4.90	0.2	676.00..-D	72.66	697	72.66	697
R/L X050.7-25	7	3.0	7.0	6.50	40	25	0.50	5.90	0.2	676.00..-D	47.40	747	47.40	747
R/L X050.7-30	7	3.0	7.0	6.50	45	30	0.50	5.90	0.2	676.00..-D	53.41	757	53.41	757

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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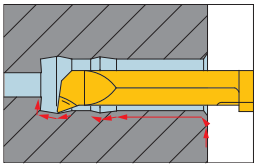
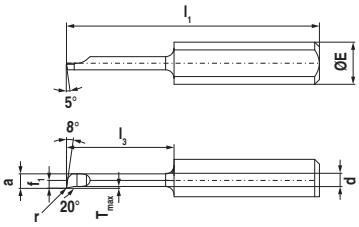
UltraMini – Inserts for internal turning and profiling

- Specially designed for super alloys





DPX 57S

DPX 57S

Illustrations show right-hand versions

Designation	Ø E h6 DCONMS mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	$T_{max.}$ PDPT mm	d BDRED mm	r RE mm	Standard tool holder	Left-hand NEW Y5 Article no. 73 027 ... £		Right-hand NEW Y5 Article no. 73 026 ... £	
R/L M050.05-2	4	0.20	0.5	0.40	20	2	0.02	0.02	0.02	645.00..-D	48.00	052	48.00	052
R/L M050.08-4	4	0.35	0.8	0.70	20	4	0.08	0.03	0.02	645.00..-D	49.00	082	49.00	082
R/L M050.1-5	4	0.40	1.0	0.90	20	5	0.05	0.05	0.02	645.00..-D	45.00	102	45.00	102
R/L M050.1-7	4	0.40	1.0	0.90	22	7	0.05	0.05	0.02	645.00..-D	47.00	103	47.00	103
R/L M050.15-5	4	0.60	1.5	1.15	19	5	0.08	0.08	0.02	645.00..-D	45.00	151	45.00	151
R/L M050.15-10	4	0.60	1.5	1.15	24	10	0.08	0.08	0.02	645.00..-D	47.00	154	47.00	154
R/L M050.2-5	4	0.80	2.0	1.70	19	5	0.08	0.08	0.02	645.00..-D	39.00	201	39.00	201
R/L M050.2-10	4	0.80	2.0	1.70	24	10	0.08	0.08	0.02	645.00..-D	40.00	204	40.00	204
R/L M050.25-5	4	0.20	2.5	2.20	19	5	0.10	0.10	0.02	645.00..-D	39.00	251	39.00	251
R/L M050.25-10	4	0.20	2.5	2.20	24	10	0.10	0.10	0.02	645.00..-D	40.00	254	40.00	254
R/L M050.3-10	4	0.60	3.0	2.60	24	10	0.15	0.15	0.02	645.00..-D	39.00	304	39.00	304
R/L M050.3-16	4	0.60	3.0	2.60	30	16	0.15	0.15	0.02	645.00..-D	41.00	307	41.00	307
R/L M050.35-10	4	1.10	3.5	3.10	24	10	0.17	0.17	0.02	645.00..-D	39.00	350	39.00	350
R/L M050.35-16	4	1.10	3.5	3.10	30	16	0.17	0.17	0.02	645.00..-D	41.00	353	41.00	353
R/L M050.35-20	4	1.10	3.5	3.10	34	20	0.17	0.17	0.02	645.00..-D	49.00	354	49.00	354
R/L M050.4-10	4	1.50	4.0	3.50	24	10	0.20	0.20	0.02	645.00..-D	39.00	400	39.00	400
R/L M050.4-16	4	1.50	4.0	3.50	30	16	0.20	0.20	0.02	645.00..-D	41.00	403	41.00	403
R/L M050.4-20	4	1.50	4.0	3.50	34	20	0.20	0.20	0.02	645.00..-D	46.00	404	46.00	404
R/L M050.4-24	4	1.50	4.0	3.50	38	24	0.20	0.20	0.02	645.00..-D	52.00	406	52.00	406

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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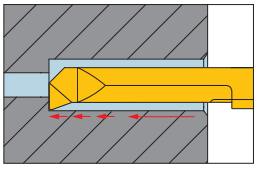
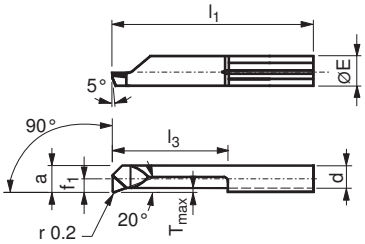
3

UltraMini – Inserts for internal turning





TiN

TiN

Illustrations show right-hand versions

Designation	Ø E h6 DCONMS mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	$T_{max.}$ PDPT mm	d BDRED mm	Standard tool holder	Left-hand Y5 Article no. 73 015 ... £		Right-hand Y5 Article no. 73 014 ... £	
R/L 090.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	645.00..-D	46.14	**541**	46.14	**541**
R/L 090.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	645.00..-D	48.89	**542**	48.89	**542**
R/L 090.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	645.00..-D	46.14	**545**	46.14	**545**
R/L 090.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	645.00..-D	48.89	**546**	48.89	**546**
R/L 090.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	645.00..-D	46.14	**550**	46.14	**550**
R/L 090.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	645.00..-D	48.89	**551**	48.89	**551**
R/L 090.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	645.00..-D	53.12	**552**	53.12	**552**

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

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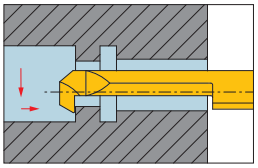
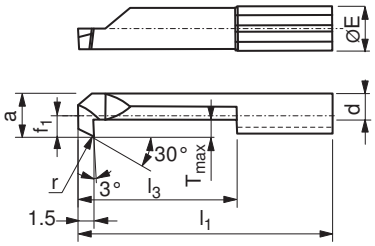
UltraMini – Inserts for back boring





TiN

TiN

Illustrations show right-hand versions

Designation	Ø E h6 DCONMS mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	$T_{max.}$ PDPT mm	d BDRED mm	r RE mm	Standard tool holder	Left-hand Y5 Article no. 73 013 ... £		Right-hand Y5 Article no. 73 012 ... £	
R/L 080.0003-15	4	0.6	3	2.6	29	15	0.5	2.0	0.1	645.00..-D	56.41	542	56.41	542
R/L 080.0003-20	4	0.6	3	2.6	34	20	0.5	2.0	0.1	645.00..-D	67.22	544	67.22	544
R/L 080.0004-15	4	1.5	4	3.5	29	15	0.8	2.4	0.15	645.00..-D	56.41	546	56.41	546
R/L 080.0004-25	4	1.5	4	3.5	39	25	0.8	2.4	0.15	645.00..-D	63.23	548	63.23	548
R/L 080.0005-20	5	1.9	5	4.4	35	20	1.0	3.3	0.2	645.00..-D	57.61	554	57.61	554
R/L 080.0005-30	5	1.9	5	4.4	45	30	1.0	3.3	0.2	645.00..-D	59.84	558	59.84	558
R/L 080.0006-20	6	2.3	6	5.3	35	20	1.8	3.4	0.2	676.00..-D	60.10	564	60.10	564
R/L 080.0006-30	6	2.3	6	5.3	45	30	1.8	3.4	0.2	676.00..-D	71.95	568	71.95	568
R/L 080.0007-20	7	2.7	7	6.3	35	20	2.5	3.8	0.2	676.00..-D	60.10	574	60.10	574
R/L 080.0007-30	7	2.7	7	6.3	45	30	2.5	3.8	0.2	676.00..-D	71.95	578	71.95	578

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

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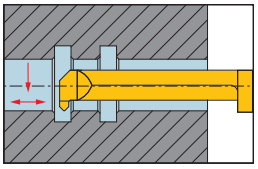
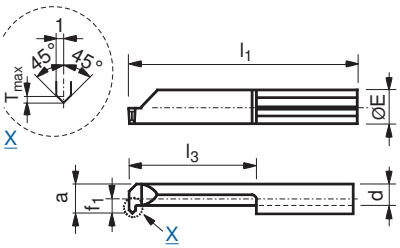
UltraMini – Inserts for internal turning and chamfering





Illustrations show right-hand versions

Designation	Ø E h6 DCONMS mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	$T_{max.}$ PDPT mm	d BDRED mm	r RE mm	Standard tool holder	Left-hand Y5 Article no. 73 007 ... £		Right-hand Y5 Article no. 73 006 ... £		Left-hand Y5 Article no. 73 007 ... £		Right-hand Y5 Article no. 73 006 ... £	
R/L 060.5-15	5	1.9	5.0	4.4	30	15	0.7	3.3	0.2	645.00..-D	40.06	051	40.06	051	46.80	551	43.48	551
R/L 060.5-20	5	1.9	5.0	4.4	35	20	0.7	3.3	0.2	645.00..-D	39.96	050	39.96	050	48.60	550	48.39	550
R/L 060.7-20	7	2.7	6.8	6.3	35	20	0.7	3.8	0.2	676.00..-D	47.84	070	44.94	070	54.55	570	50.49	570

Steel	○	○	●	●
Stainless steel			●	●
Cast iron	○	○	○	○
Non ferrous metals	●	●	○	○
Heat resistant alloys			○	○
hardened materials				

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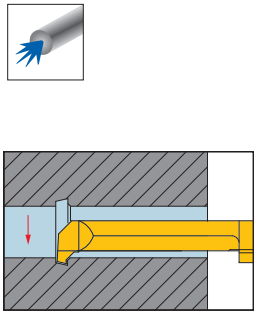
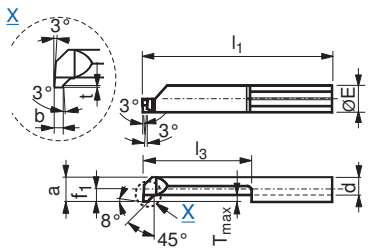
UltraMini – Inserts for internal chamfering for subsequent parting off





Illustrations show right-hand versions

Designation	Ø E h6 DCONMS mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	$T_{max.}$ PDPT mm	d BDRED mm	b CW mm	t CDX mm	Standard tool holder	Left-hand Y5 Article no. 73 009 ... £		Right-hand Y5 Article no. 73 008 ... £		Left-hand Y5 Article no. 73 009 ... £		Right-hand Y5 Article no. 73 008 ... £	
R/L 070.4-10	4	1.5	4	3.5	25	10	0.8	2.4	1	0.2	645.00..-D					48.44	410	48.44	410
R/L 070.4-16	4	1.5	4	3.5	30	16	0.8	2.4	1	0.2	645.00..-D					49.88	416	49.88	416
R/L 070.5-15	5	1.9	5	4.4	30	15	1.0	3.3	1	0.2	645.00..-D	39.44	051	39.44	051	47.84	551	47.84	551
R/L 070.5-20	5	1.9	5	4.4	35	20	1.0	3.3	1	0.2	645.00..-D	41.52	050	41.52	050	50.49	550	50.49	550
R/L 070.5-30	5	1.9	5	4.4	45	30	1.0	3.3	1	0.2	645.00..-D					67.43	530	67.43	530
R/L 070.6-30	6	2.3	6	5.3	45	30	1.0	4.2	1	0.2	676.00..-D					67.43	630	67.43	630
R/L 070.6-42	6	2.3	6	5.3	57	42	1.0	4.2	1	0.2	676.00..-D					78.87	642	78.87	642

Steel	○	○	●	●
Stainless steel			●	●
Cast iron	○	○	○	○
Non ferrous metals	●	●	○	○
Heat resistant alloys			○	○
hardened materials				

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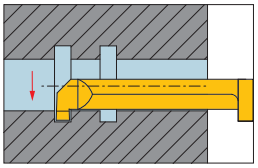
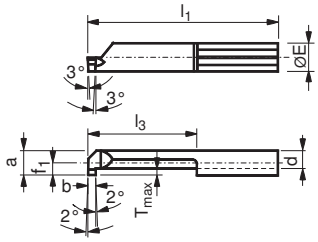
UltraMini – Inserts for Internal Grooving





Illustrations show right-hand versions

Designation	Ø E h6 DCONMS mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	$T_{max.}$ PDPT mm	d BDRED mm	b CW mm	Standard tool holder	Left-hand Y5 Article no. 73 003 ... £		Right-hand Y5 Article no. 73 002 ... £		Left-hand Y5 Article no. 73 003 ... £		Right-hand Y5 Article no. 73 002 ... £	
R/L 004.0100-10	4	1.5	4.0	3.5	24	10	0.8	2.4	1.0	645.00..-D	35.98	040	35.98	040	43.83	540	42.84	540
R/L 004.0100-16	4	1.5	4.0	3.5	30	16	0.8	2.4	1.0	645.00..-D	44.94	041	44.94	041	53.77	541	52.33	541
R/L 004.0100-20	4	1.5	4.0	3.5	34	20	0.8	2.4	1.0	645.00..-D	48.50	042	48.50	042	58.00	542	56.41	542
R/L 005.0100-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.0	645.00..-D	35.69	150	35.69	150	44.83	650	42.16	650
R/L 005.0200-10	5	1.9	5.0	4.4	25	10	1.0	3.3	2.0	645.00..-D	35.69	158	35.69	158	44.83	658	43.63	658
R/L 005.0150-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.5	645.00..-D	35.69	154	35.69	154	44.83	654	43.63	654
R/L 005.0100-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.0	645.00..-D	42.16	151	42.16	151	51.81	651	49.39	651
R/L 005.0150-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.5	645.00..-D	42.16	155	42.16	155	51.81	655	49.39	655
R/L 005.0200-15	5	1.9	5.0	4.4	30	15	1.0	3.3	2.0	645.00..-D	42.16	159	42.16	159	51.81	659	49.39	659
R/L 005.0200-20	5	1.9	5.0	4.4	35	20	1.0	3.3	2.0	645.00..-D	48.50	053	48.50	053	56.23	553	55.90	553
R/L 005.0150-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.5	645.00..-D	48.50	052	48.50	052	56.23	552	55.90	552
R/L 005.0100-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.0	645.00..-D	48.50	051	48.50	051	56.23	551	55.90	551
R/L 005.0100-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.0	645.00..-D	54.55	152	54.55	152	63.66	652	61.93	652
R/L 005.0200-25	5	1.9	5.0	4.4	40	25	1.0	3.3	2.0	645.00..-D	54.55	250	54.55	250	64.05	750	62.34	750
R/L 005.0150-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.5	645.00..-D	54.55	156	54.55	156	63.66	656	61.93	656
R/L 005.0100-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.0	645.00..-D	61.55	153	61.55	153	70.90	653	68.93	653
R/L 005.0200-30	5	1.9	5.0	4.4	45	30	1.0	3.3	2.0	645.00..-D	61.55	251	61.55	251	71.31	751	69.47	751
R/L 005.0150-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.5	645.00..-D	61.55	157	61.55	157	70.90	657	68.93	657
R/L 005.0100-35	5	1.9	5.0	4.4	50	35	1.0	3.3	1.0	645.00..-D					78.82	680	75.24	680
R/L 006.0100-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.0	676.00..-D	37.43	160	37.43	160	44.22	660	42.93	660
R/L 006.0150-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.5	676.00..-D	37.43	164	37.43	164	44.22	664	41.12	664
R/L 006.0200-10	6	2.3	6.0	5.3	25	10	1.8	3.4	2.0	676.00..-D	37.43	168	37.43	168	44.22	668	42.93	668
R/L 006.0150-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.5	676.00..-D	44.54	165	44.54	165	51.08	665	49.78	665
R/L 006.0200-15	6	2.3	6.0	5.3	30	15	1.8	3.4	2.0	676.00..-D	44.54	169	44.54	169	51.08	669	49.78	669
R/L 006.0100-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.0	676.00..-D	44.54	161	44.54	161	51.08	661	49.78	661
R/L 006.0200-22	6	2.3	6.0	5.3	37	22	1.8	3.4	2.0	676.00..-D	48.89	063	48.89	063	56.76	563	56.29	563
R/L 006.0150-22	6	2.3	6.0	5.3	37	22	1.8	3.4	1.5	676.00..-D	48.89	062	48.89	062	56.76	562	56.29	562
R/L 006.0100-22	6	2.3	6.0	5.3	37	22	1.8	3.4	1.0	676.00..-D	48.89	061	48.89	061	56.76	561	56.29	561
R/L 006.0100-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.0	676.00..-D	56.29	162	56.29	162	64.05	662	62.34	662
R/L 006.0200-25	6	2.3	6.0	5.3	40	25	1.8	3.4	2.0	676.00..-D	56.29	260	56.29	260	64.05	760	62.34	760
R/L 006.0150-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.5	676.00..-D	56.29	166	56.29	166	64.05	666	62.34	666
R/L 006.0150-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.5	676.00..-D	63.66	167	63.66	167	71.31	667	69.47	667
R/L 006.0200-30	6	2.3	6.0	5.3	45	30	1.8	3.4	2.0	676.00..-D	63.66	261	63.66	261	71.31	761	69.47	761
R/L 006.0100-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.0	676.00..-D	63.66	163	63.66	163	71.31	663	69.47	663
R/L 006.0150-35	6	2.3	6.0	5.3	50	35	1.8	3.4	1.5	676.00..-D					78.82	684	75.24	684
R/L 006.0100-35	6	2.3	6.0	5.3	50	35	1.8	3.4	1.0	676.00..-D					78.82	682	75.24	682
R/L 006.0100-42	6	2.3	6.0	5.3	57	42	1.8	3.4	1.0	676.00..-D					86.98	685	84.49	685
R/L 007.0200-10	7	2.7	6.8	6.3	25	10	2.5	3.8	2.0	676.00..-D	37.82	170	37.82	170	44.61	670	43.63	670
R/L 007.0150-10	7	2.7	6.8	6.3	25	10	2.5	3.8	1.5	676.00..-D	37.82	075	37.82	075	44.61	575	43.63	575
R/L 007.0100-10	7	2.7	6.8	6.3	25	10	2.5	3.8	1.0	676.00..-D	37.82	070	37.82	070	44.61	570	43.63	570
R/L 007.0150-15	7	2.7	6.8	6.3	30	15	2.5	3.8	1.5	676.00..-D	44.94	076	44.94	076	51.58	576	50.30	576
R/L 007.0200-15	7	2.7	6.8	6.3	30	15	2.5	3.8	2.0	676.00..-D	44.94	171	44.94	171	51.58	671	48.11	671
R/L 007.0100-15	7	2.7	6.8	6.3	30	15	2.5	3.8	1.0	676.00..-D	44.94	071	44.94	071	51.58	571	50.30	571
R/L 007.0200-22	7	2.7	6.8	6.3	37	22	2.5	3.8	2.0	676.00..-D	51.41	172	51.41	172	58.05	672	57.46	672
R/L 007.0150-22	7	2.7	6.8	6.3	37	22	2.5	3.8	1.5	676.00..-D	51.41	077	51.41	077	58.05	577	57.46	577
R/L 007.0100-22	7	2.7	6.8	6.3	37	22	2.5	3.8	1.0	676.00..-D	51.41	072	51.41	072	58.05	572	57.46	572
R/L 007.0150-25	7	2.7	6.8	6.3	40	25	2.5	3.8	1.5	676.00..-D	55.47	078	55.47	078	64.73	578	63.00	578
R/L 007.0200-25	7	2.7	6.8	6.3	40	25	2.5	3.8	2.0	676.00..-D	55.47	173	55.47	173	64.73	673	62.09	673
R/L 007.0100-25	7	2.7	6.8	6.3	40	25	2.5	3.8	1.0	676.00..-D	55.47	073	55.47	073	64.73	573	63.00	573
R/L 007.0200-30	7	2.7	6.8	6.3	45	30	2.5	3.8	2.0	676.00..-D	65.12	174	57.88	174	71.37	674	66.29	674
R/L 007.0150-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.5	676.00..-D	64.73	079	64.73	079	71.37	579	68.38	579
R/L 007.0100-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.0	676.00..-D	64.73	074	64.73	074	71.37	574	70.64	574
R/L 007.0200-35	7	2.7	7.0	6.3	50	35	2.5	3.8	2.0	676.00..-D					79.60	692	77.37	692
R/L 007.0150-35	7	2.7	7.0	6.3	50	35	2.5	3.8	1.5	676.00..-D					79.60	690	77.37	690
R/L 007.0100-35	7	2.7	7.0	6.3	50	35	2.5	3.8	1.0	676.00..-D					79.60	688	77.37	688
R/L 007.0150-40	7	2.7	7.0	6.3	55	40	2.5	3.8	1.5	676.00..-D					88.30	702	85.80	702
R/L 007.0100-40	7	2.7	7.0	6.3	55	40	2.5	3.8	1.0	676.00..-D					88.30	700	85.80	700
R/L 007.0100-45	7	2.7	7.0	6.3	60	45	2.5	3.8	1.0	676.00..-D					95.82	712	93.19	712
R/L 007.0100-50	7	2.7	7.0	6.3	65	50	2.5	3.8	1.0	676.00..-D					102.66	714	99.63	714

Steel	○	○	●	●
Stainless steel			●	●
Cast iron	○	○	○	○
Non ferrous metals	●	●	○	○
Heat resistant alloys			○	○
hardened materials				

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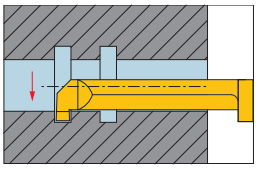
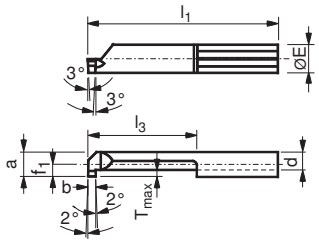
UltraMini – Inserts for Internal Grooving





Illustrations show right-hand versions

TiAlN

Left-hand

TiAlN

Right-hand

Designation	Ø E h6 DCONMS mm	f1 mm	Dmin DAXN mm	a WF mm	l1 OAL mm	l3 LDRED mm	T max. PDPT mm	d BDRED mm	b CW mm	Standard tool holder	Y5 Article no. 73 003 ... £		Y5 Article no. 73 002 ... £	
R/L 002.0050-5	4		2	1.8	19	5	0.4	1.2	0.5	645.00..-D	55.09	820	55.09	820
R/L 002.0050-10	4		2	1.8	24	10	0.4	1.2	0.5	645.00..-D	55.47	821	55.47	821
R/L 002.0050-15	4		2	1.8	29	15	0.4	1.2	0.5	645.00..-D	61.03	822	61.03	822
R/L 003.0070-5	4	0.7	3	2.7	19	5	0.6	1.9	0.7	645.00..-D	51.08	830	51.08	830
R/L 003.0070-10	4	0.7	3	2.7	24	10	0.6	1.9	0.7	645.00..-D	58.92	831	58.92	831
R/L 003.0070-16	4	0.7	3	2.7	30	16	0.6	1.9	0.7	645.00..-D	65.64	832	65.64	832

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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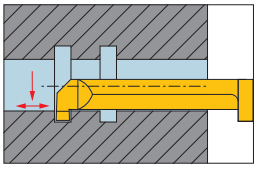
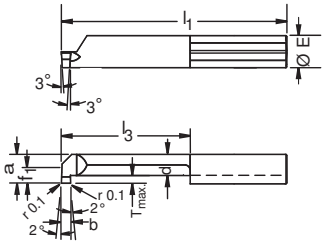
UltraMini – Inserts for Internal Grooving

- with corner radius





Illustrations show right-hand versions

TiAlN

TiAlN

Designation	Ø E h6 DCONMS mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	$T_{max.}$ PDPT mm	d BDRED mm	b CW mm	Standard tool holder	Left-hand Y5 Article no. 73 203 ... £		Right-hand Y5 Article no. 73 202 ... £	
R/L 004M0100-10	4	1.5	4.0	3.5	24	10	0.8	2.4	1.0	645.00..-D	47.10	800	47.10	800
R/L 004M0100-16	4	1.5	4.0	3.5	30	16	0.8	2.4	1.0	645.00..-D	53.77	802	53.77	802
R/L 004M0100-20	4	1.5	4.0	3.5	34	20	0.8	2.4	1.0	645.00..-D	59.22	804	59.22	804
R/L 005M0100-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.0	645.00..-D	44.46	806	44.46	806
R/L 005M0100-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.0	645.00..-D	50.96	808	50.96	808
R/L 005M0100-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.0	645.00..-D	56.94	810	56.94	810
R/L 005M0100-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.0	645.00..-D	61.85	812	61.85	812
R/L 005M0100-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.0	645.00..-D	68.54	814	68.54	814
R/L 005M0150-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.5	645.00..-D	44.46	816	44.46	816
R/L 005M0150-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.5	645.00..-D	50.96	818	50.96	818
R/L 005M0150-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.5	645.00..-D	56.94	820	56.94	820
R/L 005M0150-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.5	645.00..-D	61.85	822	61.85	822
R/L 005M0150-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.5	645.00..-D	68.54	824	68.54	824
R/L 005M0200-10	5	1.9	5.0	4.4	25	10	1.0	3.3	2.0	645.00..-D	44.46	826	44.46	826
R/L 005M0200-15	5	1.9	5.0	4.4	30	15	1.0	3.3	2.0	645.00..-D	50.96	828	50.96	828
R/L 005M0200-20	5	1.9	5.0	4.4	35	20	1.0	3.3	2.0	645.00..-D	56.94	830	56.94	830
R/L 005M0200-25	5	1.9	5.0	4.4	40	25	1.0	3.3	2.0	645.00..-D	61.85	832	61.85	832
R/L 005M0200-30	5	1.9	5.0	4.4	45	30	1.0	3.3	2.0	645.00..-D	68.54	834	68.54	834
R/L 006M0100-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.0	676.00..-D	44.46	836	44.46	836
R/L 006M0100-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.0	676.00..-D	50.96	838	50.96	838
R/L 006M0100-20	6	2.3	6.0	5.3	35	22	1.8	3.4	1.0	676.00..-D	56.94	840	56.94	840
R/L 006M0100-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.0	676.00..-D	61.85	842	61.85	842
R/L 006M0100-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.0	676.00..-D	68.54	844	68.54	844
R/L 006M0150-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.5	676.00..-D	44.46	846	44.46	846
R/L 006M0150-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.5	676.00..-D	50.96	848	50.96	848
R/L 006M0150-20	6	2.3	6.0	5.3	37	22	1.8	3.4	1.5	676.00..-D	56.94	850	56.94	850
R/L 006M0150-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.5	676.00..-D	61.85	852	61.85	852
R/L 006M0150-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.5	676.00..-D	68.54	854	68.54	854
R/L 006M0200-10	6	2.3	6.0	5.3	25	10	1.8	3.4	2.0	676.00..-D	44.46	856	44.46	856
R/L 006M0200-15	6	2.3	6.0	5.3	30	15	1.8	3.4	2.0	676.00..-D	50.96	858	50.96	858
R/L 006M0200-20	6	2.3	6.0	5.3	37	22	1.8	3.4	2.0	676.00..-D	56.94	860	56.94	860
R/L 006M0200-25	6	2.3	6.0	5.3	40	25	1.8	3.4	2.0	676.00..-D	61.85	862	61.85	862
R/L 006M0200-30	6	2.3	6.0	5.3	45	30	1.8	3.4	2.0	676.00..-D	68.54	864	68.54	864
R/L 007M0100-10	7	2.7	6.8	6.3	25	10	2.5	3.7	1.0	676.00..-D	44.46	866	44.46	866
R/L 007M0100-15	7	2.7	6.8	6.3	30	15	2.5	3.7	1.0	676.00..-D	50.96	868	50.96	868
R/L 007M0100-22	7	2.7	6.8	6.3	37	22	2.5	3.7	1.0	676.00..-D	56.94	870	56.94	870
R/L 007M0100-25	7	2.7	6.8	6.3	40	25	2.5	3.7	1.0	676.00..-D	61.85	872	61.85	872
R/L 007M0100-30	7	2.7	6.8	6.3	45	30	2.5	3.7	1.0	676.00..-D	69.07	874	69.07	874
R/L 007M0150-10	7	2.7	6.8	6.3	25	10	2.5	3.7	1.5	676.00..-D	44.46	876	44.46	876
R/L 007M0150-15	7	2.7	6.8	6.3	30	15	2.5	3.7	1.5	676.00..-D	50.96	878	50.96	878
R/L 007M0150-22	7	2.7	6.8	6.3	37	22	2.5	3.7	1.5	676.00..-D	56.94	880	56.94	880
R/L 007M0150-25	7	2.7	6.8	6.3	40	25	2.5	3.7	1.5	676.00..-D	61.85	882	61.85	882
R/L 007M0150-30	7	2.7	6.8	6.3	45	30	2.5	3.7	1.5	676.00..-D	69.07	884	69.07	884
R/L 007M0200-10	7	2.7	6.8	6.3	25	10	2.5	3.7	2.0	676.00..-D	44.46	886	44.46	886
R/L 007M0200-15	7	2.7	6.8	6.3	30	15	2.5	3.7	2.0	676.00..-D	50.96	888	50.96	888
R/L 007M0200-22	7	2.7	6.8	6.3	37	22	2.5	3.7	2.0	676.00..-D	56.94	890	56.94	890
R/L 007M0200-25	7	2.7	6.8	6.3	40	25	2.5	3.7	2.0	676.00..-D	61.85	892	61.85	892
R/L 007M0200-30	7	2.7	6.8	6.3	45	30	2.5	3.7	2.0	676.00..-D	69.07	894	69.07	894

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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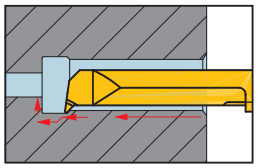
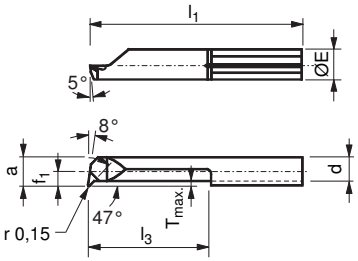
UltraMini – Inserts for internal undercuts





Illustrations show right-hand versions

Designation	Ø E h6 DCONMS mm	f1 mm	Dmin DAXN mm	a WF mm	l1 OAL mm	l3 LDRED mm	T max. PDPT mm	d BDRED mm	Standard tool holder	Left-hand Y5 Article no. 73 011 ... £		Right-hand Y5 Article no. 73 010 ... £		Left-hand Y5 Article no. 73 011 ... £		Right-hand Y5 Article no. 73 010 ... £	
R/L 047.2-10	4		2.0	1.7	24	10	0.4	1.2	645.00..-D					51.87	221	51.87	221
R/L 047.3-15	4	0.6	2.8	2.6	29	15	0.6	1.9	645.00..-D					53.99	231	53.99	231
R/L 047.4-10	4	1.5	4.0	3.5	24	10	0.6	2.8	645.00..-D					49.44	241	49.44	241
R/L 047.T4-20	4	1.5	4.0	3.5	34	20	0.6	2.8	645.00..-D					57.99	242	57.99	242
R/L 047.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	645.00..-D	55.76	542	54.96	542				
R/L 047.5-15	5	1.9	5.0	4.4	30	15	0.8	3.5	645.00..-D					55.65	251	55.65	251
R/L 047.T5-25	5	1.9	5.0	4.4	40	25	0.8	3.5	645.00..-D					58.87	252	58.87	252
R/L 047.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	645.00..-D	55.47	552	55.47	552				
R/L 047.T6-22	6	2.3	6.0	5.3	37	22	1.8	3.4	676.00..-D					56.99	262	56.99	262
R/L 047.T6-30	6	2.3	6.0	5.3	45	30	1.8	3.4	676.00..-D					75.87	263	60.21	263
R/L 047.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	676.00..-D	56.76	562	57.61	562				

Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials				

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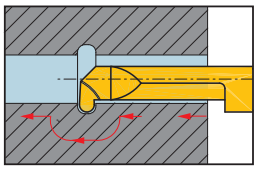
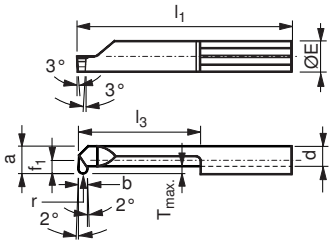
UltraMini – Inserts for internal grooving and turning





Illustrations show right-hand versions

TiN

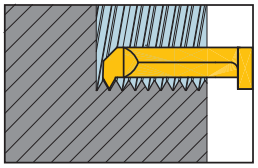
TiN

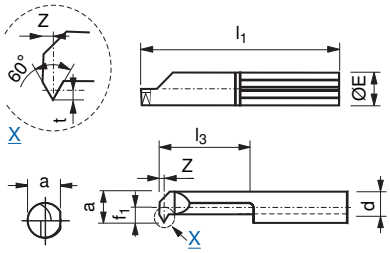
Designation	Ø E h6 DCONMS mm	f1 mm	Dmin DAXN mm	a WF mm	l1 OAL mm	l3 LDRED mm	T max. PDPT mm	d BDRED mm	b CW mm	r RE mm	Standard tool holder	Left-hand Y5 Article no. 73 019 ... £		Right-hand Y5 Article no. 73 018 ... £	
R/L 004-0.50-16	4	1.5	4.0	3.5	30	16	0.8	2.4	1.0	0.5	645.00..-D	54.16	541	51.81	541
R/L 005-0.50-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.0	0.5	645.00..-D	57.21	552	57.21	552
R/L 005-0.75-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.5	0.75	645.00..-D	57.21	554	57.21	554
R/L 005-1.00-20	5	1.9	5.0	4.4	35	20	1.0	3.3	2.0	1.0	645.00..-D	57.21	556	57.21	556
R/L 006-0.50-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.0	0.5	676.00..-D	58.52	562	58.52	562
R/L 006-0.75-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.5	0.75	676.00..-D	58.52	564	58.52	564
R/L 006-1.00-25	6	2.3	6.0	5.3	40	25	1.8	3.4	2.0	1.0	676.00..-D	58.52	566	57.61	566
R/L 007-0.50-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.0	0.5	676.00..-D	60.35	572	57.54	572
R/L 007-0.75-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.5	0.75	676.00..-D	60.35	574	60.35	574
R/L 007-1.00-30	7	2.7	6.8	6.3	45	30	2.5	3.8	2.0	1.0	676.00..-D	60.35	576	60.35	576

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

→ v_c Page 314

UltraMini – Inserts for internal threading (Partial profile)





Illustrations show right-hand versions

Designation	Ø E h6 DCONMS mm	p TP mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	d BDRED mm	t CDX mm	Z PDX mm	clamping holder	TiN Left-hand K10F Y5 Article no. 73 101 ... £		TiN Right-hand K10F Y5 Article no. 73 100 ... £		TiAlN Left-hand K10F Y5 Article no. 73 101 ... £		TiAlN Right-hand K10F Y5 Article no. 73 100 ... £	
R/L 003.0105-8	4	0.50	0.30	2.4	2.3	22	8	1.8	0.27	0.33	645.00..-D					52.43	**551**	52.43	**551**
R/L 004.0408-15	4	0.80	1.75	4.0	3.5	30	15	2.4	0.43	0.45	645.00..-D					54.66	**552**	54.66	**552**
R/L 005.0510-15	5	1.00	1.90	4.8	4.4	30	15	3.3	0.55	0.55	645.00..-D	49.85	**545**	48.33	**545**				
R/L 005.0510-20	5	1.00	1.90	4.8	4.4	35	20	3.3	0.55	0.55	645.00..-D	50.55	**544**	50.35	**544**				
R/L 006.0612-15	6	1.25	2.30	6.0	5.3	30	15	3.4	0.68	0.65	676.00..-D	48.87	**547**	48.33	**547**				
R/L 006.0612-22	6	1.25	2.30	6.0	5.3	37	22	3.4	0.68	0.65	676.00..-D	51.21	**546**	49.98	**546**				
R/L 006.0815-15	6	1.50	2.30	6.0	5.3	30	15	3.4	0.81	0.75	676.00..-D	49.85	**549**	48.95	**549**				
R/L 006.0815-22	6	1.50	2.30	6.0	5.3	37	22	3.4	0.81	0.75	676.00..-D	51.21	**548**	49.98	**548**				
R/L 007.0815-15	7	1.50	2.70	7.0	6.3	30	15	3.8	0.81	0.75	676.00..-D	49.56	**550**	49.98	**550**				

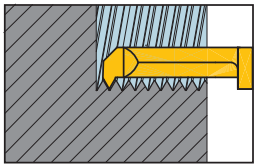
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials				

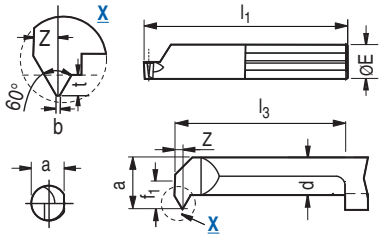
→ v_c Page 314

UltraMini – Inserts for Internal thread turning (Full profile)

TiAlN

TiAlN





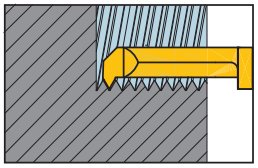
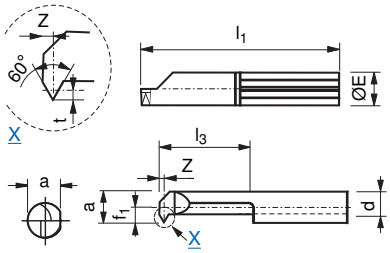
Illustrations show right-hand versions

Designation	Ø E h6 DCONMS mm	p TP mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	d BDRED mm	t CDX mm	Z PDX mm	b CW mm	Standard tool holder	Left-hand K10F Y5 Article no. 73 209 ... £		Right-hand K10F Y5 Article no. 73 208 ... £	
R/L 105.0408-15	5	0.80	1.9	4.8	4.4	30	15	3.3	0.43	0.50	0.10	645.00..-D	56.66	799	56.66	799
R/L 105.510-15	5	1.00	1.9	4.8	4.4	30	15	3.3	0.54	0.55	0.12	645.00..-D	52.36	800	52.36	800
R/L 106.612-15	6	1.25	2.3	6.0	5.3	30	15	3.4	0.67	0.65	0.15	676.00..-D	52.36	802	52.36	802
R/L 106.815-15	6	1.50	2.3	6.0	5.3	30	15	3.4	0.81	0.75	0.18	676.00..-D	52.36	804	52.36	804
R/L 106.815-15	7	1.50	2.7	7.0	6.3	30	15	3.8	0.81	0.75	0.18	676.00..-D	52.36	806	52.36	806

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

UltraMini – Inserts for internal thread turning (Partial profile)

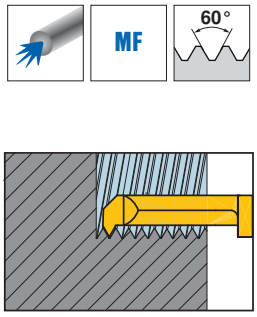
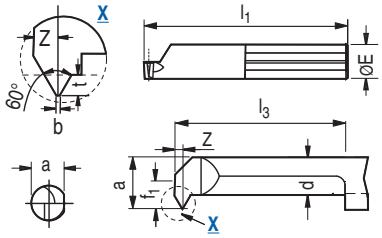
Illustrations show right-hand versions

Designation	Ø E h6 DCONMS mm	p TP mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	d BDRED mm	t CDX mm	Z PDX mm	Standard tool holder	TiN Left-hand K10F Y5 Article no. 73 103 ... £		TiN Right-hand K10F Y5 Article no. 73 102 ... £		TiAlN Left-hand K10F Y5 Article no. 73 103 ... £		TiAlN Right-hand K10F Y5 Article no. 73 102 ... £	
R/L 004.0105-10	4	0.50	1.0	3.2	3.0	24	10	2.3	0.27	0.44	645.00..-D					51.66	509	51.66	509
R/L 004.0205-15	4	0.50	1.5	4.0	3.5	30	15	2.4	0.27	0.35	645.00..-D	51.63	510	51.63	510				
R/L 005.0205-15	5	0.50	1.9	5.0	4.4	30	15	3.3	0.27	0.35	645.00..-D	49.85	539	49.85	539				
R/L 005.0205-20	5	0.50	1.9	5.0	4.4	35	20	3.3	0.27	0.35	645.00..-D	50.55	540	50.55	540				
R/L 005.0407-15	5	0.75	1.9	5.0	4.4	30	15	3.3	0.40	0.45	645.00..-D	49.85	541	49.85	541				
R/L 005.0407-20	5	0.75	1.9	5.0	4.4	35	20	3.3	0.40	0.45	645.00..-D	50.55	542	50.55	542				
R/L 006.0510-15	6	1.00	2.3	6.0	5.3	30	15	3.4	0.55	0.55	676.00..-D	49.85	543	49.85	543				
R/L 006.0510-22	6	1.00	2.3	6.0	5.3	37	22	3.4	0.55	0.55	676.00..-D	51.21	544	51.21	544				

Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials				

→ v_c Page 314

UltraMini – Inserts for Internal thread turning (Full profile)

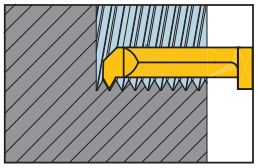
Illustrations show right-hand versions

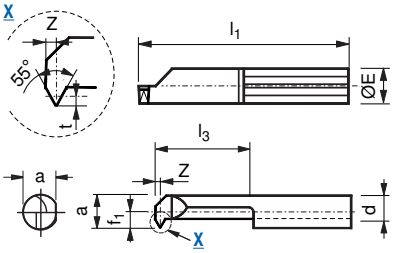
Designation	Ø E h6 DCONMS mm	p TP mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	d BDRED mm	t CDX mm	Z PDX mm	b CW mm	Standard tool holder	TiAlN Left-hand K10F Y5 Article no. 73 207 ... £		TiAlN Right-hand K10F Y5 Article no. 73 206 ... £	
R/L 104.0205-15	5	0.50	1.5	4	3.5	30	15	2.4	0.27	0.35	0.06	645.00..-D	55.19	800	55.19	800
R/L 105.0205-15	5	0.50	1.9	5	4.4	30	15	3.3	0.27	0.35	0.06	645.00..-D	52.36	802	52.36	802
R/L 105.0407-15	5	0.75	1.9	5	4.4	30	15	3.3	0.40	0.45	0.09	645.00..-D	52.36	804	52.36	804
R/L 106.0510-15	6	1.00	2.3	6	5.3	30	15	3.4	0.54	0.55	0.12	676.00..-D	52.36	806	52.36	806

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

UltraMini – Inserts for internal thread turning (Partial profile)





TiN

TiN

Illustrations show right-hand versions

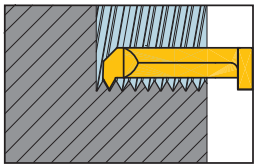
Designation	Ø E h6 DCONMS mm	p TDIN 1/"	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	d BDRED mm	t CDX mm	Z PDX mm	Standard tool holder	Left-hand K10F Y5 Article no. 73 105 ... £		Right-hand K10F Y5 Article no. 73 104 ... £	
R/L 005.5548-15	5	48 - 24	1.9	4.8	4.4	30	15	3.3	0.40	0.45	645.00..-D	53.27	552	53.27	552
R/L 006.5548-15	6	48 - 24	2.3	6.0	5.3	30	15	3.4	0.40	0.45	676.00..-D	53.27	562	53.27	562
R/L 006.5524-15	6	24 - 16	2.3	6.0	5.3	30	15	3.4	0.81	0.75	676.00..-D	53.27	563	53.27	563
R/L 007.5524-15	7	24 - 16	2.7	7.0	6.3	30	15	3.8	0.81	0.75	676.00..-D	53.27	572	53.27	572

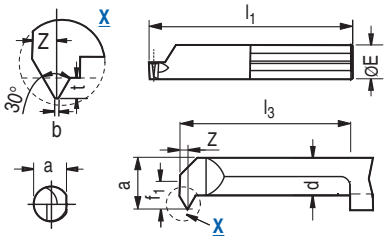
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

→ v_c Page 314

UltraMini – Inserts for internal thread turning (Partial profile)

- Trapezoidal thread DIN 103





TiAlN

TiAlN

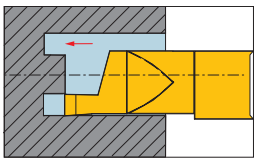
Illustrations show right-hand versions

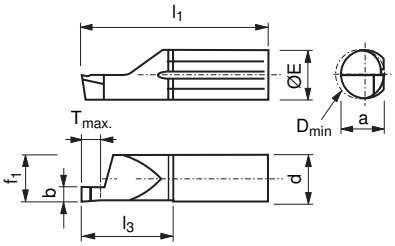
Designation	Ø E h6 DCONMS mm	p TP mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	d BDRED mm	t CDX mm	Z PDX mm	b CW mm	Standard tool holder	Left-hand K10F Y5 Article no. 73 211 ... £		Right-hand K10F Y5 Article no. 73 210 ... £	
R/L 007.1220-30	7	2	2.8	7	6.3	45	30	3.8	1.25	0.75	1.25	676.00..-D	85.65	230	85.65	230
R/L 007.1220-22	7	2	2.8	7	6.3	37	22	3.8	1.25	0.75	1.25	676.00..-D	70.87	222	70.87	222
R/L 007.1730-22	7	3	2.8	7	6.3	37	22	3.8	1.75	1.10	1.75	676.00..-D	70.87	322	70.87	322
R/L 007.1730-30	7	3	2.8	7	6.3	45	30	3.8	1.75	1.10	1.75	676.00..-D	85.65	330	85.65	330

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

UltraMini – Inserts for axial grooving





Illustrations show right-hand versions

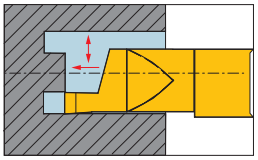
Designation	Ø E h6 DCONMS mm	f1 mm	Dmin DAXN mm	a WF mm	l1 OAL mm	l3 LDRED mm	T max. PDPT mm	d BDRED mm	b CW mm	Standard tool holder	Left-hand Y5 Article no. 73 051 ... £		Right-hand Y5 Article no. 73 050 ... £		Left-hand Y5 Article no. 73 053 ... £		Right-hand Y5 Article no. 73 052 ... £	
R/L 010.1006-10	6	5.2	6	5.3	26	11	1.5	4.9	1.0	676.00..-D	55.35	561	53.77	561	55.09	561	55.09	561
R/L 010.1506-10	6	5.2	6	5.3	26	11	2.0	4.9	1.5	676.00..-D	55.35	563	53.77	563	55.09	563	55.09	563
R/L 010.1008-10	7	5.9	8	6.3	26	11	1.5	5.6	1.0	676.00..-D	55.47	571	54.96	571	56.41	571	56.41	571
R/L 010.1008-20	7	5.9	8	6.3	35	20	1.5	5.6	1.0	676.00..-D	60.35	671	58.78	671	60.25	671	60.25	671
R/L 010.1008-30	7	5.9	8	6.3	45	30	1.5	5.6	1.0	676.00..-D	63.66	771	61.93	771	62.32	771	62.32	771
R/L 010.1508-10	7	5.9	8	6.3	26	11	2.5	5.6	1.5	676.00..-D	55.47	573	53.27	573	56.41	573	56.41	573
R/L 010.1508-20	7	5.9	8	6.3	35	20	2.5	5.6	1.5	676.00..-D	60.35	673	56.76	673	60.25	673	60.25	673
R/L 010.1508-30	7	5.9	8	6.3	45	30	2.5	5.6	1.5	676.00..-D	63.66	773	61.93	773	62.32	773	62.32	773
R/L 010.2008-10	7	5.9	8	6.3	26	11	3.0	5.6	2.0	676.00..-D	55.47	575	53.27	575	56.41	575	56.41	575
R/L 010.2008-20	7	5.9	8	6.3	35	20	3.0	5.6	2.0	676.00..-D	60.35	675	56.76	675	60.25	675	60.25	675
R/L 010.2008-30	7	5.9	8	6.3	45	30	3.0	5.6	2.0	676.00..-D	63.66	775	61.93	775	62.32	775	62.32	775
R/L 010.2508-10	7	5.9	8	6.3	26	11	3.5	5.6	2.5	676.00..-D	55.47	577	54.96	577	56.41	577	56.41	577
R/L 010.2508-20	7	5.9	8	6.3	35	20	3.5	5.6	2.5	676.00..-D	60.35	677	58.78	677	60.25	677	60.25	677
R/L 010.2508-30	7	5.9	8	6.3	45	30	3.5	5.6	2.5	676.00..-D	63.66	777	61.93	777	62.32	777	62.32	777
R/L 010.3008-10	7	5.9	8	6.3	26	11	3.5	5.6	3.0	676.00..-D	55.47	579	54.96	579	56.41	579	56.41	579
R/L 010.3008-20	7	5.9	8	6.3	35	20	3.5	5.6	3.0	676.00..-D	60.35	679	56.76	679	60.25	679	60.25	679
R/L 010.3008-30	7	5.9	8	6.3	45	30	3.5	5.6	3.0	676.00..-D	63.66	779	61.93	779	62.32	779	62.32	779

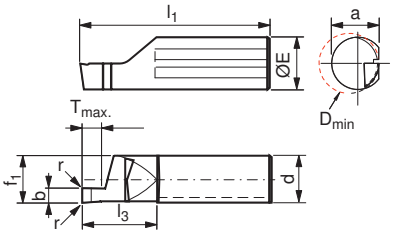
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials				

→ v_c Page 314

UltraMini – Inserts for axial grooving

- with corner radius





Illustrations show right-hand versions

TiAlN

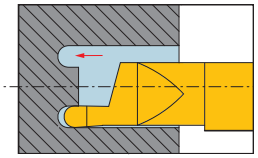
TiAlN

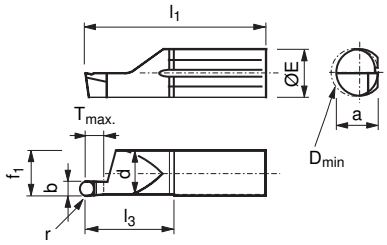
Designation	Ø E h6 DCONMS mm	f1 mm	Dmin DAXN mm	a WF mm	l1 OAL mm	l3 LDRED mm	T max. PDPT mm	d BDRED mm	b CW mm	r RE mm	Standard tool holder	Left-hand Y5 Article no. 73 253 ... £		Right-hand Y5 Article no. 73 252 ... £	
R/L 510M1008-10	5	4.3	5	6.3	26	11	2	4.0	1.0	0.05	645.00..-D	67.21	510	67.21	510
R/L 510M1008-20	5	4.3	5	6.3	35	20	2	4.0	1.0	0.05	645.00..-D	70.98	610	70.98	610
R/L 510M1508-10	5	4.3	5	6.3	26	11	3	4.0	1.5	0.05	645.00..-D	67.21	515	67.21	515
R/L 510M1508-20	5	4.3	5	6.3	35	20	3	4.0	1.5	0.05	645.00..-D	70.98	615	70.98	615
R/L 510M2008-10	5	4.3	5	6.3	26	11	4	4.0	2.0	0.05	645.00..-D	67.21	520	67.21	520
R/L 510M2008-20	5	4.3	5	6.3	35	20	4	4.0	2.0	0.05	645.00..-D	70.98	620	70.98	620
R/L 010M1008-10	7	5.9	8	6.3	26	11	2	5.6	1.0	0.1	676.00..-D	62.20	800	62.20	800
R/L 010M1008-20	7	5.9	8	6.3	35	20	2	5.6	1.0	0.1	676.00..-D	65.71	810	65.71	810
R/L 010M1008-30	7	5.9	8	6.3	45	30	2	5.6	1.0	0.1	676.00..-D	68.71	820	68.71	820
R/L 010M1508-10	7	5.9	8	6.3	26	11	3	5.6	1.5	0.1	676.00..-D	62.20	802	62.20	802
R/L 010M1508-20	7	5.9	8	6.3	35	20	3	5.6	1.5	0.1	676.00..-D	65.71	812	65.71	812
R/L 010M1508-30	7	5.9	8	6.3	45	30	3	5.6	1.5	0.1	676.00..-D	68.71	822	68.71	822
R/L 010M2008-10	7	5.9	8	6.3	26	11	4	5.6	2.0	0.1	676.00..-D	62.20	804	62.20	804
R/L 010M2008-20	7	5.9	8	6.3	35	20	4	5.6	2.0	0.1	676.00..-D	65.71	814	65.71	814
R/L 010M2008-30	7	5.9	8	6.3	45	30	4	5.6	2.0	0.1	676.00..-D	68.71	824	68.71	824
R/L 010M2508-10	7	5.9	8	6.3	26	11	5	5.6	2.5	0.1	676.00..-D	62.20	806	62.20	806
R/L 010M2508-20	7	5.9	8	6.3	35	20	5	5.6	2.5	0.1	676.00..-D	65.71	816	65.71	816
R/L 010M2508-30	7	5.9	8	6.3	45	30	5	5.6	2.5	0.1	676.00..-D	68.71	826	68.71	826
R/L 010M3008-10	7	5.9	8	6.3	26	11	6	5.6	3.0	0.1	676.00..-D	62.20	808	62.20	808
R/L 010M3008-20	7	5.9	8	6.3	35	20	6	5.6	3.0	0.1	676.00..-D	65.71	818	65.71	818
R/L 010M3008-30	7	5.9	8	6.3	45	30	6	5.6	3.0	0.1	676.00..-D	68.71	828	68.71	828

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

UltraMini – Inserts for axial grooving (Full radius)





Illustrations show right-hand versions

TiAlN

Left-hand

TiAlN

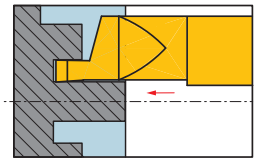
Right-hand

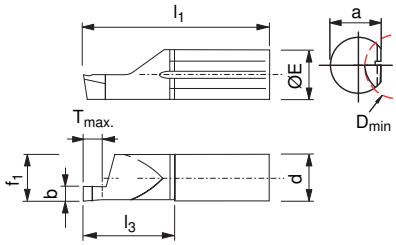
Designation	Ø E h6 DCONMS mm	f1 mm	Dmin DAXN mm	a WF mm	l1 OAL mm	l3 LDRED mm	Tmax. PDPT mm	d BDRED mm	b CW mm	r RE mm	Standard tool holder	Y5 Article no. 73 059 ... £		Y5 Article no. 73 058 ... £	
R/L 610.1005-20	6	5.2	6	5.3	35	20	2	4.9	1.0	0.5	676.00..-D	72.43	171	72.43	171
R/L 610.1005-10	6	5.2	6	5.3	26	11	2	4.9	1.0	0.5	676.00..-D	68.42	071	68.42	071
R/L 610.1608-10	6	5.2	6	5.3	26	11	3	4.9	1.6	0.8	676.00..-D	68.42	073	68.42	073
R/L 610.1608-20	6	5.2	6	5.3	35	20	3	4.9	1.6	0.8	676.00..-D	72.43	173	72.43	173
R/L 610.2010-10	6	5.2	6	5.3	26	11	4	4.9	2.0	1.0	676.00..-D	68.42	075	68.42	075
R/L 610.2010-20	6	5.2	6	5.3	35	20	4	4.9	2.0	1.0	676.00..-D	72.43	175	72.43	175
R/L 610.2512-10	6	5.2	6	5.3	26	11	5	4.9	2.5	1.25	676.00..-D	68.42	077	68.42	077
R/L 610.2512-20	6	5.2	6	5.3	35	20	5	4.9	2.5	1.25	676.00..-D	72.43	177	72.43	177
R/L 610.3015-10	6	5.2	6	5.3	26	11	6	4.9	3.0	1.5	676.00..-D	68.42	079	68.42	079
R/L 610.3015-20	6	5.2	6	5.3	35	20	6	4.9	3.0	1.5	676.00..-D	72.43	179	72.43	179
R/L 010.1005-10	7	5.9	8	6.3	26	11	2	5.6	1.0	0.5	676.00..-D	65.64	571	65.64	571
R/L 010.1005-20	7	5.9	8	6.3	35	20	2	5.6	1.0	0.5	676.00..-D	69.47	671	69.47	671
R/L 010.1608-20	7	5.9	8	6.3	35	20	3	5.6	1.6	0.8	676.00..-D	69.47	673	69.47	673
R/L 010.1608-10	7	5.9	8	6.3	26	11	3	5.6	1.6	0.8	676.00..-D	65.64	573	65.64	573
R/L 010.2010-10	7	5.9	8	6.3	26	11	4	5.6	2.0	1.0	676.00..-D	65.64	575	65.64	575
R/L 010.2010-20	7	5.9	8	6.3	35	20	4	5.6	2.0	1.0	676.00..-D	69.47	675	69.47	675
R/L 010.2512-10	7	5.9	8	6.3	26	11	5	5.6	2.5	1.25	676.00..-D	65.64	577	65.64	577
R/L 010.2512-20	7	5.9	8	6.3	35	20	5	5.6	2.5	1.25	676.00..-D	69.47	677	69.47	677
R/L 010.3015-10	7	5.9	8	6.3	26	11	6	5.6	3.0	1.5	676.00..-D	65.64	579	65.64	579
R/L 010.3015-20	7	5.9	8	6.3	35	20	6	5.6	3.0	1.5	676.00..-D	69.47	679	69.47	679

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

UltraMini – Inserts for axial grooving over a spigot





Illustrations show right-hand versions

TiAlN

TiAlN

Designation	Ø E h6 DCONMS mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	$T_{max.}$ PDPT mm	d BDRED mm	b CW mm	Standard tool holder	Left-hand Y5 Article no. 73 061 ... £		Right-hand Y5 Article no. 73 060 ... £	
R/L 620.1006-20	6	5.2	6	5.3	35	20	2	4.9	1.0	676.00..-D	69.47	561	69.47	561
R/L 620.1506-20	6	5.2	6	5.3	35	20	3	4.9	1.5	676.00..-D	69.47	563	69.47	563
R/L 620.2006-20	6	5.2	6	5.3	35	20	4	4.9	2.0	676.00..-D	69.47	565	69.47	565
R/L 620.2506-20	6	5.2	6	5.3	35	20	5	4.9	2.5	676.00..-D	69.47	567	69.47	567
R/L 620.3006-20	6	5.2	6	5.3	35	20	6	4.9	3.0	676.00..-D	69.47	569	69.47	569

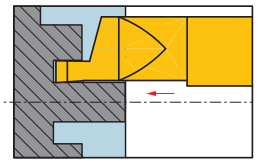
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

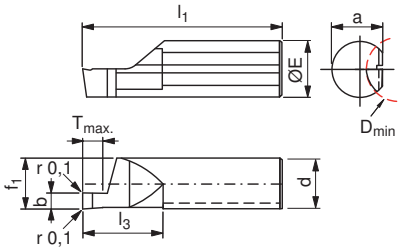
→ v_c Page 314

3

UltraMini – Inserts for axial grooving over a spigot

- with corner radius





Illustrations show right-hand versions

TiAlN

TiAlN

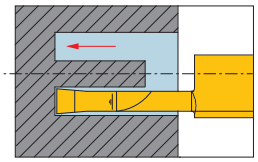
Designation	Ø E h6 DCONMS mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	$T_{max.}$ PDPT mm	d BDRED mm	b CW mm	Standard tool holder	Left-hand Y5 Article no. 73 261 ... £		Right-hand Y5 Article no. 73 260 ... £	
R/L 620M1006-20	6	5.2	6	5.3	35	20	2	4.9	1.0	676.00..-D	66.43	800	66.43	800
R/L 620M1506-20	6	5.2	6	5.3	35	20	3	4.9	1.5	676.00..-D	66.43	802	66.43	802
R/L 620M2006-20	6	5.2	6	5.3	35	20	4	4.9	2.0	676.00..-D	66.43	804	66.43	804
R/L 620M2506-20	6	5.2	6	5.3	35	20	5	4.9	2.5	676.00..-D	66.43	806	66.43	806
R/L 620M3006-20	6	5.2	6	5.3	35	20	6	4.9	3.0	676.00..-D	66.43	808	66.43	808

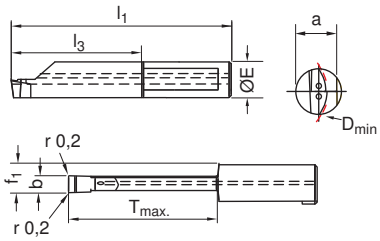
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

UltraMini – Inserts for axial grooving

- up to 100 bar
- dual cooling channel





Illustrations show right-hand versions

TiAlN

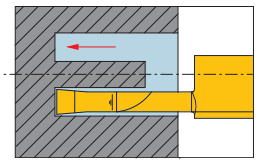
TiAlN

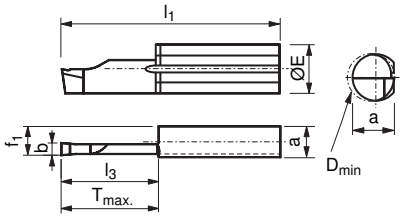
Designation	Ø E h6 DCONMS mm	f_1 mm	D_{min} DAXN mm	a WF mm	l_1 OAL mm	l_3 LDRED mm	$T_{max.}$ PDPT mm	b CW mm	Standard tool holder	Left-hand Y5 Article no. 73 263 ... £		Right-hand Y5 Article no. 73 262 ... £	
R/L 012.0200-10	8	5.00	12	7.3	30	10	10	2.0	687.00..-D	61.47	700	61.47	700
R/L 012.0200-15	8	5.00	12	7.3	35	15	15	2.0	687.00..-D	61.47	702	61.47	702
R/L 012.0250-10	8	5.25	12	7.3	30	10	10	2.5	687.00..-D	61.47	704	61.47	704
R/L 012.0250-20	8	5.25	12	7.3	40	20	20	2.5	687.00..-D	62.56	706	62.56	706
R/L 016.0300-10	8	5.50	16	7.3	30	10	10	3.0	687.00..-D	87.15	800	87.15	800
R/L 016.0300-20	8	5.50	16	7.3	40	20	20	3.0	687.00..-D	89.46	802	89.46	802
R/L 020.0300-25	8	5.50	20	7.3	45	25	25	3.0	687.00..-D	90.68	804	90.68	804
R/L 020.0300-30	8	5.50	20	7.3	50	30	30	3.0	687.00..-D	90.68	806	90.68	806
R/L 020.0300-35	8	5.50	20	7.3	55	35	35	3.0	687.00..-D	92.78	808	92.78	808
R/L 020.0300-40	8	5.50	20	7.3	60	40	40	3.0	687.00..-D	92.78	810	92.78	810
R/L 016.0400-10	8	6.00	16	7.3	30	10	10	4.0	687.00..-D	87.15	812	87.15	812
R/L 016.0400-20	8	6.00	16	7.3	40	20	20	4.0	687.00..-D	89.46	814	89.46	814
R/L 020.0400-25	8	6.00	20	7.3	45	25	25	4.0	687.00..-D	90.68	816	90.68	816
R/L 020.0400-30	8	6.00	20	7.3	50	30	30	4.0	687.00..-D	90.68	818	90.68	818
R/L 020.0400-35	8	6.00	20	7.3	55	35	35	4.0	687.00..-D	92.78	820	92.78	820
R/L 020.0400-40	8	6.00	20	7.3	60	40	40	4.0	687.00..-D	92.78	822	92.78	822
R/L 020.0500.20	8	6.50	20	7.3	40	20	20	5.0	687.00..-D	87.15	824	87.15	824
R/L 020.0500.25	8	6.50	20	7.3	45	25	25	5.0	687.00..-D	88.21	826	88.21	826
R/L 020.0500.30	8	6.50	20	7.3	50	30	30	5.0	687.00..-D	88.21	828	88.21	828
R/L 020.0500.35	8	6.50	20	7.3	55	35	35	5.0	687.00..-D	90.68	830	90.68	830
R/L 020.0500.40	8	6.50	20	7.3	60	40	40	5.0	687.00..-D	88.17	832	88.17	832

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

UltraMini – Inserts for axial grooving





Illustrations show right-hand versions

	TiN	TiN	TiAlN	TiAlN
	Left-hand	Right-hand	Left-hand	Right-hand
	Y5	Y5	Y5	Y5
Designation	**Article no. 73 055 ...**	**Article no. 73 054 ...**	**Article no. 73 057 ...**	**Article no. 73 056 ...**

Designation	Ø E h6 DCONMS mm	f1 mm	Dmin DAXN mm	a WF mm	l1 OAL mm	l3 LDRED mm	T max. PDPT mm	b CW mm	Standard tool holder	Left-hand £		Right-hand £		Left-hand £		Right-hand £	
R/L 015.2515-20	7	5.9	15	6.3	35	20	20	2.5	676.00..-D	75.91	572	71.17	572	75.65	572	75.65	572
R/L 015.3015-20	7	5.9	15	6.3	35	20	20	3.0	676.00..-D	71.17	574	71.17	574	75.65	574	75.65	574
R/L 015.3015-30	7	5.9	15	6.3	45	30	30	3.0	676.00..-D	83.56	674	83.56	674	83.42	674	83.42	674

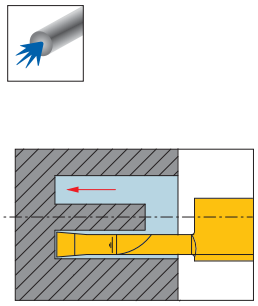
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials				

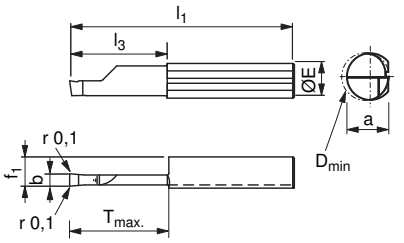
→ v_c Page 314

3

UltraMini – Inserts for axial grooving

- with corner radius





Illustrations show right-hand versions

	TiAlN	TiAlN
	Left-hand	Right-hand
	Y5	Y5
Designation	**Article no. 73 257 ...**	**Article no. 73 256 ...**

Designation	Ø E h6 DCONMS mm	f1 mm	Dmin DAXN mm	a WF mm	l1 OAL mm	l3 LDRED mm	T max. PDPT mm	b CW mm	Standard tool holder	Left-hand £		Right-hand £	
R/L 015M2515-20	7	5.9	8	6.3	35	20	20	2.5	676.00..-D	72.76	800	72.76	800
R/L 015M3015-20	7	5.9	8	6.3	35	20	20	3.0	676.00..-D	72.76	802	72.76	802
R/L 015M3015-30	7	5.9	8	6.3	45	30	30	3.0	676.00..-D	79.60	804	79.60	804

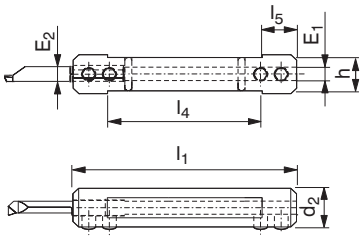
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

UltraMini – Standard tool holder for cutting inserts

- double ended
- Machining diameter from Ø 0.2 mm

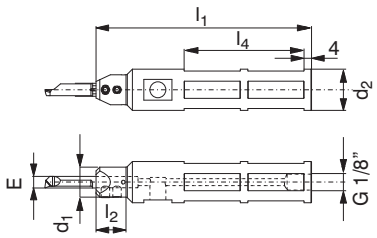
Scope of supply:
Tool holder with allen key



Designation	Ø E_1 mm	Ø E_2 DCONWS mm	d_2 DCONMS mm	l_1 OAL mm	l_4 LS mm	l_5 LH mm	h H mm	Y5 Article no. 73 080 ... £	
645.0012-D	4	5	12.00	75	55	10	10.3	159.98	**163**
645.0016-D	4	5	16.00	75	55	10	14.0	168.04	**164**
645.001905-D	4	5	19.05	90	70	10	17.2	140.00	**170**
645.0020-D	4	5	20.00	90	70	10	18.0	180.96	**165**
645.0022-D	4	5	22.00	90	70	10	20.0	146.00	**171**
645.00254-D	4	5	25.50	95	75	10	23.4	155.00	**172**
676.0016-D	6	7	16.00	75	55	10	14.0	168.04	**166**
676.001905-D	6	7	19.05	90	70	10	17.2	140.00	**173**
676.0020-D	6	7	20.00	90	70	10	18.0	180.96	**167**
676.0022-D	6	7	22.00	90	70	10	20.0	146.00	**174**
676.00254-D	6	7	25.40	95	75	10	23.4	155.00	**175**
687.0016-D	7	8	16.00	75	55	10	14.0	194.87	**168**
687.0020-D	7	8	20.00	90	70	10	18.0	208.57	**169**

Spare parts Ø E_1		2A Key I Article no. 70 950 ... £			Y5 Clamping screw Article no. 73 082 ... £	
4	SW2,5	2.12	**175**	M5x6	5.31	**001**
4	SW2,5	2.12	**175**	M5x8	6.44	**008**
4	SW2,5	2.12	**175**	M5x4	6.47	**013**
6	SW2,5	2.12	**175**	M5x6	5.31	**001**
6	SW2,5	2.12	**175**	M5x8	6.44	**008**
7	SW2,5	2.12	**175**	M6x6	7.55	**014**

UltraMini – Toolholder for inserts

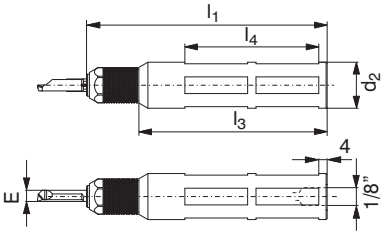


Designation	Ø E DCONWS mm	d_1 mm	$d_{2\ g6}$ DCONMS mm	l_1 OAL mm	l_2 mm	l_4 LS mm	NEW Y5 Article no. 73 088 ... £	
UMST.0016.4	4	16	16.00	115	24	42	323.00	164
UMST.001905.4	4	16	19.05	115	24	42	350.00	194
UMST.0020.4	4	16	20.00	115	24	42	330.00	204
UMST.0022.4	4	16	22.00	115	24	42	340.00	224
UMST.00254.4	4	16	25.40	115	24	42	350.00	264
UMST.0028.4	4	16	28.00	115	24	42	350.00	284
UMST.0016.5	5	16	16.00	115	24	42	323.00	165
UMST.001905.5	5	16	19.05	115	24	42	350.00	195
UMST.0020.5	5	16	20.00	115	24	42	330.00	205
UMST.0022.5	5	16	22.00	115	24	42	340.00	225
UMST.00254.5	5	16	25.40	115	24	42	350.00	265
UMST.0028.5	5	16	28.00	115	24	42	350.00	285
UMST.0016.6	6	16	16.00	115	24	42	323.00	166
UMST.001905.6	6	16	19.05	115	24	42	350.00	196
UMST.0020.6	6	16	20.00	115	24	42	330.00	206
UMST.0022.6	6	16	22.00	115	24	42	340.00	226
UMST.00254.6	6	16	25.40	115	24	42	350.00	266
UMST.0028.6	6	16	28.00	115	24	42	350.00	286
UMST.0016.7	7	16	16.00	115	24	42	323.00	167
UMST.001905.7	7	16	19.05	115	24	42	350.00	197
UMST.0020.7	7	16	20.00	115	24	42	330.00	207
UMST.0022.7	7	16	22.00	115	24	42	340.00	227
UMST.00254.7	7	16	25.40	115	24	42	350.00	267
UMST.0028.7	7	16	28.00	115	24	42	350.00	287
UMST.0016.8	8	16	16.00	115	24	42	323.00	168
UMST.001905.8	8	16	19.05	115	24	42	350.00	198
UMST.0020.8	8	16	20.00	115	24	42	330.00	208
UMST.0022.8	8	16	22.00	115	24	42	340.00	228
UMST.00254.8	8	16	25.40	115	24	42	350.00	268
UMST.0028.8	8	16	28.00	115	24	42	350.00	288

Spare parts Ø E		Y7 Key D Article no. 80 950 ... £			Y5 Clamping screw Article no. 73 950 ... £	
4	T10	8.41	104	M5x0,5x6T10	10.00	050
5	T10	8.41	104	M5x0,5x6T10	10.00	050
6	T10	8.41	104	M5x0,5x6T10	10.00	050
7	T10	8.41	104	M5x0,5x6T10	10.00	050
8	T10	8.41	104	M5x0,5x6T10	10.00	050

UltraMini – Quick change tool holder for cutting inserts

Scope of supply:
Tool holder, lock nut and clamping wedge



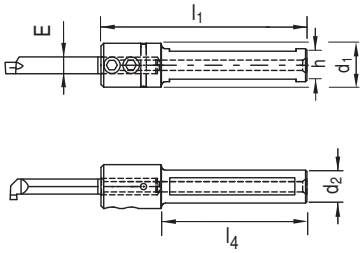
Designation	Ø E DCONWS mm	$d_{2\ g6}$ DCONMS mm	l_1 OAL mm	l_3 mm	l_4 LS mm	NEW Y5 Article no. 73 089 ... £	
UM600H.0012.4	4	12.00	115	90	64	302.00	124
UM600H.0016.4	4	16.00	115	90	64	274.00	164
UM600H.001905.4	4	19.05	115	90	64	294.00	194
UM600H.0020.4	4	20.00	115	90	64	290.00	204
UM600H.0022.4	4	22.00	115	90	64	295.00	224
UM600H.0025.4	4	25.00	115	90	64	301.00	254
UM600H.00254.4	4	25.40	115	90	64	307.00	264
UM600H.0028.4	4	28.00	115	90	64	307.00	284
UM600H.0012.5	5	12.00	115	90	64	302.00	125
UM600H.0016.5	5	16.00	115	90	64	274.00	165
UM600H.001905.5	5	19.05	115	90	64	294.00	195
UM600H.0020.5	5	20.00	115	90	64	290.00	205
UM600H.0022.5	5	22.00	115	90	64	295.00	225
UM600H.0025.5	5	25.00	115	90	64	301.00	255
UM600H.00254.5	5	25.40	115	90	64	307.00	265
UM600H.0028.5	5	28.00	115	90	64	307.00	285
UM600H.0012.6	6	12.00	115	90	64	302.00	126
UM600H.0016.6	6	16.00	115	90	64	274.00	166
UM600H.001905.6	6	19.05	115	90	64	294.00	196
UM600H.0020.6	6	20.00	115	90	64	290.00	206
UM600H.0022.6	6	22.00	115	90	64	295.00	226
UM600H.0025.6	6	25.00	115	90	64	301.00	256
UM600H.00254.6	6	25.40	115	90	64	307.00	266
UM600H.0028.6	6	28.00	115	90	64	307.00	286
UM600H.0012.7	7	12.00	115	90	64	302.00	127
UM600H.0016.7	7	16.00	115	90	64	274.00	167
UM600H.001905.7	7	19.05	115	90	64	294.00	197
UM600H.0020.7	7	20.00	115	90	64	290.00	207
UM600H.0022.7	7	22.00	115	90	64	295.00	227
UM600H.0025.7	7	25.00	115	90	64	301.00	257
UM600H.00254.7	7	25.40	115	90	64	307.00	267
UM600H.0028.7	7	28.00	115	90	64	307.00	287

Spare parts Ø E		Y5 Lock nut UM600H Article no. 73 950 ... £		Y5 Clamping wedge UM600H Article no. 73 950 ... £	
4	M4	68.00	104	44.00	111
5	M5	68.00	105	44.00	111
6	M6	68.00	106	44.00	111
7	M7	68.00	107	44.00	111

UltraMini – Toolholder for inserts

- single ended

Scope of supply:
Tool holder with allen key

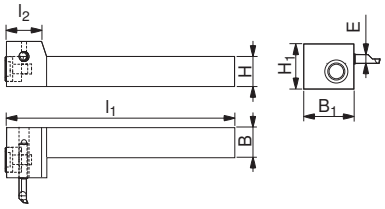


Designation	Ø E DCONWS mm	d_1 mm	d_2 DCONMS mm	l_1 OAL mm	l_4 LS mm	h H mm	Y5 Article no. 73 081 ... £	
640.0012-D	4	16	12	75	53	10.2	165.00	**264**
650.0012-D	5	16	12	75	53	10.2	165.00	**265**
660.0012-D	6	16	12	75	53	10.2	235.94	**266**
670.0012-D	7	16	12	75	53	10.2	235.94	**267**
680.0012-D	8	16	12	75	53	10.2	235.94	**268**

Spare parts Ø E	2A Key I Article no. 70 950 ... £			Y5 Clamping screw Article no. 73 082 ... £		
4	SW2,5	2.12	**175**	M5x0,5x6	4.25	**010**
5	SW2,5	2.12	**175**	M5x0,5x6	4.25	**010**
6	SW2,5	2.12	**175**	M5x0,5x6	4.25	**010**
7	SW2,5	2.12	**175**	M5x0,5x6	4.25	**010**
8	SW2,5	2.12	**175**	M5x0,5x6	4.25	**010**

UltraMini – Toolholder for inserts

Scope of supply:
Tool holder with allen key



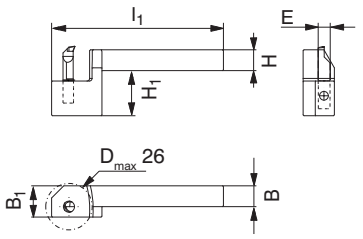
Illustrations show right-hand versions

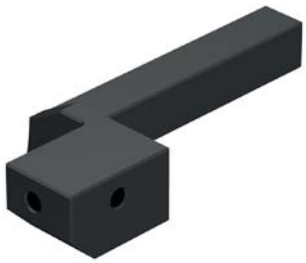
Designation	Ø E DCONWS mm	l_1 OAL mm	l_2 mm	B B mm	B_1 OAW mm	H H mm	H_1 OAH mm	Left-hand Y5 Article no. 73 083 ... £		Right-hand Y5 Article no. 73 084 ... £	
R/L .UHCM.1212.4	4	90	17	12	20	12	18	299.92	124	299.92	124
R/L .UHCM.1212.5	5	90	17	12	20	12	18	299.92	125	299.92	125
R/L .UHCM.1212.6	6	90	17	12	20	12	21	299.92	126	299.92	126
R/L .UHCM.1212.7	7	90	17	12	20	12	21	299.92	127	299.92	127

Spare parts Ø E		Y8 Clamping key - T Article no. 83 950 ... £			Y5 Clamping screw Article no. 73 082 ... £	
4	SW5	20.53	107	UM 12	31.88	011
5	SW5	20.53	107	UM 12	31.88	011
6	SW5	20.53	107	UM 16	31.88	012
7	SW5	20.53	107	UM 16	31.88	012

UltraMini – Toolholder for inserts

Scope of supply:
Tool holder with allen key





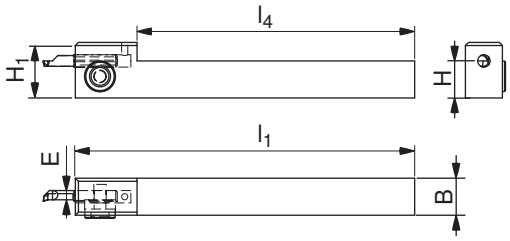
Illustrations show right-hand versions

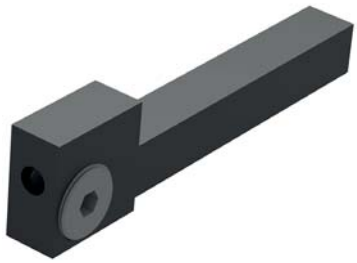
Designation	Ø E DCONWS mm	l_1 OAL mm	B B mm	B_1 OAW mm	H H mm	H_1 OAH mm	Left-hand NEW Y5 Article no. 73 091 ... £		Right-hand NEW Y5 Article no. 73 090 ... £	
R/L UM.18.1010.4	4	99	10	16	10	38	310.50	104	310.50	104
R/L UM.28.1010.4	4	99	10	16	10	48	310.50	204	310.50	204
R/L UM.18.1212.4	4	99	12	18	12	38	310.50	124	310.50	124
R/L UM.28.1212.4	4	99	12	18	12	48	310.50	224	310.50	224
R/L UM.18.1010.5	5	99	10	16	10	38	310.50	105	310.50	105
R/L UM.28.1010.5	5	99	10	16	10	48	310.50	205	310.50	205
R/L UM.18.1212.5	5	99	12	18	12	38	310.50	125	310.50	125
R/L UM.28.1212.5	5	99	12	18	12	48	310.50	225	310.50	225
R/L UM.18.1010.6	6	99	10	16	10	38	310.50	106	310.50	106
R/L UM.28.1010.6	6	99	10	16	10	48	310.50	206	310.50	206
R/L UM.18.1212.6	6	99	12	18	12	38	310.50	126	310.50	126
R/L UM.28.1212.6	6	99	12	18	12	48	310.50	226	310.50	226
R/L UM.18.1010.7	7	99	10	16	10	38	310.50	107	310.50	107
R/L UM.28.1010.7	7	99	10	16	10	48	310.50	207	310.50	207
R/L UM.18.1212.7	7	99	12	18	12	38	310.50	127	310.50	127
R/L UM.28.1212.7	7	99	12	18	12	48	310.50	227	310.50	227

Spare parts Ø E	2A Key I Article no. 70 950 ... £		Y5 Clamping screw Article no. 73 082 ... £	
4	2.12	175	6.44	008
5	2.12	175	6.44	008
6	2.12	175	6.44	008
7	2.12	175	6.44	008

UltraMini – Toolholder for inserts

Scope of supply:
Tool holder with allen key



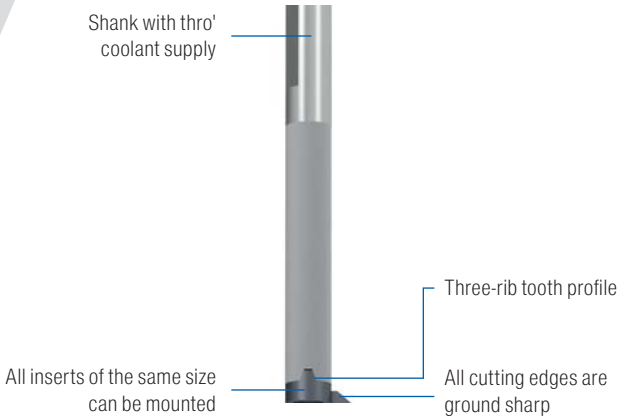


Designation	Ø E DCONWS mm	l_1 OAL mm	l_4 LS mm	B B mm	H H mm	H_1 OAH mm	Y5 Article no. 73 086 ... £	
UM.1010.4	4	100	75	10	10	20	299.92	**104**
UM.1010.5	5	100	75	10	10	20	299.92	**105**
UM.1212.4	4	100	75	12	12	22	299.92	**124**
UM.1212.5	5	100	75	12	12	22	299.92	**125**
UM.1212.6	6	100	75	12	12	22	299.92	**126**

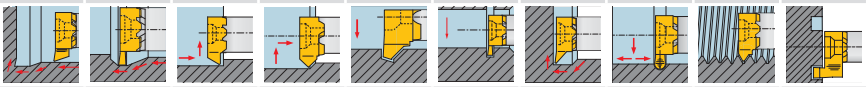
Spare parts Ø E		Y8 Clamping key - T Article no. 83 950 ... £			Y5 Clamping screw Article no. 73 082 ... £	
4	SW5	20.53	**107**	UM 12	31.88	**011**
5	SW5	20.53	**107**	UM 12	31.88	**011**
6	SW5	20.53	**107**	UM 16	31.88	**012**

MiniCut – Highlights

- Stable three-rib tooth profile
  High process security
- Tool change using a single screw
  Easy handling
- Internal profiles from a diameter of 7.8 mm
  Ideal for medium diameters
- Universal TiAlN coating
  One tool for all materials
- High repeatability
  Minimal adjustment times
- Precise centre height
  Improves component accuracy



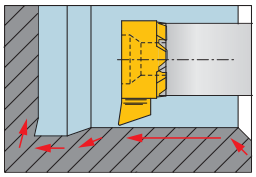
List of contents

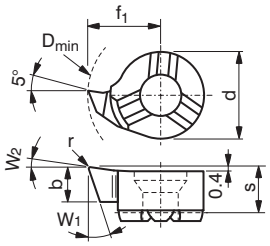
Hole diameter in mm	Applications										suitable holder
	Internal turning and profiling	Internal turning	Back boring	Turning and chamfering	Pre-parting and chamfering	Groove turning	Internal Undercuts	Groove and profile turning	Internal thread turning	Axial grooving	
MiniCut											
≥ 8	296	297	298	298	299	300+301	302	303	304-306		309-312
≥ 9	296	297	298	298	299	300+301	302	303	304-306		309-312
≥ 11	296	297	298	298	299	300+301	302	303	304-306		309-312
≥ 14	296	297	298	298	299	300+301	302	303	304-306	307+308	309-312

Special carbide Flexoholder

MiniCut – Insert for turning and profiling

CWX 500 | CWX 500





Illustrations show right-hand versions

Size	Designation	D_{min} DAXN mm	b CW mm	s PDX mm	f_1 PDY mm	d IC mm	r RE mm	$a_{p\,max}$ CDX mm	$W°_1$ PSIRR	$W°_2$ RAL	Left-hand Y5 Article no. 73 324 ... £		Right-hand Y5 Article no. 73 322 ... £	
08	8,00. R/L .3,50.18°	7.8	3.5	3.5	4.65	6.0	0.05	0.6	18	8	37.22	035	37.22	035
	8,00. R/L .3,50.20°	7.8	3.5	3.5	4.65	6.0	0.20	0.6	20	20	35.99	135	35.99	135
	8,00. R/L .3,30.18°	7.8	3.3	3.5	4.65	6.0	0.20	0.6	18	8	34.27	033	34.27	033
09	9,00. R/L .3,60.20°	9.0	3.6	3.6	5.50	6.2	0.20	0.8	20	20	36.66	236	36.66	236
	9,00. R/L .3,60.18°	9.0	3.6	3.6	5.50	6.2	0.20	0.8	18	8	32.44	136	32.44	136
11	9,80. R/L .3,90.18°	9.8	3.9	4.2	5.50	8.0	0.20	1.0	18	8	34.27	139	34.27	139
	11,00. R/L .4,20.20°	11.0	4.2	4.2	6.70	8.0	0.20	1.0	20	20	36.66	342	36.66	342
	11,00. R/L .3,90.18°	11.0	3.9	4.2	6.70	8.0	0.20	1.0	18	8	33.89	339	33.89	339
14	14,00. R/L .5,00.18°	13.8	5.0	5.1	8.70	9.0	0.20	1.5	18	8	33.89	550	33.89	550
	14,00. R/L .5,30.20°	14.0	5.3	5.3	8.70	9.0	0.20	1.5	20	20	36.66	553	36.66	553

	Left-hand	Right-hand
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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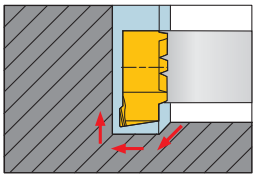
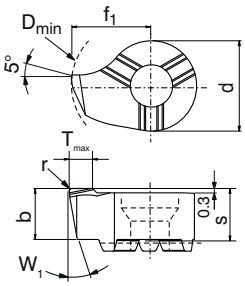
MiniCut – Insert for copy turning

- with chip breaker

CWX 500 | CWX 500





Illustrations show right-hand versions

Size	Designation	D_{min} DAXN mm	b CW mm	s PDX mm	f_1 PDY mm	d IC mm	r RE mm	$a_{p\,max}$ CDX mm	$W°_1$ PSIRR	Left-hand Y5 Article no. 73 388 ... £		Right-hand Y5 Article no. 73 386 ... £	
09	9,00. R/L .3,60.10°	9	3.5	3.6	5.5	6.2	0.2	0.5	10	16.18	136	16.18	136

	Left-hand	Right-hand
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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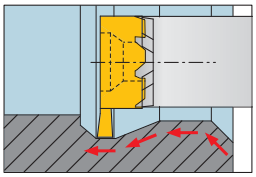
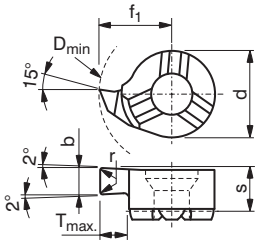
MiniCut – Internal turning insert

CWX 500 | CWX 500





Illustrations show right-hand versions

Size	Designation	D_{min} DAXN mm	$b_{+0,05}$ CW mm	$T_{max.}$ PDPT mm	s PDX mm	f_1 PDY mm	d IC mm	r RE mm	$a_{p\,max}$ CDX mm	Left-hand Y5 Article no. 73 316 ... £		Right-hand Y5 Article no. 73 314 ... £	
08	8,00. R/L .1,50.1,0	8	1.5	1.0	3.3	4.8	6.0	0.2	0.2	34.67	015	34.67	015
	8,00. R/L .2,00.1,0	8	2.0	1.0	3.3	4.8	6.0	0.2	0.2	33.09	020	33.09	020
09	9,00. R/L .1,50.2,0	9	1.5	2.0	3.6	5.5	6.2	0.2	0.2	35.44	115	35.44	115
	9,00. R/L .1,50.3,0	10	1.5	3.0	3.6	6.5	6.2	0.2	0.2	35.44	121	35.44	121
	9,00. R/L .2,00.2,0	9	2.0	2.0	3.6	5.5	6.2	0.2	0.2	31.43	120	31.43	120
	9,00. R/L .2,00.3,0	10	2.0	3.0	3.6	6.5	6.2	0.2	0.2	31.43	122	31.43	122
11	11,00. R/L .1,50.2,3	11	1.5	2.3	4.2	6.7	8.0	0.2	0.2	36.51	315	36.51	315
	11,00. R/L .2,00.2,3	11	2.0	2.3	4.2	6.7	8.0	0.2	0.2	34.27	320	34.27	320
14	14,00. R/L .1,50.4,0	14	1.5	4.0	5.3	9.0	9.0	0.2	0.2	33.47	515	33.47	515
	14,00. R/L .1,50,5,5	16	1.5	5.5	5.2	10.5	9.0	0.2	0.2	42.59	516	42.59	516
	14,00. R/L .1,50.6,5	17	1.5	6.5	5.2	11.5	9.0	0.2	0.2	42.59	517	42.59	517
	14,00. R/L .2,00.4,0	14	2.0	4.0	5.3	9.0	9.0	0.2	0.2	34.27	520	34.27	520
	14,00. R/L .2,00.5,5	16	2.0	5.5	5.2	10.5	9.0	0.2	0.2	42.59	521	42.59	521
	14,00. R/L .2,00.6,5	17	2.0	6.5	5.2	11.5	9.0	0.2	0.2	42.59	522	42.59	522
	14,00. R/L .2,50.5,5	16	2.5	5.5	5.2	10.5	9.0	0.2	0.2	42.59	525	42.59	525
	14,00. R/L .2,50.6,5	17	2.5	6.5	5.2	11.5	9.0	0.2	0.2	42.59	526	42.59	526
	14,00. R/L .3,00.5,5	16	3.0	5.5	5.2	10.5	9.0	0.2	0.2	42.59	530	42.59	530
	14,00. R/L .3,00.6,5	17	3.0	6.5	5.2	11.5	9.0	0.2	0.2	42.59	531	42.59	531

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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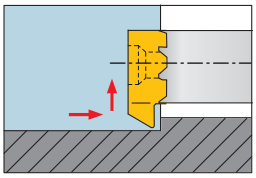
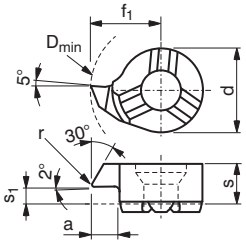
MiniCut – Back boring insert

CWX 500 | CWX 500





Illustrations show right-hand versions

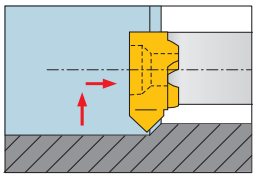
Size	Designation	D_{min} DAXN mm	a PDPT mm	s W1 mm	s_1 PDX mm	f_1 PDY mm	d IC mm	r RE mm	$a_{p\,max}$ CDX mm	Left-hand Y5 Article no. 73 332 ... £		Right-hand Y5 Article no. 73 330 ... £	
08	8,00. R/L .30°.1,3	7.8	1.3	3.50	1.0	4.65	6.0	0.2	0.6	39.44	013	39.44	013
09	9,00. R/L .30°.1,7	9.0	1.7	3.55	1.2	5.50	6.2	0.2	0.8	35.99	117	35.99	117
	9,00. R/L .30°.2,3	10.0	2.3	3.55	1.2	6.50	6.2	0.2	0.8	35.99	123	35.99	123
11	11,00. R/L .30°.2,3	11.0	2.3	4.30	1.6	6.70	8.0	0.2	1.0	38.61	323	38.61	323
14	14,00. R/L .30°.3,5	13.8	3.5	5.40	2.4	8.70	9.0	0.2	1.5	39.44	535	39.44	535

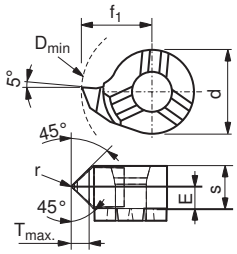
	Left-hand	Right-hand
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

MiniCut – Internal turning and chamfering insert

CWX 500 | CWX 500





Illustrations show right-hand versions

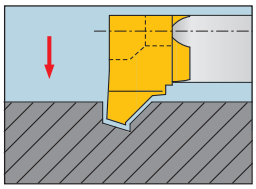
Size	Designation	D_{min} DAXN mm	$T_{max.}$ PDPT mm	s W1 mm	E PDX mm	f_1 PDY mm	d IC mm	r RE mm	$a_{p\,max}$ CDX mm	Left-hand Y5 Article no. 73 336 ... £		Right-hand Y5 Article no. 73 334 ... £	
08	8,00. R/L .45°.1,4	8	1.4	3.50	1.8	4.8	6.0	0.2	0.6	32.94	010	32.94	010
09	9,00. R/L .45°.1,3	9	1.3	3.55	1.8	5.5	6.2	0.2	0.8	30.87	110	30.87	110
11	11,00. R/L .45°.1,5	11	1.5	4.30	2.2	6.7	8.0	0.2	1.0	32.94	310	32.94	310
14	14,00. R/L .45°.1,5	14	1.5	5.40	2.8	9.0	9.0	0.2	1.2	35.58	510	35.58	510

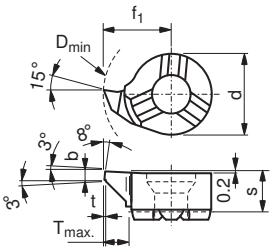
	Left-hand	Right-hand
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

MiniCut – Insert for pregrooving and chamfering

CWX 500 | CWX 500





Illustrations show right-hand versions

Size	Designation	D_{min} DAXN mm	b CW mm	$T_{max.}$ PDPT mm	s PDX mm	f_1 PDY mm	d IC mm	t mm	Left-hand Y5 Article no. 73 340 ... £		Right-hand Y5 Article no. 73 338 ... £	
08	8,00. R/L .1,00.45°	8	1.0	1.0	3.3	4.8	6.0	0.2	33.48	100	33.48	100
09	9,00. R/L .1,00.45°	9	1.0	1.5	3.6	5.5	6.2	0.2	31.88	215	31.88	215
11	11,00. R/L .1,00.45°	11	1.0	1.5	4.2	6.7	8.0	0.2	33.48	315	33.48	315
14	14,00. R/L .1,00.45°	14	1.0	1.5	5.3	9.0	9.0	0.2	33.48	515	33.48	515

	Left-hand	Right-hand
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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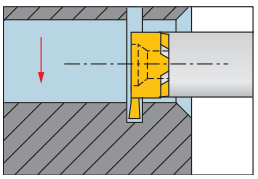
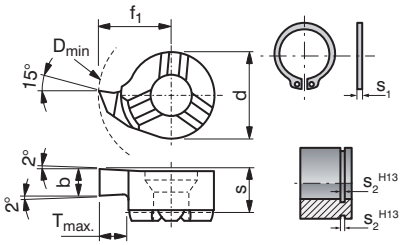
MiniCut – Grooving insert

CWX 500 | CWX 500





Illustrations show right-hand versions

Size	Designation	D_{min} DAXN mm	b CW mm	$T_{max.}$ PDPT mm	s PDX mm	s_1 mm	s_2 mm	f_1 PDY mm	d IC mm	Left-hand Y5 Article no. 73 312 ... £		Right-hand Y5 Article no. 73 310 ... £	
08	8,00. R/L .0,73.1,0	8	0.73	1.0	3.3	0.6	0.7	4.8	6.0	29.61	073	29.61	073
	8,00. R/L .0,83.1,0	8	0.83	1.0	3.3	0.7	0.8	4.8	6.0	29.61	083	29.61	083
	8,00. R/L .0,93.1,0	8	0.93	1.0	3.3	0.8	0.9	4.8	6.0	29.61	093	29.61	093
	8,00. R/L .1,00.1,0	8	1.00	1.0	3.3			4.8	6.0	29.61	110	29.61	110
	8,00. R/L .1,20.1,0	8	1.20	1.0	3.3	1.0	1.1	4.8	6.0	29.61	112	29.61	112
	8,00. R/L .1,40.1,0	8	1.40	1.0	3.3	1.2	1.3	4.8	6.0	29.61	114	29.61	114
	8,00. R/L .1,50.1,0	8	1.50	1.0	3.3			4.8	6.0	29.61	115	29.61	115
	8,00. R/L .1,70.1,0	8	1.70	1.0	3.3	1.5	1.6	4.8	6.0	29.61	117	29.61	117
	8,00. R/L .2,00.1,0	8	2.00	1.0	3.3			4.8	6.0	29.61	120	29.61	120
09	9,00. R/L .0,73.1,2	9	0.73	1.2	3.6	0.6	0.7	5.5	6.2	28.88	173	28.88	173
	9,00. R/L .0,83.1,3	9	0.83	1.3	3.6	0.7	0.8	5.5	6.2	28.88	183	28.88	183
	9,00. R/L .0,93.1,5	9	0.93	1.5	3.6	0.8	0.9	5.5	6.2	28.88	193	28.88	193
	9,00. R/L .1,00.1,8	9	1.00	1.8	3.6			5.5	6.2	28.88	210	28.88	210
	9,00. R/L .1,20.1,8	9	1.20	1.8	3.6	1.0	1.1	5.5	6.2	28.88	212	28.88	212
	9,00. R/L .1,40.1,8	9	1.40	1.8	3.6	1.2	1.3	5.5	6.2	28.88	214	28.88	214
	9,00. R/L .1,50.1,8	9	1.50	1.8	3.6			5.5	6.2	28.88	215	28.88	215
	9,00. R/L .1,70.1,8	9	1.70	1.8	3.6	1.5	1.6	5.5	6.2	28.88	217	28.88	217
	9,00. R/L .2,00.1,8	9	2.00	1.8	3.6			5.5	6.2	28.88	220	28.88	220
	9,00. R/L .2,50.1,8	9	2.50	1.8	3.6			5.5	6.2	28.88	225	28.88	225
	9,00. R/L .3,00.1,8	9	3.00	1.8	3.6			5.5	6.2	28.88	230	28.88	230
11	11,00. R/L .0,73.1,2	11	0.73	1.2	4.2	0.6	0.7	6.7	8.0	29.61	373	29.61	373
	11,00. R/L .0,83.1,3	11	0.83	1.3	4.2	0.7	0.8	6.7	8.0	29.61	383	29.61	383
	11,00. R/L .0,93.1,5	11	0.93	1.5	4.2	0.8	0.9	6.7	8.0	29.61	393	29.61	393
	11,00. R/L .1,00.2,3	11	1.00	2.3	4.2			6.7	8.0	29.61	310	29.61	310
	11,00. R/L .1,20.2,3	11	1.20	2.3	4.2	1.0	1.1	6.7	8.0	29.61	312	29.61	312
	11,00. R/L .1,40.2,3	11	1.40	2.3	4.2	1.2	1.3	6.7	8.0	29.61	314	29.61	314
	11,00. R/L .1,50.2,3	11	1.50	2.3	4.2			6.7	8.0	29.61	315	29.61	315
	11,00. R/L .1,70.2,3	11	1.70	2.3	4.2	1.5	1.6	6.7	8.0	29.61	317	29.61	317
	11,00. R/L .2,00.2,3	11	2.00	2.3	4.2			6.7	8.0	29.61	320	29.61	320
	11,00. R/L .2,50.2,3	11	2.50	2.3	4.2			6.7	8.0	29.61	325	29.61	325
	11,00. R/L .3,00.2,3	11	3.00	2.3	4.2			6.7	8.0	29.61	330	29.61	330
14	14,00. R/L .0,73.1,2	14	0.73	1.2	5.3	0.6	0.7	9.0	9.0	29.61	573	29.61	573
	14,00. R/L .0,83.1,3	14	0.83	1.3	5.3	0.7	0.8	9.0	9.0	29.61	583	29.61	583
	14,00. R/L .0,93.1,5	14	0.93	1.5	5.3	0.8	0.9	9.0	9.0	29.61	593	29.61	593
	14,00. R/L .1,20.4,0	14	1.20	4.0	5.3	1.0	1.1	9.0	9.0	29.61	512	29.61	512
	14,00. R/L .1,40.4,0	14	1.40	4.0	5.3	1.2	1.3	9.0	9.0	29.61	514	29.61	514
	14,00. R/L .1,50.4,0	14	1.50	4.0	5.3			9.0	9.0	29.61	515	29.61	515
	14,00. R/L .1,70.4,0	14	1.70	4.0	5.3	1.5	1.6	9.0	9.0	29.61	517	29.61	517
	14,00. R/L .2,00.4,0	14	2.00	4.0	5.3			9.0	9.0	29.61	520	29.61	520
	14,00. R/L .2,50.4,0	14	2.50	4.0	5.3			9.0	9.0	29.61	525	29.61	525
	14,00. R/L .3,00.4,0	14	3.00	4.0	5.3			9.0	9.0	29.61	530	29.61	530

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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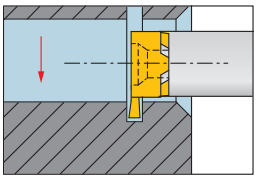
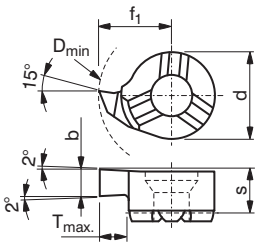
MiniCut – Grooving insert

- large groove depth ($T_{max.}$ 5.5 mm)

CWX 500 | CWX 500





Illustrations show right-hand versions

Size	Designation	D_{min} DAXN mm	$b_{+0,03}$ CW mm	$T_{max.}$ PDPT mm	s PDX mm	f_1 PDY mm	d IC mm	Left-hand Y5 Article no. 73 372 ... £		Right-hand Y5 Article no. 73 370 ... £	
14	14,00. R/L .2,50.5,5	16	2.5	5.5	5.2	10.5	9	34.39	725	34.39	725
	14,00. R/L .2,00.5,5	16	2.0	5.5	5.2	10.5	9	34.39	720	34.39	720
	14,00. R/L .3,50.5,5	16	3.0	5.5	5.2	10.5	9	34.39	730	34.39	730
	14,00. R/L .1,50.5,5	16	1.5	5.5	5.2	10.5	9	34.39	715	34.39	715

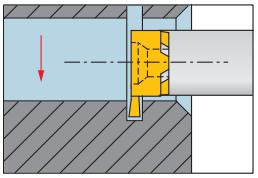
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

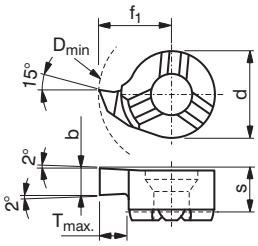
→ v_c Page 314

MiniCut – Grooving insert

- large groove depth ($T_{max.}$ 6.5 mm)

CWX 500 | CWX 500





Illustrations show right-hand versions

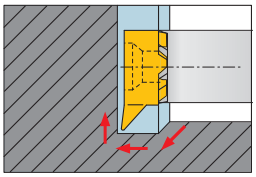
Size	Designation	D_{min} DAXN mm	$b_{+0,03}$ CW mm	$T_{max.}$ PDPT mm	s PDX mm	f_1 PDY mm	d IC mm	Left-hand Y5 Article no. 73 384 ... £		Right-hand Y5 Article no. 73 382 ... £	
14	14,00. R/L .1,50.6,5	17	1.5	6.5	5.2	11.5	9	34.39	515	34.39	515
	14,00. R/L .2,00.6,5	17	2.0	6.5	5.2	11.5	9	34.39	520	34.39	520
	14,00. R/L .2,50.6,5	17	2.5	6.5	5.2	11.5	9	34.39	525	34.39	525
	14,00. R/L .3,50.6,5	17	3.0	6.5	5.2	11.5	9	34.39	530	34.39	530

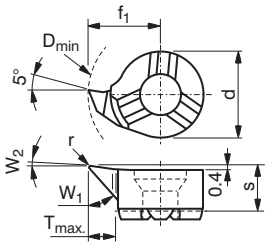
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

MiniCut – Internal undercut insert

CWX 500 | CWX 500





Illustrations show right-hand versions

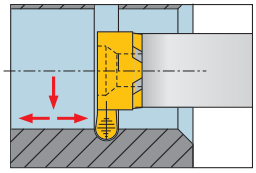
Size	Designation	D_{min} DAXN mm	$T_{max.}$ PDPT mm	s PDX mm	f_1 PDY mm	d IC mm	r RE mm	$a_{p\,max}$ CDX mm	$W°_1$ PSIRR	$W°_2$ RAR	Left-hand Y5 Article no. 73 328 ... £		Right-hand Y5 Article no. 73 326 ... £	
08	8,00. R/L .30°.1,0	7.8	1.0	3.5	4.65	6.0	0.2	0.4	30	3	39.58	010	39.58	010
	8,00. R/L .47°.1,2	7.8	1.2	3.5	4.65	6.0	0.2	0.4	47	3	34.39	012	34.39	012
09	9,00. R/L .47°.1,5	9.0	1.5	3.6	5.50	6.2	0.2	0.5	47	3	31.88	115	31.88	115
11	11,00. R/L .47°.2,3	11.0	2.3	4.2	6.70	8.0	0.2	0.6	47	3	33.48	323	33.48	323
	11,00. R/L .30°.2,3	11.0	2.3	4.2	6.70	8.0	0.2	0.6	30	3	38.66	423	38.66	423
14	13,70. R/L .47°.3,0	13.7	3.0	5.3	8.70	9.0	0.2	0.8	47	3	34.39	530	34.39	530
	13,70. R/L .30°.4,0	13.7	4.0	5.3	8.70	9.0	0.2	0.8	30	3	39.58	540	39.58	540

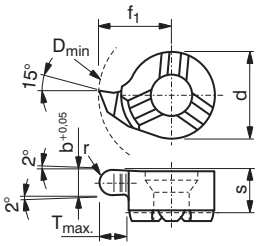
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

MiniCut – Full radius grooving and turning insert

CWX 500 | CWX 500





Illustrations show right-hand versions

Size	Designation	D_{min} DAXN mm	b CW mm	$T_{max.}$ PDPT mm	s PDX mm	f_1 PDY mm	d IC mm	r RE mm	Left-hand Y5 Article no. 73 320 ... £		Right-hand Y5 Article no. 73 318 ... £	
08	8,00. R/L .0,80.1,0	8	0.8	1.0	3.3	4.8	6.0	0.4	36.91	008	36.91	008
	8,00. R/L .1,20.1,0	8	1.2	1.0	3.3	4.8	6.0	0.6	36.91	012	36.91	012
	8,00. R/L .1,80.1,0	8	1.8	1.0	3.3	4.8	6.0	0.9	36.91	018	36.91	018
	8,00. R/L .2,00.1,0	8	2.0	1.0	3.3	4.8	6.0	1.0	34.21	020	34.21	020
09	9,00. R/L .0,80.1,6	9	0.8	1.6	3.6	5.5	6.2	0.4	35.44	108	35.44	108
	9,00. R/L .1,20.1,6	9	1.2	1.6	3.6	5.5	6.2	0.6	35.44	112	35.44	112
	9,00. R/L .1,80.1,6	9	1.8	1.6	3.6	5.5	6.2	0.9	35.44	118	35.44	118
	9,00. R/L .2,00.1,6	9	2.0	1.6	3.6	5.5	6.2	1.0	35.44	120	35.44	120
11	11,00. R/L .0,80.2,3	11	0.8	2.3	4.2	6.7	8.0	0.4	37.37	308	37.37	308
	11,00. R/L .1,20.2,3	11	1.2	2.3	4.2	6.7	8.0	0.6	37.37	312	37.37	312
	11,00. R/L .1,60.2,3	11	1.6	2.3	4.2	6.7	8.0	0.8	35.44	316	35.44	316
	11,00. R/L .1,80.2,3	11	1.8	2.3	4.2	6.7	8.0	0.9	37.37	318	37.37	318
	11,00. R/L .2,00.2,3	11	2.0	2.3	4.2	6.7	8.0	1.0	37.37	320	37.37	320
	11,00. R/L .2,40.2,3	11	2.4	2.3	4.2	6.7	8.0	1.2	35.44	324	35.44	324
	11,00. R/L .3,00.2,3	11	3.0	2.3	4.2	6.7	8.0	1.5	37.37	330	37.37	330
14	14,00. R/L .0,80.4,0	14	0.8	4.0	5.3	9.0	9.0	0.4	36.89	508	36.89	508
	14,00. R/L .1,20.4,0	14	1.2	4.0	5.3	9.0	9.0	0.6	39.55	512	39.55	512
	14,00. R/L .1,80.4,0	14	1.8	4.0	5.3	9.0	9.0	0.9	39.55	518	39.55	518
	14,00. R/L .2,00.4,0	14	2.0	4.0	5.3	9.0	9.0	1.0	39.55	520	39.55	520
	14,00. R/L .2,20.4,0	14	2.2	4.0	5.3	9.0	9.0	1.1	39.55	522	39.55	522
	14,00. R/L .3,00.4,0	14	3.0	4.0	5.3	9.0	9.0	1.5	39.55	530	39.55	530

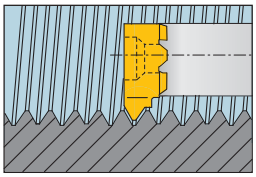
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

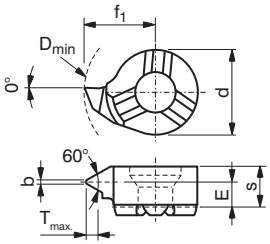
→ v_c Page 314

MiniCut – Threading insert (Partial profile)

M | 60°

CWX 500 | CWX 500





Illustrations show right-hand versions

Size	Designation	D_{min} DAXN mm	p TP mm	b CW mm	$T_{max.}$ PDPT mm	s W1 mm	E PDX mm	f_1 PDY mm	d IC mm	Left-hand Y5 Article no. 73 344 ... £		Right-hand Y5 Article no. 73 342 ... £	
08	8,00. R/L .0,5/0,75.60°	8	0,5/0,75	0.06	0.43	3.50	2.7	4.8	6.0	39.96	012	39.96	012
	8,00. R/L .1,0/1,25.60°	8	1,0/1,25	0.12	0.70	3.50	2.7	4.8	6.0	39.96	014	39.96	014
	8,00. R/L .1,5/1,75.60°	8	1,5/1,75	0.18	0.95	3.50	2.5	4.8	6.0	39.96	010	39.96	010
09	9,00. R/L .0,5/0,75.60°	9	0,5/0,75	0.06	0.27	3.55	3.2	5.5	6.2	37.88	112	37.88	112
	9,00. R/L .1,0/1,25.60°	9	1,0/1,25	0.12	0.54	3.55	3.0	5.5	6.2	37.88	114	37.88	114
	9,00. R/L .1,5/1,75.60°	9	1,5/1,75	0.18	0.81	3.55	2.8	5.5	6.2	37.88	116	37.88	116
	9,00. R/L .1,75/2,0.60°	9	1,75/2,0	0.20	0.95	3.55	2.6	5.5	6.2	37.88	118	37.88	118
	9,00. R/L .2,0/2,5.60°	9	2,0/2,5	0.25	1.08	3.55	2.5	5.5	6.2	37.88	120	37.88	120
	9,00. R/L .2,5/3,0.60°	9	2,5/3,0	0.31	1.35	3.55	2.1	5.5	6.2	37.88	122	37.88	122
	9,00. R/L .3,0/3,5.60°	9	3,0/3,5	0.37	1.62	3.55	1.9	5.5	6.2	37.88	124	37.88	124
11	11,00. R/L .0,5/0,75.60°	11	0,5/0,75	0.06	0.75	4.30	3.5	6.7	8.0	39.96	312	39.96	312
	11,00. R/L .1,0/1,25.60°	11	1,0/1,25	0.12	0.55	4.30	3.5	6.7	8.0	39.96	314	39.96	314
	11,00. R/L .1,5/1,75.60°	11	1,5/1,75	0.18	0.81	4.30	3.5	6.7	8.0	39.96	316	39.96	316
	11,00. R/L .2,0/2,5.60°	11	2,0/2,5	0.25	1.08	4.30	3.0	6.7	8.0	39.96	310	39.96	310
	11,00. R/L .2,5/3,0.60°	11	2,5/3,0	0.31	1.35	4.30	3.0	6.7	8.0	39.96	320	39.96	320
14	14,00. R/L .1,0/1,25.60°	14	1,0/1,25	0.12	0.55	5.40	4.7	9.0	9.0	39.96	512	39.96	512
	14,00. R/L .1,5/1,75.60°	14	1,5/1,75	0.18	0.81	5.40	4.5	9.0	9.0	39.96	514	39.96	514
	14,00. R/L .2,0/2,5.60°	14	2,0/2,5	0.25	1.08	5.40	4.2	9.0	9.0	39.96	510	39.96	510
	14,00. R/L .2,5/3,0.60°	14	2,5/3,0	0.31	1.35	5.40	4.7	9.0	9.0	39.96	520	39.96	520

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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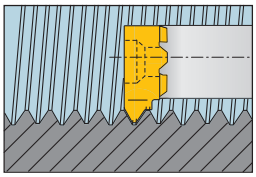
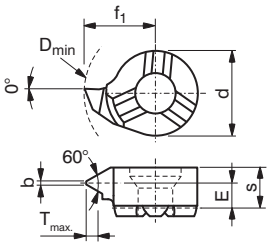
MiniCut – Threading insert (Full profile)

M

CWX 500

CWX 500





Illustrations show right-hand versions

Size	Designation	D_{min} DAXN mm	p TP mm	b CW mm	$T_{max.}$ PDPT mm	s W1 mm	E PDX mm	f_1 PDY mm	d IC mm	Left-hand Y5 Article no. 73 348 ... £		Right-hand Y5 Article no. 73 346 ... £	
09	9,00. R/L .0,5.60°	9	0,5	0.06	0.27	3.55	3.25	5.5	6.2	42.21	405	42.21	405
	9,00. R/L .1,0.60°	9	1,0	0.12	0.54	3.55	3.00	5.5	6.2	42.21	410	42.21	410
	9,00. R/L .1,5.60°	9	1,5	0.18	0.81	3.55	2.80	5.5	6.2	42.21	415	42.21	415
	9,00. R/L .1,75.60°	9	1,75	0.20	0.95	3.55	2.70	5.5	6.2	42.21	418	42.21	418
	9,00. R/L .2,0.60°	9	2,0	0.25	1.08	3.55	2.60	5.5	6.2	42.21	420	42.21	420
	9,00. R/L .2,5.60°	9	2,5	0.31	1.35	3.55	2.50	5.5	6.2	42.21	425	42.21	425
	9,00. R/L .3,0.60°	9	3,0	0.37	1.62	3.55	2.20	5.5	6.2	42.21	430	42.21	430
11	11,00. R/L .1,0.60°	11	1,0	0.12	0.54	4.30	3.50	6.7	8.0	45.33	314	45.33	314
	11,00. R/L .1,5.60°	11	1,5	0.18	0.81	4.30	3.50	6.7	8.0	44.61	316	45.33	316
	11,00. R/L .2,0.60°	11	2,0	0.25	1.08	4.30	3.20	6.7	8.0	45.33	310	45.33	310
	11,00. R/L .2,5.60°	11	2,5	0.31	1.35	4.30	3.00	6.7	8.0	45.33	320	45.33	320
	11,00. R/L .3,0.60°	11	3,0	0.37	1.62	4.30	2.90	6.7	8.0	45.33	330	45.33	330
14	14,00. R/L .0,5.60°	14	0,5	0.06	0.27	5.40	3.50	9.0	9.0	45.90	510	45.90	510
	14,00. R/L .1,0.60°	14	1,0	0.12	0.54	5.40	3.50	9.0	9.0	41.79	512	41.79	512
	14,00. R/L .1,5.60°	14	1,5	0.18	0.81	5.40	3.30	9.0	9.0	41.79	514	41.79	514
	14,00. R/L .2,0.60°	14	2,0	0.25	1.08	5.40	4.20	9.0	9.0	41.79	610	41.79	610
	14,00. R/L .2,5.60°	14	2,5	0.31	1.35	5.40	4.70	9.0	9.0	41.79	520	41.79	520

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

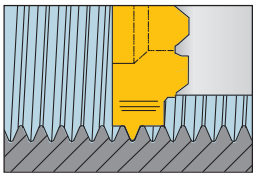
→ v_c Page 314

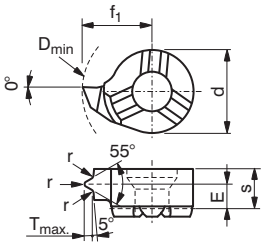
3

MiniCut – Threading insert (Full profile)

G | 55°

CWX 500 | CWX 500





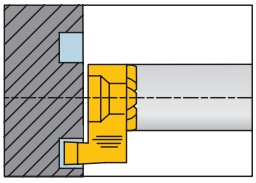
Illustrations show right-hand versions

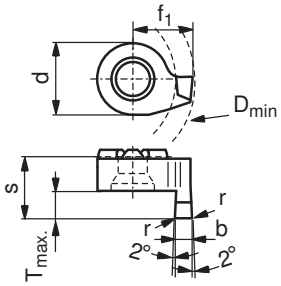
Size	Designation	D_{min} DAXN mm	p TP mm	p TDIN 1/"	$T_{max.}$ PDPT mm	s W1 mm	E PDX mm	f_1 PDY mm	d IC mm	r RE mm	Left-hand Y5 Article no. 73 352 ... £		Right-hand Y5 Article no. 73 350 ... £	
11	11,00. R/L .1,814.55°	11	1,814	14	1.16	4.30	3.0	6.7	8	0.24	58.83	306	58.83	306
	11,00. R/L .1,337.55°	11	1,337	19	0.85	4.30	2.7	6.7	8	0.18	58.83	304	58.83	304
14	14,00. R/L .1,814.55°	14	1,814	14	1.16	5.35	3.6	9.0	9	0.24	58.05	506	58.05	506
	14,00. R/L .1,337.55°	14	1,337	19	0.85	5.35	3.8	9.0	9	0.18	58.05	504	58.05	504

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

MiniCut – Axial grooving insert





CWX 500 | CWX 500

Illustrations show right-hand versions

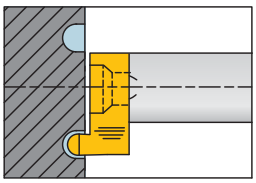
Size	Designation	D_{min} DAXN mm	b CW mm	$T_{max.}$ PDPT mm	s PDX mm	f_1 PDY mm	r RE mm	d IC mm	Left-hand Y5 Article no. 73 364 ... £		Right-hand Y5 Article no. 73 362 ... £	
14	14,00. R/L .1,0.1,5	14	1.0	1.5	8.3	9		9	32.19	510	32.19	510
	14,00. R/L .1,5.2,5	14	1.5	2.5	8.3	9	0.2	9	32.19	515	32.19	515
	14,00. R/L .2,0.3,0	14	2.0	3.0	8.3	9	0.2	9	32.19	520	32.19	520
	14,00. R/L .2,0.5,0	14	2.0	5.0	10.3	9	0.2	9	37.37	620	37.37	620
	14,00. R/L .2,5.3,0	14	2.5	3.0	8.3	9	0.2	9	32.19	525	32.19	525
	14,00. R/L .2,5.5,0	14	2.5	5.0	10.3	9	0.2	9	37.37	625	37.37	625
	14,00. R/L .3,0.3,0	14	3.0	3.0	8.3	9	0.2	9	32.19	530	32.19	530
	14,00. R/L .3,0.5,0	14	3.0	5.0	10.3	9	0.2	9	37.37	630	37.37	630

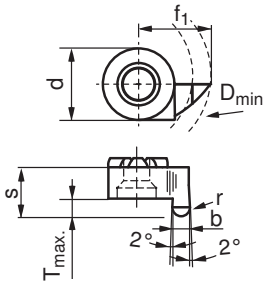
	Left-hand	Right-hand
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

3

MiniCut – Full radius axial grooving insert





CWX 500 | CWX 500

Illustrations show right-hand versions

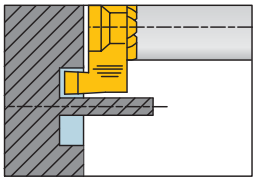
Size	Designation	D_{min} DAXN mm	b CW mm	$T_{max.}$ PDPT mm	s PDX mm	f_1 PDY mm	r RE mm	d IC mm	Left-hand Y5 Article no. 73 376 ... £		Right-hand Y5 Article no. 73 374 ... £	
14	14,00. R/L . 1,0.1,5	14	1.0	1.5	8.3	9	0.5	9	37.22	510	37.22	510
	14,00. R/L . 1,6.2,5	14	1.6	2.5	8.3	9	0.8	9	37.22	516	37.22	516
	14,00. R/L . 2,0.3,0	14	2.0	3.0	8.3	9	1.0	9	37.22	520	37.22	520
	14,00. R/L . 2,5.3,0	14	2.5	3.0	8.3	9	1.2	9	37.22	525	37.22	525
	14,00. R/L . 3,0.3,0	14	3.0	3.0	8.3	9	1.5	9	37.22	530	37.22	530

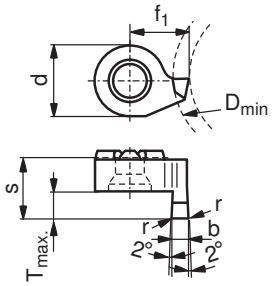
	Left-hand	Right-hand
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

MiniCut – Axial grooving insert over a spigot

CWX 500 | CWX 500





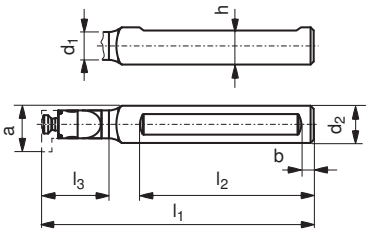
Illustrations show right-hand versions

Size	Designation	D_{min} DAXN mm	b CW mm	$T_{max.}$ PDPT mm	s PDX mm	f_1 PDY mm	r RE mm	d IC mm	Left-hand Y5 Article no. 73 360 ... £		Right-hand Y5 Article no. 73 358 ... £	
14	12,00. R/L .1,0.1,5	12	1.0	1.5	8.3	7.0		9	33.48	310	33.48	310
	12,00. R/L .1,5.2,5	12	1.5	2.5	8.3	7.5	0.2	9	34.27	315	34.27	315
	12,00. R/L .2,0.3,0	12	2.0	3.0	8.3	8.0	0.2	9	34.27	320	34.27	320
	12,00. R/L .2,0.5,0	12	2.0	5.0	10.3	8.0	0.2	9	39.95	420	39.95	420
	12,00. R/L .2,5.3,0	12	2.5	3.0	8.3	8.5	0.2	9	34.27	325	34.27	325
	12,00. R/L .2,5.5,0	12	2.5	5.0	10.3	8.5	0.2	9	39.95	425	39.95	425
	12,00. R/L .3,0.3,0	12	3.0	3.0	8.3	9.0	0.2	9	34.27	330	34.27	330
	12,00. R/L .3,0.5,0	12	3.0	5.0	10.3	9.0	0.2	9	39.95	430	39.95	430

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 314

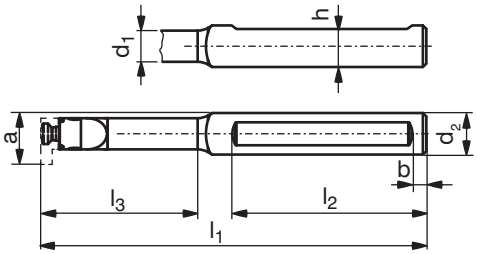
MiniCut – Steel Tool holder



Size	Designation	a WF mm	$d_{2\ f7}$ DCONMS mm	l_1 OAL mm	l_2 LDRED mm	l_3 LH mm	d_1 DCONWS mm	h H mm	b mm	Y5 Article no. 73 522 ... £	
08	8,00/16.N.12.1,0	7.8	16	80	60	12	6.0	15.0	5	177.11	012
	8,00/16.N.22.1,0	7.8	16	90	60	22	6.0	15.0	5	203.22	122
09	9,00/16.N.14.1,8	8.6	16	95	60	14	7.4	15.0	5	160.63	014
	9,00/16.N.25.1,8	8.6	16	105	60	25	7.4	15.0	5	184.17	125
11	11,00/16.N.16.2,3	10.7	16	97	60	16	8.0	14.5	5	177.11	016
	11,00/16.N.29.2,3	10.7	16	110	60	29	8.0	14.5	5	203.22	129
14	14,00/16.N.18.4,0	13.8	16	100	60	18	11.0	14.5	5	203.22	018
	14,00/16.N.38.4,0	13.8	16	120	60	38	11.0	14.5	5	203.22	138

Spare parts Size		Y7 Key D Article no. 80 950 ... £			Y5 Clamping screw Article no. 73 082 ... £	
08	T08	9.52	110	M2,6	6.60	002
09	T08	9.52	110	M2,6	6.60	002
11	T10	11.15	112	M3,5	6.60	003
14	T15	11.34	113	M4	6.60	004

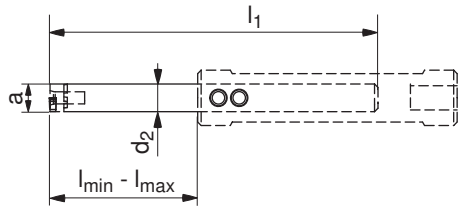
MiniCut – Solid Carbide Tool holder – vibration damped



Size	Designation	a WF mm	$d_{2\ f7}$ DCONMS mm	l_1 OAL mm	l_2 LDRED mm	l_3 LH mm	d_1 DCONWS mm	h H mm	b mm	Y5 Article no. 73 520 ... £	
08	8,00/12.N.21.1,0 HM	7.8	12	80	48	21	6.0	11.0	5	286.51	021
	8,00/12.N.30.1,0 HM	7.8	12	90	48	30	6.0	11.0	5	309.84	030
	8,00/12.N.42.1,0 HM	7.8	12	100	48	42	6.0	11.0	5	364.52	042
	8,00/12.N.50.1,0 HM	7.8	12	115	48	50	6.0	11.0	5	416.44	050
09	9,00/12.N.22.1,0 HM	8.6	12	90	60	22	7.4	11.0	5	287.93	222
	9,00/12.N.30.2,0 HM	8.6	12	98	60	30	7.4	11.0	5	335.91	230
	9,00/12.N.42.3,0 HM	8.6	12	110	60	42	7.4	11.0	5	377.91	242
	9,00/12.N.56.4,0 HM	8.6	12	122	60	56	7.4	11.0	5	427.89	256
11	11,00/12.N.29.2,3 HM	10.7	12	95	60	29	8.0	10.5	5	286.51	129
	11,00/12.N.42.2,3 HM	10.7	12	110	60	42	8.0	10.5	5	309.84	142
	11,00/12.N.56.2,3 HM	10.7	12	120	60	56	8.0	10.5	5	364.52	156
	11,00/12.N.64.2,3 HM	10.7	12	130	60	64	8.0	10.5	5	416.44	164
14	14,00/12.N.34.4,0 HM	13.8	12	100	60	34	11.0	10.5	5	348.70	234
	14,00/12.N.45.4,0 HM	13.8	12	110	60	45	11.0	10.5	5	392.97	245
	14,00/12.N.64.4,0 HM	13.8	12	130	60	64	11.0	10.5	5	463.35	264
	14,00/16.N.34.4,0 HM	13.8	16	100	60	34	11.0	14.5	5	408.68	334
	14,00/16.N.45.4,0 HM	13.8	16	110	60	45	11.0	14.5	5	465.87	345
	14,00/16.N.64.4,0 HM	13.8	16	130	60	64	11.0	14.5	5	535.84	364
	14,00/16.N.75.4,0 HM	13.8	16	145	60	75	11.0	14.5	5	572.46	375

Spare parts Size		Y7 Key D Article no. 80 950 ... £			Y5 Clamping screw Article no. 73 082 ... £	
08	T08	9.52	110	M2,6	6.60	002
09	T08	9.52	110	M2,6	6.60	002
11	T10	11.15	112	M3,5	6.60	003
14	T15	11.34	113	M4	6.60	004

MiniCut – HM – Flexoholder

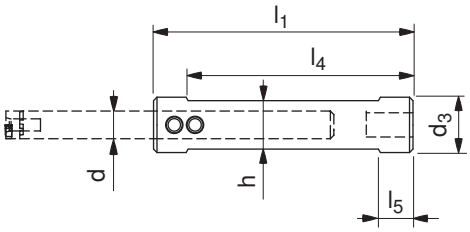


Size	Designation	d_2 DCONMS mm	l_1 OAL mm	l_{min} LFN mm	l_{max} LF mm	a WF mm	Y5 Article no. 73 525 ... £	
08	8,0/6.N16/2	6	85	18	42	8	405.90	818
	8,0/6.N40/4	6	103	40	80	8	461.88	840
11	11,0/8.N20/2	8	79	20	55	11	513.87	120 1)
	11,0/8.N50/4	8	129	50	105	11	583.85	150 1)

1) with thro' coolant

Spare parts Size		Y7 Key D Article no. 80 950 ... £			Y5 Clamping screw Article no. 73 082 ... £	
08	T08	9.52	110	M2,6	6.60	002
11	T10	11.15	112	M3,5	6.60	003

MiniCut – Base holder for solid carbide Flexoholder

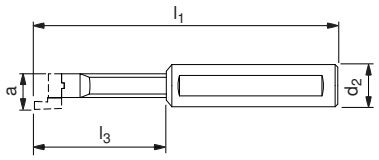


Size	Designation	d DCONWS mm	d_3 DCONMS mm	h H mm	l_1 OAL mm	l_4 mm	l_5 mm	Y5 Article no. 73 526 ... £	
08	8/16.75	6	16	14	75	55	10	243.94	816
	8/20.90	6	20	18	90	70	10	243.94	820
11	11/16.75	8	16	14	75	55	10	243.94	116
	11/20.90	8	20	18	90	70	10	243.94	120

Spare parts for Article no.		2A Key I Article no. 70 950 ... £			Y5 Clamping screw Article no. 73 082 ... £	
73 526 816	SW2,5	2.12	175	M5x0,5x6	4.25	010
73 526 820	SW2,5	2.12	175	M5x0,5x6	4.25	010
73 526 116	SW2,5	2.12	175	M5x0,5x4	4.25	009
73 526 120	SW2,5	2.12	175	M5x0,5x6	4.25	010

MiniCut – Steel holder

- for axial machining



Illustrations show right-hand versions

Size	Designation	a WF mm	d_2 DCONMS mm	l_1 OAL mm	l_3 LH mm	Left-hand Y5 Article no. 73 523 ... £		Right-hand Y5 Article no. 73 524 ... £	
14	14,0/16. R/L .25.1,0	13.5	16	90	25	217.95	025	217.95	025
	14,0/16. R/L .45.1,0	13.5	16	110	45	231.93	145	231.93	145

Spare parts Size		Y7 Key D Article no. 80 950 ... £			Y5 Clamping screw Article no. 73 082 ... £	
14	T15	11.34	113	M4	6.60	004

Material examples referring to the WNT cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5% Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0,5-10% Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10-15% Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15% Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data appoximate values

Index	UltraMini K10F	UltraMini K10F-TiN	UltraMini K10-TiAN	UltraMini DPX 57S	MiniCut CWX500
	v_c in m/min				
1.1	30–130	**30–180**	**80–200**	**80–200**	**80–200**
1.2	30–130	**40–200**	**80–200**	**80–200**	**80–200**
1.3	30–130	**40–180**	**80–200**	**80–200**	**80–200**
1.4	15–90	**30–140**	**80–160**	**80–160**	**80–160**
1.5	15–90	**30–100**		**80–140**	
1.6	15–90	**30–100**	**80–160**	**80–160**	**80–160**
1.7	30–130	**30–100**	**80–160**	**80–160**	**80–160**
1.8	15–90	**30–100**	**80–150**	**80–150**	**80–150**
1.9	30–130	**40–200**	**80–200**	**80–200**	**80–200**
1.10	15–90	**30–100**	**70–140**	**70–140**	**70–140**
1.11	15–90	**30–100**	**70–140**	**70–140**	**70–140**
1.12	15–90	**30–100**	**70–140**	**70–140**	**70–140**
1.13					
1.14					
1.15	15–45	**30–100**			
1.16	15–45	**30–100**			
2.1		**30–100**	**80–160**	**80–160**	**80–160**
2.2		**30–100**	**80–160**	**80–160**	**80–160**
2.3		**30–100**	**80–160**	**80–160**	**80–160**
2.4		**20–90**	**20–85**	**20–85**	**20–85**
2.5		**20–65**	**20–75**	**20–75**	**20–75**
2.6		**20–80**	**20–65**	**20–65**	**20–65**
2.7		**20–80**	**20–65**	**20–65**	**20–65**
3.1	30–110	70–150	**30–180**	**30–180**	**30–180**
3.2	30–90	50–120	**30–150**	**30–150**	**30–150**
3.3	25–110	30–130	**30–180**	**30–180**	**30–180**
3.4	25–80	30–110	**30–120**	**30–120**	**30–120**
3.5	30–110	30–100	**30–90**	**30–90**	**30–90**
3.6	30–90	30–90	**20–80**	**20–80**	**20–80**
3.7	30–110	30–100	**30–90**	**30–90**	**30–90**
3.8	30–90	30–90	**20–80**	**20–80**	**20–80**
4.1	**110–210**	100–600	**120–600**	**120–600**	**120–600**
4.2	**90–200**	100–600	**120–600**	**120–600**	**120–600**
4.3	**90–200**	100–500	**100–450**	**100–450**	**100–450**
4.4	**50–140**	80–350	**70–300**	**70–300**	**70–300**
4.5		80–200	**60–150**	**60–150**	**60–150**
4.6	**50–140**	70–160	**60–150**	**60–150**	**60–150**
4.7	**60–150**	80–180	**100–180**	**100–180**	**100–180**
4.8	**50–140**	80–180	**90–180**	**90–180**	**90–180**
4.9	**50–140**	80–180	**80–180**	**80–180**	**80–180**
4.10	**50–140**	80–180	**80–180**	**80–180**	**80–180**
4.11	**80–160**	100–200	**120–220**	**120–220**	**120–220**
4.12	**50–120**	80–180	**70–150**	**70–150**	**70–150**
4.13	**40–120**	70–160	**80–180**	**80–180**	**80–180**
4.14					
4.15					
4.16					
4.17					
4.18	**15–70**				
4.19					
5.1		30–80	**30–80**	30–80	**30–80**
5.2		18–75	**18–75**	18–75	**18–75**
5.3		18–75	**18–75**	18–75	**18–75**
5.4				40–70	
5.5		18–40	**18–40**	40–70	**18–40**
5.6		18–40	**18–40**	40–70	**18–40**
5.7		15–30	**15–30**	40–70	**15–30**
5.8		15–30	**15–30**	40–70	**15–30**
5.9		15–30	**15–30**	**70–150**	**15–30**
5.10				**70–150**	
5.11				**70–150**	
6.1					
6.2					
6.3					
6.4					
6.5					

	UltraMini	MiniCut
	f in mm/rev.	
Internal turning and profiling	0,02–0,05	0,03–0,10
Turning and profile turning – super alloys	0,02–0,08	
Internal turning	0,02–0,05	0,01–0,03
Back boring	0,02–0,04	0,03–0,10
Turning and chamfering	0,01–0,03	0,03–0,10
Pre-parting and chamfering	0,01–0,02	0,01–0,03
Groove turning	0,01–0,02	0,01–0,03
Internal Undercuts	0,01–0,03	0,03–0,08
Groove and profile turning	0,01–0,02	0,01–0,03
Axial grooving	0,02–0,05	0,02–0,05

The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values – 73 000 .../ 73 001 ...

Index	UltraMini DPX 77S	Corner radius in mm			
		0,05	0,1	0,15	0,2
	v_c in m/min	f in mm/rev.			
1.1	80–200	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.2	80–200	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.3	80–200	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.4	80–160	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.5	80–140	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.6	80–160	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.7	80–160	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.8	80–150	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.9	80–200	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.10	70–140	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.11	70–140	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.12	70–140	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.13					
1.14					
1.15					
1.16					
2.1	80–160	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
2.2	80–160	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
2.3	80–160	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
2.4	20–85	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
2.5	20–75	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
2.6	20–65	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
2.7	20–65	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.1	30–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.2	30–150	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.3	30–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.4	30–120	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.5	30–90	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.6	20–80	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.7	30–90	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.8	20–80	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.1	120–600	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.2	120–600	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.3	100–450	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.4	70–300	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.5	60–150	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.6	60–150	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.7	100–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.8	90–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.9	80–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.10	80–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.11	120–220	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.12	70–150	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.13	80–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.14					
4.15					
4.16					
4.17					
4.18					
4.19					
5.1	30–80	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.2	18–75	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.3	18–75	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.4	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.5	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.6	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.7	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.8	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.9	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.10	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.11	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
6.1					
6.2					
6.3					
6.4					
6.5					

The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Drilling

HSS drilling

Solid carbide drilling

Reamers

1

Threading

HSS taps

Circular and Thread Milling

Thread turning

2

Turning

Turning Tools

EcoCut

Grooving Tools

Miniature turning tools

3

Milling

Solid Carbide milling cutters

4

Clamping

5

Material examples and article no. index

6

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WNT MASTERTOOL PERFORMANCE

Premium quality tools for high performance.

The premium quality tools from the **WNT Mastertool Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

WNT MASTERTOOL STANDARD

Quality tools for standard applications.

The quality tools of the **WNT Mastertool Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Overview

Solid carbide milling

- Selection of high-performance solid carbide milling cutters from the Mastertool Performance and Mastertool Standard product lines.

Circular saw blades

- Diameters ranging from 15 mm–63 mm with widths of 0.2 mm–6.0 mm
- Conforms to DIN 1837-A (fine-toothed)

Adapters for circular saw blades

- Interfaces perfectly tailored to circular saw blades

Symbol explanation

Shank

Shank type

Length: extra short / short / medium / long / extra long

central internal coolant

lateral internal coolant

Cutting edge preparation

K = Chamfer width (in mm)

Sharp

Chamfer

Radius

Application

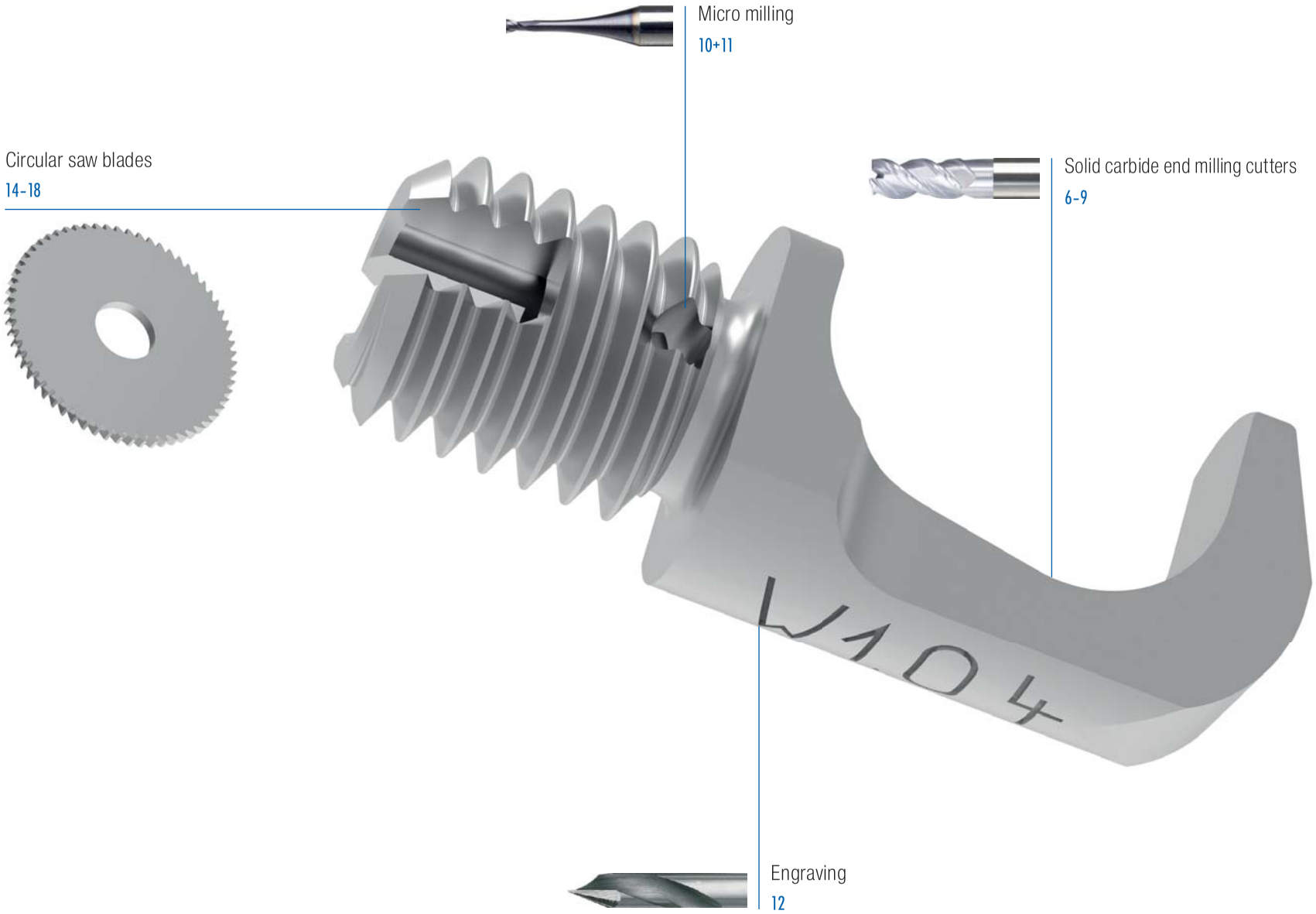
HPC	High volume machining
54–70 HRC	Hard materials
	Machining example
	The red arrows describe the possible feed directions
	Number of teeth
λ_s=48° γ_s=10°	Cutting geometry λ_s = Helix Angle γ_s = Rake Angle
	Cool-jet recommended
Ti 1000	**Monolayer**, $HV_{0,05}$ = 3500 coefficient of friction (on steel) = 0,4 maximum application temperature: 800°
Ti 1010	**Multilayer**, $HV_{0,05}$ = 3600 coefficient of friction (on steel) = 0,2 maximum application temperature: 800°

● = **Main Application**

○ = Extended application

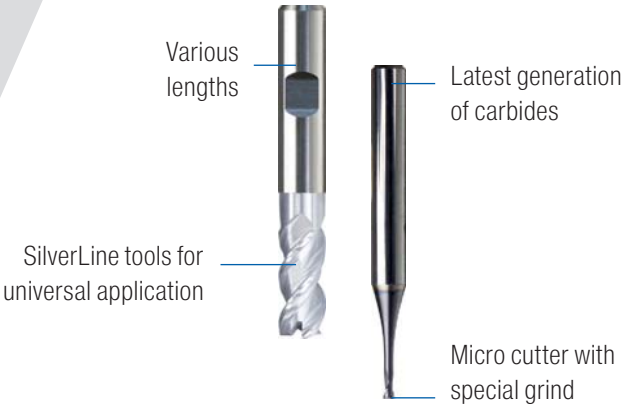
4

WNT Toolfinder



Highlights

- Universal cutting edge geometries
  One tool for many materials
- Irregular flute pitch and helix angle
  Reduced vibrations
- Sharp cutting edges
  Reduced cutting forces
- Perfectly tailored coatings
  Improved surface quality
- Plunging and ramping possible
  High productivity

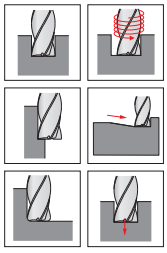


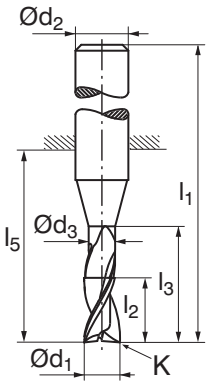
Overview of solid carbide milling cutters

	Tool type	Number of teeth z	Diameter in mm Ø d_1	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Sharp	Chamfer	Length	High performance end mills	coated	uncoated	WNT MASTERTOOL PERFORMANCE	WNT MASTERTOOL STANDARD	Pages
SilverLine – End Mills																		
	N	3	3–12	●	●	○	○	●					HPC	■				6
	N	4	3–12	●	●	○	○	●					HPC	■				7
End Mills with Finishing Geometry																		
	N	4	3–12	●		●							HPC	■				9
	N	4	3–12	●	●	○	○	●					HPC	■				8
Micro-Cutter																		
Micro-End Mill																		
	N	2	0,2–2	●	●	●	●	●	●					■				10
Engraving cutter 60°																		
	W	1	3–6	○	○	○	●	○							□			12

More milling tools can be found in our → **main catalogue in chapters 12–14**

SilverLine – End milling cutter





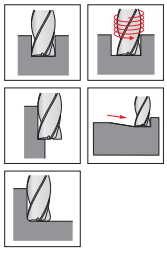
$d_{1\ e8}$ DC mm	l_2 APMX mm	d_3 DN mm	l_3 LH mm	l_5 LPR mm	l_1 OAL mm	$d_{2\ h5}$ DCONMS mm	K CHW mm	Z ZEFP	≈DIN 6527 HB V0 Article no. 50 951 ... £		≈DIN 6527 HB V0 Article no. 50 951 ... £		Factory standard HB V0 Article no. 50 951 ... £	
3.0	8	2.9	15	21	57	6	0.15	3			52.45	**031**		
3.5	11	3.4	16	21	57	6	0.15	3			52.45	**036**		
4.0	8	3.9	15	18	54	6	0.15	3	46.42	**040**				
4.0	11	3.9	16	21	57	6	0.15	3			46.42	**041**		
4.0	16			26	62	6	0.15	3					48.60	**042**
4.5	13	4.4	19	21	57	6	0.15	3			52.45	**046**		
5.0	9	4.9	16	18	54	6	0.15	3	46.42	**050**				
5.0	13	4.9	19	21	57	6	0.15	3			46.42	**051**		
5.0	17			26	62	6	0.15	3					48.60	**052**
5.5	13	5.4	19	21	57	6	0.15	3			55.09	**056**		
6.0	10	5.9	17	18	54	6	0.25	3	48.10	**060**				
6.0	13	5.9	19	21	57	6	0.25	3			48.60	**061**		
6.0	18			26	62	6	0.25	3					55.09	**062**
6.5	19	6.3	25	27	63	8	0.25	3			62.70	**066**		
7.0	19	6.8	25	27	63	8	0.25	3			62.70	**071**		
7.5	19	7.3	25	27	63	8	0.25	3			62.70	**076**		
8.0	12	7.8	20	22	58	8	0.25	3	55.76	**080**				
8.0	19	7.8	25	27	63	8	0.25	3			56.76	**081**		
8.0	24			32	68	8	0.25	3					62.09	**082**
8.5	22	8.2	30	32	72	10	0.25	3			106.63	**086**		
9.0	22	8.7	30	32	72	10	0.25	3			106.63	**091**		
9.5	22	9.2	30	32	72	10	0.25	3			106.63	**096**		
10.0	14	9.7	24	26	66	10	0.25	3	88.04	**100**				
10.0	22	9.7	30	32	72	10	0.25	3			97.65	**101**		
10.0	30			40	80	10	0.25	3					107.95	**102**
12.0	16	11.7	26	28	73	12	0.25	3	123.50	**120**				
12.0	26	11.7	36	38	83	12	0.25	3			132.06	**121**		
12.0	36			48	93	12	0.25	3					149.86	**122**

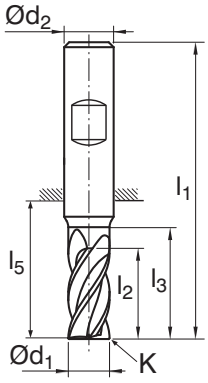
Steel	●	●	●
Stainless steel	●	●	●
Cast iron	○	○	○
Non ferrous metals	○	○	○
Heat resistant alloys	●	●	●
hardened materials			

→ v_c/f_z Page 22+23

SilverLine – End milling cutter

N | λ_s=35° 38° γ_s=10° | z | HPC





Ti 1010

Ti 1010

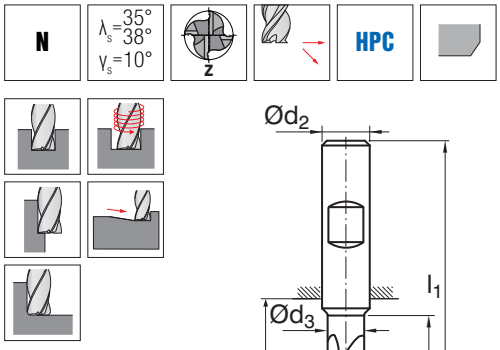
$d_{1\ f8}$ DC mm	l_2 APMX mm	l_3 LH mm	l_5 LPR mm	l_1 OAL mm	$d_{2\ h6}$ DCONMS mm	K CHW mm	Z ZEFP	≈DIN 6527 HB V0 Article no. 50 955 ... £		≈DIN 6527 HB V0 Article no. 50 955 ... £	
3.0	5	8	14	50	6	0.15	4	43.56	030		
3.0	8	11	21	57	6	0.15	4			43.56	031
3.5	8	11	18	54	6	0.15	4	40.92	035		
3.5	11	14	21	57	6	0.15	4			40.92	036
4.0	8	11	18	54	6	0.15	4	43.56	040		
4.0	11	14	21	57	6	0.15	4			43.56	041
4.5	9	12	18	54	6	0.15	4	41.80	045		
4.5	13	16	21	57	6	0.15	4			41.80	046
5.0	9	12	18	54	6	0.15	4	43.56	050		
5.0	13	16	21	57	6	0.15	4			43.56	051
5.5	10	13	18	54	6	0.15	4	40.55	055		
5.5	13	16	21	57	6	0.15	4			40.55	056
6.0	10	13	18	54	6	0.15	4	45.82	060		
6.0	13	16	21	57	6	0.15	4			45.82	061
7.0	12	15	22	58	8	0.25	4	53.85	070		
7.0	21	24	27	63	8	0.25	4			53.85	071
8.0	12	15	22	58	8	0.25	4	49.29	080		
8.0	21	24	27	63	8	0.25	4			52.46	081
9.0	14	17	26	66	10	0.25	4	70.29	090		
9.0	22	25	32	72	10	0.25	4			70.29	091
10.0	14	17	26	66	10	0.25	4	80.59	100		
10.0	22	25	32	72	10	0.25	4			89.99	101
11.0	16	19	28	73	12	0.35	4	111.09	110		
11.0	26	29	38	83	12	0.35	4			111.09	111
12.0	16	19	28	73	12	0.35	4	109.45	120		
12.0	26	29	38	83	12	0.35	4			122.00	121

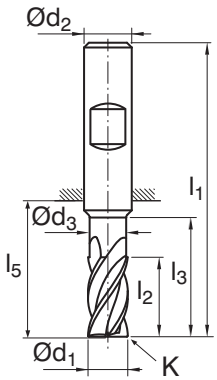
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

→ v_c/f_z Page 24+25

End milling cutter

- irregular helix angle
- special cutting edge preperation for the machining of stainless steel





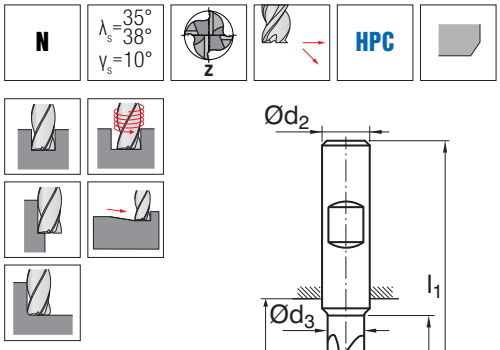
d1 DC mm	l2 APMX mm	d3 DN mm	l3 LH mm	l5 LPR mm	l1 OAL mm	d2 h6 DCONMS mm	K CHW mm	Z ZEFP	≈DIN 6527 HB NEW V3 Article no. 54 005 ... £		≈DIN 6527 HB NEW V3 Article no. 54 006 ... £	
3.0	5			14	50	6	0.15	4	14.56	030		
3.0	8	2.8	12.0	21	57	6	0.15	4			14.56	030
4.0	8			18	54	6	0.15	4	14.56	040		
4.0	11	3.8	15.0	21	57	6	0.15	4			14.56	040
5.0	9			18	54	6	0.15	4	14.56	050		
5.0	13	4.8	17.0	21	57	6	0.15	4			14.56	050
6.0	10			18	54	6	0.15	4	14.56	060		
6.0	13	5.8	21.0	21	57	6	0.15	4			17.04	060
8.0	12			22	58	8	0.25	4	20.49	080		
8.0	19	7.7	27.0	27	63	8	0.25	4			22.00	080
10.0	14			26	66	10	0.25	4	26.64	100		
10.0	22	9.7	32.0	32	72	10	0.25	4			28.91	100
12.0	16			28	73	12	0.35	4	38.28	120		
12.0	26	11.6	38.0	38	83	12	0.35	4			45.94	120

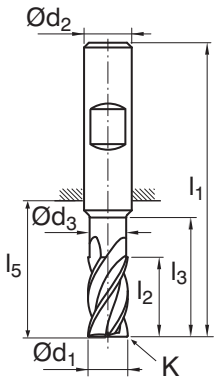
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

→ v_c/f_z Page 28+29

End milling cutter

- irregular helix angle
- special cutting edge preperation for the machining of steel





d1 DC mm	l2 APMX mm	d3 DN mm	l3 LH mm	l5 LPR mm	l1 OAL mm	d2 h6 DCONMS mm	K CHW mm	Z ZEFP	≈DIN 6527 HB NEW V3 Article no. 54 001 ... £		≈DIN 6527 HB NEW V3 Article no. 54 002 ... £	
3.0	5			14	50	6	0.15	4	13.49	030		
3.0	8	2.8	12.0	21	57	6	0.15	4			13.49	030
4.0	8			18	54	6	0.15	4	13.49	040		
4.0	11	3.8	15.0	21	57	6	0.15	4			13.49	040
5.0	9			18	54	6	0.15	4	13.49	050		
5.0	13	4.8	17.0	21	57	6	0.15	4			13.49	050
6.0	10			18	54	6	0.15	4	13.49	060		
6.0	13	5.8	21.0	21	57	6	0.15	4			15.74	060
8.0	12			22	58	8	0.25	4	18.88	080		
8.0	19	7.7	27.0	27	63	8	0.25	4			20.28	080
10.0	14			26	66	10	0.25	4	24.59	100		
10.0	22	9.7	32.0	32	72	10	0.25	4			26.64	100
12.0	16			28	73	12	0.35	4	35.38	120		
12.0	26	11.6	38.0	38	83	12	0.35	4			41.31	120

Steel	●	●
Stainless steel		
Cast iron	●	●
Non ferrous metals		
Heat resistant alloys		
hardened materials		

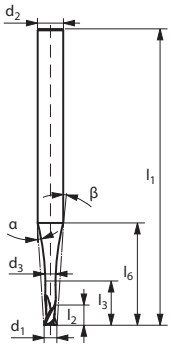
→ v_c/f_z Page 26+27

4

Micro-end milling cutter

- T_x = maximum engagement depth

N | λ_s=30° γ_s=11° | z | ≤ 62 HRC



d_1 DC mm	l_2 APMX mm	d_3 DN mm	l_3 LH mm	l_6 mm	l_1 OAL mm	α°	β°	$d_{2\ h5}$ DCONMS mm	T_x	Z ZEFP	V1 Article no. 52 801 ... £		V1 Article no. 52 801 ... £	
0.2	0.12	0.16	0.44	5.7	38	15.0	14	3	**2,2 x d_1**	2	60.75	**021**		
0.2	0.20	0.16	0.44	5.7	43	15.0	14	3	**2,2 x d_1**	2			60.75	**022**
0.2	0.20	0.16	1.00	6.4	38	15.0	13	3	**5 x d_1**	2	60.75	**023**		
0.2	0.20	0.16	1.00	6.4	43	15.0	13	3	**5 x d_1**	2			60.75	**024**
0.2	0.20	0.16	2.00	9.2	38	15.0	9	3	**10 x d_1**	2	60.75	**025**		
0.2	0.20	0.16	2.00	9.2	43	15.0	9	3	**10 x d_1**	2			60.75	**026**
0.5	0.30	0.40	1.10	5.8	38	15.0	13	3	**2,2 x d_1**	2	46.70	**051**		
0.5	0.50	0.40	1.10	5.8	43	15.0	13	3	**2,2 x d_1**	2			46.70	**052**
0.5	0.50	0.40	2.50	7.8	38	15.0	10	3	**5 x d_1**	2	46.70	**053**		
0.5	0.50	0.40	2.50	7.8	43	15.0	10	3	**5 x d_1**	2			46.70	**054**
0.5	0.50	0.40	5.00	10.7	38	13.0	7	3	**10 x d_1**	2	46.70	**055**		
0.5	0.50	0.40	5.00	14.5	43	13.0	5	3	**10 x d_1**	2			46.70	**056**
0.8	0.48	0.64	1.76	5.9	38	15.0	11	3	**2,2 x d_1**	2	53.60	**081**		
0.8	0.80	0.64	1.76	5.9	43	15.0	11	3	**2,2 x d_1**	2			53.60	**082**
0.8	0.80	0.64	4.00	9.0	38	15.0	7	3	**5 x d_1**	2	53.60	**083**		
0.8	0.80	0.64	4.00	9.0	43	15.0	7	3	**5 x d_1**	2			53.60	**084**
0.8	0.80	0.64	8.00	13.5	38	12.0	5	3	**10 x d_1**	2	53.60	**085**		
0.8	0.80	0.64	8.00	15.5	43	9.8	5	3	**10 x d_1**	2			53.60	**086**
1.0	0.60	0.80	2.20	5.9	38	15.0	10	3	**2,2 x d_1**	2	44.69	**101**		
1.0	1.00	0.80	2.20	5.9	43	15.0	10	3	**2,2 x d_1**	2			44.69	**102**
1.0	1.00	0.80	5.00	9.7	43	15.0	6	3	**5 x d_1**	2	44.69	**103**		
1.0	1.00	0.80	5.00	9.7	50	15.0	6	3	**5 x d_1**	2			44.69	**104**
1.0	1.00	0.80	10.00	15.3	43	11.0	4	3	**10 x d_1**	2			46.06	**105**
1.0	1.00	0.80	10.00	20.6	50	8.5	3	3	**10 x d_1**	2			46.06	**106**
1.5	0.90	1.20	3.30	6.1	38	15.0	8	3	**2,2 x d_1**	2	48.08	**151**		
1.5	1.50	1.20	3.30	6.1	43	15.0	8	3	**2,2 x d_1**	2			48.08	**152**
1.5	1.50	1.20	7.50	11.8	43	14.0	4	3	**5 x d_1**	2	48.08	**153**		
1.5	1.50	1.20	7.50	11.8	50	14.0	4	3	**5 x d_1**	2			48.08	**154**
1.5	1.50	1.20	15.00	18.1	43	14.6	3	3	**10 x d_1**	2	51.35	**155**		
1.5	1.50	1.20	15.00	22.0	50	6.2	2	3	**10 x d_1**	2			51.35	**156**
1.8	1.08	1.44	3.96	6.2	38	15.0	6	3	**2,2 x d_1**	2	48.08	**181**		
1.8	1.80	1.44	3.96	6.2	43	15.0	6	3	**2,2 x d_1**	2			48.08	**182**
1.8	1.80	1.44	9.00	12.9	43	12.0	3	3	**5 x d_1**	2	48.71	**183**		
1.8	1.80	1.44	9.00	12.9	50	12.0	3	3	**5 x d_1**	2			48.71	**184**
1.8	1.80	1.44	18.00	20.0	43	19.8	2	3	**10 x d_1**	2	54.47	**185**		
1.8	1.80	1.44	18.00	22.0	50	5.3	2	3	**10 x d_1**	2			54.47	**186**
2.0	1.20	1.60	4.40	11.9	50	15.0	10	6	**2,2 x d_1**	2	48.08	**201**		
2.0	2.00	1.60	4.40	11.9	57	15.0	10	6	**2,2 x d_1**	2			48.08	**202**

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials	●	●

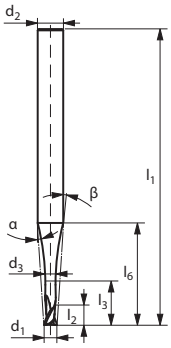
→ v_c/f_z Page 30–37

Continued on next page

Micro-end milling cutter

- T_x = maximum engagement depth

N | λ_s=30° γ_s=11° | Z | ≤ 62 HRC

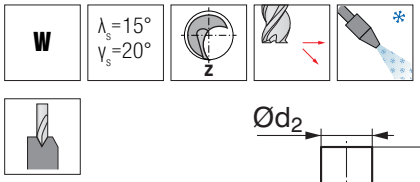


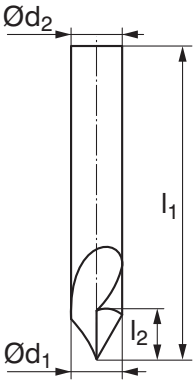
d_1 DC mm	l_2 APMX mm	d_3 DN mm	l_3 LH mm	l_6 mm	l_1 OAL mm	α°	β°	$d_{2\ h5}$ DCONMS mm	T_X	Z ZEFP	V1 Article no. 52 801 ... £		V1 Article no. 52 801 ... £	
2.0	2.00	1.60	10.00	19.7	50	15.0	6	6	**5 x d_1**	2	48.71	**203**		
2.0	2.00	1.60	10.00	19.7	57	15.0	6	6	**5 x d_1**	2			48.71	**204**
2.0	2.00	1.60	20.00	25.0	50	22.1	5	6	**10 x d_1**	2	54.47	**205**		
2.0	2.00	1.60	20.00	29.0	57	7.8	4	6	**10 x d_1**	2			54.47	**206**

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials	●	●

→ v_c/f_z Page 30–37

Engraving cutter 60°





Factory standard

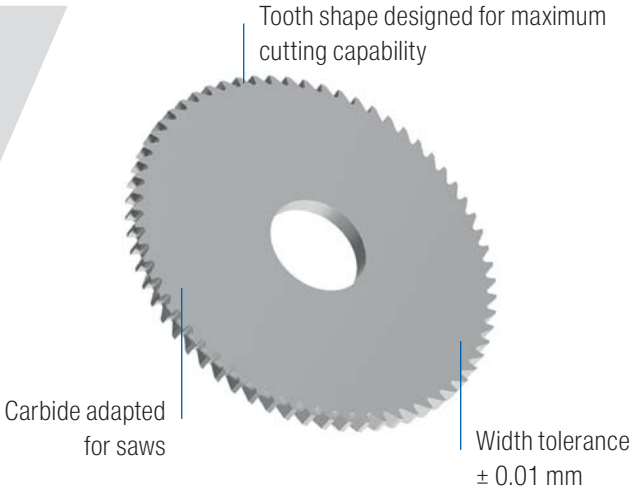
HA

d1 h6 DC mm	l2 APMX mm	l1 OAL mm	d2 h6 DCONMS mm	Z ZEFP	V1 Article no. 52 195 ... £	
3	15	50	3	1	47.04	030
4	18	50	4	1	49.39	040
6	20	54	6	1	53.77	060

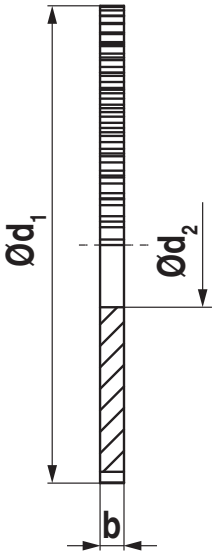
Steel	○
Stainless steel	○
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

Highlights

- Unique parabolic clearance
  No jamming in cut
- Available in Ø 15-63 mm
  To suit all components
- Widths of 0.2–6.0 mm
  Clamping of multiple widths with one holder
- Fine pitch in accordance with DIN 1837-A
  High feedrates
- Complete control
  Maximum precision



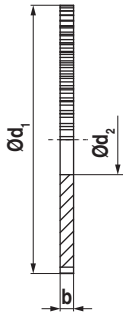
Circular saw blades overview



Diameter d_1	15	20	25	30	40	50	63
hole d_2	5	5	8	8	10	13	16
Width b							
0,20	x	x	x	x	x	x	x
0,25	x	x	x	x	x	x	x
0,30	x	x	x	x	x	x	x
0,35	x	x	x	x	x	x	x
0,40	x	x	x	x	x	x	x
0,50	x	x	x	x	x	x	x
0,60	x	x	x	x	x	x	x
0,70	x	x	x	x	x	x	x
0,80	x	x	x	x	x	x	x
0,90	x	x	x	x	x	x	x
1,00	x	x	x	x	x	x	x
1,10	x	x	x	x	x	x	x
1,20	x	x	x	x	x	x	x
1,30	x	x	x	x	x	x	x
1,40	x	x	x	x	x	x	x
1,50	x	x	x	x	x	x	x
1,60	x	x	x	x	x	x	x
1,70	x	x	x	x	x	x	x
1,80	x	x	x	x	x	x	x
1,90	x	x	x	x	x	x	x
2,00	x	x	x	x	x	x	x
2,50	x	x	x	x	x	x	x
3,00	x	x	x	x	x	x	x
3,50	x	x	x	x	x	x	x
4,00	x	x	x	x	x	x	x
4,50	x	x	x	x	x	x	x
5,00	x	x	x	x	x	x	x
5,50	x	x	x	x	x	x	x
6,00	x	x	x	x	x	x	x

Solid carbide circular saw blades

- straight cut



DIN 1837 A

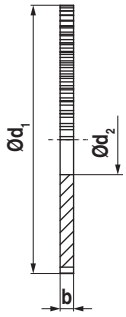
$d_{1\ js16}$ DC mm	$b_{\pm 0,01}$ OAH mm	$d_{2\ H6}$ DCONMS mm	Z ZEFP	V6 Article no. 54 700 ... £	
15	0.20	5	64	16.00	102
15	0.25	5	64	16.00	103
15	0.30	5	64	16.00	104
15	0.35	5	64	16.00	105
15	0.40	5	64	16.00	106
15	0.50	5	48	16.00	107
15	0.60	5	48	16.00	108
15	0.70	5	48	19.00	109
15	0.80	5	40	19.00	110
15	0.90	5	40	20.00	111
15	1.00	5	40	20.00	112
15	1.10	5	40	21.00	113
15	1.20	5	40	21.00	114
15	1.30	5	40	21.00	115
15	1.40	5	40	21.00	116
15	1.50	5	40	23.00	117
15	1.60	5	40	25.00	118
15	1.70	5	40	27.00	119
15	1.80	5	40	27.00	120
15	1.90	5	40	28.00	121
15	2.00	5	40	28.00	122
15	2.50	5	40	39.00	123
15	3.00	5	40	44.00	124
15	3.50	5	40	49.00	125
15	4.00	5	40	61.00	126
15	4.50	5	40	71.00	127
15	5.00	5	40	74.00	128
15	5.50	5	40	88.00	129
15	6.00	5	40	91.00	130
20	0.20	5	80	18.00	152
20	0.25	5	64	18.00	153
20	0.30	5	64	18.00	154
20	0.35	5	64	18.00	155
20	0.40	5	64	18.00	156
20	0.50	5	48	18.00	157
20	0.60	5	48	18.00	158
20	0.70	5	48	20.00	159
20	0.80	5	48	20.00	160
20	0.90	5	40	21.00	161
20	1.00	5	40	23.00	162
20	1.10	5	40	25.00	163
20	1.20	5	40	25.00	164
20	1.30	5	40	26.00	165
20	1.40	5	40	28.00	166
20	1.50	5	40	28.00	167
20	1.60	5	40	30.00	168
20	1.70	5	40	31.00	169
20	1.80	5	32	31.00	170

→ v_c/f_z Page 38

Continued on next page

Solid carbide circular saw blades

- straight cut



DIN 1837 A

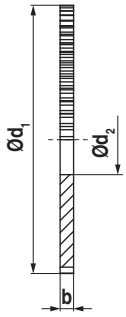
$d_{1\ js16}$ DC mm	$b_{\pm 0,01}$ OAH mm	$d_{2\ H6}$ DCONMS mm	Z ZEFP	V6 Article no. 54 700 ... £	
20	1.90	5	32	33.00	171
20	2.00	5	32	33.00	172
20	2.50	5	32	41.00	173
20	3.00	5	32	47.00	174
20	3.50	5	24	52.00	175
20	4.00	5	24	62.00	176
20	4.50	5	24	74.00	177
20	5.00	5	24	77.00	178
20	5.50	5	24	90.00	179
20	6.00	5	24	93.00	180
25	0.20	8	80	17.00	202
25	0.25	8	80	17.00	203
25	0.30	8	80	17.00	204
25	0.35	8	64	17.00	205
25	0.40	8	64	17.00	206
25	0.50	8	64	20.00	207
25	0.60	8	64	20.00	208
25	0.70	8	48	22.00	209
25	0.80	8	48	25.00	210
25	0.90	8	48	27.00	211
25	1.00	8	48	27.00	212
25	1.10	8	48	31.00	213
25	1.20	8	48	31.00	214
25	1.30	8	40	32.00	215
25	1.40	8	40	33.00	216
25	1.50	8	40	33.00	217
25	1.60	8	40	37.00	218
25	1.70	8	40	37.00	219
25	1.80	8	40	38.00	220
25	1.90	8	40	41.00	221
25	2.00	8	40	42.00	222
25	2.50	8	40	51.00	223
25	3.00	8	32	66.00	224
25	3.50	8	32	73.00	225
25	4.00	8	32	82.00	226
25	4.50	8	32	94.00	227
25	5.00	8	32	99.00	228
25	5.50	8	24	113.00	229
25	6.00	8	24	118.00	230
30	0.20	8	100	22.00	252
30	0.25	8	100	22.00	253
30	0.30	8	80	22.00	254
30	0.35	8	80	22.00	255
30	0.40	8	80	22.00	256
30	0.50	8	80	23.00	257
30	0.60	8	64	23.00	258
30	0.70	8	64	28.00	259
30	0.80	8	64	31.00	260

→ v_c/f_z Page 38

Continued on next page

Solid carbide circular saw blades

- straight cut



DIN 1837 A

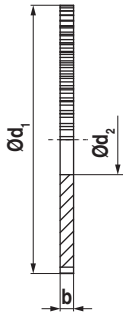
$d_{1\ js16}$ DC mm	$b_{\pm 0,01}$ OAH mm	$d_{2\ H6}$ DCONMS mm	Z ZEFP	V6 Article no. 54 700 ... £	
30	0.90	8	64	33.00	261
30	1.00	8	64	33.00	262
30	1.10	8	64	37.00	263
30	1.20	8	48	37.00	264
30	1.30	8	48	38.00	265
30	1.40	8	48	41.00	266
30	1.50	8	48	41.00	267
30	1.60	8	48	44.00	268
30	1.70	8	48	44.00	269
30	1.80	8	48	45.00	270
30	1.90	8	48	47.00	271
30	2.00	8	48	49.00	272
30	2.50	8	40	58.00	273
30	3.00	8	40	69.00	274
30	3.50	8	40	78.00	275
30	4.00	8	40	88.00	276
30	4.50	8	32	101.00	277
30	5.00	8	32	106.00	278
30	5.50	8	32	120.00	279
30	6.00	8	32	125.00	280
40	0.20	10	128	27.00	302
40	0.25	10	100	27.00	303
40	0.30	10	100	27.00	304
40	0.35	10	100	27.00	305
40	0.40	10	100	29.00	306
40	0.50	10	80	31.00	307
40	0.60	10	80	31.00	308
40	0.70	10	80	36.00	309
40	0.80	10	80	37.00	310
40	0.90	10	64	37.00	311
40	1.00	10	64	38.00	312
40	1.10	10	64	39.00	313
40	1.20	10	64	41.00	314
40	1.30	10	64	42.00	315
40	1.40	10	64	44.00	316
40	1.50	10	64	46.00	317
40	1.60	10	64	47.00	318
40	1.70	10	48	49.00	319
40	1.80	10	48	51.00	320
40	1.90	10	48	52.00	321
40	2.00	10	48	52.00	322
40	2.50	10	48	67.00	323
40	3.00	10	48	77.00	324
40	3.50	10	48	86.00	325
40	4.00	10	40	96.00	326
40	4.50	10	40	108.00	327
40	5.00	10	40	115.00	328
40	5.50	10	40	129.00	329

→ v_c/f_z Page 38

Continued on next page

Solid carbide circular saw blades

- straight cut



DIN 1837 A

$d_{1\ js16}$ DC mm	$b_{\pm 0,01}$ OAH mm	$d_{2\ H6}$ DCONMS mm	Z ZEFP	V6 Article no. 54 700 ... £	
40	6.00	10	40	136.00	330
50	0.20	13	128	44.00	352
50	0.25	13	128	43.00	353
50	0.30	13	128	36.00	354
50	0.35	13	100	36.00	355
50	0.40	13	100	36.00	356
50	0.50	13	100	38.00	357
50	0.60	13	100	38.00	358
50	0.70	13	80	39.00	359
50	0.80	13	80	43.00	360
50	0.90	13	80	44.00	361
50	1.00	13	80	46.00	362
50	1.10	13	80	47.00	363
50	1.20	13	80	48.00	364
50	1.30	13	64	54.00	365
50	1.40	13	64	55.00	366
50	1.50	13	64	58.00	367
50	1.60	13	64	59.00	368
50	1.70	13	64	60.00	369
50	1.80	13	64	64.00	370
50	1.90	13	64	64.00	371
50	2.00	13	64	66.00	372
50	2.50	13	64	80.00	373
50	3.00	13	48	93.00	374
50	3.50	13	48	106.00	375
50	4.00	13	48	112.00	376
50	4.50	13	48	130.00	377
50	5.00	13	48	137.00	378
50	5.50	13	40	153.00	379
50	6.00	13	40	159.00	380
63	0.20	16	160	65.00	402
63	0.25	16	160	62.00	403
63	0.30	16	128	58.00	404
63	0.35	16	128	55.00	405
63	0.40	16	128	50.00	406
63	0.50	16	128	49.00	407
63	0.60	16	100	50.00	408
63	0.70	16	100	56.00	409
63	0.80	16	100	62.00	410
63	0.90	16	100	62.00	411
63	1.00	16	100	64.00	412
63	1.10	16	80	66.00	413
63	1.20	16	80	68.00	414
63	1.30	16	80	70.00	415
63	1.40	16	80	71.00	416
63	1.50	16	80	72.00	417
63	1.60	16	80	76.00	418
63	1.70	16	80	80.00	419

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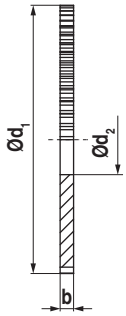
Continued on next page

Solid carbide circular saw blades

- straight cut



DIN 1837 A

$d_{1\ js16}$ DC mm	$b_{\pm 0,01}$ OAH mm	$d_{2\ H6}$ DCONMS mm	Z ZEFP	V6 Article no. 54 700 ... £	
63	1.80	16	80	81.00	**420**
63	1.90	16	80	85.00	**421**
63	2.00	16	80	87.00	**422**
63	2.50	16	64	105.00	**423**
63	3.00	16	64	119.00	**424**
63	3.50	16	64	136.00	**425**
63	4.00	16	64	149.00	**426**
63	4.50	16	64	171.00	**427**
63	5.00	16	48	178.00	**428**
63	5.50	16	48	200.00	**429**
63	6.00	16	48	207.00	**430**

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Highlights

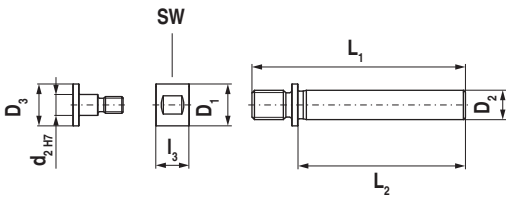
- Cylindrical version for collet chucks
  Variable overhang lengths possible
- Precise locating surfaces
  High radial run-out accuracies
- Specially designed for sliding head lathes
  Extremely user friendly

Adapters overview

Designation	H7 shank diameter	Saw blade bore diameter	Overall length	Lock nut diameter	Screw head diameter
S7/B5	7	5	51	10	10
S7/B8	7	8	51	15	15
S7/B10	7	10	53	17	17
S10/B5	10	5	61	10	10
S10/B8	10	8	61	15	15
S10/B10	10	10	63	17	17
S10/B13	10	13	66	20	20
S10/B16	10	16	66	24	24
S16/B10	16	10	74	17	17
S16/B13	16	13	77	20	20
S16/B16	16	16	79	24	24

Cylindrical shank adapter for circular saw blades

- d_2 = circular saw blade bore diameter



$D_{2\ h7}$ DCONMS mm	D_1 mm	D_3 mm	L_1 OAL mm	L_2 LS mm	l_3 mm	d_2 mm	SW mm	X1 Article no. 72 900 ... £	
7	10	10	51	40	8	5	9	167.65	**005**
7	15	15	51	40	8	8	14	167.65	**008**
7	17	17	53	40	10	10	16	167.65	**010**
10	10	10	61	50	8	5	9	167.65	**105**
10	15	15	61	50	8	8	14	182.00	**108**
10	17	17	63	50	10	10	16	182.00	**110**
10	20	20	66	50	10	13	18	182.00	**113**
10	24	24	66	50	14	16	22	182.00	**116**
16	17	17	74	55	10	10	16	194.25	**210**
16	20	20	77	55	10	13	18	194.25	**213**
16	24	24	79	55	14	16	22	194.25	**216**

Spare parts for Article no.	X1 Screw - SR Article no. 72 945 ... £		X1 Lock nut - KM Article no. 72 945 ... £	
72 900 005	31.85	**000**	50.05	**005**
72 900 008	31.85	**001**	50.05	**006**
72 900 010	33.95	**002**	51.98	**007**
72 900 105	31.85	**000**	50.05	**005**
72 900 108	31.85	**001**	50.05	**006**
72 900 110	33.95	**002**	51.98	**007**
72 900 113	35.53	**003**	53.73	**008**
72 900 116	37.28	**004**	55.30	**009**
72 900 210	33.95	**002**	51.98	**007**
72 900 213	35.53	**003**	53.73	**008**
72 900 216	37.28	**004**	55.30	**009**

Material examples referring to the WNT cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5% Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0,5 - 10% Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10 - 15% Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15% Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data standard values - End mills - SilverLine - 50 951

Index	Type short	Type long / extra long		Ø d_1 = 4 mm			Ø d_1 = 5 mm			Ø d_1 = 6 mm			Ø d_1 = 8 mm			Ø d_1 = 10 mm		
				a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1
	v_c m/min		$a_{p\,max}$ x d_1	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	230	184	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.2	240	192	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.3	210	168	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.4	200	160	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.5	200	160	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.6	190	152	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.7	190	152	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.8	180	144	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.9	160	128	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.10	190	152	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.11	170	136	1,0*	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	0,08	0,06	0,04
1.12	180	144	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.13																		
1.14																		
1.15																		
1.16																		
2.1	130	104	1,0*	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
2.2	120	96	1,0*	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
2.3	100	80	1,0*	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
2.4	120	96	1,0*	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
2.5	120	96	1,0*	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
2.6	120	96	1,0*	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
2.7	30	24	1,0*	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
3.1	200	160	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
3.2	180	144	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
3.3	190	152	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
3.4	170	136	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
3.5	180	144	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
3.6	160	128	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
3.7	180	144	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
3.8	160	128	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
4.1																		
4.2																		
4.3																		
4.4																		
4.5																		
4.6	280	224	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.7	300	240	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.8	160	128	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.9	140	112	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.10	120	96	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.11	350	280	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.12	300	240	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.13																		
4.14																		
4.15																		
4.16																		
4.17																		
4.18																		
4.19																		
5.1																		
5.2																		
5.3	30	24	0,5	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
5.4	30	24	0,5	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
5.5	30	24	0,5	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
5.6	30	24	0,5	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
5.7	30	24	0,5	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
5.8	30	24	0,5	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
5.9	160	128	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
5.10	140	112	0,5	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	0,08	0,06	0,04
5.11	100	80	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
6.1																		
6.2																		
6.3																		
6.4																		
6.5																		

* = Type long $a_{p\,max.}$ 1.5 x d_1 at f_z x 0.75 / Ball Nosed Cutter $a_{p\,max.}$ 0.5 x d_1

When using type "extra long", multiply a_p by 0.5. When profiling with an a_e 0.1–0.4 x d_1 an a_p of 1.0 x d_1 must be used.

Plunging angle for ramping and helical milling: 3 °

	Ø d_1 = 12 mm			Ø d_1 = 14 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1			
Index	f_z mm			f_z mm			Emulsion	Compressed air	MMS
1.1	0,12	0,09	0,06	0,13	0,10	0,07	●	○	○
1.2	0,12	0,09	0,06	0,13	0,10	0,07	●	○	○
1.3	0,12	0,09	0,06	0,13	0,10	0,07	●	○	○
1.4	0,12	0,09	0,06	0,13	0,10	0,07	●	○	○
1.5	0,12	0,09	0,06	0,13	0,10	0,07	●	○	○
1.6	0,12	0,09	0,06	0,13	0,10	0,07	●	○	○
1.7	0,12	0,09	0,06	0,13	0,10	0,07	●	○	○
1.8	0,12	0,09	0,06	0,13	0,10	0,07	●	○	○
1.9	0,12	0,09	0,06	0,13	0,10	0,07	●	○	○
1.10	0,12	0,09	0,06	0,13	0,10	0,07	●	○	○
1.11	0,10	0,08	0,05	0,10	0,08	0,06	●	○	○
1.12	0,12	0,09	0,06	0,13	0,10	0,07	●	○	○
1.13									
1.14									
1.15									
1.16									
2.1	0,08	0,06	0,04	0,08	0,06	0,05	●		
2.2	0,08	0,06	0,04	0,08	0,06	0,05	●		
2.3	0,08	0,06	0,04	0,08	0,06	0,05	●		
2.4	0,08	0,06	0,04	0,08	0,06	0,05	●		
2.5	0,08	0,06	0,04	0,08	0,06	0,05	●		
2.6	0,08	0,06	0,04	0,08	0,06	0,05	●		
2.7	0,06	0,05	0,03	0,06	0,05	0,04	●		
3.1	0,14	0,10	0,07	0,16	0,12	0,09	●	●	●
3.2	0,14	0,10	0,07	0,16	0,12	0,09	●	●	●
3.3	0,12	0,09	0,06	0,13	0,10	0,07	●	●	●
3.4	0,12	0,09	0,06	0,13	0,10	0,07	●	●	●
3.5	0,12	0,09	0,06	0,13	0,10	0,07	●	●	●
3.6	0,12	0,09	0,06	0,13	0,10	0,07	●	●	●
3.7	0,12	0,09	0,06	0,13	0,10	0,07	●	●	●
3.8	0,12	0,09	0,06	0,13	0,10	0,07	●	●	●
4.1									
4.2									
4.3									
4.4									
4.5									
4.6	0,14	0,10	0,07	0,16	0,12	0,09	●		
4.7	0,14	0,10	0,07	0,16	0,12	0,09	●		
4.8	0,14	0,10	0,07	0,16	0,12	0,09	●		
4.9	0,14	0,10	0,07	0,16	0,12	0,09	●		
4.10	0,14	0,10	0,07	0,16	0,12	0,09	●		
4.11	0,14	0,10	0,07	0,16	0,12	0,09	●		
4.12	0,14	0,10	0,07	0,16	0,12	0,09	●		
4.13									
4.14									
4.15									
4.16									
4.17									
4.18									
4.19									
5.1									
5.2									
5.3	0,06	0,05	0,03	0,06	0,05	0,04	●		
5.4	0,06	0,05	0,03	0,06	0,05	0,04	●		
5.5	0,06	0,03	0,03	0,06	0,05	0,04	●		
5.6	0,06	0,05	0,03	0,06	0,05	0,04	●		
5.7	0,06	0,05	0,03	0,06	0,05	0,04	●		
5.8	0,06	0,05	0,03	0,06	0,05	0,04	●		
5.9	0,12	0,09	0,06	0,13	0,10	0,07	●		
5.10	0,10	0,08	0,05	0,10	0,08	0,06	●		
5.11	0,08	0,06	0,04	0,08	0,06	0,05	●		
6.1									
6.2									
6.3									
6.4									
6.5									

Cutting data standard values – End mills – SilverLine – 50 955

	Type short	Type long / extra long		Ø d_1 = 4 mm			Ø d_1 = 5 mm			Ø d_1 = 6 mm			Ø d_1 = 8 mm			Ø d_1 = 10 mm		
				a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1
Index	v_c m/min		$a_{p\,max}$ x d_1	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	240	192	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
1.2	250	200	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
1.3	210	168	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.4	190	152	1,0*	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	0,08	0,06	0,04
1.5	200	160	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.6	190	152	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.7	190	152	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.8	170	136	1,0*	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	0,08	0,06	0,04
1.9	160	128	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.10	190	152	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.11	170	136	1,0*	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	0,08	0,06	0,04
1.12	190	152	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.13																		
1.14																		
1.15	180	144	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
1.16	150	120	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
2.1	130	100	1,0*	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
2.2	120	90	1,0*	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
2.3	100	80	1,0*	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
2.4	100	80	1,0*	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
2.5	120	90	1,0*	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
2.6	120	90	1,0*	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
2.7	30	24	1,0*	0,016	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,00	0,03	0,02	0,01	0,04	0,03
3.1	200	160	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
3.2	160	128	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
3.3	190	152	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
3.4	150	120	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
3.5	180	144	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
3.6	160	128	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
3.7	180	144	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
3.8	160	128	1,0*	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
4.1																		
4.2																		
4.3																		
4.4																		
4.5																		
4.6	280	224	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.7	300	240	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.8	160	128	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.9	140	112	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.10	120	96	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.11	350	280	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.12	300	240	1,0*	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	0,12	0,09	0,06
4.13																		
4.14																		
4.15																		
4.16																		
4.17																		
4.18																		
4.19																		
5.1																		
5.2																		
5.3	30	24	0,5	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
5.4	30	24	0,5	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
5.5	30	24	0,5	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
5.6	30	24	0,5	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
5.7	30	24	0,5	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
5.8	30	24	0,5	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	0,05	0,04	0,03
5.9	110	80	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	0,10	0,08	0,05
5.10	90	70	0,5	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	0,08	0,06	0,04
5.11	70	60	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	0,06	0,05	0,03
6.1																		
6.2																		
6.3																		
6.4																		
6.5																		

*= Type long: $a_{p\,max.}$ = 1.5 x d_1 with f_z x 0.75

When using type "extra long", multiply a_p by 0.5. When profiling with an a_e 0.1–0.4 x d_1 an a_p of 1.0 x d_1 must be used.

Plunging angle for ramping and helical milling: 3 °

	Ø d_1 = 12 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1			
Index	f_z mm			Emulsion	Compressed air	MMS
1.1	0,14	0,10	0,07	●	○	○
1.2	0,14	0,10	0,07	●	○	○
1.3	0,12	0,09	0,06	●	○	○
1.4	0,10	0,08	0,05	●	○	○
1.5	0,12	0,09	0,06	●	○	○
1.6	0,12	0,09	0,06	●	○	○
1.7	0,12	0,09	0,06	●	○	○
1.8	0,10	0,08	0,05	●	○	○
1.9	0,12	0,09	0,06	●	○	○
1.10	0,12	0,09	0,06	●	○	○
1.11	0,10	0,08	0,05	●	○	○
1.12	0,12	0,09	0,06	●	○	○
1.13						
1.14						
1.15	0,12	0,09	0,06	●	○	○
1.16	0,12	0,09	0,06	●	○	○
2.1	0,08	0,06	0,04	●		
2.2	0,08	0,06	0,04	●		
2.3	0,08	0,06	0,04	●		
2.4	0,08	0,06	0,04	●		
2.5	0,08	0,06	0,04	●		
2.6	0,08	0,06	0,04	●		
2.7	0,06	0,05	0,03	●		
3.1	0,14	0,10	0,07	●	●	●
3.2	0,12	0,09	0,06	●	●	●
3.3	0,12	0,09	0,06	●	●	●
3.4	0,12	0,09	0,06	●	●	●
3.5	0,12	0,09	0,06	●	●	●
3.6	0,12	0,09	0,06	●	●	●
3.7	0,12	0,09	0,06	●	●	●
3.8	0,12	0,09	0,06	●	●	●
4.1						
4.2						
4.3						
4.4						
4.5						
4.6	0,17	0,13	0,09	●		
4.7	0,17	0,13	0,09	●		
4.8	0,17	0,13	0,09	●		
4.9	0,17	0,13	0,09	●		
4.10	0,17	0,13	0,09	●		
4.11	0,17	0,13	0,09	●		
4.12	0,17	0,13	0,09	●		
4.13						
4.14						
4.15						
4.16						
4.17						
4.18						
4.19						
5.1						
5.2						
5.3	0,07	0,05	0,04	●		
5.4	0,07	0,05	0,04	●		
5.5	0,07	0,03	0,04	●		
5.6	0,07	0,05	0,04	●		
5.7	0,07	0,05	0,04	●		
5.8	0,07	0,05	0,04	●		
5.9	0,14	0,10	0,07	●		
5.10	0,11	0,08	0,06	●		
5.11	0,09	0,07	0,05	●		
6.1						
6.2						
6.3						
6.4						
6.5						

Cutting data – End Mills – 54 001 .../ 54 002 ...

	Type short	Type long		Ø d_1 = 3 mm			Ø d_1 = 4 mm			Ø d_1 = 5 mm			Ø d_1 = 6 mm			Ø d_1 = 8 mm		
				a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1
Index	v_c m/min		$a_{p\,max}$ x d1	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	210	170	1,0*	0,027	0,021	0,015	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.2	220	180	1,0*	0,027	0,021	0,015	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.3	190	150	1,0*	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.4	170	140	1,0*	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.5	180	145	1,0*	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.6	170	140	1,0*	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.7	170	140	1,0*	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.8	150	125	1,0*	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.9	150	120	1,0*	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.10	170	140	1,0*	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.11	150	125	1,0*	0,014	0,011	0,008	0,024	0,019	0,014	0,036	0,027	0,018	0,045	0,034	0,023	0,05	0,04	0,03
1.12	170	140	1,0*	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.13																		
1.14																		
1.15	160	130	1,0*	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.16	140	110	1,0*	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
2.1																		
2.2																		
2.3																		
2.4																		
2.5																		
2.6																		
2.7																		
3.1	180	145	1,0*	0,027	0,021	0,015	0,04	0,031	0,023	0,058	0,043	0,029	0,068	0,051	0,034	0,08	0,06	0,04
3.2	160	130	1,0*	0,021	0,016	0,011	0,04	0,031	0,023	0,058	0,043	0,029	0,068	0,051	0,034	0,08	0,06	0,04
3.3	170	140	1,0*	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
3.4	155	125	1,0*	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
3.5	160	130	1,0*	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
3.6	150	120	1,0*	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
3.7	160	130	1,0*	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
3.8	145	120	1,0*	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
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* = If $a_{p\,max.}$ = 1.5 x d_1 the f_z should be multiplied by 0.75

Plunging angle for ramping and helical milling: 3 °

	Ø d_1 = 10 mm			Ø d_1 = 12 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1			
Index	f_z mm			f_z mm			Emulsion	Compressed air	MMS
1.1	0,09	0,07	0,05	0,11	0,08	0,05	●	○	○
1.2	0,09	0,07	0,05	0,11	0,08	0,05	●	○	○
1.3	0,09	0,07	0,05	0,11	0,08	0,05	●	○	○
1.4	0,09	0,07	0,05	0,11	0,08	0,05	●	○	○
1.5	0,09	0,07	0,05	0,11	0,08	0,05	●	○	○
1.6	0,09	0,07	0,05	0,11	0,08	0,05	●	○	○
1.7	0,09	0,07	0,05	0,11	0,08	0,05	●	○	○
1.8	0,09	0,07	0,05	0,11	0,08	0,05	●	○	○
1.9	0,09	0,07	0,05	0,11	0,08	0,05			
1.10	0,09	0,07	0,05	0,11	0,08	0,05	●	○	○
1.11	0,07	0,05	0,04	0,09	0,07	0,05	●	○	○
1.12	0,09	0,07	0,05	0,11	0,08	0,05	●	○	○
1.13							●	○	○
1.14									
1.15	0,09	0,07	0,05	0,11	0,08	0,05	●	●	○
1.16	0,09	0,07	0,05	0,11	0,08	0,05	●	●	○
2.1									
2.2									
2.3									
2.4									
2.5									
2.6									
2.7									
3.1	0,1	0,08	0,05	0,13	0,09	0,06	●	●	●
3.2	0,1	0,08	0,05	0,13	0,09	0,06	●	●	●
3.3	0,09	0,07	0,05	0,11	0,08	0,05	●	●	●
3.4	0,09	0,07	0,05	0,11	0,08	0,05	●	●	●
3.5	0,09	0,07	0,05	0,11	0,08	0,05	●	●	●
3.6	0,09	0,07	0,05	0,11	0,08	0,05	●	●	●
3.7	0,09	0,07	0,05	0,11	0,08	0,05	●	●	●
3.8	0,09	0,07	0,05	0,11	0,08	0,05	●	●	●
4.1									
4.2									
4.3									
4.4									
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Cutting data – End Mills – 54 005 .../ 54 006 ...

	Type short	Type long		Ø d_1 = 3 mm			Ø d_1 = 4 mm			Ø d_1 = 5 mm			Ø d_1 = 6 mm			Ø d_1 = 8 mm		
				a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1
Index	v_c m/min		$a_{p\,max}$ x d1	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	**200**	**160**	1,0*	0,024	0,019	0,014	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.2	**210**	**170**	1,0*	0,024	0,019	0,014	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.3	**180**	**140**	1,0*	0,017	0,013	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.4	**160**	**130**	1,0*	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.5	**170**	**135**	1,0*	0,017	0,013	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.6	**160**	**130**	1,0*	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.7	**160**	**130**	1,0*	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.8	**140**	**115**	1,0*	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.9	**140**	**110**	1,0*	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.10	**160**	**130**	1,0*	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.11	**140**	**115**	1,0*	0,012	0,009	0,007	0,022	0,017	0,012	0,032	0,024	0,016	0,04	0,03	0,02	0,05	0,04	0,02
1.12	**160**	**130**	1,0*	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.13																		
1.14																		
1.15	**150**	**120**	1,0*	0,017	0,013	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.16	**130**	**100**	1,0*	0,017	0,013	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
2.1	**110**	**90**	1,0*	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
2.2	**100**	**80**	1,0*	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
2.3	**85**	**70**	1,0*	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
2.4	**85**	**70**	1,0*	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
2.5	**100**	**80**	1,0*	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
2.6	**100**	**80**	1,0*	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
2.7	**25**	**20**	1,0*	0,009	0,007	0,005	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
3.1	170	135	1,0*	0,024	0,019	0,014	0,036	0,028	0,02	0,051	0,038	0,026	0,061	0,045	0,03	0,07	0,05	0,04
3.2	140	110	1,0*	0,018	0,014	0,01	0,036	0,028	0,02	0,051	0,038	0,026	0,061	0,045	0,03	0,07	0,05	0,04
3.3	160	130	1,0*	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
3.4	130	100	1,0*	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
3.5	150	120	1,0*	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
3.6	140	110	1,0*	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
3.7	150	120	1,0*	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
3.8	135	110	1,0*	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
4.1																		
4.2																		
4.3																		
4.4																		
4.5																		
4.6	240	190	1,0*	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.7	260	200	1,0*	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.8	140	110	1,0*	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.9	120	95	1,0*	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.10	100	80	1,0*	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.11	300	240	1,0*	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.12	260	200	1,0*	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.13																		
4.14																		
4.15																		
4.16																		
4.17																		
4.18																		
4.19																		
5.1																		
5.2																		
5.3	**25**	**20**	0,5	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
5.4	**25**	**20**	0,5	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
5.5	**25**	**20**	0,5	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
5.6	**25**	**20**	0,5	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
5.7	**25**	**20**	0,5	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
5.8	**25**	**20**	0,5	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
5.9	**100**	**70**	0,5	0,021	0,017	0,012	0,031	0,024	0,017	0,046	0,034	0,023	0,056	0,042	0,028	0,07	0,05	0,03
5.10	**80**	**60**	0,5	0,015	0,012	0,009	0,023	0,018	0,013	0,034	0,025	0,017	0,043	0,032	0,021	0,05	0,04	0,03
5.11	**60**	**50**	0,5	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
6.1																		
6.2																		
6.3																		
6.4																		
6.5																		

* = If $a_{p\,max.}$ = 1.5 x d_1 the f_z should be multiplied by 0.75

Plunging angle for ramping and helical milling: 3 °

	Ø d_1 = 10 mm			Ø d_1 = 12 mm			● 1st choice	○ suitable	
	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1	a_e 0,1–0,2 x d_1	a_e 0,3–0,4 x d_1	a_e 0,6–1,0 x d_1			
Index	f_z mm			f_z mm			Emulsion	Compressed air	MMS
1.1	0,08	0,06	0,04	0,1	0,07	0,05	●	○	○
1.2	0,08	0,06	0,04	0,1	0,07	0,05	●	○	○
1.3	0,08	0,06	0,04	0,1	0,07	0,05	●	○	○
1.4	0,08	0,06	0,04	0,1	0,07	0,05	●	○	○
1.5	0,08	0,06	0,04	0,1	0,07	0,05	●	○	○
1.6	0,08	0,06	0,04	0,1	0,07	0,05	●	○	○
1.7	0,08	0,06	0,04	0,1	0,07	0,05	●	○	○
1.8	0,08	0,06	0,04	0,1	0,07	0,05	●	○	○
1.9	0,08	0,06	0,04	0,1	0,07	0,05			
1.10	0,08	0,06	0,04	0,1	0,07	0,05	●	○	○
1.11	0,06	0,05	0,03	0,08	0,06	0,04	●	○	○
1.12	0,08	0,06	0,04	0,1	0,07	0,05	●	○	○
1.13							●	○	○
1.14									
1.15	0,08	0,06	0,04	0,1	0,07	0,05	●	○	○
1.16	0,08	0,06	0,04	0,1	0,07	0,05	●	○	○
2.1	0,05	0,04	0,03	0,07	0,05	0,03	●		
2.2	0,05	0,04	0,03	0,07	0,05	0,03	●		
2.3	0,05	0,04	0,03	0,07	0,05	0,03	●		
2.4	0,05	0,04	0,03	0,07	0,05	0,03	●		
2.5	0,05	0,04	0,03	0,07	0,05	0,03	●		
2.6	0,05	0,04	0,03	0,07	0,05	0,03	●		
2.7	0,04	0,03	0,02	0,05	0,04	0,03	●		
3.1	0,09	0,07	0,05	0,11	0,08	0,06	●	●	●
3.2	0,09	0,07	0,05	0,11	0,08	0,06	●	●	●
3.3	0,08	0,06	0,04	0,1	0,07	0,05	●	●	●
3.4	0,08	0,06	0,04	0,1	0,07	0,05	●	●	●
3.5	0,08	0,06	0,04	0,1	0,07	0,05	●	●	●
3.6	0,08	0,06	0,04	0,1	0,07	0,05	●	●	●
3.7	0,08	0,06	0,04	0,1	0,07	0,05	●	●	●
3.8	0,08	0,06	0,04	0,1	0,07	0,05	●	●	●
4.1									
4.2									
4.3									
4.4									
4.5									
4.6	0,1	0,07	0,05	0,14	0,11	0,07	●		
4.7	0,1	0,07	0,05	0,14	0,11	0,07	●		
4.8	0,1	0,07	0,05	0,14	0,11	0,07	●		
4.9	0,1	0,07	0,05	0,14	0,11	0,07	●		
4.10	0,1	0,07	0,05	0,14	0,11	0,07	●		
4.11	0,1	0,07	0,05	0,14	0,11	0,07	●		
4.12	0,1	0,07	0,05	0,14	0,11	0,07	●		
4.13									
4.14									
4.15									
4.16									
4.17									
4.18									
4.19									
5.1									
5.2									
5.3	0,04	0,03	0,02	0,06	0,04	0,03	●		
5.4	0,04	0,03	0,02	0,06	0,04	0,03	●		
5.5	0,04	0,03	0,02	0,06	0,02	0,03	●		
5.6	0,04	0,03	0,02	0,06	0,04	0,03	●		
5.7	0,04	0,03	0,02	0,06	0,04	0,03	●		
5.8	0,04	0,03	0,02	0,06	0,04	0,03	●		
5.9	0,09	0,06	0,04	0,12	0,09	0,06	●		
5.10	0,07	0,05	0,03	0,09	0,07	0,05	●		
5.11	0,05	0,04	0,03	0,08	0,06	0,04	●		
6.1									
6.2									
6.3									
6.4									
6.5									

Cutting data – Micro End Mills – 2.2xD

		Ø d_1 = 0,2 mm					Ø d_1 = 0,5 mm					Ø d_1 = 0,8 mm				
	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1
	$a_{p\,max.}$	0,02	0,02	0,02	0,01	0,01	0,1	0,1	0,1	0,1	0,05	$a_{p\,max.}$	0,2	0,2	0,2	0,2	0,12
	$n_{min.}$	30000					12000					$n_{min.}$	8000				
Index	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min
1.1	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.2	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.3	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.4	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.5	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.6	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.7	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.8	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.9	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.10	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.11	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.12	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.13	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.14	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.15	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.16	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
2.1	50.000	232	202	174	144	116	219	191	164	136	110	38.000	346	301	260	215	173
2.2	50.000	232	202	174	144	116	219	191	164	136	110	38.000	346	301	260	215	173
2.3	50.000	232	202	174	144	116	219	191	164	136	110	38.000	346	301	260	215	173
2.4	50.000	232	202	174	144	116	219	191	164	136	110	32.000	346	301	260	215	173
2.5	50.000	232	202	174	144	116	219	191	164	136	110	38.000	346	301	260	215	173
2.6	50.000	232	202	174	144	116	219	191	164	136	110	38.000	346	301	260	215	173
2.7	50.000	232	202	174	144	116	219	191	164	136	110	25.000	312	271	234	193	156
3.1	50.000	232	202	174	144	116	219	191	164	136	110	50.000	485	422	364	301	242
3.2	50.000	232	202	174	144	116	219	191	164	136	110	50.000	485	422	364	301	242
3.3	50.000	232	202	174	144	116	219	191	164	136	110	50.000	485	422	364	301	242
3.4	50.000	232	202	174	144	116	219	191	164	136	110	50.000	485	422	364	301	242
3.5	50.000	141	123	106	88	71	175	152	131	109	88	32.000	285	248	213	176	142
3.6	50.000	141	123	106	88	71	175	152	131	109	88	32.000	285	248	213	176	142
3.7	50.000	141	123	106	88	71	175	152	131	109	88	32.000	285	248	213	176	142
3.8	50.000	141	123	106	88	71	175	152	131	109	88	32.000	285	248	213	176	142
4.1	50.000	232	202	174	144	116	274	238	205	170	137	50.000	582	506	436	361	291
4.2	50.000	232	202	174	144	116	274	238	205	170	137	50.000	582	506	436	361	291
4.3																	
4.4																	
4.5																	
4.6	50.000	232	202	174	144	116	274	238	205	170	137	50.000	582	506	436	361	291
4.7	50.000	232	202	174	144	116	274	238	205	170	137	44.000	485	422	364	301	242
4.8	50.000	126	110	95	78	63	134	117	101	83	67	25.000	170	148	127	105	85
4.9	50.000	126	110	95	78	63	107	93	80	67	54	19.000	147	128	110	91	74
4.10	50.000	126	110	95	78	63	112	97	84	69	56	19.000	158	138	119	98	79
4.11	50.000	232	202	174	144	116	274	238	205	170	137	44.000	485	422	364	301	242
4.12	50.000	232	202	174	144	116	274	238	205	170	137	44.000	485	422	364	301	242
4.13	50.000	232	202	174	144	116	274	238	205	170	137	50.000	582	506	436	361	291
4.14	50.000	232	202	174	144	116	274	238	205	170	137	50.000	582	506	436	361	291
4.15	50.000	212	185	159	132	106	200	174	150	124	100	38.000	316	275	237	196	158
4.16	50.000	212	185	159	132	106	250	218	188	155	125	50.000	531	462	398	329	266
4.17																	
4.18	50.000	141	123	106	88	71	150	131	113	93	75	31.000	221	193	166	137	111
4.19																	
5.1	50.000	72	62	54	44	36	89	77	66	55	44	25.000	102	89	76	63	51
5.2	50.000	72	62	54	44	36	89	77	66	55	44	25.000	102	89	76	63	51
5.3	50.000	72	62	54	44	36	89	77	66	55	44	25.000	91	79	68	56	45
5.4	50.000	54	47	41	34	27	66	57	49	41	33	12.000	78	68	59	49	39
5.5	50.000	54	47	41	34	27	66	57	49	41	33	12.000	78	68	59	49	39
5.6	50.000	63	54	47	39	31	76	66	57	47	38	19.000	91	79	68	56	45
5.7	50.000	46	40	35	29	23	55	48	41	34	27	19.000	69	60	51	43	34
5.8	50.000	46	40	35	29	23	55	48	41	34	27	19.000	78	68	59	49	39
5.9	50.000	114	99	85	71	57	164	143	123	102	82	44.000	114	99	85	71	57
5.10	50.000	114	99	85	71	57	164	143	123	102	82	44.000	164	143	123	102	82
5.11	50.000	70	61	53	43	35	85	74	64	53	42	38.000	101	88	76	63	51
6.1	50.000	219	191	164	136	110	232	202	174	144	116	50.000	388	338	291	241	194
6.2	50.000	201	175	151	125	101	285	248	213	176	142	38.000	336	292	252	208	168
6.3	50.000	114	99	85	71	57	134	117	101	83	67	25.000	156	136	117	97	78
6.4	50.000	107	93	80	67	54	126	110	95	78	63	25.000	141	123	106	88	71
6.5																	

		Ø d_1 = 1,0 mm						Ø d_1 = 1,5 mm					● 1st choice	○ suitable	
	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6 –1,0 x d_1	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1			
	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,45	0,45	0,45	0,45	0,3			
	$n_{min.}$	6500					$n_{min.}$	6500							
Index	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	Emulsion	Compressed air	MMS
1.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
1.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
1.3	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
1.4	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
1.5	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
1.6	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
1.7	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
1.8	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
1.9	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
1.10	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
1.11	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
1.12	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
1.13	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
1.14	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
1.15	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
1.16	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
2.1	38.000	589	512	442	365	294	25.000	850	740	638	527	425		●	○
2.2	38.000	589	512	442	365	294	25.000	850	740	638	527	425		●	○
2.3	38.000	589	512	442	365	294	25.000	850	740	638	527	425		●	○
2.4	32.000	496	431	372	307	248	21.000	760	661	570	471	380		●	○
2.5	38.000	589	512	442	365	294	25.000	850	740	638	527	425		●	○
2.6	38.000	589	512	442	365	294	25.000	850	740	638	527	425		●	○
2.7	25.000	465	404	349	288	232	16.000	640	557	480	397	320		●	○
3.1	50.000	775	674	581	480	387	38.000	1200	1044	900	744	600		●	○
3.2	50.000	775	674	581	480	387	38.000	1200	1044	900	744	600		●	○
3.3	50.000	775	674	581	480	387	38.000	1200	1044	900	744	600		●	○
3.4	50.000	775	674	581	480	387	38.000	1200	1044	900	744	600		●	○
3.5	32.000	389	338	292	241	194	21.000	548	477	411	340	274		●	○
3.6	32.000	389	338	292	241	194	21.000	548	477	411	340	274		●	○
3.7	32.000	389	338	292	241	194	21.000	548	477	411	340	274		●	○
3.8	32.000	389	338	292	241	194	21.000	548	477	411	340	274		●	○
4.1	50.000	930	809	697	576	465	50.000	1500	1305	1125	930	750		●	○
4.2	50.000	930	809	697	576	465	50.000	1500	1305	1125	930	750		●	○
4.3															
4.4															
4.5															
4.6	50.000	930	809	697	576	465	38.000	1400	1218	1050	868	700		●	○
4.7	44.000	775	674	581	480	387	29.000	1160	1009	870	719	580		●	○
4.8	25.000	266	231	199	165	133	16.000	392	341	294	243	196		●	○
4.9	19.000	202	176	152	125	101	12.000	286	249	214	177	143		●	○
4.10	19.000	202	176	152	125	101	12.000	286	249	214	177	143		●	○
4.11	44.000	775	674	581	480	387	29.000	1160	1009	870	719	580		●	○
4.12	44.000	775	674	581	480	387	29.000	1160	1009	870	719	580		●	○
4.13	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660		●	○
4.14	50.000	930	809	697	576	465	38.000	1520	1322	1140	942	760		●	○
4.15	38.000	495	431	371	307	247	25.000	685	596	513	424	342		●	○
4.16	50.000	849	738	636	526	424	38.000	1388	1207	1041	860	694		●	○
4.17															
4.18	31.000	354	308	265	219	177	21.000	529	461	397	328	265		●	○
4.19															
5.1	25.000	152	132	114	94	76	16.000	294	256	220	182	147		●	○
5.2	25.000	152	132	114	94	76	16.000	294	256	220	182	147		●	○
5.3	25.000	152	132	114	94	76	16.000	294	256	220	182	147		●	○
5.4	12.000	110	95	82	68	55	8.000	170	148	127	105	85		●	○
5.5	12.000	131	114	99	82	66	8.000	255	221	191	158	127		●	○
5.6	19.000	152	132	114	94	76	12.000	294	256	220	182	147		●	○
5.7	19.000	99	86	74	61	49	12.000	170	148	127	105	85		●	○
5.8	19.000	131	114	99	82	66	12.000	255	221	191	158	127		●	○
5.9	44.000	170	148	127	105	85	29.000	329	286	246	204	164		●	○
5.10	44.000	247	215	186	153	124	29.000	365	318	274	226	183		●	○
5.11	38.000	170	148	127	105	85	25.000	329	286	246	204	164		●	○
6.1	50.000	620	539	465	384	310	33.000	850	740	638	527	425		●	
6.2	38.000	537	467	402	333	268	25.000	779	678	585	483	390		●	
6.3	25.000	235	204	176	146	117	16.000	346	301	260	215	173		●	
6.4	25.000	221	193	166	137	111	16.000	327	284	245	202	163		●	
6.5															

Cutting data – Micro End Mills – 2.2xD

		Ø d_1 = 1,8 mm						Ø d_1= 2,0 mm					● 1st choice	○ suitable	
	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1			
	$a_{p\,max.}$	0,54	0,54	0,54	0,54	0,36	$a_{p\,max.}$	0,6	0,6	0,6	0,6	0,4			
	$n_{min.}$	5500					$n_{min.}$	5000							
Index	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	Emulsion	Compressed air	MMS
1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.4	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.5	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.6	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.7	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.8	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.9	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.10	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.11	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.12	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.13	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.14	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.15	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.16	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
2.1	22.000	950	827	713	589	475	19.000	1140	990	855	700	570		●	○
2.2	22.000	950	827	713	589	475	19.000	1140	990	855	700	570		●	○
2.3	22.000	950	827	713	589	475	19.000	1140	990	855	700	570		●	○
2.4	18.000	800	696	600	496	400	15.000	840	730	630	520	420		●	○
2.5	22.000	950	827	713	589	475	19.000	1140	990	855	700	570		●	○
2.6	22.000	950	827	713	589	475	19.000	1140	990	855	700	570		●	○
2.7	14.000	680	592	510	422	340	12.000	720	620	540	450	360		●	○
3.1	32.000	1400	1218	1050	868	700	25.000	1500	1300	1125	930	750		●	○
3.2	32.000	1400	1218	1050	868	700	25.000	1500	1300	1125	930	750		●	○
3.3	32.000	1400	1218	1050	868	700	25.000	1500	1300	1125	930	750		●	○
3.4	32.000	1400	1218	1050	868	700	25.000	1500	1300	1125	930	750		●	○
3.5	18.000	630	548	473	391	315	25.000	1500	1300	1125	930	750		●	○
3.6	18.000	630	548	473	391	315	25.000	1500	1300	1125	930	750		●	○
3.7	18.000	630	548	473	391	315	25.000	1500	1300	1125	930	750		●	○
3.8	18.000	630	548	473	391	315	25.000	1500	1300	1125	930	750		●	○
4.1	44.000	1800	1566	1350	1116	900	25.000	1500	1300	1125	930	750		●	○
4.2	44.000	1800	1566	1350	1116	900	25.000	1500	1300	1125	930	750		●	○
4.3															
4.4															
4.5															
4.6	32.000	1520	1322	1140	942	760	25.000	1500	1300	1125	930	750		●	○
4.7	25.000	1250	1088	938	775	625	25.000	1500	1300	1125	930	750		●	○
4.8	14.000	500	435	375	310	250	25.000	1500	1300	1125	930	750		●	○
4.9	10.000	370	322	278	229	185	19.000	1140	990	855	700	570		●	○
4.10	10.000	370	322	278	229	185	19.000	1140	990	855	700	570		●	○
4.11	25.000	1250	1088	938	775	625	19.000	1140	990	855	700	570		●	○
4.12	25.000	1250	1088	938	775	625	15.000	840	730	630	520	420		●	○
4.13	28.000	1400	1218	1050	868	700	19.000	1140	990	855	700	570		●	○
4.14	33.000	1560	1357	1170	967	780	19.000	1140	990	855	700	570		●	○
4.15	22.000	800	696	600	496	400	12.000	720	630	540	450	360		●	○
4.16	33.000	1560	1357	1170	967	780	25.000	1500	1300	1125	930	750		●	○
4.17															
4.18	29.000	300	261	225	186	150	25.000	1500	1300	1125	930	750		●	○
4.19															
5.1	14.000	400	348	300	248	200	25.000	1500	1300	1125	930	750		●	○
5.2	14.000	400	348	300	248	200	25.000	1500	1300	1125	930	750		●	○
5.3	14.000	420	365	315	260	210	25.000	1500	1300	1125	930	750		●	○
5.4	7.000	250	218	188	155	125	25.000	1500	1300	1125	930	750		●	○
5.5	7.000	370	322	278	229	185	25.000	1500	1300	1125	930	750		●	○
5.6	10.000	370	322	278	229	185	25.000	1500	1300	1125	930	750		●	○
5.7	10.000	280	244	210	174	140	25.000	1500	1300	1125	930	750		●	○
5.8	10.000	370	322	278	229	185	25.000	1500	1300	1125	930	750		●	○
5.9	25.000	400	348	300	248	200	25.000	1500	1300	1125	930	750		●	○
5.10	25.000	480	418	360	298	240	25.000	1500	1300	1125	930	750		●	○
5.11	22.000	380	331	285	236	190	25.000	1500	1300	1125	930	750		●	○
6.1	29.000	1200	1044	900	744	600	25.000	1500	1300	1125	930	750		●	
6.2	22.000	1000	870	750	620	500	19.000	1140	990	855	700	570		●	
6.3	14.000	420	365	315	260	210	19.000	1140	990	855	700	570		●	
6.4	14.000	420	365	315	260	210	19.000	1140	990	855	700	570		●	
6.5															

Cutting data – Micro End Mills – 5xD

		Ø d_1 = 0,2 mm						Ø d_1 = 0,5 mm						Ø d_1 = 0,8 mm					● 1st choice	○ suitable	
	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1		0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1			
	$a_{p\,max.}$	0,012	0,012	0,012	0,012			0,06	0,06	0,06	0,06		$a_{p\,max.}$	0,12	0,12	0,12	0,12	0,064			
	$n_{min.}$	30000						12000					$n_{min.}$	8000							
Index	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	Emulsion	Compressed air	MMS
1.1	50.000	232	202	174	144		50.000	274	238	205	170		44.000	485	422	364	301	242		●	○
1.2	50.000	232	202	174	144		50.000	274	238	205	170		44.000	485	422	364	301	242		●	○
1.3	50.000	232	202	174	144		50.000	274	238	205	170		44.000	485	422	364	301	242		●	○
1.4	50.000	232	202	174	144		50.000	274	238	205	170		44.000	485	422	364	301	242		●	○
1.5	50.000	232	202	174	144		50.000	274	238	205	170		44.000	485	422	364	301	242		●	○
1.6	50.000	201	175	151	125		50.000	237	206	178	147		31.000	330	287	248	205	165		●	○
1.7	50.000	232	202	174	144		50.000	274	238	205	170		44.000	485	422	364	301	242		●	○
1.8	50.000	201	175	151	125		50.000	237	206	178	147		31.000	330	287	248	205	165		●	○
1.9	50.000	232	202	174	144		50.000	274	238	205	170		31.000	381	332	286	236	191		●	○
1.10	50.000	201	175	151	125		50.000	237	206	178	147		31.000	330	287	248	205	165		●	○
1.11	50.000	201	175	151	125		50.000	237	206	178	147		31.000	330	287	248	205	165		●	○
1.12	50.000	201	175	151	125		50.000	237	206	178	147		31.000	330	287	248	205	165		●	○
1.13	50.000	201	175	151	125		50.000	237	206	178	147		31.000	330	287	248	205	165		●	○
1.14	50.000	201	175	151	125		50.000	237	206	178	147		31.000	330	287	248	205	165		●	○
1.15	50.000	232	202	174	144		50.000	274	238	205	170		44.000	485	422	364	301	242		●	○
1.16	50.000	201	175	151	125		50.000	237	206	178	147		31.000	330	287	248	205	165		●	○
2.1	50.000	232	202	174	144		50.000	219	191	164	136		31.000	346	301	260	215	173		●	○
2.2	50.000	232	202	174	144		50.000	219	191	164	136		31.000	346	301	260	215	173		●	○
2.3	50.000	232	202	174	144		50.000	219	191	164	136		31.000	346	301	260	215	173		●	○
2.4	50.000	232	202	174	144		50.000	219	191	164	136		31.000	346	301	260	215	173		●	○
2.5	50.000	232	202	174	144		50.000	219	191	164	136		31.000	346	301	260	215	173		●	○
2.6	50.000	232	202	174	144		50.000	219	191	164	136		31.000	346	301	260	215	173		●	○
2.7	50.000	232	202	174	144		38.000	192	167	144	119		19.000	263	229	197	163	132		●	○
3.1	50.000	232	202	174	144		50.000	219	191	164	136		50.000	416	362	312	258	208		●	○
3.2	50.000	232	202	174	144		50.000	219	191	164	136		50.000	416	362	312	258	208		●	○
3.3	50.000	232	202	174	144		50.000	219	191	164	136		50.000	416	362	312	258	208		●	○
3.4	50.000	232	202	174	144		50.000	219	191	164	136		50.000	416	362	312	258	208		●	○
3.5	50.000	141	123	106	88		50.000	175	152	131	109		25.000	240	209	180	149	120		●	○
3.6	50.000	141	123	106	88		50.000	175	152	131	109		25.000	240	209	180	149	120		●	○
3.7	50.000	141	123	106	88		50.000	175	152	131	109		25.000	240	209	180	149	120		●	○
3.8	50.000	141	123	106	88		50.000	175	152	131	109		25.000	240	209	180	149	120		●	○
4.1	50.000	232	202	174	144		50.000	274	238	205	170		50.000	554	482	416	344	277		●	○
4.2	50.000	232	202	174	144		50.000	274	238	205	170		50.000	554	482	416	344	277		●	○
4.3																					
4.4																					
4.5																					
4.6	50.000	232	202	174	144		50.000	274	238	205	170		50.000	554	482	416	344	277		●	○
4.7	50.000	232	202	174	144		50.000	274	238	205	170		38.000	554	482	416	344	277		●	○
4.8	50.000	126	110	95	78		44.000	134	117	101	83		22.000	204	177	153	126	102		●	○
4.9	50.000	126	110	95	78		31.000	112	97	84	69		15.000	170	148	127	105	85		●	○
4.10	50.000	126	110	95	78		31.000	112	97	84	69		15.000	170	148	127	105	85		●	○
4.11	50.000	232	202	174	144		50.000	274	238	205	170		38.000	485	422	364	301	242		●	○
4.12	50.000	232	202	174	144		50.000	274	238	205	170		38.000	485	422	364	301	242		●	○
4.13	50.000	232	202	174	144		50.000	274	238	205	170		44.000	554	482	416	344	277		●	○
4.14	50.000	232	202	174	144		50.000	274	238	205	170		50.000	554	482	416	344	277		●	○
4.15	50.000	141	123	106	88		50.000	200	174	150	124		31.000	316	275	237	196	158		●	○
4.16	50.000	212	185	159	132		50.000	250	218	188	155		50.000	506	440	379	314	253		●	○
4.17																					
4.18	50.000	141	123	106	88		50.000	150	131	113	93		25.000	253	220	190	157	126		●	○
4.19																					
5.1	50.000	63	54	47	39		44.000	76	66	57	47		22.000	91	79	68	56	45		●	○
5.2	50.000	63	54	47	39		44.000	76	66	57	47		22.000	91	79	68	56	45		●	○
5.3	50.000	63	54	47	39		44.000	76	66	57	47		22.000	91	79	68	56	45		●	○
5.4	50.000	46	40	35	29		25.000	55	48	41	34		12.000	88	77	66	55	44		●	○
5.5	50.000	46	40	35	29		25.000	55	48	41	34		12.000	78	68	59	49	39		●	○
5.6	50.000	54	47	40	33		31.000	63	55	47	39		15.000	91	79	68	56	45		●	○
5.7	50.000	55	48	41	32		31.000	58	51	44	36		15.000	98	85	73	61	49		●	○
5.8	50.000	55	47	40	32		31.000	58	51	44	36		15.000	98	85	73	61	49		●	○
5.9	50.000	60	61	48	41		50.000	71	62	53	44		38.000	114	99	85	71	57		●	○
5.10	50.000	60	61	48	41		50.000	71	62	53	44		38.000	126	110	95	78	63		●	○
5.11	50.000	60	52	45	37		50.000	71	62	49	39		31.000	89	77	66	55	44		●	○
6.1	50.000	155	135	116	96		50.000	164	143	123	102		44.000	346	301	260	215	173		●	
6.2	50.000	95	83	71	59		50.000	134	117	101	83		31.000	180	157	135	112	90		●	
6.3	50.000	95	83	71	59		44.000	134	117	101	83		22.000	180	157	135	112	90		●	
6.4	50.000	89	78	67	55		44.000	126	110	95	78		22.000	170	148	127	105	85		●	
6.5																					

a_e=0.6–1.0 x d_1: Where there are no values only trochodial slotting and edge milling is recommended. Otherwise there is the risk of tool breakage.

Cutting data – Micro End Mills – 5xD

		Ø d_1 = 1,0 mm						Ø d_1 = 1,5 mm						Ø d_1 = 1,8 mm				
	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1
	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,54	0,54	0,54	0,54	0,36
	$n_{min.}$	6500					$n_{min.}$	6500					$n_{min.}$	5500				
Index	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min
1.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.3	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.4	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.5	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.6	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.7	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.8	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.9	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
1.10	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.11	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.12	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.13	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.14	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.15	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.16	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
2.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
2.2	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
2.3	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
2.4	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
2.5	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
2.6	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
2.7	19.000	310	270	232	192	155	12.000	480	418	360	298	240	10.000	500	435	375	310	250
3.1	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
3.2	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
3.3	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
3.4	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
3.5	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
3.6	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
3.7	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
3.8	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
4.1	50.000	775	674	581	480	387	42.000	1200	1044	900	744	600	36.000	1500	1305	1125	930	750
4.2	50.000	775	674	581	480	387	42.000	1200	1044	900	744	600	36.000	1500	1305	1125	930	750
4.3																		
4.4																		
4.5																		
4.6	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
4.7	38.000	705	613	529	437	352	25.000	1000	870	750	620	500	22.000	1080	940	810	670	540
4.8	22.000	278	242	209	173	139	14.000	343	298	257	213	171	12.000	450	392	338	279	225
4.9	15.000	190	165	142	118	95	10.000	245	213	184	152	122	8.000	300	261	225	186	150
4.10	15.000	190	165	142	118	95	10.000	245	213	184	152	122	8.000	300	261	225	186	150
4.11	38.000	697	607	523	432	349	25.000	1000	870	750	620	500	22.000	1100	957	825	682	550
4.12	38.000	697	607	523	432	349	25.000	1000	870	750	620	500	22.000	1100	957	825	682	550
4.13	44.000	813	708	610	504	407	29.000	1160	1009	870	719	580	25.000	1200	1044	900	744	600
4.14	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
4.15	31.000	438	381	329	272	219	21.000	575	500	431	357	288	18.000	650	566	488	403	325
4.16	50.000	849	738	636	526	424	33.000	1205	1048	904	747	602	28.000	1400	1218	1050	868	700
4.17																		
4.18	25.000	318	277	239	197	159	16.000	438	381	329	272	219	14.000	500	435	375	310	250
4.19																		
5.1	22.000	114	99	85	71	57	14.000	196	170	147	121	98	12.000	300	261	225	186	150
5.2	22.000	114	99	85	71	57	14.000	196	170	147	121	98	12.000	300	261	225	186	150
5.3	22.000	114	99	85	71	57	14.000	196	170	147	121	98	12.000	300	261	225	186	150
5.4	12.000	110	95	82	68	55	8.000	170	148	127	105	85	7.000	240	209	180	149	120
5.5	12.000	131	114	99	82	66	8.000	170	148	127	105	85	7.000	240	209	180	149	120
5.6	15.000	152	132	114	94	76	10.000	245	213	184	152	122	8.000	300	261	225	186	150
5.7	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
5.8	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
5.9	38.000	156	135	117	96	78	25.000	274	238	205	170	137	22.000	380	331	285	236	190
5.10	38.000	212	185	159	132	106	25.000	365	318	274	226	183	22.000	450	392	338	279	225
5.11	31.000	127	111	95	79	64	21.000	201	175	151	125	100	18.000	300	261	225	186	150
6.1	44.000	426	371	320	264	213	29.000	600	522	450	372	300	25.000	800	696	600	496	400
6.2	31.000	201	175	151	125	101	21.000	346	301	260	215	173	16.000	500	435	375	310	250
6.3	22.000	235	204	176	146	117	14.000	346	301	260	215	173	12.000	450	392	338	279	225
6.4	22.000	221	193	166	137	111	14.000	327	284	245	202	163	12.000	450	392	338	279	225
6.5																		

		Ø d_1 = 2,0 mm					●	○	
	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,6–1,0 x d_1	1st choice	suitable	
	$a_{p\,max.}$	0,6	0,6	0,6	0,6	0,4			
	$n_{min.}$	5000							
Index	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	Emulsion	Compressed air	MMS
1.1	22.000	1320	1148	990	818	660		●	○
1.2	22.000	1320	1148	990	818	660		●	○
1.3	22.000	1320	1148	990	818	660		●	○
1.4	22.000	1320	1148	990	818	660		●	○
1.5	22.000	1320	1148	990	818	660		●	○
1.6	15.000	900	783	675	558	450		●	○
1.7	22.000	1320	1148	990	818	660		●	○
1.8	15.000	900	783	675	558	450		●	○
1.9	15.000	900	783	675	558	450		●	○
1.10	15.000	900	783	675	558	450		●	○
1.11	15.000	900	783	675	558	450		●	○
1.12	15.000	900	783	675	558	450		●	○
1.13	15.000	900	783	675	558	450		●	○
1.14	15.000	900	783	675	558	450		●	○
1.15	22.000	1320	1148	990	818	660		●	○
1.16	15.000	900	783	675	558	450		●	○
2.1	15.000	900	783	675	558	450		●	○
2.2	15.000	900	783	675	558	450		●	○
2.3	15.000	900	783	675	558	450		●	○
2.4	15.000	900	783	675	558	450		●	○
2.5	15.000	900	783	675	558	450		●	○
2.6	15.000	900	783	675	558	450		●	○
2.7	9.000	540	470	405	335	270		●	○
3.1	25.000	1500	1305	1125	930	750		●	○
3.2	25.000	1500	1305	1125	930	750		●	○
3.3	25.000	1500	1305	1125	930	750		●	○
3.4	25.000	1500	1305	1125	930	750		●	○
3.5	12.000	520	452	390	322	260		●	○
3.6	12.000	520	452	390	322	260		●	○
3.7	12.000	520	452	390	322	260		●	○
3.8	12.000	520	452	390	322	260		●	○
4.1	31.000	1860	1618	1395	1153	930		●	○
4.2	31.000	1860	1618	1395	1153	930		●	○
4.3									
4.4									
4.5									
4.6	25.000	1500	1305	1125	930	750		●	○
4.7	19.000	1140	992	855	707	570		●	○
4.8	11.000	480	418	360	298	240		●	○
4.9	7.000	300	261	225	186	150		●	○
4.10	7.000	300	261	225	186	150		●	○
4.11	19.000	1140	992	855	707	570		●	○
4.12	19.000	1140	992	855	707	570		●	○
4.13	22.000	1320	1148	990	818	660		●	○
4.14	25.000	1500	1305	1125	930	750		●	○
4.15	15.000	660	574	495	409	330		●	○
4.16	25.000	1500	1305	1125	930	750		●	○
4.17									
4.18	12.000	520	452	390	322	260		●	○
4.19									
5.1	11.000	400	348	300	248	200		●	○
5.2	11.000	400	348	300	248	200		●	○
5.3	11.000	400	348	300	248	200		●	○
5.4	6.000	260	226	195	161	130		●	○
5.5	6.000	260	226	195	161	130		●	○
5.6	7.000	300	261	225	186	150		●	○
5.7	7.000	300	261	225	186	150		●	○
5.8	7.000	300	261	225	186	150		●	○
5.9	19.000	420	365	315	260	210		●	○
5.10	19.000	500	435	375	310	250		●	○
5.11	15.000	400	348	300	248	200		●	○
6.1	22.000	1000	870	750	620	500		●	
6.2	15.000	500	435	375	310	250		●	
6.3	11.000	480	418	360	298	240		●	
6.4	11.000	480	418	360	298	240		●	
6.5									

Cutting data – Micro end mills – 10xD

		Ø d_1 = 0,2 mm				Ø d_1 = 0,5 mm					Ø d_1 = 0,8 mm				Ø d_1 = 1,0 mm			
	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1
	$a_{p\,max.}$	0,006	0,006	0,006	0,006	0,015	0,015	0,015	0,015	$a_{p\,max.}$	0,024	0,024	0,024	0,024	0,03	0,03	0,03	0,03
	$n_{min.}$	30000				12000				$n_{min.}$	8000				6500			
Index	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min
1.1	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
1.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
1.3	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
1.4	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
1.5	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
1.6	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
1.7	50.000	232	202	174	144	219	191	164	136	38.000	450	392	338	279	589	512	442	365
1.8	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
1.9	50.000	232	202	174	144	219	191	164	136	38.000	450	392	338	279	589	512	442	365
1.10	50.000	201	175	151	125	190	165	142	118	25.000	270	235	203	167	335	292	252	208
1.11	50.000	201	175	151	125	190	165	142	118	25.000	270	235	203	167	335	292	252	208
1.12	50.000	201	175	151	125	190	165	142	118	25.000	270	235	203	167	335	292	252	208
1.13	50.000	201	175	151	125	190	165	142	118	25.000	270	235	203	167	335	292	252	208
1.14	50.000	201	175	151	125	190	165	142	118	25.000	270	235	203	167	335	292	252	208
1.15	50.000	232	202	174	144	219	191	164	136	38.000	450	392	338	279	589	512	442	365
1.16	50.000	201	175	151	125	190	165	142	118	25.000	270	235	203	167	335	292	252	208
2.1	50.000	155	135	116	96	208	181	156	129	25.000	312	271	234	193	387	337	290	240
2.2	50.000	155	135	116	96	208	181	156	129	25.000	312	271	234	193	387	337	290	240
2.3	50.000	155	135	116	96	208	181	156	129	25.000	312	271	234	193	387	337	290	240
2.4	50.000	155	135	116	96	164	143	123	102	19.000	242	211	182	150	294	256	221	182
2.5	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
2.6	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
2.7	50.000	155	135	116	96	170	148	127	105	15.000	236	205	177	146	279	243	209	173
3.1	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
3.2	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
3.3	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
3.4	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
3.5	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
3.6	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
3.7	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
3.8	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
4.1	50.000	232	202	174	144	438	381	329	272	50.000	693	603	520	430	930	809	697	576
4.2	50.000	232	202	174	144	438	381	329	272	50.000	693	603	520	430	930	809	697	576
4.3																		
4.4																		
4.5																		
4.6	50.000	232	202	174	144	274	238	205	170	44.000	416	362	312	258	542	472	407	336
4.7	50.000	232	202	174	144	274	238	205	170	31.000	402	350	301	249	480	418	360	298
4.8	50.000	126	110	95	78	134	117	101	83	19.000	170	148	127	105	190	165	142	118
4.9	50.000	126	110	95	78	89	78	67	55	12.000	136	118	102	84	152	132	114	94
4.10	50.000	126	110	95	78	89	78	67	55	12.000	136	118	102	84	152	132	114	94
4.11	50.000	232	202	174	144	274	238	205	170	31.000	402	350	301	249	480	418	360	298
4.12	50.000	232	202	174	144	274	238	205	170	31.000	402	350	301	249	480	418	360	298
4.13	50.000	232	202	174	144	329	286	246	204	38.000	554	482	416	344	705	613	529	437
4.14	50.000	232	202	174	144	329	286	246	204	44.000	554	482	416	344	813	708	610	504
4.15	50.000	141	123	106	88	200	174	150	124	25.000	285	248	213	176	339	295	255	210
4.16	50.000	212	185	159	132	300	261	225	186	44.000	506	440	379	314	742	646	557	460
4.17																		
4.18	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	255	221	191	158
4.19																		
5.1	50.000	54	47	40	33	63	55	47	39	19.000	79	69	59	49	101	88	76	63
5.2	50.000	54	47	40	33	63	55	47	39	19.000	91	79	68	56	114	99	85	71
5.3	50.000	54	47	40	33	63	55	47	39	19.000	102	89	76	63	126	110	95	78
5.4	50.000	46	40	35	29	55	48	41	34	12.000	88	77	66	55	110	95	82	68
5.5	50.000	46	40	35	29	55	48	41	34	12.000	59	51	44	36	82	71	62	51
5.6	50.000	54	47	40	33	63	55	47	39	12.000	79	69	59	49	101	88	76	63
5.7	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
5.8	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
5.9	50.000	60	52	45	37	71	62	53	44	31.000	101	88	76	63	141	123	106	88
5.10	50.000	60	52	45	37	71	62	53	44	31.000	101	88	76	63	177	154	133	110
5.11	50.000	60	52	45	37	71	62	53	44	25.000	89	77	66	55	141	123	106	88
6.1	50.000	77	67	58	48	82	71	62	51	38.000	173	151	130	107	194	168	145	120
6.2	50.000	47	41	36	29	67	58	50	42	25.000	90	78	68	56	101	88	75	62
6.3	50.000	47	41	36	29	67	58	50	42	19.000	90	78	68	56	101	88	75	62
6.4	50.000	45	39	34	28	63	55	47	39	19.000	85	74	64	53	95	83	71	59
6.5																		

a_e = 0,6–1,0 x d_1: Missing values only trochodial slotting and milling is recommended. Otherwise there is the risk of tool breakage.

		Ø d_1 = 1,5 mm					Ø d_1 = 1,8 mm					Ø d_1 = 2,0 mm				● 1st choice	○ suitable	
	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1	a_e	0,1 x d_1	0,2 x d_1	0,3 x d_1	0,4 x d_1			
	$a_{p\,max.}$	0,06	0,06	0,06	0,06	$a_{p\,max.}$	0,072	0,072	0,072	0,072	$a_{p\,max.}$	0,08	0,08	0,08	0,08			
	$n_{min.}$	6500				$n_{min.}$	5500				$n_{min.}$	5000						
Index	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	n	v_f mm/min	v_f mm/min	v_f mm/min	v_f mm/min	Emulsion	Compressed air	MMS
1.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.3	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.4	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.5	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.6	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.7	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.8	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.9	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.10	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.11	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.12	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.13	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.14	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.15	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.16	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
2.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446		●	○
2.2	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446		●	○
2.3	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446		●	○
2.4	12.000	400	348	300	248	10.000	450	392	338	279	9.000	540	470	405	335		●	○
2.5	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446		●	○
2.6	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446		●	○
2.7	10.000	380	331	285	236	8.000	400	348	300	248	7.000	420	365	315	260		●	○
3.1	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818		●	○
3.2	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818		●	○
3.3	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818		●	○
3.4	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818		●	○
3.5	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	○
3.6	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	○
3.7	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	○
3.8	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	○
4.1	38.000	1520	1322	1140	942	33.000	1600	1392	1200	992	28.000	1680	1462	1260	1042		●	○
4.2	38.000	1520	1322	1140	942	33.000	1600	1392	1200	992	28.000	1680	1462	1260	1042		●	○
4.3																		
4.4																		
4.5																		
4.6	29.000	900	783	675	558	25.000	1000	870	750	620	22.000	1140	992	855	707		●	○
4.7	21.000	800	696	600	496	18.000	900	783	675	558	15.000	900	783	675	558		●	○
4.8	12.000	294	256	220	182	10.000	260	226	195	161	9.000	390	339	293	242		●	○
4.9	8.000	196	170	147	121	7.000	260	226	195	161	6.000	260	226	195	161		●	○
4.10	8.000	196	170	147	121	7.000	260	226	195	161	6.000	260	226	195	161		●	○
4.11	21.000	800	696	600	496	18.000	850	740	638	527	15.000	900	783	675	558		●	○
4.12	21.000	800	696	600	496	18.000	850	740	638	527	15.000	900	783	675	558		●	○
4.13	25.000	1000	870	750	620	18.000	1000	870	750	620	19.000	1140	992	855	707		●	○
4.14	29.000	1160	1009	870	719	25.000	1200	1044	900	744	22.000	1320	1148	990	818		●	○
4.15	16.000	438	381	329	272	14.000	500	435	375	310	12.000	520	452	390	322		●	○
4.16	29.000	1059	921	794	657	25.000	1200	1044	900	744	22.000	1320	1148	990	818		●	○
4.17																		
4.18	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	○
4.19																		
5.1	12.000	163	142	122	101	10.000	300	261	225	186	9.000	380	331	285	236		●	○
5.2	12.000	204	178	153	127	10.000	300	261	225	186	9.000	380	331	285	236		●	○
5.3	12.000	204	178	153	127	10.000	300	261	225	186	9.000	350	305	263	217		●	○
5.4	8.000	177	154	133	110	7.000	300	261	225	186	6.000	350	305	263	217		●	○
5.5	8.000	106	92	80	66	7.000	200	174	150	124	6.000	220	191	165	136		●	○
5.6	8.000	147	128	110	91	7.000	220	191	165	136	6.000	250	218	188	155		●	○
5.7	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155		●	○
5.8	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155		●	○
5.9	21.000	228	199	171	141	18.000	300	261	225	186	15.000	380	331	285	236		●	○
5.10	21.000	274	238	205	170	18.000	400	348	300	248	15.000	450	392	338	279		●	○
5.11	16.000	237	206	178	147	14.000	300	261	225	186	12.000	380	331	285	236		●	○
6.1	25.000	300	261	225	186	21.000	400	348	300	248	19.000	500	435	375	310		●	
6.2	16.000	173	151	130	107	14.000	200	174	150	124	12.000	240	209	180	149		●	
6.3	12.000	173	151	130	107	10.000	200	174	150	124	9.000	240	209	180	149		●	
6.4	12.000	163	142	122	101	10.000	200	174	150	124	9.000	240	209	180	149		●	
6.5																		

Cutting data appoximate values

	Circular saws Solid carbide Fine	
Index	v_c m/min	f_z mm
1.1	100–160	0,005–0,01
1.2	100–160	0,005–0,01
1.3	100–160	0,005–0,01
1.4	80–130	0,003–0,007
1.5	80–130	0,003–0,007
1.6	80–130	0,003–0,007
1.7	100–160	0,005–0,01
1.8	50–100	0,003–0,007
1.9	80–130	0,003–0,007
1.10	80–130	0,003–0,007
1.11	50–100	0,003–0,007
1.12	50–100	0,003–0,007
1.13	50–100	0,003–0,007
1.14	50–100	0,003–0,007
1.15	50–100	0,003–0,007
1.16	50–100	0,003–0,007
2.1	80–130	0,003–0,007
2.2	80–130	0,003–0,007
2.3	80–130	0,003–0,007
2.4	50–100	0,003–0,007
2.5	80–130	0,003–0,007
2.6	100–160	0,003–0,007
2.7	50–100	0,003–0,007
3.1	80–130	0,003–0,007
3.2	50–100	0,003–0,007
3.3	50–100	0,003–0,007
3.4	50–100	0,003–0,007
3.5	80–130	0,003–0,007
3.6	80–130	0,003–0,007
3.7	80–130	0,003–0,007
3.8	50–100	0,003–0,007
4.1	200–500	0,005–0,01
4.2	200–500	0,005–0,01
4.3	200–500	0,005–0,01
4.4	200–450	0,005–0,01
4.5	200–450	0,005–0,01
4.6	200–450	0,005–0,01
4.7	150–300	0,005–0,01
4.8	150–300	0,005–0,01
4.9	150–300	0,005–0,01
4.10	150–300	0,005–0,01
4.11	200–400	0,005–0,01
4.12	–	–
4.13	150–300	0,005–0,01
4.14	80–250	0,005–0,01
4.15	–	–
4.16	–	–
4.17	–	–
4.18	–	–
4.19	–	–
5.1	–	–
5.2	50–100	0,003–0,007
5.3	50–100	0,003–0,007
5.4	20–30	0,003–0,007
5.5	20–30	0,003–0,007
5.6	20–30	0,003–0,007
5.7	20–30	0,003–0,007
5.8	20–30	0,003–0,007
5.9	30–70	0,003–0,007
5.10	30–70	0,003–0,007
5.11	30–70	0,003–0,007
6.1	50–100	0,003–0,007
6.2	–	–
6.3	–	–
6.4	–	–
6.5	–	–

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Technical references

Feedrate Adjustment

If the rpm indicated in the tables cannot be obtained by the machine spindle, the feed rate is to be reduced proportionally to the max rpm.

Example:
according to table = n 50000 1/min. and v_f 1000 mm/min.,
maximum machine rpm = 40000 1/min.

Calculation of feed rate which can be applied:
40000 = 80 % of 50000 1/min. accordingly 80 % of 1000 = 800 mm/min.

Feed rate which can be applied = **800 mm/min.**

Tool Holding

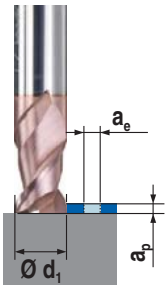
Make sure that you use clamping devices with an extremely precise runout.
Collets are ideally suited to this purpose.
You can find suitable clamping devices in our → **main catalogue, chapter 15 "Rotating adapters"**.

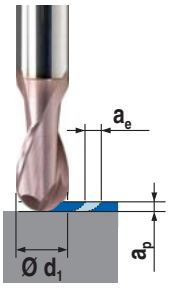
Machine

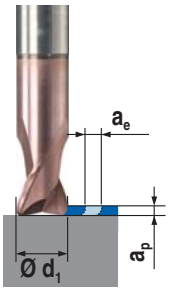
Use the Micro mills on machines with the highest accuracy and good stability.

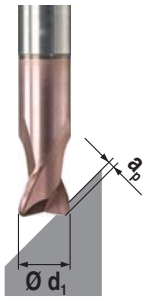
Cutting Data Information

The indicated cutting data is dependant upon the machine, workpiece, stability, etc. and may need to be adjusted up or downward to suit.









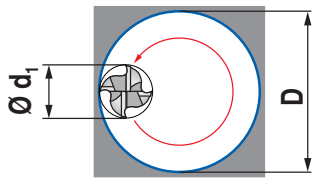
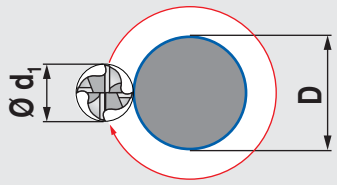
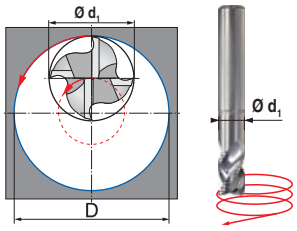
4

General formula for calculating the cutting parameters

Designation	Abbreviation	Unit	Formula	Example	
Number of revolutions	n	min^{-1}	$n = \frac{v_c \times 1000}{d_1 \times \pi}$	$v_c = 25$ m/min $d_1 = 20$ mm	$n = \frac{25 \times 1000}{20 \times \pi} = 398\ min^{-1}$
Cutting speed	v_c	m/min	$v_c = \frac{d_1 \times \pi \times n}{1000}$	$n = 400\ min^{-1}$ $d_1 = 20$ mm	$v_c = \frac{20 \times \pi \times 400}{1000} = 25$ m/min
Feed per tooth	f_z	mm	$f_z = \frac{v_f}{Z \times n}$	$v_f = 320$ mm/min $n = 400\ min^{-1}$ $Z = 4$	$f_z = \frac{320}{4 \times 400} = 0{,}2$ mm
Feed per revolution	f	mm	$f = f_z \times Z$	$f_z = 0{,}2$ mm $Z = 4$	$f = 0{,}2 \times 4 = 0{,}8$ mm
Feed rate	v_f	mm/min	$v_f = f_z \times Z \times n$	$f_z = 0{,}2$ mm $Z = 4$ $n = 400\ min^{-1}$	$v_f = 0{,}2 \times 4 \times 400 = 320$ mm/min
Average chip thickness	h_m	mm	$h_m = f_z \times \sqrt{\frac{a_e}{d_1}}$	$f_z = 0{,}2$ mm $a_e = 0{,}3$ mm $d_1 = 20$ mm	$h_m = 0{,}2 \times \sqrt{\frac{0{,}3}{20}} = 0{,}024$ mm

Z = Number of teeth
a_e = cutting width

Calculation of the feed rate on the midpoint path of the milling cutter (v_{fM})

Designation	Abbreviation	Unit	Formula	Example
Internal contour	v_{fM}	mm/min	$v_{fM} = \frac{v_f \times (D - d_1)}{D}$	
Outside profile	v_{fM}	mm/min	$v_{fM} = \frac{v_f \times (D + d_1)}{D}$	
Helical ramping	v_{fM}	mm/min	$v_{fM} = \frac{n \times f_z \times Z \times (D - d_1)}{D}$	

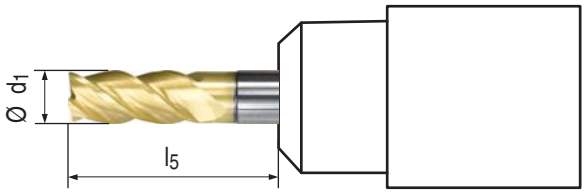
Tips for Tool Selection

Rake and clearance angles combined with the coating are decisive factors for the operational area.

Characteristics	Benefits
Helix angle with slow spiral	
▪ For materials with high tensile strength	▪ High edge stability
▪ For high material removal rates	▪ Low tendency to edge chipping
▪ For slot milling, pocket milling, rough milling	
Helix angle with quick spiral	
▪ For soft steels, non ferrous metals, etc.	▪ Soft cut
▪ For low material removal rates	▪ Low cutting forces
▪ Typical for finishing processes	
Small rake angles are applied	
▪ For hard, brittle materials	▪ High edge stability
▪ For high material removal rates	▪ Low tendency to edge chipping
▪ For rough machining	
Large rake angles are applied	
▪ For soft materials	▪ Soft cut
▪ For low material removal rates	▪ Low cutting forces
▪ For finishing	▪ Favorable chip flow
	▪ Low tendency to stick

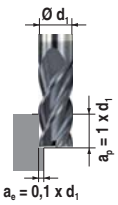
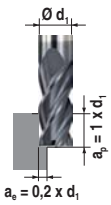
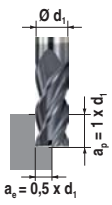
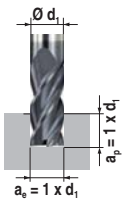
Correction factor for solid carbide milling cutters

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the overhang length (l_5)



Length					
Overhang length (l_5)	1,5 x d_1	4 x d_1	8 x d_1	12 x d_1	> 12 x d_1
Factor for v_c (Kf v_c)	1,0	1,0	0,9	0,85	0,7
Factor for f_z (Kf f_z)	1,2	1,0	0,8	0,7	0,5

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the cutting depth (a_p) and cutting width (a_e)

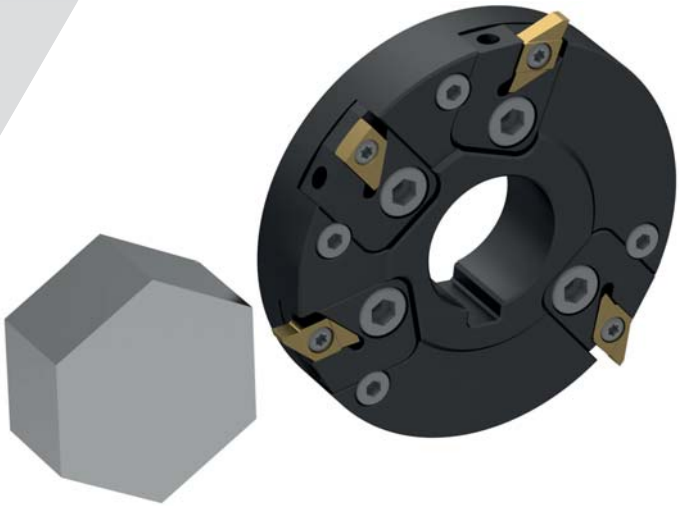
				
Factor for v_c (Kf v_c)	1,3	1,1	1,0	0,85
Factor for f_z (Kf f_z)	1,5	1,3	1,0	0,8

Special manufacturing methods

The production of flats is often demanded for components in the hydraulics industry. Conventional processes such as milling are subject to cost reduction pressures for the constant manufacture of high volume components. The flats must be produced in a quick and process-secure manner. WNT polygon turning is therefore ideal for this purpose.

Advantages of polygon turning

- Saves time compared to milling
- High process security
- Polygon can be produced directly on the machine
- Grooving or longitudinal turning processes
- Maximum chip control



We would be happy to assist in shaping your processes. In order to provide you with the right tools quickly and effectively, there are several ways to get in touch with us:

Technical Advice

Interested in our driven tools?

Our Technical Sales Engineers would be happy to advise you. You can of course also talk to our in-house Technical Sales Engineers by calling our freefone number.

Enquiry Form

If you would like to submit an enquiry regarding driven tools, you can find a detailed enquiry form in the download area of our website. Please fill in this form carefully and send it to us via email or fax. → **www.wnt.com/uk/download/**

Please have the following information to hand:

- The machine to be used for production (Manufacturer and type)
- The locating bore required on the tool
- Is drive transmitted by means of a drive pin or wedge ?
- The material to be machined
- Number of flats (2-, 4- or 6-edge)
- Detailed drawing of the surface geometry

Drilling

HSS drilling

Solid carbide drilling

Reamers

1

Threading

HSS taps

Circular and Thread Milling

Thread turning

2

Turning

Turning Tools

EcoCut

Grooving Tools

Miniature turning tools

3

Milling

Solid Carbide milling cutters

4

Clamping

5

Material examples and article no. index

6

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WNT MASTERTOOL PERFORMANCE

Premium quality tools for high performance.

The premium quality tools from the **WNT Mastertool Performance** product line have been designed for specific applications and are distinguished by their outstanding performance.
If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Overview

Collets

→ 3-11

Collets for clamping the bar in the main spindle and for the sub-spindle

Guide bushes

→ 15-24

Ensures bar guidance in the main spindle

Stem collets

→ 12-14

With an adapted stem for improved pick-up of the workpieces and for better secondary operation machinability

Clamping sleeves

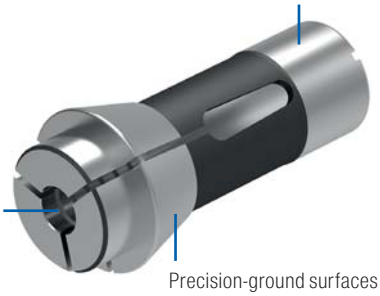
→ 25-32

Mounting for bar feeder magazines

Other profile shapes and sizes and extended options available on request.

Highlights

- Precision "Made in Germany"
  Reliable quality
- Maximum radial run-out accuracies
  Reduces vibrations
- Available with grooves
  Significantly increases clamping forces
- All relevant surfaces are "precision-ground"
  Increases component accuracy
- Available in smooth bore version
  No marking of the workpiece



Collets overview

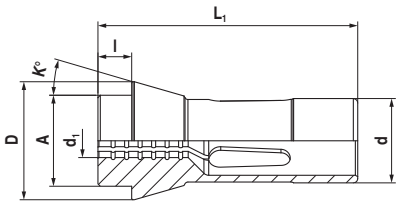
Norm	Clamping diameter range in mm	Profile	Version	Pages
116E	Ø 6,0 – 10,0	⬤	Grooved	4
	Ø 1,0 – 10,0		Smooth	4
120E	Ø 6,0 – 12,0	⬤	Grooved	4
	Ø 1,0 – 12,0		Smooth	4
F16	Ø 1,0 – 13,0	⬤	Grooved	5
	Ø 6,0 – 13,0		Smooth	5
136E	Ø 6,0 – 16,0	⬤	Grooved	6
	Ø 1,0 – 16,0		Smooth	6
138E	Ø 6,0 – 16,0	⬤	Grooved	6
	Ø 1,0 – 16,0		Smooth	6
145E	Ø 6,0 – 20,0	⬤	Grooved	7+8
	Ø 1,5 – 20,0		Smooth	7+8
F37	Ø 6,0 – 32,0	⬤	Grooved	9-11
	Ø 1,0 – 32,0		Smooth	9-11
120E	SW 2,0 – 11,0	⬡	Grooved*	4
138E	SW 2,0 – 14,0	⬡	Grooved*	6
145E	SW 2,0 – 19,0	⬡	Grooved*	7+8
F37	SW 3,0 – 27,0	⬡	Grooved*	9-11
145E	SW 2,0 – 15,0	■	Grooved*	7+8
F37	SW 3,0 – 23,0	■	Grooved*	9-11

* Grooved from SW 8

Other profile shapes and sizes and extended options available on request.

Collets

Designation	d DGUI mm	D DFC mm	A DCLC mm	l LCLC mm	L_1 OAL mm	K°
116 E / F 13	13	19	13	6	64	16
120 E / F 15	15	21	15	6	64	16



116 E / F 13

d_1 DCONWS mm	Grooved 116 E / F 13 NEW Y8 Article no. 81 000 ... £		Smooth 116 E / F 13 NEW Y8 Article no. 81 002 ... £	
1.0			224.00	01000
1.5			224.00	01500
2.0			224.00	02000
2.5			224.00	02500
3.0			77.00	03000
3.5			77.00	03500
4.0			77.00	04000
4.5			77.00	04500
5.0			77.00	05000
5.5			77.00	05500
6.0	77.00	06000	110.00	06000
6.5	77.00	06500	110.00	06500
7.0	77.00	07000	110.00	07000
7.5	77.00	07500	110.00	07500
8.0	77.00	08000	110.00	08000
8.5	77.00	08500	110.00	08500
9.0	77.00	09000	110.00	09000
9.5	77.00	09500	110.00	09500
10.0	77.00	10000	110.00	10000

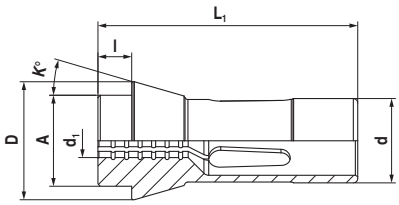
120 E / F 15

d_1 DCONWS mm	d_1 inch	Grooved 120 E / F 15 NEW Y8 Article no. 81 003 ... £		Smooth 120 E / F 15 NEW Y8 Article no. 81 005 ... £		Grooved 120 E / F 15 NEW Y8 Article no. 81 031 ... £	
1.000				156.00	01000		
1.500				156.00	01500		
2.000				84.00	02000	298.00	02000 1)
2.500				84.00	02500		
3.000				52.00	03000	298.00	03000 1)
3.175	1/8					298.00	03175 1)
3.500				52.00	03500		
4.000				52.00	04000	158.00	04000 1)
4.500				52.00	04500		
5.000				52.00	05000	158.00	05000 1)
5.500				52.00	05500		
6.000		52.00	06000	84.00	06000	158.00	06000 1)
6.350	1/4					228.00	06350 1)
6.500		52.00	06500	84.00	06500		
7.000		52.00	07000	84.00	07000	158.00	07000 1)
7.500		52.00	07500	84.00	07500		
8.000		52.00	08000	84.00	08000	158.00	08000
8.500		52.00	08500	84.00	08500		
9.000		52.00	09000	84.00	09000	158.00	09000
9.500				84.00	09500		
10.000		52.00	10000	84.00	10000	190.00	10000
10.500		52.00	10500	84.00	10500		
11.000		52.00	11000	84.00	11000	332.00	11000
11.500		52.00	11500	84.00	11500		
12.000		52.00	12000	84.00	12000		

1) Without transverse grooves

Collets

Designation	d DGUI mm	D DFC mm	A DCLC mm	l LCLC mm	L_1 OAL mm	K°
F 16 / 1212 E	16	21	16	6	64	16

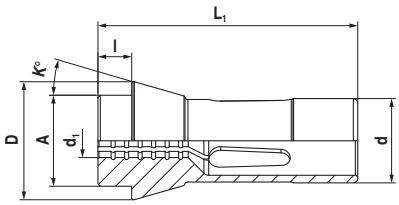


F 16 / 1212 E

d_1 DCONWS mm	Grooved F 16 / 1212 E NEW Y8 Article no. 81 019 ... £		Smooth F 16 / 1212 E NEW Y8 Article no. 81 021 ... £	
1.0			118.00	01000
1.5			118.00	01500
2.0			118.00	02000
2.5			118.00	02500
3.0			77.00	03000
3.5			77.00	03500
4.0			77.00	04000
4.5			77.00	04500
5.0			77.00	05000
5.5			77.00	05500
6.0	77.00	06000	110.00	06000
6.5	77.00	06500	110.00	06500
7.0	77.00	07000	110.00	07000
7.5	77.00	07500	110.00	07500
8.0	77.00	08000	110.00	08000
8.5	77.00	08500	110.00	08500
9.0	77.00	09000	110.00	09000
9.5	77.00	09500	110.00	09500
10.0	77.00	10000	110.00	10000
10.5	77.00	10500	110.00	10500
11.0	77.00	11000	110.00	11000
11.5	77.00	11500	110.00	11500
12.0	77.00	12000	110.00	12000
12.5	77.00	12500	110.00	12500
13.0	77.00	13000	110.00	13000

Collets

Designation	d DGUI mm	D DFC mm	A DCLC mm	l LCLC mm	L_1 OAL mm	K°
136 E / F 20-201	20	26	19	5	54	15
138 E / F20-87	20	28	21	7	67	16



136 E / F 20-201

d_1 DCONWS mm	Grooved 136 E / F 20-201 NEW Y8 Article no. 81 007 ... £		Smooth 136 E / F 20-201 NEW Y8 Article no. 81 009 ... £	
1.0			192.00	01000
1.5			192.00	01500
2.0			125.00	02000
2.5			125.00	02500
3.0			77.00	03000
3.5			77.00	03500
4.0			77.00	04000
4.5			77.00	04500
5.0			77.00	05000
5.5			77.00	05500
6.0	77.00	06000	110.00	06000
6.5	77.00	06500	110.00	06500
7.0	77.00	07000	110.00	07000
7.5	77.00	07500	110.00	07500
8.0	77.00	08000	110.00	08000
8.5	77.00	08500	110.00	08500
9.0	77.00	09000	110.00	09000
9.5	77.00	09500	110.00	09500
10.0	77.00	10000	110.00	10000
10.5	77.00	10500	110.00	10500
11.0	77.00	11000	110.00	11000
11.5	77.00	11500	110.00	11500
12.0	77.00	12000	110.00	12000
12.5	77.00	12500	110.00	12500
13.0	77.00	13000	110.00	13000
13.5	77.00	13500	110.00	13500
14.0	77.00	14000	110.00	14000
14.5	77.00	14500	110.00	14500
15.0	77.00	15000	110.00	15000
15.5	77.00	15500	110.00	15500
16.0	77.00	16000	110.00	16000

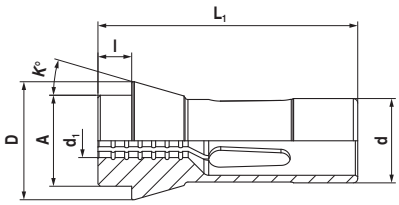
138 E / F20-87

d_1 DCONWS mm	d_1 inch	Grooved 138 E / F20-87 NEW Y8 Article no. 81 011 ... £		Smooth 138 E / F20-87 NEW Y8 Article no. 81 013 ... £		Grooved 138 E / F20-87 NEW Y8 Article no. 81 026 ... £	
1.00				196.00	01000		
1.50				196.00	01500		
2.00				107.00	02000	394.00	02000 1)
2.50				107.00	02500		
3.00				77.00	03000	187.00	03000 1)
3.50				77.00	03500		
4.00				77.00	04000	187.00	04000 1)
4.50				77.00	04500		
5.00				77.00	05000	187.00	05000 1)
5.50				77.00	05500		
6.00		77.00	06000	110.00	06000	187.00	06000 1)
6.35	1/4					257.00	06350 1)
6.50		77.00	06500	110.00	06500		
7.00		77.00	07000	110.00	07000	148.00	07000 1)
7.50		77.00	07500	110.00	07500		
8.00		77.00	08000	110.00	08000	148.00	08000
8.50		77.00	08500	110.00	08500		
9.00		77.00	09000	110.00	09000	148.00	09000
9.50		77.00	09500	110.00	09500		
10.00		77.00	10000	110.00	10000	148.00	10000
10.50		77.00	10500	110.00	10500		
11.00		77.00	11000	110.00	11000	148.00	11000
11.50		77.00	11500	110.00	11500		
12.00		77.00	12000	110.00	12000	148.00	12000
12.50		77.00	12500	110.00	12500		
13.00		77.00	13000	110.00	13000	148.00	13000
13.50		77.00	13500	110.00	13500		
14.00		77.00	14000	110.00	14000	148.00	14000
14.50		77.00	14500	110.00	14500		
15.00		77.00	15000	110.00	15000		
15.50		77.00	15500	110.00	15500		
16.00		77.00	16000	110.00	16000		

1) Without transverse grooves

Collets

Designation	d DGUI mm	D DFC mm	A DCLC mm	l LCLC mm	L_1 OAL mm	K°
145 E / F 25	25	35	27	10	77	16



145 E / F 25

d_1 DCONWS mm	d_1 inch	Grooved 145 E / F 25 NEW Y8 Article no. 81 015 ... £		Smooth 145 E / F 25 NEW Y8 Article no. 81 017 ... £		Grooved 145 E / F 25 NEW Y8 Article no. 81 027 ... £		Grooved 145 E / F 25 NEW Y8 Article no. 81 029 ... £	
1,500				129.00	01500				
1,501 - 1,999				151.00	xxxxx 2)				
2,000				129.00	02000	432.00	02000 1)	546.00	02000 1)
2,001 - 2,499				151.00	xxxxx 2)				
2,500				129.00	02500				
2,501 - 2,999				151.00	xxxxx 2)				
3,000				92.00	03000	332.00	03000 1)	272.00	03000 1)
3,001 - 3,499				151.00	xxxxx 2)				
3,500				92.00	03500				
3,501 - 3,999				151.00	xxxxx 2)				
4,000				92.00	04000	257.00	04000 1)	196.00	04000 1)
4,001 - 4,499				151.00	xxxxx 2)				
4,500				92.00	04500				
4,501 - 4,999				151.00	xxxxx 2)				
5,000				92.00	05000	196.00	05000 1)	196.00	05000 1)
5,001 - 5,499				151.00	xxxxx 2)				
5,500				92.00	05500				
5,501 - 5,999				151.00	xxxxx 2)				
6,000		92.00	06000	125.00	06000	196.00	06000 1)	196.00	06000 1)
6,001 - 6,349		151.00	xxxxx 2)						
6,350	1/4	151.00	06350	125.00	06350	265.00	06350 1)		
6,351 - 6,499		151.00	xxxxx 2)						
6,500		92.00	06500	125.00	06500				
6,501 - 6,999		151.00	xxxxx 2)						
7,000		92.00	07000	125.00	07000	152.00	07000 1)	152.00	07000 1)
7,001 - 7,499		151.00	xxxxx 2)						
7,500		92.00	07500	125.00	07500				
7,501 - 7,937		151.00	xxxxx 2)						
7,938	5/16	151.00	07938	125.00	07938				
7,939 - 7,999		151.00	xxxxx 2)						
8,000		92.00	08000	125.00	08000	152.00	08000	152.00	08000
8,001 - 8,499		151.00	xxxxx 2)						
8,500		92.00	08500	125.00	08500				
8,501 - 8,999		151.00	xxxxx 2)						
9,000		92.00	09000	125.00	09000	152.00	09000	152.00	09000
9,001 - 9,499		151.00	xxxxx 2)						
9,500		92.00	09500	125.00	09500				
9,501 - 9,999		151.00	xxxxx 2)						
10,000		92.00	10000	125.00	10000	152.00	10000	152.00	10000
10,001 - 10,499		151.00	xxxxx 2)						
10,500		92.00	10500	125.00	10500				
10,501 - 10,999		151.00	xxxxx 2)						
11,000		92.00	11000	125.00	11000	152.00	11000	152.00	11000

1) Without transverse grooves
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 015 **06789**).

Continued on next page

145 E / F 25

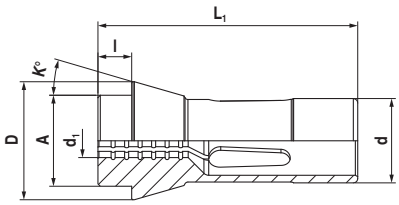
d_1 DCONWS mm	d_1 inch	Grooved 145 E / F 25 NEW Y8 Article no. 81 015 ... £		Smooth 145 E / F 25 NEW Y8 Article no. 81 017 ... £		Grooved 145 E / F 25 NEW Y8 Article no. 81 027 ... £		Grooved 145 E / F 25 NEW Y8 Article no. 81 029 ... £	
11,001 - 11,112		151.00	xxxxx 2)						
11,113	7/16	151.00	11113	125.00	11113				
11,114 - 11,499		151.00	xxxxx 2)						
11,500		92.00	11500	125.00	11500				
11,501 - 11,999		151.00	xxxxx 2)						
12,000		92.00	12000	125.00	12000	152.00	12000	152.00	12000
12,001 - 12,499		151.00	xxxxx 2)						
12,500		92.00	12500	125.00	12500				
12,501 - 12,699		151.00	xxxxx 2)						
12,700	1/2	151.00	12700	125.00	12700	152.00	12700		
12,701 - 12,999		151.00	xxxxx 2)						
13,000		92.00	13000	125.00	13000	152.00	13000	152.00	13000
13,001 - 13,499		151.00	xxxxx 2)						
13,500		92.00	13500	125.00	13500				
13,501 - 13,999		151.00	xxxxx 2)						
14,000		92.00	14000	125.00	14000	152.00	14000	152.00	14000
14,001 - 14,499		151.00	xxxxx 2)						
14,500		92.00	14500	125.00	14500				
14,501 - 14,999		151.00	xxxxx 2)						
15,000		92.00	15000	125.00	15000	152.00	15000	272.00	15000
15,001 - 15,499		151.00	xxxxx 2)						
15,500		92.00	15500	125.00	15500				
15,501 - 15,999		151.00	xxxxx 2)						
16,000		92.00	16000	125.00	16000	152.00	16000		
16,001 - 16,499		151.00	xxxxx 2)						
16,500		92.00	16500	125.00	16500				
16,501 - 16,999		151.00	xxxxx 2)						
17,000		92.00	17000	125.00	17000	152.00	17000		
17,001 - 17,499		151.00	xxxxx 2)						
17,500		92.00	17500	125.00	17500				
17,501 - 17,999		151.00	xxxxx 2)						
18,000		92.00	18000	125.00	18000	332.00	18000		
18,001 - 18,499		151.00	xxxxx 2)						
18,500		92.00	18500	125.00	18500				
18,501 - 18,999		151.00	xxxxx 2)						
19,000		92.00	19000	125.00	19000	332.00	19000		
19,001 - 19,049		151.00	xxxxx 2)						
19,050	3/4	151.00	19050						
19,051 - 19,499		151.00	xxxxx 2)						
19,500		92.00	19500	125.00	19500				
19,501 - 19,999		151.00	xxxxx 2)						
20,000		92.00	20000	125.00	20000				

1) Without transverse grooves
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 015 **06789**).

Collets

Designation	d DGUI mm	D DFC mm	A DCLC mm	l LCLC mm	L_1 OAL mm	K°
F 37 / 1536 E	37	47	40	10	92	16



F 37 / 1536 E

d_1 DCONWS mm	d_1 inch	Grooved F 37 / 1536 E NEW Y8 Article no. 81 023 ... £		Smooth F 37 / 1536 E NEW Y8 Article no. 81 025 ... £		Grooved F 37 / 1536 E NEW Y8 Article no. 81 028 ... £		Grooved F 37 / 1536 E NEW Y8 Article no. 81 030 ... £	
1,000				179.00	01000				
1,001 - 1,499				189.00	xxxxx 2)				
1,500				179.00	01500				
1,501 - 1,999				189.00	xxxxx 2)				
2,000				179.00	02000				
2,001 - 2,499				189.00	xxxxx 2)				
2,500				179.00	02500				
2,501 - 2,999				189.00	xxxxx 2)				
3,000				129.00	03000	415.00	03000 1)	332.00	03000 1)
3,001 - 3,499				189.00	xxxxx 2)				
3,500				129.00	03500				
3,501 - 3,999				189.00	xxxxx 2)				
4,000				129.00	04000	213.00	04000 1)	332.00	04000 1)
4,001 - 4,499				189.00	xxxxx 2)				
4,500				129.00	04500				
4,501 - 4,999				189.00	xxxxx 2)				
5,000				129.00	05000	213.00	05000 1)	332.00	05000 1)
5,001 - 5,499				189.00	xxxxx 2)				
5,500				129.00	05500				
5,501 - 5,999				189.00	xxxxx 2)				
6,000		129.00	06000	162.00	06000	213.00	06000 1)	332.00	06000 1)
6,001 - 6,349		189.00	xxxxx 2)						
6,350	1/4	189.00	06350	162.00	06350	281.00	06350 1)	332.00	06350 1)
6,351 - 6,499		189.00	xxxxx 2)						
6,500		129.00	06500	162.00	06500				
6,501 - 6,999		189.00	xxxxx 2)						
7,000		129.00	07000	162.00	07000	213.00	07000 1)	332.00	07000 1)
7,001 - 7,499		189.00	xxxxx 2)						
7,500		129.00	07500	162.00	07500				
7,501 - 7,999		189.00	xxxxx 2)						
8,000		129.00	08000	162.00	08000	213.00	08000	332.00	08000
8,001 - 8,499		189.00	xxxxx 2)						
8,500		129.00	08500	162.00	08500				
8,501 - 8,999		189.00	xxxxx 2)						
9,000		129.00	09000	162.00	09000	213.00	09000	332.00	09000
9,001 - 9,499		189.00	xxxxx 2)						
9,500		129.00	09500	162.00	09500				
9,501 - 9,524		189.00	xxxxx 2)						
9,525	3/8	189.00	09525						
9,526 - 9,999		189.00	xxxxx 2)						
10,000		129.00	10000	162.00	10000	213.00	10000	332.00	10000
10,001 - 10,499		189.00	xxxxx 2)						
10,500		129.00	10500	162.00	10500				

1) Without transverse grooves
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 023 **06789**).

Continued on next page

F 37 / 1536 E

d_1 DCONWS mm	d_1 inch	Grooved F 37 / 1536 E NEW Y8 Article no. 81 023 ... £		Smooth F 37 / 1536 E NEW Y8 Article no. 81 025 ... £		Grooved F 37 / 1536 E NEW Y8 Article no. 81 028 ... £		Grooved F 37 / 1536 E NEW Y8 Article no. 81 030 ... £	
10,501 - 10,999		189.00	xxxxx 2)						
11,000		129.00	11000	162.00	11000	213.00	11000	332.00	11000
11,001 - 11,499		189.00	xxxxx 2)						
11,500		129.00	11500	162.00	11500				
11,501 - 11,999		189.00	xxxxx 2)						
12,000		129.00	12000	162.00	12000	213.00	12000	332.00	12000
12,001 - 12,499		189.00	xxxxx 2)						
12,500		129.00	12500	162.00	12500				
12,501 - 12,699		189.00	xxxxx 2)						
12,700	1/2	189.00	12700	162.00	12700	281.00	12700	332.00	12700
12,701 - 12,999		189.00	xxxxx 2)						
13,000		129.00	13000	162.00	13000	213.00	13000	332.00	13000
13,001 - 13,499		189.00	xxxxx 2)						
13,500		129.00	13500	162.00	13500				
13,501 - 13,999		189.00	xxxxx 2)						
14,000		129.00	14000	162.00	14000	213.00	14000	332.00	14000
14,001 - 14,499		189.00	xxxxx 2)						
14,500		129.00	14500	162.00	14500				
14,501 - 14,999		189.00	xxxxx 2)						
15,000		129.00	15000	162.00	15000	213.00	15000	332.00	15000
15,001 - 15,499		189.00	xxxxx 2)						
15,500		129.00	15500	162.00	15500				
15,501 - 15,999		189.00	xxxxx 2)						
16,000		129.00	16000	162.00	16000	213.00	16000	332.00	16000
16,001 - 16,499		189.00	xxxxx 2)						
16,500		129.00	16500	162.00	16500				
16,501 - 16,999		189.00	xxxxx 2)						
17,000		129.00	17000	162.00	17000	213.00	17000	332.00	17000
17,001 - 17,499		189.00	xxxxx 2)						
17,500		129.00	17500	162.00	17500				
17,501 - 17,999		189.00	xxxxx 2)						
18,000		129.00	18000	162.00	18000	213.00	18000	332.00	18000
18,001 - 18,499		189.00	xxxxx 2)						
18,500		129.00	18500	162.00	18500				
18,501 - 18,999		189.00	xxxxx 2)						
19,000		129.00	19000	162.00	19000	213.00	19000	332.00	19000
19,001 - 19,049		189.00	xxxxx 2)						
19,050	3/4	189.00	19050	162.00	19050				
19,051 - 19,499		189.00	xxxxx 2)						
19,500		129.00	19500	162.00	19500				
19,501 - 19,999		189.00	xxxxx 2)						
20,000		129.00	20000	162.00	20000	213.00	20000	332.00	20000
20,001 - 20,499		189.00	xxxxx 2)						
20,500		129.00	20500	162.00	20500				
20,501 - 20,999		189.00	xxxxx 2)						
21,000		129.00	21000	162.00	21000	213.00	21000	332.00	21000
21,001 - 21,499		189.00	xxxxx 2)						
21,500		129.00	21500	162.00	21500				
21,501 - 21,999		189.00	xxxxx 2)						
22,000		129.00	22000	162.00	22000	213.00	22000	332.00	22000
22,001 - 22,224		189.00	xxxxx 2)						
22,225	7/8	189.00	22225						
22,226 - 22,499		189.00	xxxxx 2)						

1) Without transverse grooves
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 023 **06789**).

Continued on next page

F 37 / 1536 E

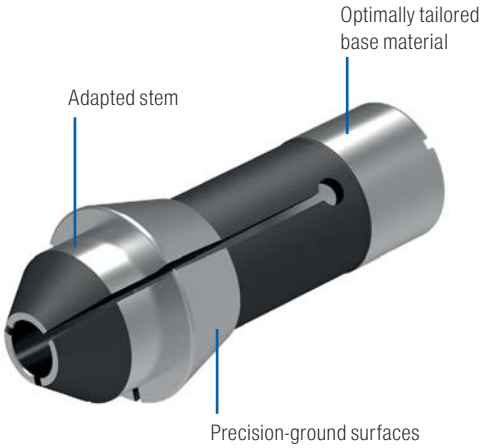
d_1 DCONWS mm	d_1 inch	Grooved F 37 / 1536 E NEW Y8 Article no. 81 023 ... £		Smooth F 37 / 1536 E NEW Y8 Article no. 81 025 ... £		Grooved F 37 / 1536 E NEW Y8 Article no. 81 028 ... £		Grooved F 37 / 1536 E NEW Y8 Article no. 81 030 ... £	
22,500		162.00	22500	129.00	22500				
22,501 - 22,999		189.00	xxxxx 2)						
23,000		162.00	23000	129.00	23000	213.00	23000	332.00	23000
23,001 - 23,499		189.00	xxxxx 2)						
23,500		162.00	23500	129.00	23500				
23,501 - 23,999		189.00	xxxxx 2)						
24,000		162.00	24000	129.00	24000	213.00	24000		
24,001 - 24,499		189.00	xxxxx 2)						
24,500		162.00	24500	129.00	24500				
24,501 - 24,999		189.00	xxxxx 2)						
25,000		129.00	25000	162.00	25000	213.00	25000		
25,001 - 25,499		189.00	xxxxx 2)						
25,400	1/1					281.00	25400		
25,500		129.00	25500	162.00	25500				
25,501 - 25,999		189.00	xxxxx 2)						
26,000		129.00	26000	162.00	26000	213.00	26000		
26,001 - 26,499		189.00	xxxxx 2)						
26,500		129.00	26500	162.00	26500				
26,501 - 26,999		189.00	xxxxx 2)						
27,000		129.00	27000	162.00	27000	213.00	27000		
27,001 - 27,499		189.00	xxxxx 2)						
27,500		129.00	27500	162.00	27500				
27,501 - 27,999		189.00	xxxxx 2)						
28,000		129.00	28000	162.00	28000				
28,001 - 28,499		189.00	xxxxx 2)						
28,500		129.00	28500	162.00	28500				
28,501 - 28,999		189.00	xxxxx 2)						
29,000		129.00	29000	162.00	29000				
29,001 - 29,499		189.00	xxxxx 2)						
29,500		129.00	29500	162.00	29500				
29,501 - 29,999		189.00	xxxxx 2)						
30,000		129.00	30000	162.00	30000				
30,001 - 30,499		189.00	xxxxx 2)						
30,500		129.00	30500	162.00	30500				
30,501 - 30,999		189.00	xxxxx 2)						
31,000		129.00	31000	162.00	31000				
31,001 - 31,499		189.00	xxxxx 2)						
31,500		129.00	31500	162.00	31500				
31,501 - 31,999		189.00	xxxxx 2)						
32,000		129.00	32000	162.00	32000				

1) Without transverse grooves
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 023 **06789**).

Highlights

- Precision "Made in Germany"
  Reliable quality
- Available in increments of 1/100
  Maximum flexibility
- Smooth bore version
  No marking of the workpiece
- All relevant surfaces are "precision-ground"
  Increases component accuracy
- Adapted stem
  Maximum stability with minimal risk of collisions



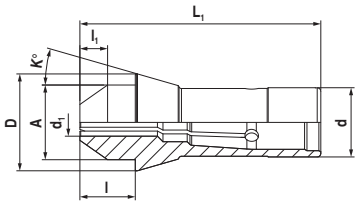
Stem collets overview

Norm	Clamping diameter range in mm	Profile	Version	Pages
116E	Ø 1,0 – 8,0	●	Smooth	13
120E	Ø 1,0 – 8,0	●	Smooth	13
F16	Ø 1,0 – 9,0	●	Smooth	13
138E	Ø 1,0 – 12,0	●	Smooth	13
136E	Ø 1,0 – 14,0	●	Smooth	14
145E	Ø 1,0 – 20,0	●	Smooth	14
F37	Ø 1,0 – 28,0	●	Smooth	14

Other profile shapes and sizes and extended options available on request.

Stem collets

Designation	d DGUI mm	D DFC mm	A DCLC mm	l LCLC mm	L_1 OAL mm	K°	l_1 LFSF mm
116 E / F 13	13	19	13	12	70	16	6
120 E / F 15	15	21	15	13	71	16	7
120 E / F 15	15	21	15	15	73	16	9
F 16 / 1212 E	16	21	16	13	71	16	7
F 16 / 1212 E	16	21	16	15	73	16	9
138 E / F20-87	20	28	21	15	78	16	8
138 E / F20-87	20	28	21	20	80	16	13



116 E / F 13

d_1 DCONWS mm	Smooth 116 E / F 13 NEW Y8 Article no. 81 001 ... £	
1	391.00	01000
2	391.00	02000
3	355.00	03000
4	355.00	04000
5	355.00	05000
6	355.00	06000
7	355.00	07000

120 E / F 15

d_1 DCONWS mm	Smooth 120 E / F 15 l_1 = 7 mm NEW Y8 Article no. 81 004 ... £		Smooth 120 E / F 15 l_1 = 9 mm NEW Y8 Article no. 81 006 ... £	
1	393.00	01000	393.00	01000
2	393.00	02000	393.00	02000
3	360.00	03000	360.00	03000
4	360.00	04000	360.00	04000
5	360.00	05000	360.00	05000
6	360.00	06000	360.00	06000
7	360.00	07000	360.00	07000
8	360.00	08000	360.00	08000

F 16 / 1212 E

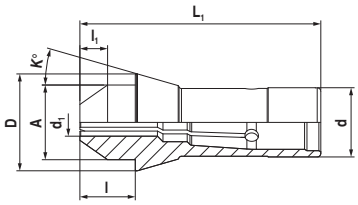
d_1 DCONWS mm	Smooth F 16 / 1212 E l_1 = 7 mm NEW Y8 Article no. 81 020 ... £		Smooth F 16 / 1212 E l_1 = 9 mm NEW Y8 Article no. 81 022 ... £	
1	393.00	01000	393.00	01000
2	393.00	02000	393.00	02000
3	360.00	03000	360.00	03000
4	360.00	04000	360.00	04000
5	360.00	05000	469.00	05000
6	360.00	06000	469.00	06000
7	360.00	07000	469.00	07000
8	360.00	08000	360.00	08000
9	360.00	09000	469.00	09000

138 E / F20-87

d_1 DCONWS mm	Smooth 138 E / F20-87 l_1 = 8 mm NEW Y8 Article no. 81 012 ... £		Smooth 138 E / F20-87 l_1 = 13 mm NEW Y8 Article no. 81 014 ... £	
1	471.00	01000	471.00	01000
2	471.00	02000	471.00	02000
3	439.00	03000	439.00	03000
4	439.00	04000	439.00	04000
5	439.00	05000	439.00	05000
6	439.00	06000	439.00	06000
7	439.00	07000	439.00	07000
8	439.00	08000	439.00	08000
9	439.00	09000	439.00	09000
10	439.00	10000	439.00	10000
11	439.00	11000	439.00	11000
12	439.00	12000	439.00	12000

Stem collets

Designation	d DGUI mm	D DFC mm	A DCLC mm	l LCLC mm	L_1 OAL mm	K°	l_1 LFSF mm
136 E / F 20-201	20	26	19	13	62	15	8
136 E / F 20-201	20	26	19	15	64	15	10
145 E / F 25	25	35	27	20	87	16	10
145 E / F 25	25	35	27	25	92	16	15
F 37 / 1536 E	37	47	40	25	107	16	15



136 E / F 20-201

d_1 DCONWS mm	Smooth 136 E / F 20-201 l_1 = 8 mm NEW Y8 Article no. 81 008 ... £		Smooth 136 E / F 20-201 l_1 = 10 mm NEW Y8 Article no. 81 010 ... £	
1	471.00	01000	471.00	01000
2	471.00	02000	471.00	02000
3	439.00	03000	439.00	03000
4	439.00	04000	439.00	04000
5	439.00	05000	439.00	05000
6	471.00	06000	439.00	06000
7	471.00	07000	439.00	07000
8	439.00	08000	439.00	08000
9	439.00	09000	439.00	09000
10	439.00	10000	439.00	10000
11	439.00	11000	439.00	11000
12	439.00	12000	439.00	12000
13			439.00	13000
14			439.00	14000

145 E / F 25

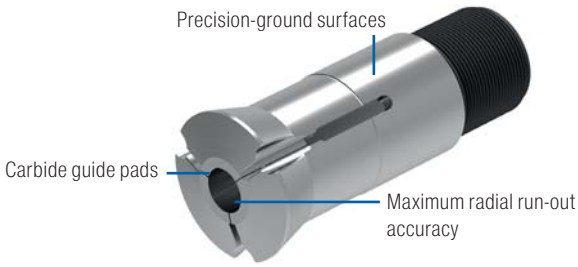
d_1 DCONWS mm	Smooth 145 E / F 25 l_1 = 10 mm NEW Y8 Article no. 81 016 ... £		Smooth 145 E / F 25 l_1 = 15 mm NEW Y8 Article no. 81 018 ... £	
1	471.00	01000	471.00	01000
2	471.00	02000	471.00	02000
3	439.00	03000	439.00	03000
4	439.00	04000	439.00	04000
5	439.00	05000	439.00	05000
6	439.00	06000	439.00	06000
7	439.00	07000	439.00	07000
8	439.00	08000	439.00	08000
9	439.00	09000	439.00	09000
10	439.00	10000	439.00	10000
11	439.00	11000	439.00	11000
12	439.00	12000	439.00	12000
13	439.00	13000	439.00	13000
14	439.00	14000	439.00	14000
15	439.00	15000	439.00	15000
16	439.00	16000	439.00	16000
17	439.00	17000	439.00	17000
18	439.00	18000	439.00	18000
19	439.00	19000	439.00	19000
20	439.00	20000	439.00	20000

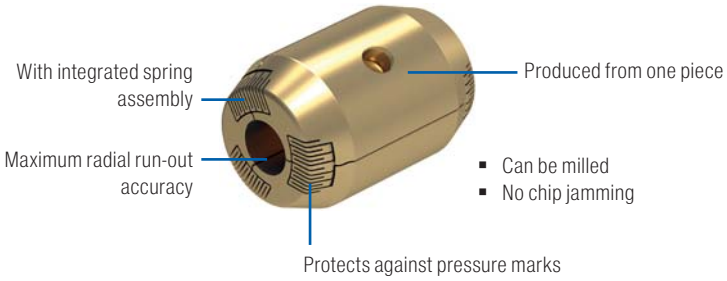
F 37 / 1536 E

d_1 DCONWS mm	Smooth F 37 / 1536 E NEW Y8 Article no. 81 024 ... £	
1	527.00	01000
2	527.00	02000
3	451.00	03000
4	451.00	04000
5	451.00	05000
6	451.00	06000
7	451.00	07000
8	451.00	08000
9	451.00	09000
10	451.00	10000
11	451.00	11000
12	451.00	12000
13	505.00	13000
14	451.00	14000
15	451.00	15000
16	451.00	16000
17	451.00	17000
18	451.00	18000
19	451.00	19000
20	451.00	20000
21	451.00	21000
22	451.00	22000
23	451.00	23000
24	451.00	24000
25	451.00	25000
26	451.00	26000
27	451.00	27000
28	451.00	28000

Highlights

- Precision "Made in Germany"
  Reliable quality
- Industry standard with carbide pads
  Longer service life
- Available in round, square or hexagonal versions
  Adapted to the material
- All relevant surfaces are "precision-ground"
  Increases component accuracy
- Optimally adjustable according to the bar
  Ensures maximum component accuracies





Adjustable guide bushes overview

Norm	Guide diameter range in mm	Profile	Version	Pages
I353	Ø 1,0 – 10,5	●	Carbide insert	16
F853	Ø 1,0 – 13,0	●	Carbide insert	17
F391	Ø 1,0 – 18,0	●	Carbide insert	18
F605	Ø 1,0 – 17,0	●	Carbide insert	19
T223	Ø 1,0 – 22,0	●	Carbide insert	20
I357	Ø 2,0 – 22,0	●	Carbide insert	21
T227	Ø 1,0 – 25,0	●	Carbide insert	22
T229	Ø 2,0 – 32,0	●	Carbide insert	23
T223	SW 2,0 – 11,0	⬢	Carbide insert	20
T229	SW 2,0 – 14,0	⬢	Carbide insert	23
T223	SW 2,0 – 15,0	■	Carbide insert	20

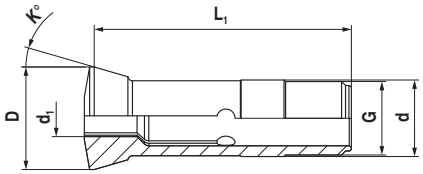
Flexible GBE guide bushes overview

GBE 28	Ø 2,0 – 15,0	●		24
GBE 42	Ø 2,0 – 15,0	●		24

Other profile shapes and sizes and extended options available on request.

Adjustable guide bushes

Designation	d DGUI mm	D DFC mm	L_1 OAL mm	K°	G THOD
I 353	16	19.5	59	16	M14 x 1



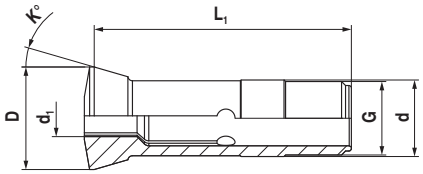
I 353

- For Star* CNC sliding head lathes
- With carbide insert

d_1 DCONWS mm	I 353 NEW Y8 Article no. 81 035 ... £	
1.0	231.00	01000
1.5	213.00	01500
2.0	213.00	02000
2.5	213.00	02500
3.0	213.00	03000
3.5	213.00	03500
4.0	213.00	04000
4.5	170.00	04500
5.0	170.00	05000
5.5	189.00	05500
6.0	189.00	06000
6.5	201.00	06500
7.0	201.00	07000
7.5	213.00	07500
8.0	213.00	08000
8.5	219.00	08500
9.0	219.00	09000
9.5	228.00	09500
10.0	228.00	10000
10.5	236.00	10500

Adjustable guide bushes

Designation	d DGUI mm	D DFC mm	L_1 OAL mm	K°	G THOD
F 853	18	22	60	30	M16 x 1



F 853

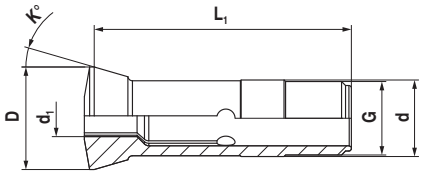
- With carbide insert

F 853

d_1 DCONWS mm	NEW Y8 Article no. 81 034 ... £	
1.0	231.00	01000
1.5	213.00	01500
2.0	213.00	02000
2.5	213.00	02500
3.0	213.00	03000
3.5	213.00	03500
4.0	213.00	04000
4.5	170.00	04500
5.0	170.00	05000
5.5	189.00	05500
6.0	189.00	06000
6.5	201.00	06500
7.0	201.00	07000
7.5	213.00	07500
8.0	213.00	08000
8.5	219.00	08500
9.0	219.00	09000
9.5	228.00	09500
10.0	228.00	10000
10.5	236.00	10500
11.0	236.00	11000
11.5	247.00	11500
12.0	247.00	12000
12.5	258.00	12500
13.0	258.00	13000

Adjustable guide bushes

Designation	d DGUI mm	D DFC mm	L_1 OAL mm	K°	G THOD
F 391	22	29	68	16	M22 x 1



F 391

- With carbide insert

F 391

d_1 DCONWS mm	d_1 inch	NEW Y8 Article no. 81 032 ... £	
1,000		258.00	01000
1,001 - 1,499		265.76	xxxxx 1)
1,500		218.00	01500
1,501 - 1,999		265.76	xxxxx 1)
2,000		218.00	02000
2,001 - 2,499		265.76	xxxxx 1)
2,500		175.00	02500
2,501 - 2,999		265.76	xxxxx 1)
3,000		175.00	03000
3,001 - 3,499		265.76	xxxxx 1)
3,500		166.00	03500
3,501 - 3,999		265.76	xxxxx 1)
4,000		166.00	04000
4,001 - 4,499		265.76	xxxxx 1)
4,500		177.00	04500
4,501 - 4,999		265.76	xxxxx 1)
5,000		177.00	05000
5,001 - 5,499		265.76	xxxxx 1)
5,500		196.00	05500
5,501 - 5,999		265.76	xxxxx 1)
6,000		196.00	06000
6,001 - 6,349		265.76	xxxxx 1)
6,350	1/4	265.76	06350
6,351 - 6,499		265.76	xxxxx 1)
6,500		202.00	06500
6,501 - 6,999		265.76	xxxxx 1)
7,000		202.00	07000
7,001 - 7,499		265.76	xxxxx 1)
7,500		218.00	07500
7,501 - 7,999		265.76	xxxxx 1)
8,000		218.00	08000
8,001 - 8,499		265.76	xxxxx 1)
8,500		228.00	08500
8,501 - 8,999		265.76	xxxxx 1)
9,000		228.00	09000
9,001 - 9,499		265.76	xxxxx 1)
9,500		236.00	09500
9,501 - 9,999		265.76	xxxxx 1)
10,000		236.00	10000
10,001 - 10,499		265.76	xxxxx 1)
10,500		245.00	10500
10,501 - 10,999		265.76	xxxxx 1)
11,000		245.00	11000
11,001 - 11,499		265.76	xxxxx 1)
11,500		253.00	11500
11,501 - 11,999		265.76	xxxxx 1)
12,000		253.00	12000

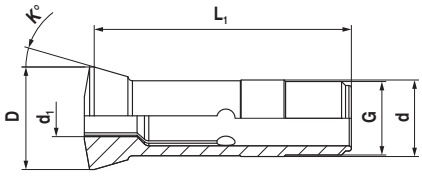
d_1 DCONWS mm	d_1 inch	NEW Y8 Article no. 81 032 ... £	
12,001 - 12,499		265.76	xxxxx 1)
12,500		275.00	12500
12,501 - 12,699		265.76	xxxxx 1)
12,700	1/2	342.40	12700
12,701 - 12,999		342.40	xxxxx 1)
13,000		275.00	13000
13,001 - 13,499		342.40	xxxxx 1)
13,500		282.00	13500
13,501 - 13,999		342.40	xxxxx 1)
14,000		282.00	14000
14,001 - 14,499		342.40	xxxxx 1)
14,500		298.00	14500
14,501 - 14,999		342.40	xxxxx 1)
15,000		298.00	15000
15,001 - 15,499		342.40	xxxxx 1)
15,500		321.00	15500
15,501 - 15,999		342.40	xxxxx 1)
16,000		321.00	16000
16,001 - 16,499		342.40	xxxxx 1)
16,500		335.00	16500
16,501 - 16,999		342.40	xxxxx 1)
17,000		335.00	17000
17,001 - 17,499		342.40	xxxxx 1)
17,500		352.00	17500
17,501 - 17,999		342.40	xxxxx 1)
18,000		352.00	18000

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 032 **06789**).

Adjustable guide bushes

Designation	d DGUI mm	D DFC mm	L_1 OAL mm	K°	G THOD
F 605	24	29.5	61	30	M24 x 1



F 605

- With carbide insert

F 605

d_1 DCONWS mm	d_1 inch	NEW Y8 Article no. 81 033 ... £	
1,000		581.00	01000
1,001 - 1,499		246.24	xxxxx 1)
1,500		218.00	01500
1,501 - 1,999		246.24	xxxxx 1)
2,000		218.00	02000
2,001 - 2,499		246.24	xxxxx 1)
2,500		175.00	02500
2,501 - 2,999		246.24	xxxxx 1)
3,000		175.00	03000
3,001 - 3,174		246.24	xxxxx 1)
3,175	1/8	246.24	03175
3,176 - 3,499		246.24	xxxxx 1)
3,500		166.00	03500
3,501 - 3,999		246.24	xxxxx 1)
4,000		166.00	04000
4,001 - 4,499		246.24	xxxxx 1)
4,500		177.00	04500
4,501 - 4,762		246.24	xxxxx 1)
4,763	3/16	247.84	04763
4,764 - 4,999		247.84	xxxxx 1)
5,000		177.00	05000
5,001 - 5,499		247.84	xxxxx 1)
5,500		196.00	05500
5,501 - 5,999		247.84	xxxxx 1)
6,000		196.00	06000
6,001 - 6,349		247.84	xxxxx 1)
6,350	1/4	265.76	06350
6,351 - 6,499		265.76	xxxxx 1)
6,500		202.00	06500
6,501 - 6,999		265.76	xxxxx 1)
7,000		202.00	07000
7,001 - 7,499		265.76	xxxxx 1)
7,500		218.00	07500
7,501 - 7,999		265.76	xxxxx 1)
8,000		218.00	08000
8,001 - 8,499		265.76	xxxxx 1)
8,500		228.00	08500
8,501 - 8,999		265.76	xxxxx 1)
9,000		228.00	09000
9,001 - 9,499		265.76	xxxxx 1)
9,500		236.00	09500
9,501 - 9,999		265.76	xxxxx 1)
10,000		236.00	10000
10,001 - 10,499		265.76	xxxxx 1)
10,500		245.00	10500
10,501 - 10,999		265.76	xxxxx 1)
11,000		245.00	11000
11,001 - 11,499		265.76	xxxxx 1)
11,500		253.00	11500
11,501 - 11,999		265.76	xxxxx 1)
12,000		253.00	12000
12,001 - 12,499		265.76	xxxxx 1)
12,500		275.00	12500
12,501 - 12,699		265.76	xxxxx 1)
12,700	1/2	342.40	12700
12,701 - 12,999		342.40	xxxxx 1)
13,000		275.00	13000
13,001 - 13,499		342.40	xxxxx 1)
13,500		282.00	13500
13,501 - 13,999		342.40	xxxxx 1)
14,000		282.00	14000
14,001 - 14,499		342.40	xxxxx 1)
14,500		298.00	14500
14,501 - 14,999		342.40	xxxxx 1)
15,000		298.00	15000
15,001 - 15,499		342.40	xxxxx 1)
15,500		321.00	15500
15,501 - 15,999		342.40	xxxxx 1)
16,000		321.00	16000
16,001 - 16,499		342.40	xxxxx 1)
16,500		335.00	16500
16,501 - 16,999		342.40	xxxxx 1)
17,000		335.00	17000

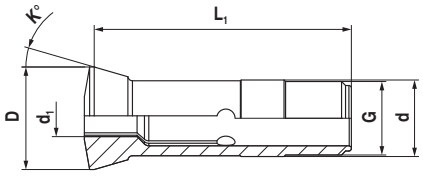
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 033 **06789**).

5

Adjustable guide bushes

Designation	d DGUI mm	D DFC mm	L_1 OAL mm	K°	G THOD
T 223	28	34	82	16	M25 x 1



T 223

- With carbide insert

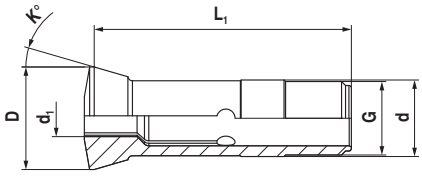
d_1 DCONWS mm	d_1 inch	T 223 NEW Y8 Article no. 81 037 ... £		T 223 NEW Y8 Article no. 81 038 ... £		T 223 NEW Y8 Article no. 81 039 ... £	
1,000		581.00	01000				
1,001 - 1,499		265.76	xxxxx 1)				
1,500		294.00	01500				
1,501 - 1,999		265.76	xxxxx 1)				
2,000		218.00	02000				
2,001 - 2,499		265.76	xxxxx 1)				
2,500		175.00	02500				
2,501 - 2,999		265.76	xxxxx 1)				
3,000		175.00	03000	379.00	03000	566.00	03000
3,001 - 3,499		265.76	xxxxx 1)				
3,500		166.00	03500				
3,501 - 3,999		265.76	xxxxx 1)				
4,000		166.00	04000	371.00	04000	558.00	04000
4,001 - 4,499		265.76	xxxxx 1)				
4,500		177.00	04500				
4,501 - 4,999		265.76	xxxxx 1)				
5,000		177.00	05000	340.00	05000	525.00	05000
5,001 - 5,499		265.76	xxxxx 1)				
5,500		196.00	05500				
5,501 - 5,999		265.76	xxxxx 1)				
6,000		196.00	06000	376.00	06000	563.00	06000
6,001 - 6,349		265.76	xxxxx 1)				
6,350	1/4	265.76	06350	445.00	06350	632.00	06350
6,351 - 6,499		265.76	xxxxx 1)				
6,500		202.00	06500				
6,501 - 6,999		265.76	xxxxx 1)				
7,000		202.00	07000	394.00	07000	581.00	07000
7,001 - 7,499		265.76	xxxxx 1)				
7,500		218.00	07500				
7,501 - 7,999		265.76	xxxxx 1)				
7,938	5/16			481.00	07938		
8,000		218.00	08000	423.00	08000	609.00	08000
8,001 - 8,499		265.76	xxxxx 1)				
8,500		228.00	08500				
8,501 - 8,999		265.76	xxxxx 1)				
9,000		228.00	09000	439.00	09000	626.00	09000
9,001 - 9,499		265.76	xxxxx 1)				
9,500		236.00	09500				
9,501 - 9,999		265.76	xxxxx 1)				
9,525	3/8			512.00	09525		
10,000		236.00	10000	454.00	10000	641.00	10000
10,001 - 10,499		265.76	xxxxx 1)				
10,500		245.00	10500				
10,501 - 10,999		265.76	xxxxx 1)				
11,000		245.00	11000	471.00	11000	658.00	11000
11,001 - 11,499		265.76	xxxxx 1)				
11,500		253.00	11500				
11,501 - 11,999		265.76	xxxxx 1)				
12,000		253.00	12000	491.00	12000	677.00	12000
12,001 - 12,499		265.76	xxxxx 1)				
12,500		275.00	12500				
12,501 - 12,699		265.76	xxxxx 1)				
12,700	1/2	342.40	12700	581.00	12700		
12,701 - 12,999		342.40	xxxxx 1)				
13,000		275.00	13000	524.00	13000	711.00	13000
13,001 - 13,499		342.40	xxxxx 1)				
13,500		282.00	13500				
13,501 - 13,999		342.40	xxxxx 1)				
14,000		282.00	14000	537.00	14000	723.00	14000
14,001 - 14,499		342.40	xxxxx 1)				
14,500		298.00	14500				
14,501 - 14,999		342.40	xxxxx 1)				
15,000		298.00	15000	559.00	15000		
15,001 - 15,499		342.40	xxxxx 1)				
15,500		321.00	15500				
15,501 - 15,999		342.40	xxxxx 1)				
16,000		321.00	16000	588.00	16000		
16,001 - 16,499		342.40	xxxxx 1)				
16,500		335.00	16500				
16,501 - 16,999		342.40	xxxxx 1)				
17,000		335.00	17000	610.00	17000		
17,001 - 17,499		342.40	xxxxx 1)				
17,500		352.00	17500				
17,501 - 17,999		342.40	xxxxx 1)				
18,000		352.00	18000				
18,001 - 18,499		342.40	xxxxx 1)				
18,500		367.00	18500				
18,501 - 18,999		342.40	xxxxx 1)				
19,000		367.00	19000				
19,001 - 19,499		342.40	xxxxx 1)				
19,500		374.00	19500				
19,501 - 19,999		342.40	xxxxx 1)				
20,000		374.00	20000				
20,001 - 20,499		342.40	xxxxx 1)				
20,500		396.00	20500				
20,501 - 20,999		342.40	xxxxx 1)				
21,000		396.00	21000				
21,001 - 21,499		342.40	xxxxx 1)				
21,500		411.00	21500				
21,501 - 21,999		342.40	xxxxx 1)				
22,000		566.00	22000				

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 037 **06789**).

Adjustable guide bushes

Designation	d DGUI mm	D DFC mm	L_1 OAL mm	K°	G THOD
I 357	28	38	81	30	M25 x 1



I 357

- With carbide insert

I 357

d_1 DCONWS mm	d_1 inch	NEW Y8 Article no. 81 036 ... £	
2,000		218.00	02000
2,001 - 2,499		246.24	xxxxx 1)
2,500		218.00	02500
2,501 - 2,999		246.24	xxxxx 1)
3,000		175.00	03000
3,001 - 3,174		246.24	xxxxx 1)
3,175	1/8	246.24	03175
3,176 - 3,499		246.24	xxxxx 1)
3,500		166.00	03500
3,501 - 3,999		246.24	xxxxx 1)
4,000		166.00	04000
4,001 - 4,499		246.24	xxxxx 1)
4,500		177.00	04500
4,501 - 4,999		246.24	xxxxx 1)
5,000		177.00	05000
5,001 - 5,499		246.24	xxxxx 1)
5,500		196.00	05500
5,501 - 5,999		246.24	xxxxx 1)
6,000		196.00	06000
6,001 - 6,499		246.24	xxxxx 1)
6,500		202.00	06500
6,501 - 6,999		246.24	xxxxx 1)
7,000		202.00	07000
7,001 - 7,143		246.24	xxxxx 1)
7,144	9/32	272.32	07144
7,145 - 7,499		272.32	xxxxx 1)
7,500		218.00	07500
7,501 - 7,999		272.32	xxxxx 1)
8,000		218.00	08000
8,001 - 8,499		272.32	xxxxx 1)
8,500		228.00	08500
8,501 - 8,999		272.32	xxxxx 1)
9,000		228.00	09000
9,001 - 9,499		272.32	xxxxx 1)
9,500		236.00	09500
9,501 - 9,999		272.32	xxxxx 1)
10,000		236.00	10000
10,001 - 10,499		272.32	xxxxx 1)
10,500		245.00	10500
10,501 - 10,999		272.32	xxxxx 1)
11,000		245.00	11000
11,001 - 11,499		272.32	xxxxx 1)
11,500		253.00	11500
11,501 - 11,999		272.32	xxxxx 1)
12,000		253.00	12000
12,001 - 12,499		272.32	xxxxx 1)
12,500		275.00	12500
12,501 - 12,699		342.40	xxxxx 1)
12,700	1/2	342.40	12700
12,701 - 12,999		342.40	xxxxx 1)
13,000		275.00	13000
13,001 - 13,499		342.40	xxxxx 1)
13,500		282.00	13500
13,501 - 13,999		342.40	xxxxx 1)
14,000		282.00	14000
14,001 - 14,499		342.40	xxxxx 1)
14,500		298.00	14500
14,501 - 14,999		342.40	xxxxx 1)
15,000		298.00	15000
15,001 - 15,499		342.40	xxxxx 1)
15,500		321.00	15500
15,501 - 15,999		342.40	xxxxx 1)
16,000		321.00	16000
16,001 - 16,499		342.40	xxxxx 1)
16,500		335.00	16500
16,501 - 16,999		342.40	xxxxx 1)
17,000		335.00	17000
17,001 - 17,499		342.40	xxxxx 1)
17,500		352.00	17500
17,501 - 17,999		342.40	xxxxx 1)
18,000		352.00	18000
18,001 - 18,499		342.40	xxxxx 1)
18,500		367.00	18500
18,501 - 18,999		342.40	xxxxx 1)
19,000		367.00	19000
19,001 - 19,499		342.40	xxxxx 1)
19,500		374.00	19500
19,501 - 19,999		342.40	xxxxx 1)
20,000		374.00	20000
20,001 - 20,499		342.40	xxxxx 1)
20,500		396.00	20500
20,501 - 20,999		342.40	xxxxx 1)
21,000		396.00	21000
21,001 - 21,499		342.40	xxxxx 1)
21,500		411.00	21500
21,501 - 21,999		342.40	xxxxx 1)
22,000		411.00	22000

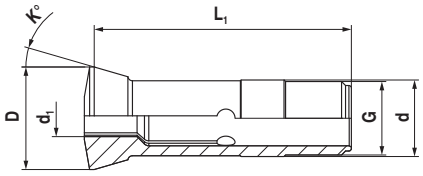
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 036 **06789**).

5

Adjustable guide bushes

Designation	d DGUI mm	D DFC mm	L_1 OAL mm	K°	G THOD
T 227	34	41	87.5	10	M34 x 1



T 227

- With carbide insert

T 227

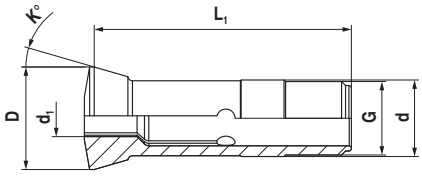
d_1 DCONWS mm	d_1 inch	NEW Y8 Article no. 81 040 ... £	
1,000		457.00	01000
1,001 - 1,499		265.76	xxxxx 1)
1,500		457.00	01500
1,501 - 1,999		265.76	xxxxx 1)
2,000		218.00	02000
2,001 - 2,499		265.76	xxxxx 1)
2,500		175.00	02500
2,501 - 2,999		265.76	xxxxx 1)
3,000		175.00	03000
3,001 - 3,499		265.76	xxxxx 1)
3,500		166.00	03500
3,501 - 3,999		265.76	xxxxx 1)
4,000		166.00	04000
4,001 - 4,499		265.76	xxxxx 1)
4,500		177.00	04500
4,501 - 4,999		265.76	xxxxx 1)
5,000		177.00	05000
5,001 - 5,499		265.76	xxxxx 1)
5,500		196.00	05500
5,501 - 5,999		265.76	xxxxx 1)
6,000		196.00	06000
6,001 - 6,349		265.76	xxxxx 1)
6,350	1/4	265.76	06350
6,351 - 6,499		265.76	xxxxx 1)
6,500		202.00	06500
6,501 - 6,999		265.76	xxxxx 1)
7,000		202.00	07000
7,001 - 7,499		265.76	xxxxx 1)
7,500		218.00	07500
7,501 - 7,999		265.76	xxxxx 1)
8,000		218.00	08000
8,001 - 8,499		265.76	xxxxx 1)
8,500		228.00	08500
8,501 - 8,999		265.76	xxxxx 1)
9,000		228.00	09000
9,001 - 9,499		265.76	xxxxx 1)
9,500		236.00	09500
9,501 - 9,999		265.76	xxxxx 1)
10,000		236.00	10000
10,001 - 10,499		265.76	xxxxx 1)
10,500		245.00	10500
10,501 - 10,999		265.76	xxxxx 1)
11,000		245.00	11000
11,001 - 11,499		265.76	xxxxx 1)
11,500		253.00	11500
11,501 - 11,999		265.76	xxxxx 1)
12,000		253.00	12000
12,001 - 12,499		265.76	xxxxx 1)
12,500		275.00	12500
12,501 - 12,699		265.76	xxxxx 1)
12,700	1/2	342.40	12700
12,701 - 12,999		342.40	xxxxx 1)
13,000		275.00	13000
13,001 - 13,499		342.40	xxxxx 1)
13,500		282.00	13500
13,501 - 13,999		342.40	xxxxx 1)
14,000		282.00	14000
14,001 - 14,499		342.40	xxxxx 1)
14,500		298.00	14500
14,501 - 14,999		342.40	xxxxx 1)
15,000		298.00	15000
15,001 - 15,499		342.40	xxxxx 1)
15,500		321.00	15500
15,501 - 15,999		342.40	xxxxx 1)
16,000		321.00	16000
16,001 - 16,499		342.40	xxxxx 1)
16,500		335.00	16500
16,501 - 16,999		342.40	xxxxx 1)
17,000		335.00	17000
17,001 - 17,499		342.40	xxxxx 1)
17,500		352.00	17500
17,501 - 17,999		342.40	xxxxx 1)
18,000		352.00	18000
18,001 - 18,499		342.40	xxxxx 1)
18,500		367.00	18500
18,501 - 18,999		342.40	xxxxx 1)
19,000		367.00	19000
19,001 - 19,499		342.40	xxxxx 1)
19,500		374.00	19500
19,501 - 19,999		342.40	xxxxx 1)
20,000		374.00	20000
20,001 - 20,499		342.40	xxxxx 1)
20,500		396.00	20500
20,501 - 20,999		342.40	xxxxx 1)
21,000		396.00	21000
21,001 - 21,499		342.40	xxxxx 1)
21,500		411.00	21500
21,501 - 21,999		342.40	xxxxx 1)
22,000		411.00	22000
22,001 - 22,499		342.40	xxxxx 1)
22,500		423.00	22500
22,501 - 22,999		342.40	xxxxx 1)
23,000		423.00	23000
23,001 - 23,499		342.40	xxxxx 1)
23,500		437.00	23500
23,501 - 23,999		342.40	xxxxx 1)
24,000		437.00	24000
24,001 - 24,499		342.40	xxxxx 1)
24,500		442.00	24500
24,501 - 24,999		342.40	xxxxx 1)
25,000		442.00	25000

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 040 **06789**).

Adjustable guide bushes

Designation	d DGUI mm	D DFC mm	L_1 OAL mm	K°	G THOD
T 229	42	49	82	16	M40 x 1



T 229

- With carbide insert

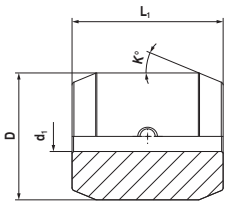
d_1 DCONWS mm	d_1 inch	T 229 NEW Y8 Article no. 81 041 ... £		T 229 NEW Y8 Article no. 81 042 ... £	
2,000		785.00	02000		
2,001 - 2,499		331.04	xxxxx[1]		
2,500		785.00	02500		
2,501 - 2,999		331.04	xxxxx[1]		
3,000		321.00	03000		
3,001 - 3,499		331.04	xxxxx[1]		
3,500		321.00	03500		
3,501 - 3,999		331.04	xxxxx[1]		
4,000		282.00	04000	488.00	04000
4,001 - 4,499		331.04	xxxxx[1]		
4,500		282.00	04500		
4,501 - 4,999		331.04	xxxxx[1]		
5,000		258.00	05000	422.00	05000
5,001 - 5,499		331.04	xxxxx[1]		
5,500		258.00	05500		
5,501 - 5,999		331.04	xxxxx[1]		
6,000		264.00	06000	445.00	06000
6,001 - 6,349		331.04	xxxxx[1]		
6,350	1/4	331.04	06350	515.00	06350
6,351 - 6,499		331.04	xxxxx[1]		
6,500		264.00	06500		
6,501 - 6,999		331.04	xxxxx[1]		
7,000		264.00	07000	456.00	07000
7,001 - 7,499		331.04	xxxxx[1]		
7,500		264.00	07500		
7,501 - 7,999		331.04	xxxxx[1]		
8,000		264.00	08000	469.00	08000
8,001 - 8,499		331.04	xxxxx[1]		
8,500		264.00	08500		
8,501 - 8,999		331.04	xxxxx[1]		
9,000		264.00	09000	476.00	09000
9,001 - 9,499		331.04	xxxxx[1]		
9,500		264.00	09500		
9,501 - 9,524		331.04	xxxxx[1]		
9,525	3/8	331.04	09525		
9,526 - 9,999		331.04	xxxxx[1]		
10,000		264.00	10000	481.00	10000
10,001 - 10,499		331.04	xxxxx[1]		
10,500		264.00	10500		
10,501 - 10,999		331.04	xxxxx[1]		
11,000		272.00	11000	498.00	11000
11,001 - 11,499		331.04	xxxxx[1]		
11,500		272.00	11500		
11,501 - 11,999		331.04	xxxxx[1]		
12,000		272.00	12000	508.00	12000
12,001 - 12,499		331.04	xxxxx[1]		
12,500		272.00	12500		
12,501 - 12,699		331.04	xxxxx[1]		
12,700	1/2	337.44	12700		
12,701 - 12,999		337.44	xxxxx[1]		
13,000		279.00	13000	527.00	13000
13,001 - 13,499		337.44	xxxxx[1]		
13,500		279.00	13500		
13,501 - 13,999		337.44	xxxxx[1]		
14,000		287.00	14000	541.00	14000
14,001 - 14,499		337.44	xxxxx[1]		
14,500		287.00	14500		
14,501 - 14,999		337.44	xxxxx[1]		
15,000		301.00	15000	561.00	15000
15,001 - 15,499		337.44	xxxxx[1]		
15,500		301.00	15500		
15,501 - 15,999		337.44	xxxxx[1]		
16,000		323.00	16000	592.00	16000
16,001 - 16,499		337.44	xxxxx[1]		
16,500		323.00	16500		
16,501 - 16,999		337.44	xxxxx[1]		
17,000		337.00	17000	614.00	17000
17,001 - 17,499		337.44	xxxxx[1]		
17,500		337.00	17500		
17,501 - 17,999		337.44	xxxxx[1]		
18,000		355.00	18000	644.00	18000
18,001 - 18,499		337.44	xxxxx[1]		
18,500		355.00	18500		
18,501 - 18,999		337.44	xxxxx[1]		
19,000		364.00	19000	677.00	19000
19,001 - 19,049		337.44	xxxxx[1]		
19,050	3/4	427.20	19050		
19,051 - 19,499		427.20	xxxxx[1]		
19,500		364.00	19500		
19,501 - 19,999		427.20	xxxxx[1]		
20,000		372.00	20000	697.00	20000
20,001 - 20,499		427.20	xxxxx[1]		
20,500		372.00	20500		
20,501 - 20,999		427.20	xxxxx[1]		
21,000		388.00	21000	729.00	21000
21,001 - 21,499		427.20	xxxxx[1]		
21,500		388.00	21500		
21,501 - 21,999		427.20	xxxxx[1]		
22,000		405.00	22000	757.00	22000
22,001 - 22,224		427.20	xxxxx[1]		
22,225	7/8	466.24	22225		
22,226 - 22,499		466.24	xxxxx[1]		
22,500		405.00	22500		
22,501 - 22,999		466.24	xxxxx[1]		
23,000		423.00	23000	784.00	23000
23,001 - 23,499		466.24	xxxxx[1]		
23,500		423.00	23500		
23,501 - 23,999		466.24	xxxxx[1]		
24,000		432.00	24000	806.00	24000
24,001 - 24,499		466.24	xxxxx[1]		
24,500		432.00	24500		
24,501 - 24,999		466.24	xxxxx[1]		
25,000		439.00	25000	830.00	25000
25,001 - 25,499		466.24	xxxxx[1]		
25,500		439.00	25500		
25,501 - 25,999		466.24	xxxxx[1]		
26,000		449.00	26000	859.00	26000
26,001 - 26,499		466.24	xxxxx[1]		
26,500		449.00	26500		
26,501 - 26,999		466.24	xxxxx[1]		
27,000		473.00	27000	889.00	27000
27,001 - 27,499		466.24	xxxxx[1]		
27,500		473.00	27500		
27,501 - 27,999		466.24	xxxxx[1]		
28,000		500.00	28000		
28,001 - 28,499		466.24	xxxxx[1]		
28,500		500.00	28500		
28,501 - 28,999		466.24	xxxxx[1]		
29,000		524.00	29000		
29,001 - 29,499		466.24	xxxxx[1]		
29,500		524.00	29500		
29,501 - 29,999		466.24	xxxxx[1]		
30,000		537.00	30000		
30,001 - 30,499		466.24	xxxxx[1]		
30,500		537.00	30500		
30,501 - 30,999		466.24	xxxxx[1]		
31,000		556.00	31000		
31,001 - 31,499		466.24	xxxxx[1]		
31,500		556.00	31500		
31,501 - 31,999		466.24	xxxxx[1]		
32,000		573.00	32000		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 041 **06789**).

Flexible guide bushes

Designation	D DFC mm	L_1 OAL mm	K°
GBE 28	28	40	22.5
GBE 42	42	50	22.5



GBE 28

GBE 28

d_1 DCONWS mm	d_1 inch	NEW Y8 Article no. 81 059 ... £	
3.000		675.00	03000
4.000		675.00	04000
5.000		675.00	05000
6.000		675.00	06000
6.350	1/4	675.00	06350
7.000		675.00	07000
8.000		675.00	08000
9.000		675.00	09000
9.525	3/8	675.00	09525
10.000		568.00	10000
11.000		568.00	11000
12.000		568.00	12000
12.700	1/2	568.00	12700
13.000		568.00	13000
14.000		568.00	14000
15.000		568.00	15000
16.000		568.00	16000
17.000		568.00	17000
18.000		568.00	18000
19.000		568.00	19000
19.050	3/4	568.00	19050
20.000		568.00	20000

GBE 42

GBE 42

d_1 DCONWS mm	d_1 inch	NEW Y8 Article no. 81 060 ... £	
3.000		944.00	03000
4.000		944.00	04000
5.000		944.00	05000
6.000		944.00	06000
6.350	1/4	944.00	06350
7.000		944.00	07000
8.000		944.00	08000
9.000		944.00	09000
10.000		944.00	10000
11.000		836.00	11000
12.000		836.00	12000
12.700	1/2	836.00	12700
13.000		836.00	13000
14.000		836.00	14000
15.000		836.00	15000
15.875	5/8	836.00	15880
16.000		836.00	16000
17.000		836.00	17000
18.000		836.00	18000
19.000		836.00	19000
19.050	3/4	836.00	19050
20.000		836.00	20000
21.000		836.00	21000
22.000		836.00	22000
22.225	7/8	836.00	22225
23.000		836.00	23000
24.000		836.00	24000
25.000		836.00	25000
25.400	1/1	836.00	25400
26.000		836.00	26000
27.000		836.00	27000
28.000		836.00	28000
29.000		836.00	29000
30.000		836.00	30000
31.000		836.00	31000
32.000		836.00	32000

Highlights

- Precision "Made in Germany"
  Reliable quality
- Available as Turbo & Standard
  Maximum flexibility
- Available in round, square or hexagonal versions
  Adapted to the material
- All relevant surfaces are "precision-ground"
  Increases component accuracy

Clamping sleeves overview

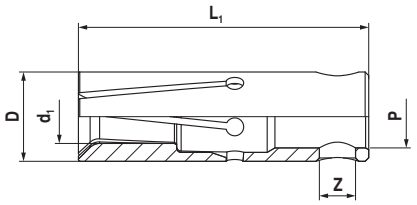
Norm	External diameter range in mm	Clamping diameter range	Profile	Version	Pages
S10		Ø 3,0 – 10,0	●		26
S12		Ø 3,0 – 11,0	●		26
S15		Ø 3,0 – 14,0	●		27
S16		Ø 3,0 – 15,0	●		28
S18		Ø 3,0 – 16,0	●		29
S20		Ø 4,0 – 19,0	●		30
S25		Ø 4,0 – 24,0	●		31
ST32 „Turbo“	32	Ø 5,0 – 32,0	●	Turbo	32
S10		SW 3,0 – 8,0	⬢		26
S12		SW 3,0 – 9,0	⬢		26
S15		SW 3,0 – 12,0	⬢		27
S16		SW 3,0 – 13,0	⬢		28
S18		SW 5,0 – 14,0	⬢		29
S20		SW 5,0 – 16,0	⬢		30
S25		SW 5,0 – 20,0	⬢		31
ST32 „Turbo“	32	SW 5,0 – 26,0	⬢	Turbo	32

5

Other profile shapes and sizes and extended options available on request.

Clamping sleeves

Designation	Pusher Ø	D DFC mm	Z KWW mm	P_{H7} DCOB mm	L_1 OAL mm
S 10 / 210 E	D 10	10	4	7	40
S 12 / 212 E	D 12	12	4	8	40



S 10 / 210 E

- Also suitable for all INDEX multi-spindle machines

d_1 DCONWS mm	d_1 inch	S 10 / 210 E NEW Y8 Article no. 81 043 ... £		S 10 / 210 E NEW Y8 Article no. 81 044 ... £	
3,000		72.00	03000	155.00	03000
3,001 - 3,499		76.78	xxxxx 1)		
3,500		72.00	03500		
3,501 - 3,999		76.78	xxxxx 1)		
4,000		49.00	04000	126.00	04000
4,001 - 4,499		76.78	xxxxx 1)		
4,500		49.00	04500		
4,501 - 4,999		76.78	xxxxx 1)		
5,000		49.00	05000	126.00	05000
5,001 - 5,499		76.78	xxxxx 1)		
5,500		49.00	05500		
5,501 - 5,999		76.78	xxxxx 1)		
6,000		49.00	06000	126.00	06000
6,001 - 6,349		76.78	xxxxx 1)		
6,350	1/4	76.78	06350		
6,351 - 6,499		76.78	xxxxx 1)		
6,500		49.00	06500		
6,501 - 6,999		76.78	xxxxx 1)		
7,000		49.00	07000	126.00	07000
7,001 - 7,143		76.78	xxxxx 1)		
7,144	9/32	76.78	07144		
7,145 - 7,499		76.78	xxxxx 1)		
7,500		49.00	07500		
7,501 - 7,937		76.78	xxxxx 1)		
7,938	5/16	76.78	07938		
7,939 - 7,999		76.78	xxxxx 1)		
8,000		49.00	08000	126.00	08000
8,001 - 8,499		76.78	xxxxx 1)		
8,500		49.00	08500		
8,501 - 8,999		76.78	xxxxx 1)		
9,000		72.00	09000		
9,001 - 9,499		76.78	xxxxx 1)		
9,500		72.00	09500		
9,501 - 9,999		76.78	xxxxx 1)		
10,000		72.00	10000		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 043 **06789**).

S 12 / 212 E

- Also suitable for all INDEX multi-spindle machines

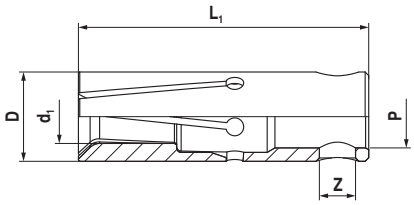
d_1 DCONWS mm	d_1 inch	S 12 / 212 E NEW Y8 Article no. 81 045 ... £		S 12 / 212 E NEW Y8 Article no. 81 046 ... £	
3,000		75.00	03000	161.00	03000
3,001 - 3,499		78.91	xxxxx 1)		
3,500		75.00	03500		
3,501 - 3,999		78.91	xxxxx 1)		
4,000		52.00	04000	129.00	04000
4,001 - 4,499		78.91	xxxxx 1)		
4,500		52.00	04500		
4,501 - 4,762		78.91	xxxxx 1)		
4,763	3/16	78.91	04763		
4,764 - 4,999		78.91	xxxxx 1)		
5,000		52.00	05000	129.00	05000
5,001 - 5,499		78.91	xxxxx 1)		
5,500		52.00	05500		
5,501 - 5,999		78.91	xxxxx 1)		
6,000		52.00	06000	129.00	06000
6,001 - 6,349		78.91	xxxxx 1)		
6,350	1/4	78.91	06350	169.00	06350
6,351 - 6,499		78.91	xxxxx 1)		
6,500		52.00	06500		
6,501 - 6,999		78.91	xxxxx 1)		
7,000		52.00	07000	129.00	07000
7,001 - 7,499		78.91	xxxxx 1)		
7,500		52.00	07500		
7,501 - 7,937		78.91	xxxxx 1)		
7,938	5/16	78.91	07938		
7,939 - 7,999		78.91	xxxxx 1)		
8,000		52.00	08000	129.00	08000
8,001 - 8,499		78.91	xxxxx 1)		
8,500		52.00	08500		
8,501 - 8,999		78.91	xxxxx 1)		
9,000		52.00	09000	129.00	09000
9,001 - 9,499		78.91	xxxxx 1)		
9,500		52.00	09500		
9,501 - 9,524		78.91	xxxxx 1)		
9,525	3/8	78.91	09525		
9,526 - 9,999		78.91	xxxxx 1)		
10,000		75.00	10000		
10,001 - 10,499		78.91	xxxxx 1)		
10,500		75.00	10500		
10,501 - 10,999		78.91	xxxxx 1)		
11,000		75.00	11000		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 045 **06789**).

Clamping sleeves

Designation	Pusher Ø	D DFC mm	Z KWW mm	P_{H7} DCOB mm	L_1 OAL mm
S 15 / 203 E	D 15	15	6	11	40



S 15 / 203 E

- Also suitable for all INDEX multi-spindle machines

d_1 DCONWS mm	d_1 inch	S 15 / 203 E NEW Y8 Article no. 81 047 ... £		S 15 / 203 E NEW Y8 Article no. 81 048 ... £	
3,000		80.00	03000	236.00	03000
3,001 - 3,174		106.30	xxxxx[1]		
3,175	1/8	106.30	03175		
3,176 - 3,499		106.30	xxxxx[1]		
3,500		80.00	03500		
3,501 - 3,999		106.30	xxxxx[1]		
4,000		56.00	04000	134.00	04000
4,001 - 4,499		106.30	xxxxx[1]		
4,500		56.00	04500		
4,501 - 4,999		106.30	xxxxx[1]		
5,000		56.00	05000	134.00	05000
5,001 - 5,499		106.30	xxxxx[1]		
5,500		56.00	05500		
5,501 - 5,999		106.30	xxxxx[1]		
6,000		56.00	06000	134.00	06000
6,001 - 6,349		106.30	xxxxx[1]		
6,350	1/4	83.15	06350	175.00	06350
6,351 - 6,499		83.15	xxxxx[1]		
6,500		56.00	06500		
6,501 - 6,999		83.15	xxxxx[1]		
7,000		56.00	07000	134.00	07000
7,001 - 7,499		83.15	xxxxx[1]		
7,500		56.00	07500		
7,501 - 7,937		83.15	xxxxx[1]		
7,938	5/16	83.15	07938	175.00	07938
7,939 - 7,999		83.15	xxxxx[1]		
8,000		56.00	08000	134.00	08000
8,001 - 8,499		83.15	xxxxx[1]		
8,500		56.00	08500		
8,501 - 8,999		83.15	xxxxx[1]		
9,000		56.00	09000	134.00	09000
9,001 - 9,499		83.15	xxxxx[1]		
9,500		56.00	09500		
9,501 - 9,524		83.15	xxxxx[1]		
9,525	3/8	83.15	09525		
9,526 - 9,999		83.15	xxxxx[1]		
10,000		56.00	10000	134.00	10000
10,001 - 10,499		83.15	xxxxx[1]		
10,500		56.00	10500		
10,501 - 10,999		83.15	xxxxx[1]		
11,000		56.00	11000	194.00	11000
11,001 - 11,112		83.15	xxxxx[1]		
11,113	7/16	83.15	11113		
11,114 - 11,499		83.15	xxxxx[1]		
11,500		56.00	11500		
11,501 - 11,999		83.15	xxxxx[1]		
12,000		56.00	12000	194.00	12000
12,001 - 12,499		83.15	xxxxx[1]		
12,500		56.00	12500		
12,501 - 12,699		83.15	xxxxx[1]		
12,700	1/2	83.15	12700		
12,701 - 12,999		83.15	xxxxx[1]		
13,000		56.00	13000		
13,001 - 13,499		83.15	xxxxx[1]		
13,500		81.00	13500		
13,501 - 13,999		83.15	xxxxx[1]		
14,000		81.00	14000		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 047 **06789**).

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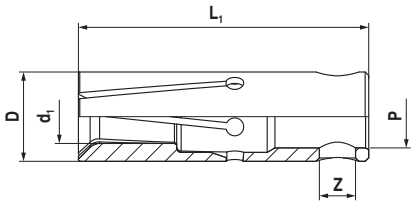
Clamping sleeves

Designation	Pusher Ø	D DFC mm	Z KWW mm	P_{H7} DCOB mm	L_1 OAL mm
S 16	D 16	16	6	11	40



S 16

- Also suitable for all INDEX multi-spindle machines

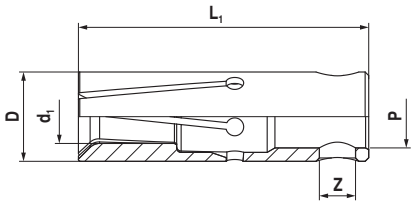
d_1 DCONWS mm	d_1 inch	S 16 NEW Y8 Article no. 81 049 ... £		S 16 NEW Y8 Article no. 81 050 ... £	
3,000		80.00	03000	236.00	03000
3,001 - 3,499		83.15	xxxxx 1)		
3,500		80.00	03500		
3,501 - 3,999		83.15	xxxxx 1)		
4,000		56.00	04000	134.00	04000
4,001 - 4,499		83.15	xxxxx 1)		
4,500		56.00	04500		
4,501 - 4,999		83.15	xxxxx 1)		
5,000		56.00	05000	134.00	05000
5,001 - 5,499		83.15	xxxxx 1)		
5,500		56.00	05500		
5,501 - 5,999		83.15	xxxxx 1)		
6,000		56.00	06000	134.00	06000
6,001 - 6,349		83.15	xxxxx 1)		
6,350	1/4	83.15	06350		
6,351 - 6,499		83.15	xxxxx 1)		
6,500		80.00	06500		
6,501 - 6,999		83.15	xxxxx 1)		
7,000		56.00	07000	134.00	07000
7,001 - 7,499		83.15	xxxxx 1)		
7,500		56.00	07500		
7,501 - 7,999		83.15	xxxxx 1)		
8,000		56.00	08000	134.00	08000
8,001 - 8,499		83.15	xxxxx 1)		
8,500		56.00	08500		
8,501 - 8,999		83.15	xxxxx 1)		
9,000		56.00	09000	134.00	09000
9,001 - 9,499		83.15	xxxxx 1)		
9,500		56.00	09500		
9,501 - 9,524		83.15	xxxxx 1)		
9,525	3/8	83.15	09525		
9,526 - 9,999		83.15	xxxxx 1)		
10,000		56.00	10000	134.00	10000
10,001 - 10,499		83.15	xxxxx 1)		
10,500		56.00	10500		
10,501 - 10,999		83.15	xxxxx 1)		
11,000		56.00	11000	134.00	11000
11,001 - 11,112		83.15	xxxxx 1)		
11,113	7/16	83.15	11113		
11,114 - 11,499		83.15	xxxxx 1)		
11,500		56.00	11500		
11,501 - 11,999		83.15	xxxxx 1)		
12,000		56.00	12000	194.00	12000
12,001 - 12,499		83.15	xxxxx 1)		
12,500		56.00	12500		
12,501 - 12,699		83.15	xxxxx 1)		
12,700	1/2	83.15	12700		
12,701 - 12,999		83.15	xxxxx 1)		
13,000		56.00	13000	194.00	13000
13,001 - 13,499		83.15	xxxxx 1)		
13,500		81.00	13500		
13,501 - 13,999		83.15	xxxxx 1)		
14,000		81.00	14000		
14,001 - 14,287		83.15	xxxxx 1)		
14,288	9/16	107.28	14288		
14,289 - 14,499		107.28	xxxxx 1)		
14,500		81.00	14500		
14,501 - 14,999		107.28	xxxxx 1)		
15,000		81.00	15000		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 049 **06789**).

Clamping sleeves

Designation	Pusher Ø	D DFC mm	Z KWW mm	P_{H7} DCOB mm	L_1 OAL mm
S 18 / 218 E	D 18	18	6	11	40



S 18 / 218 E

- Also suitable for all INDEX multi-spindle machines

d_1 DCONWS mm	d_1 inch	S 18 / 218 E NEW Y8 Article no. 81 051 ... £		S 18 / 218 E NEW Y8 Article no. 81 052 ... £	
3,000		87.00	03000		
3,001 - 3,174		112.50	xxxxx[1]		
3,175	1/8	112.50	03175		
3,176 - 3,499		112.50	xxxxx[1]		
3,500		87.00	03500		
3,501 - 3,999		112.50	xxxxx[1]		
4,000		87.00	04000		
4,001 - 4,499		112.50	xxxxx[1]		
4,500		87.00	04500		
4,501 - 4,762		112.50	xxxxx[1]		
4,763	3/16	112.50	04763		
4,764 - 4,999		112.50	xxxxx[1]		
5,000		61.00	05000	141.00	05000
5,001 - 5,499		112.50	xxxxx[1]		
5,500		61.00	05500		
5,501 - 5,999		112.50	xxxxx[1]		
6,000		61.00	06000	141.00	06000
6,001 - 6,499		112.50	xxxxx[1]		
6,500		61.00	06500		
6,501 - 6,999		112.50	xxxxx[1]		
7,000		61.00	07000	141.00	07000
7,001 - 7,499		112.50	xxxxx[1]		
7,500		61.00	07500		
7,501 - 7,937		112.50	xxxxx[1]		
7,938	5/16	88.37	07938		
7,939 - 7,999		88.37	xxxxx[1]		
8,000		61.00	08000	141.00	08000
8,001 - 8,499		88.37	xxxxx[1]		
8,500		61.00	08500		
8,501 - 8,999		88.37	xxxxx[1]		
9,000		61.00	09000	141.00	09000
9,001 - 9,499		88.37	xxxxx[1]		
9,500		61.00	09500		
9,501 - 9,524		88.37	xxxxx[1]		
9,525	3/8	88.37	09525		
9,526 - 9,999		88.37	xxxxx[1]		
10,000		61.00	10000	141.00	10000
10,001 - 10,499		88.37	xxxxx[1]		
10,500		61.00	10500		
10,501 - 10,999		88.37	xxxxx[1]		
11,000		61.00	11000	201.00	11000
11,001 - 11,112		88.37	xxxxx[1]		
11,113	7/16	88.37	11113		
11,114 - 11,499		88.37	xxxxx[1]		
11,500		61.00	11500		
11,501 - 11,999		88.37	xxxxx[1]		
12,000		61.00	12000	201.00	12000
12,001 - 12,499		88.37	xxxxx[1]		
12,500		61.00	12500		
12,501 - 12,699		88.37	xxxxx[1]		
12,700	1/2	88.37	12700	236.00	12700
12,701 - 12,999		88.37	xxxxx[1]		
13,000		61.00	13000	201.00	13000
13,001 - 13,499		88.37	xxxxx[1]		
13,500		61.00	13500		
13,501 - 13,999		88.37	xxxxx[1]		
14,000		61.00	14000	201.00	14000
14,001 - 14,287		88.37	xxxxx[1]		
14,288	9/16	88.37	14288		
14,289 - 14,499		88.37	xxxxx[1]		
14,500		61.00	14500		
14,501 - 14,999		88.37	xxxxx[1]		
15,000		61.00	15000		
15,001 - 15,499		88.37	xxxxx[1]		
15,500		61.00	15500		
15,501 - 15,874		88.37	xxxxx[1]		
15,875	5/8	88.37	15875		
15,876 - 15,999		88.37	xxxxx[1]		
16,000		61.00	16000		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 051 **06789**).

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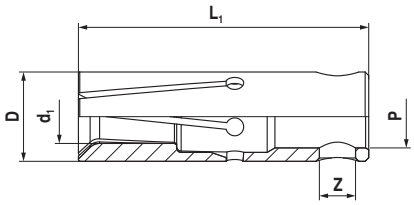
Clamping sleeves

Designation	Pusher Ø	D DFC mm	Z KWW mm	P_{H7} DCOB mm	L_1 OAL mm
S 20 / 225 E	D 20	20	8	14	65



S 20 / 225 E

- Also suitable for all INDEX multi-spindle machines

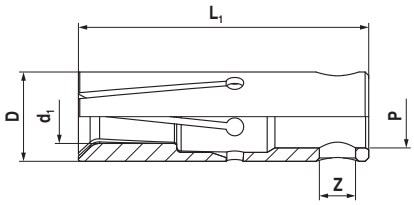
d_1 DCONWS mm	d_1 inch	S 20 / 225 E NEW Y8 Article no. 81 053 ... £		S 20 / 225 E NEW Y8 Article no. 81 054 ... £	
4,000		87.00	04000		
4,001 - 4,499		112.50	xxxxx[1]		
4,500		87.00	04500		
4,501 - 4,762		112.50	xxxxx[1]		
4,763	3/16	112.50	04763		
4,764 - 4,999		112.50	xxxxx[1]		
5,000		87.00	05000	145.00	05000
5,001 - 5,499		112.50	xxxxx[1]		
5,500		87.00	05500		
5,501 - 5,999		112.50	xxxxx[1]		
6,000		65.00	06000	145.00	06000
6,001 - 6,349		112.50	xxxxx[1]		
6,350	1/4	91.47	06350	213.00	06350
6,351 - 6,499		91.47	xxxxx[1]		
6,500		65.00	06500		
6,501 - 6,999		91.47	xxxxx[1]		
7,000		65.00	07000	145.00	07000
7,001 - 7,499		91.47	xxxxx[1]		
7,500		65.00	07500		
7,501 - 7,937		91.47	xxxxx[1]		
7,938	5/16	91.47	07938		
7,939 - 7,999		91.47	xxxxx[1]		
8,000		65.00	08000	145.00	08000
8,001 - 8,499		91.47	xxxxx[1]		
8,500		65.00	08500		
8,501 - 8,999		91.47	xxxxx[1]		
9,000		65.00	09000	145.00	09000
9,001 - 9,499		91.47	xxxxx[1]		
9,500		65.00	09500		
9,501 - 9,524		91.47	xxxxx[1]		
9,525	3/8	91.47	09525		
9,526 - 9,999		91.47	xxxxx[1]		
10,000		65.00	10000	145.00	10000
10,001 - 10,499		91.47	xxxxx[1]		
10,500		65.00	10500		
10,501 - 10,999		91.47	xxxxx[1]		
11,000		65.00	11000	204.00	11000
11,001 - 11,112		91.47	xxxxx[1]		
11,113	7/16	91.47	11113		
11,114 - 11,499		91.47	xxxxx[1]		
11,500		65.00	11500		
11,501 - 11,999		91.47	xxxxx[1]		
12,000		65.00	12000	204.00	12000
12,001 - 12,499		91.47	xxxxx[1]		
12,500		65.00	12500		
12,501 - 12,699		91.47	xxxxx[1]		
12,700	1/2	91.47	12700	241.00	12700
12,701 - 12,999		91.47	xxxxx[1]		
13,000		65.00	13000	204.00	13000
13,001 - 13,499		91.47	xxxxx[1]		
13,500		65.00	13500		
13,501 - 13,999		91.47	xxxxx[1]		
14,000		65.00	14000	204.00	14000
14,001 - 14,499		91.47	xxxxx[1]		
14,500		65.00	14500		
14,501 - 14,999		91.47	xxxxx[1]		
15,000		65.00	15000	204.00	15000
15,001 - 15,499		91.47	xxxxx[1]		
15,500		65.00	15500		
15,501 - 15,999		91.47	xxxxx[1]		
16,000		65.00	16000	204.00	16000
16,001 - 16,499		91.47	xxxxx[1]		
16,500		65.00	16500		
16,501 - 16,999		91.47	xxxxx[1]		
17,000		65.00	17000		
17,001 - 17,499		91.47	xxxxx[1]		
17,500		65.00	17500		
17,501 - 17,999		91.47	xxxxx[1]		
18,000		65.00	18000		
18,001 - 18,499		91.47	xxxxx[1]		
18,500		87.00	18500		
18,501 - 18,999		91.47	xxxxx[1]		
19,000		87.00	19000		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 053 **06789**).

Clamping sleeves

Designation	Pusher Ø	D DFC mm	Z KWW mm	P_{H7} DCOB mm	L_1 OAL mm
S 25 / 222 E	D 25	25	8	20	65



S 25 / 222 E

- Also suitable for all INDEX multi-spindle machines

d_1 DCONWS mm	d_1 inch	S 25 / 222 E NEW Y8 Article no. 81 055 ... £		S 25 / 222 E NEW Y8 Article no. 81 056 ... £	
4,000		89.00	04000		
4,001 - 4,499		93.58	xxxxx[1]		
4,500		89.00	04500		
4,501 - 4,999		93.58	xxxxx[1]		
5,000		89.00	05000	175.00	05000
5,001 - 5,499		93.58	xxxxx[1]		
5,500		89.00	05500		
5,501 - 5,999		93.58	xxxxx[1]		
6,000		67.00	06000	148.00	06000
6,001 - 6,349		93.58	xxxxx[1]		
6,350	1/4	93.58	06350	182.00	06350
6,351 - 6,499		93.58	xxxxx[1]		
6,500		67.00	06500		
6,501 - 6,999		93.58	xxxxx[1]		
7,000		67.00	07000	148.00	07000
7,001 - 7,499		93.58	xxxxx[1]		
7,500		67.00	07500		
7,501 - 7,999		93.58	xxxxx[1]		
8,000		67.00	08000	148.00	08000
8,001 - 8,499		93.58	xxxxx[1]		
8,500		67.00	08500		
8,501 - 8,999		93.58	xxxxx[1]		
9,000		67.00	09000	148.00	09000
9,001 - 9,499		93.58	xxxxx[1]		
9,500		67.00	09500		
9,501 - 9,999		93.58	xxxxx[1]		
10,000		67.00	10000	148.00	10000
10,001 - 10,499		93.58	xxxxx[1]		
10,500		67.00	10500		
10,501 - 10,999		93.58	xxxxx[1]		
11,000		67.00	11000	206.00	11000
11,001 - 11,499		93.58	xxxxx[1]		
11,500		67.00	11500		
11,501 - 11,999		93.58	xxxxx[1]		
12,000		67.00	12000	206.00	12000
12,001 - 12,499		93.58	xxxxx[1]		
12,500		67.00	12500		
12,501 - 12,699		93.58	xxxxx[1]		
12,700	1/2	93.58	12700		
12,701 - 12,999		93.58	xxxxx[1]		
13,000		67.00	13000	206.00	13000
13,001 - 13,499		93.58	xxxxx[1]		
13,500		67.00	13500		
13,501 - 13,999		93.58	xxxxx[1]		
14,000		67.00	14000	206.00	14000
14,001 - 14,499		93.58	xxxxx[1]		
14,500		67.00	14500		

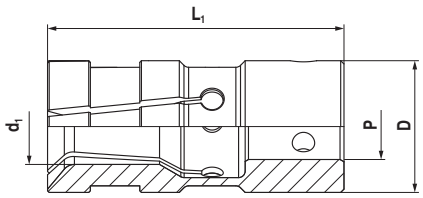
d_1 DCONWS mm	d_1 inch	NEW Y8 Article no. 81 055 ... £		NEW Y8 Article no. 81 056 ... £	
14,501 - 14,999		93.58	xxxxx[1]		
15,000		67.00	15000	206.00	15000
15,001 - 15,499		93.58	xxxxx[1]		
15,500		67.00	15500		
15,501 - 15,999		93.58	xxxxx[1]		
16,000		67.00	16000	206.00	16000
16,001 - 16,499		93.58	xxxxx[1]		
16,500		67.00	16500		
16,501 - 16,999		93.58	xxxxx[1]		
17,000		67.00	17000	206.00	17000
17,001 - 17,499		93.58	xxxxx[1]		
17,500		67.00	17500		
17,501 - 17,999		93.58	xxxxx[1]		
18,000		67.00	18000	206.00	18000
18,001 - 18,499		93.58	xxxxx[1]		
18,500		67.00	18500		
18,501 - 18,999		93.58	xxxxx[1]		
19,000		67.00	19000	206.00	19000
19,001 - 19,049		93.58	xxxxx[1]		
19,050	3/4	93.58	19050		
19,051 - 19,499		93.58	xxxxx[1]		
19,500		67.00	19500		
19,501 - 19,999		93.58	xxxxx[1]		
20,000		67.00	20000	206.00	20000
20,001 - 20,499		93.58	xxxxx[1]		
20,500		67.00	20500		
20,501 - 20,999		93.58	xxxxx[1]		
21,000		67.00	21000		
21,001 - 21,499		93.58	xxxxx[1]		
21,500		67.00	21500		
21,501 - 21,999		93.58	xxxxx[1]		
22,000		67.00	22000		
22,001 - 22,499		93.58	xxxxx[1]		
22,500		67.00	22500		
22,501 - 22,999		93.58	xxxxx[1]		
23,000		67.00	23000		
23,001 - 23,499		93.58	xxxxx[1]		
23,500		89.00	23500		
23,501 - 23,999		93.58	xxxxx[1]		
24,000		89.00	24000		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 055 **06789**).

Clamping sleeves – Turbo

Designation	Pusher Ø	D DFC mm	P H7 DCOB mm	L_1 OAL mm
ST 32	D 32	32	20	90



ST 32

- Also suitable for all INDEX multi-spindle machines

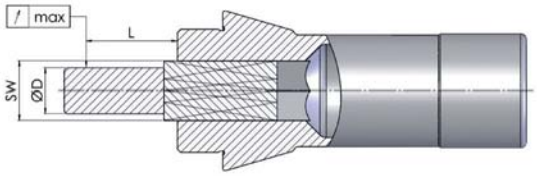
d_1 DCONWS mm	d_1 inch	ST 32 NEW Y8 Article no. 81 057 ... £		ST 32 NEW Y8 Article no. 81 058 ... £	
5,000		154.00	05000	281.00	05000
5,001 - 5,499		202.24	xxxxx 1)		
5,500		154.00	05500		
5,501 - 5,999		202.24	xxxxx 1)		
6,000		154.00	06000	281.00	06000
6,001 - 6,349		202.24	xxxxx 1)		
6,350	1/4	202.24	06350		
6,351 - 6,499		202.24	xxxxx 1)		
6,500		154.00	06500		
6,501 - 6,999		202.24	xxxxx 1)		
7,000		154.00	07000	281.00	07000
7,001 - 7,499		202.24	xxxxx 1)		
7,500		154.00	07500		
7,501 - 7,999		202.24	xxxxx 1)		
8,000		154.00	08000	281.00	08000
8,001 - 8,499		202.24	xxxxx 1)		
8,500		154.00	08500		
8,501 - 8,999		202.24	xxxxx 1)		
9,000		89.00	09000	201.00	09000
9,001 - 9,499		202.24	xxxxx 1)		
9,500		89.00	09500		
9,501 - 9,524		202.24	xxxxx 1)		
9,525	3/8	139.89	09525		
9,526 - 9,999		139.89	xxxxx 1)		
10,000		89.00	10000	201.00	10000
10,001 - 10,499		139.89	xxxxx 1)		
10,500		89.00	10500		
10,501 - 10,999		139.89	xxxxx 1)		
11,000		89.00	11000	211.00	11000
11,001 - 11,499		139.89	xxxxx 1)		
11,500		89.00	11500		
11,501 - 11,999		139.89	xxxxx 1)		
12,000		89.00	12000	211.00	12000
12,001 - 12,499		139.89	xxxxx 1)		
12,500		89.00	12500		
12,501 - 12,699		139.89	xxxxx 1)		
12,700	1/2	139.89	12700		
12,701 - 12,999		139.89	xxxxx 1)		
13,000		89.00	13000	211.00	13000
13,001 - 13,499		139.89	xxxxx 1)		
13,500		89.00	13500		
13,501 - 13,999		139.89	xxxxx 1)		
14,000		89.00	14000	211.00	14000
14,001 - 14,499		139.89	xxxxx 1)		
14,500		89.00	14500		
14,501 - 14,999		139.89	xxxxx 1)		
15,000		89.00	15000	211.00	15000
15,001 - 15,499		139.89	xxxxx 1)		
15,500		89.00	15500		
15,501 - 15,874		139.89	xxxxx 1)		
15,875	5/8	139.89	15875		
15,876 - 15,999		139.89	xxxxx 1)		
16,000		89.00	16000	211.00	16000
16,001 - 16,499		139.89	xxxxx 1)		
16,500		89.00	16500		
16,501 - 16,999		139.89	xxxxx 1)		
17,000		89.00	17000	211.00	17000
17,001 - 17,462		139.89	xxxxx 1)		
17,463	11/16	139.89	17463		
17,464 - 17,499		139.89	xxxxx 1)		
17,500		89.00	17500		
17,501 - 17,999		139.89	xxxxx 1)		
18,000		89.00	18000	211.00	18000
18,001 - 18,499		139.89	xxxxx 1)		
18,500		89.00	18500		
18,501 - 18,999		139.89	xxxxx 1)		
19,000		89.00	19000	211.00	19000
19,001 - 19,049		139.89	xxxxx 1)		
19,050	3/4	139.89	19050		
19,051 - 19,499		139.89	xxxxx 1)		
19,500		89.00	19500		
19,501 - 19,999		139.89	xxxxx 1)		
20,000		89.00	20000	211.00	20000
20,001 - 20,499		139.89	xxxxx 1)		
20,500		89.00	20500		
20,501 - 20,999		139.89	xxxxx 1)		
21,000		89.00	21000	243.00	21000
21,001 - 21,499		139.89	xxxxx 1)		
21,500		89.00	21500		
21,501 - 21,999		139.89	xxxxx 1)		
22,000		89.00	22000	243.00	22000
22,001 - 22,224		139.89	xxxxx 1)		
22,225	7/8	139.89	22225		
22,226 - 22,499		139.89	xxxxx 1)		
22,500		89.00	22500		
22,501 - 22,999		139.89	xxxxx 1)		
23,000		89.00	23000	243.00	23000
23,001 - 23,499		139.89	xxxxx 1)		
23,500		89.00	23500		
23,501 - 23,999		139.89	xxxxx 1)		
24,000		89.00	24000	243.00	24000
24,001 - 24,499		139.89	xxxxx 1)		
24,500		89.00	24500		
24,501 - 24,999		139.89	xxxxx 1)		
25,000		89.00	25000	243.00	25000
25,001 - 25,399		139.89	xxxxx 1)		
25,400	1/1	139.89	25400		
25,401 - 25,499		139.89	xxxxx 1)		
25,500		89.00	25500		
25,501 - 25,999		139.89	xxxxx 1)		
26,000		89.00	26000	243.00	26000
26,001 - 26,499		139.89	xxxxx 1)		
26,500		89.00	26500		
26,501 - 26,999		139.89	xxxxx 1)		
27,000		89.00	27000		
27,001 - 27,499		139.89	xxxxx 1)		
27,500		89.00	27500		
27,501 - 27,999		139.89	xxxxx 1)		
28,000		89.00	28000		
28,001 - 28,499		139.89	xxxxx 1)		
28,500		154.00	28500		
28,501 - 28,574		139.89	xxxxx 1)		
28,575	1 1/8	202.24	28575		
28,576 - 28,999		202.24	xxxxx 1)		
29,000		154.00	29000		
29,001 - 29,499		202.24	xxxxx 1)		
29,500		154.00	29500		
29,501 - 29,999		202.24	xxxxx 1)		
30,000		154.00	30000		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 7 working days

For xxxxx please specify the required diameter when ordering (e.g. **Ø 6.789** – article number 81 057 **06789**).

Technical Information

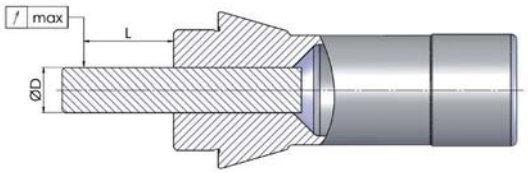
Runout accuracy



Run-out tolerances of collets with profiles					
Profile size		L	Standard	WNT standard	
from	up to	mm	norm	Standard	HP*
0,5	0,9	3	0,12	< 0,02	< 0,01
1	1,5	6	0,12	< 0,02	< 0,01
1,6	3	10	0,12	< 0,02	< 0,01
3,1	6	16	0,12	< 0,02	< 0,01
6,1	10	25	0,15	< 0,02	< 0,01
10,1	18	40	0,2	< 0,02	< 0,01
18,1	24	50	0,2	< 0,02	< 0,01
24,1	30	60	0,2	< 0,02	< 0,01
30,0		80	0,2	< 0,02	< 0,01

* Lower run-out tolerances with the WNT HP (High Precision) option on request.

Our profile collets and guide bushes are micro-eroded with up to 7 slots. This ensures maximum quality with minimal run-out tolerances.



Run-out tolerances of round collets				
hole		L	WNT standard	
from	up to	mm	Standard	HP*
0,5	0,9	3	< 0,01	< 0,008
1	1,5	6	< 0,01	< 0,008
1,6	3	10	< 0,015	< 0,008
3,1	6	16	< 0,015	< 0,008
6,1	10	25	< 0,015	< 0,008
10,1	18	40	< 0,02	< 0,01
18,1	24	50	< 0,02	< 0,01
24,1	30	60	< 0,02	< 0,01
30,0		80	< 0,03	< 0,015

* Lower run-out tolerances with the WNT HP (High Precision) option on request.

Your wish is our command. That is why the WNT tolerances are far tighter than standard tolerances. The service lives of both the machine components and the tools are extended.

Special shapes

Due to the variety of different applications, it may be necessary to individually adapt some products to the processes.
To do this, we offer you maximum quality according to your specifications.
Get in touch using one of the options below and let us create your clamping device:

Technical Advice

Interested in our clamping devices?

Our Technical Sales Engineers would be happy to advise you. You can of course also talk to our in-house Technical Sales Engineers by calling our freefone number.

Enquiry Form

If you would like to submit an enquiry regarding bespoke solutions, you can find a detailed enquiry form in the download area of our website. Please fill in this form carefully and send it to us via email or fax.
→ **www.wnt.com/uk/download/**

Other profile shapes and sizes and extended options available on request.

Drilling

HSS drilling

Solid carbide drilling

Reamers

1

Threading

HSS taps

Circular and Thread Milling

Thread turning

2

Turning

Turning Tools

EcoCut

Grooving Tools

Miniature turning tools

3

Milling

Solid Carbide milling cutters

4

Clamping

5

Material examples and article no. index

6

Extended Material Examples for the WNT Cutting Data Tables

	Index	Material	Strength (N/mm² - HB - HRc)
P	1.1	General construction steel	< 800 N/mm²
	1.2	Free cutting steel	< 800 N/mm²
	1.3	Hardened steel, non alloyed	< 800 N/mm²
	1.4	Alloyed hardened steel	< 1000 N/mm²
	1.5	Tempering steel, unalloyed	< 850 N/mm²
	1.6	Tempering steel, unalloyed	< 1000 N/mm²
	1.7	Tempering steel, alloyed	< 800 N/mm²
	1.8	Tempering steel, alloyed	< 1300 N/mm²
	1.9	Steel castings	< 850 N/mm²
	1.10	Nitriding steel	< 1000 N/mm²
	1.11	Nitriding steel	< 1200 N/mm²
	1.12	Roller bearing steel	< 1200 N/mm²
	1.13	Spring steel	< 1200 N/mm²
	1.14	High-speed steel	< 1300 N/mm²
	1.15	Cold working tool steel	< 1300 N/mm²
	1.16	Hot working tool steel	< 1300 N/mm²
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²
	2.2	Stainless steel, ferritic	< 750 N/mm²
	2.3	Stainless steel, martensitic	< 900 N/mm²
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²
	2.6	Stainless steel, austenitic	< 750 N/mm²
	2.7	Heat resistant steel	< 1100 N/mm²
K	3.1	Grey cast iron with lamellar graphite	100-350 N/mm²
	3.2	Grey cast iron with lamellar graphite	300-500 N/mm²
	3.3	Gray cast iron with spheroidal graphite	300-500 N/mm²
	3.4	Gray cast iron with spheroidal graphite	500-900 N/mm²
	3.5	White malleable cast iron	270-450 N/mm²
	3.6	White malleable cast iron	500-900 N/mm²
	3.7	Black malleable cast iron	300-450 N/mm²
	3.8	Black malleable cast iron	500-800 N/mm²
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²
	4.2	Aluminium alloys < 0.5% Si	< 500 N/mm²
	4.3	Aluminium alloy 0,5–10% Si	< 400 N/mm²
	4.4	Aluminium alloys 10–15% Si	< 400 N/mm²
	4.5	Aluminum alloys > 15% Si	< 400 N/mm²
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²
	4.7	Copper wrought alloys	< 700 N/mm²
	4.8	Special copper alloys	< 200 HB
	4.9	Special copper alloys	< 300 HB
	4.10	Special copper alloys	> 300 HB
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²
	4.12	Long-chipping brass	< 600 N/mm²
	4.13	Thermoplastics	
	4.14	Duroplastics	
	4.15	Fibre-reinforced plastics	
	4.16	Magnesium and magnesium alloys	< 850 N/mm²
	4.17	Graphite	
	4.18	Tungsten and tungsten alloys	
	4.19	Molybdenum and molybdenum alloys	
S	5.1	Pure nickel	
	5.2	Nickel alloys	
	5.3	Nickel alloys	< 850 N/mm²
	5.4	Nickel molybdenum alloys	
	5.5	Nickel alloys	< 1300 N/mm²
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²
	5.7	Heat resistant alloys	< 1300 N/mm²
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²
	5.9	Pure titanium	< 900 N/mm²
	5.10	Titanium alloys	< 700 N/mm²
	5.11	Titanium alloys	< 1200 N/mm²
H	6.1	Tempered steel	< 45 HRC
	6.2		46–55HRC
	6.3		56–60 HRC
	6.4		61–65 HRC
	6.5		65–70 HRC

On the following 13 pages you will find an extension of the material examples to our usual indexes with additional international standards.

Overview of standards:

DIN

Deutsche **I**ndustrie **N**orm (German Standard)

AFNOR

Association **F**rancaise de **N**ormalisation (French Standard)

UNI

Unificazione **I**taliana (Italian Standard)

CSN

Czechoslovakian Standard

BS

British **S**tandards

SIS

Standardiseringen **i** **S**verige (Swedish Standard)

UNE

Spanish Standard

JIS

Japanese **I**ndustrial **S**tandard

GOST

Soviet Standard

UNS

Unified **N**umbering **S**ystem

USA

Under **USA** several American standards are summarized

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	1.1	1.0037	St 37-2	E 24-2		11 343				STKM 12 C			
		1.0044	St 44-2	E 28-2	Fe 430 B FN	11 443	4360-43 B	1412		SM 41 B			A 570 Gr. 40
		1.0050	St 50-2	A 50-2	Fe 490	11 500	4360-50 B	2172		SS 50	BSt 5 ps; sp		A 570 Gr. 50
		1.0060	St 60-2	A 60-2	Fe 590; Fe 60-2	11 600	4360-SSE; SSC			SM 58	St 6 ps; sp		
		1.0116	St 37-3	E 24-3; E 24-4	Fe 360 D FF	11 378	4360-40 C	1312; 1313			St 3 kp; ps; sp		A 573 Gr. 58
		1.0570	St 52-3	E 36-3; E 36-4	Fe 510 B; C; D	11 523	4360-50 B	2132		SM 50 YA	17 GS		
	1.2	1.0711	9 S 20		CF 9 S 22		220 M 07			SUM 21		G 12120	1212
		1.0715	9 SMn 28	S 250	CF 9 SMn 28	11 109	230 M 07	1912	F-211 / F-2111	SUM 22		G 12130	1213
		1.0718	9 SMnPb 28	S 250 Pb	CF 9 SMnPb 28			1914	F-212 / F-2112	SUM 22 L		G 12134	12 L 13
		1.0721	10 S 20	10 F 1	CF 10 S 20	10 110	210 M 15		F-2121				1108
		1.0722	10 SPb 20	10 PbF 2	CF 10 SPb 20				F-2122				11 L 08
		1.0723	15 S 20				210 A 15	1922		SUM 32			
		1.0736	9 SMn 36	S 300	CF 9 SMn 36		240 M 07		F-2113			G 12150	1215
		1.0737	9 SMnPb 36	S 300 Pb	CF 9 SMnPb 36			1926	F-2114			G 12144	12 L 14
		1.0726	35 S 20	35 MF 4		11 140	212 M 36	1957	F-210.G			G 11400	1140
		1.0727	45 S 20	45 MF 4			212 M 44	1973				G 11460	1146
		1.0728	60 S 20	60 MF 4									
		1.0757	46 SPb 2										
	1.3	1.0301	C 10	AF 34 C 10; XC 10	C 10	12 010	045 M 10			S 10 C	10	G 10100	1010
		1.0401	C 15	AF3 7 C 12; XC 18	C 15; C 16	12 020	080 M 15	1350	F-111			G 10170	1015
		1.0481	17 Mn 4			11 748							
		1.1121	Ck 10	XC 10	C 10	12 010	045 M 10	1265	F-1510	S 10 C; S 9 CK	08; 10	G 10100	1010
		1.1141	Ck 15	XC 15; XC 18	C 15; C 16	12 020	080 M 15	1370	F-1511	S 15 C; S 15 CK	15	G 10170	1015
	1.4	1.5732	14 NiCr 10	14 NC 11	16 NiCr 11				F-1540	SNC 415 (H)			3415
		1.5752	14 NiCr 14	12 NC 15		16 240	655 M 13		F-1540	SNC 815 (H)		G 33106	3310; 9314
		1.5860	14 NiCr 18			16 523							
		1.5919	15 CrNi 6	16 NC 6	16 CrNi 4	16 220	S 107						
		1.5920	18 CrNi 8	20 NC 6		13 231							
		1.6523	21 NiCrMo 2	20 NCD 2	20 NiCrMo 2		805 M 20	2506	F-1522	SNCM 220 (H)		G 86170	8620
		1.6587	17 CrNiMo 6	18 NCD 6	18 NiCrMo 7		820 A 16						
		1.7012	13 Cr 2										
		1.7015	15 Cr 3	12 C 3		14 120	523 M 15			SCr 415 (H)	15Ch	G 50150	5015
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7139	16 MnCrS 5						F-150D				
		1.7147	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200	5120
		1.7149	20 MnCrS 5						F-1551				
		1.7262	15 CrMo 5	12 CD 4	12 CrMo 4					SCM 415 (H)			
		1.7264	20 CrMo 5	18 CD 4						SCM 421			
		1.7271	23 CrMoB 3 3										
		1.7311	20 CrMo 2						F-1523				
		1.7321	20 MoCr 4	20 CD 4									
		1.7323	20 MoCrS 4	20 CD 4 S									
		1.7325	25 MoCr 4	25 CD 4									
		1.7326	25 MoCrS 4	25 CD 4 S									
	1.5	1.0402	C 22	AF 42 C 20	C 20; C 21	12 024	050 A 20	1450	F-112		20	G 10200	1020
		1.0406	C 25	AF 50 C 30	C 25	12 030	070 M 26						1025
		1.0501	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350	1035
		1.0503	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430	1045
		1.0511	C 40	AF 60 C 40	C 40	12 041							1040
		1.0528	C 30			12 031							
		1.0535	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55		1055
		1.1151	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20		1023
		1.1158	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250	1025

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	1.5	1.1178	Ck 30										
		1.1181	Ck 35	XC 38 H1:XC 32	C 35	12 040	080 M 36	1572		S 35 C	35	G 10340	1035
		1.1186	Ck 40	XC 42 H1	C 40	12 041	080 M 40			S 40 C	40		1040
		1.1191	Ck 45	XC 48	C 45	12 050	080 M 46	1672		S 45 C	45	G 10420	1045
	1.6	1.0540	C 50			12 051							
		1.0601	C 60	CC 55	C 60	12 061	080 A 62				60	G 10600	1060
		1.1203	Ck 55	XC 55	C50	12 060	070 M 55			S 55 C	55		1055
		1.1206	Ck 50	XC 48 H1		12 051	080 M 50				50		1050
		1.1221	Ck 60	XC 60	C60	12 061	080 A 62	1665; 1678		S 58 C	60; 60G	G 10640	1060
	1.7	1.1133	20 Mn 5	20 M 5	G 22 Mn 3	42 2714	120 M 19		F-1515	SMnC 420		G 10220	1022; 1518
		1.5121	46 MnSi 4										
		1.5131	50 MnSi 4										
		1.5141	53 MnSi 4										
		1.5710	36 NiCr 6	35 NC 6		16 240	640 A 35			SNC 236			3135
		1.6546	40 NiCrMo 2 2	40 NCD 2	40 NiCrMo 2 (KB)		311-Type 7		F-1204	SNCM 240	38ChGNM	G 87400	8740
		1.6565	40 NiCrMo 6	40 NCD 6			311-Type 6		F-1272	SNCM 439	40Ch2N2MA		4340
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7020	32 Cr 2										
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7218	25 CrMo 4	25 CD 4	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234	F-1250	SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7223	41 CrMo 4	42 CD 4 TS	41 CrMo 4		708 M 40	2244		SCM 440	40 ChFA	G 41420	4142; 4140
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244	F-1252	SCM 440 (H)		G 41400	4142; 4140
		1.7228	50 CrMo 4	50 CR MO4			708 A 47			SCM 445 (H)	50ChFA	G 41470	4150
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230		SUP 10	50ChGFA	G 61500	6150
	1.8	1.1157	40 Mn 4	35 M 5			150 M 36				40G	G 10390	1039
		1.1165	30 Mn 5	35 M 5		13 141	120 M 36			SMn 433 H; SCMn 2	30GSL		1330
		1.1167	36 Mn 5	40 M 5		42 2715	150 M 36	2120	F-1203	SMn 438 (H); SCMn 3	35G2; 35GL	G 13350	1335
		1.1170	28 Mn 6	20 M 5	C 28 Mn	13 141	150 M 28			SCMn 1	30G		1330
		1.3561	44 Cr 2										
		1.3563	43 CrMo 4										
		1.3565	48 CrMo 4	48 CD 4			817 M 40			SNC 836			
		1.5120	38 MnSi 4										
		1.5121	46 MnSi 4										
		1.5122	37 MnSi 4			13 240							
		1.5131	50 MnSi 4										
		1.5141	53 MnSi 4										
		1.5223	42 MnV 7			13 242							
		1.5710	36 NiCr 6	35 NC 6		16 240	640 A 35			SNC 236			3135
		1.5736	36 NiCr 10	30 NC 11	35 NiCr 9					SNC 631 (H)			3435
		1.5755	31 NiCr 14	18 NC 13		16 440	653 M 31		F-123	SNC 836			
		1.6511	36 CrNiMo 4	40 NCD 3	38 NiCrMo 4 (KB)	16 341	816 M 40		F-1280		40 ChN2MA	G 98400	9840
		1.6513	28 NiCrMo 4										
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)	PH 41 4141	530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7034	37 Cr 4	38 C 4	38 Cr 4	14 140	530 A 36		F-1201	SCr 435 H	40Ch		5135
		1.7035	41 Cr 4	42 C 4	41 Cr 4		530 M 40		F-1202 / F-1211	SCr 440 (H)	40Ch	G 51400	5140
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225	F-222	SCM 420; SCM 430	30ChM	G 41300	4130
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234	F-1250	SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	1.8	1.7223	41 CrMo 4	42 CD 4 TS	41 CrMo 4		708 M 40	2244		SCM 440	40 ChFA	G 41420	4142; 4140
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
		1.7228	50 CrMo 4	50 CR MO4			708 A 47			SCM 445 (H)	50ChFA	G 41470	4150
		1.7561	42 CrV 6			15 241							
		1.7735	14 CrMoV 6 9	15 CDV 6									
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230		SUP 10	50ChGFA	G 61500	6150
		1.3563	43 CrMo 4										
		1.3565	48 CrMo 4				817 M 40			SNC 836			
		1.5120	38 MnSi 4										
		1.5121	46 MnSi 4										
		1.5122	37 MnSi 4			13 240							
		1.5223	42 MnV 7			13 242							
		1.5710	36 NiCr 6	35 NC 6		16 240	640 A 35			SNC 236			3135
		1.5736	36 NiCr 10	30 NC 11	35 NiCr 9					SNC 631 (H)			3435
		1.5864	35 NiCr 18			16 640			F-122				
		1.6511	36 CrNiMo 4	40 NCD 3	38 NiCrMo 4 (KB)	16 341	816 M 40				40 ChN2MA	G 98400	9840
		1.6580	30 CrNiMo 8	30 CND 8	30 NiCrMo 8		823 M 30		F-1272	SNCM 431			
		1.6582	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA		4340
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7034	37 Cr 4	38 C 4	38 Cr 4	14 140	530 A 36			SCr 435 H	40Ch		5135
		1.7035	41 Cr 4	42 C 4	41 Cr 4		530 M 40			SCr 440 (H)	40Ch	G 51400	5140
		1.7045	42 Cr 4	42 C 4 TS	41 Cr 4		530 A 40	2245		SCr 440	40Ch		5140
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7223	41 CrMo 4	42 CD 4 TS	41 CrMo 4		708 M 40	2244		SCM 440	40 ChFA	G 41420	4142; 4140
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
		1.7228	50 CrMo 4	50 CR MO4			708 A 47			SCM 445 (H)	50ChFA	G 41470	4150
		1.7361	32 CrMo 12	30 CD 12	32 CrMo 12	15 230	722 M 24	2240	F-124A				
		1.7561	42 CrV 6			15 241							
		1.7707	30 CrMoV 9			15 330							
		1.7735	14 CrMoV 6 9										
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230		SUP 10	50ChGFA	G 61500	6150
		1.8161	58 CrV 4			15 261							
	1.9	0.9650	G-X 260 Cr 27										
		1.1118	GS-24 Mn 6			42 2714							
		1.1167	GS-36 Mn 5			42 2715							
		1.6511	GS-36 CrNiMo 4			16 341							
		1.6582	GS-34 CrNiMo 6			16 342							
		1.6750	GS-20 NiCrMo 3 7										
	1.10	1.8504	34 CrAl 6			14 340							
		1.8506	34 CrAlS 5									K 23745	
		1.8507	34 CrAlMo 5	30 CAD 6.12	34 CrAlMo 7		905 M 31		F-1741			K 23545	A 355 Cl. D
		1.8509	41 CrAlMo 7	40 CAD 6.12	41 CrAlMo 7	15 340	905 M 39	2940	F-1740	SACM 645	38ChMJuA	K 24065	A 355 Cl. A
	1.11	1.8515	31 CrMo 12	30 CD 12	31 CrMo 12		722 M 24	2240	F-1712				
		1.8519	31 CrMoV 9						F-1721				
		1.8521	15 CrMoV 5 9										
		1.8523	39 CrMoV 13 9		36 CrMoV 13 9		897 M 39						
		1.8550	34 CrAlNi 7									K 52440	
	1.12	1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.3520	100 CrMn 6			14 209							
		1.3543	X 102 CrMo 17	Z 100 CD 17									

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	1.13	1.0904	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2		9255
		1.0961	60 SiCr 7	60 SC 7	60 SiCr 8					SUP 7			9262
		1.1231	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700	1070
		1.1248	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780	1078; 1080
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
		1.2101	62 SiMnCr 4										
		1.2103	58 SiCr 8			19 452							
		1.5026	55 Si 7										
		1.7103	67 SiCr 5										
		1.7176	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550	5155
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230	F-143 / F-1430	SUP 10	50ChGFA	G 61500	6150
	1.14	1.3202	S 12-1-4-5			19 858						T 12015	T15
		1.3207	S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57			
		1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5		
		1.3246	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341	M 41
		1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342	M 42
		1.3249	S 2-9-2-8				BM 34					T 11333	M 33; M 34
		1.3255	S 18-1-2-5	Z 80 WKCV 18-05-04-0	HS 18-1-1-5	19 855	BT 4			SKH 3		T 12004	T 4
		1.3257	S 18-1-2-15										
		1.3265	S 18-1-2-10		HS 18-0-1-10	19 860	BT 5			SKH 4 A		T 12005	T 5
		1.3302	S 12-1-4			19 810							
		1.3318	S 12-1-2			19 802							
		1.3333	S 3-3-2		HS 3-3-2	19 820							
		1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302	M 2
		1.3344	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323	M 3 Cl. 2
		1.3346	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301	H 41; M 1
		1.3348	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307	M 7
		1.3355	S 18-0-1	Z 80 WCV 18-04-01	HS 18-0-1	19 824	BT 1			SKH 2	R18	T 12001	T 1
	1.15	1.2067	100 Cr 6	Y 100 C 6			BL 3					T 61203	L 3
		1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2083	X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2			
		1.2101	62 SiMnCr 4										
		1.2103	58 SiCr 8			19 452							
		1.2108	90 CrSi 5										
		1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2312	40 CrMnMoS 8 6	40 CMD 8 + S									
		1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.2330	35 CrMo 4	34 CD 4	35 CrMo 4		708 A 37	2234			35 HM	T 51620	4135
		1.2332	47 CrMo 4	42 CD 4	40 CrMo 4		708 M 40	2244					4142
		1.2341	X 6 CrMo 4										
		1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2369	81 CrMov 42 16										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2419	105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG		
		1.2436	X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2			
		1.2510	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501	O 1
		1.2516	120 WV 4	110 WC 20	110 W 4 KU	19 711	BF 1						
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2601	X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310					
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206	L 6

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	1.15	1.2721	50 NiCr 13										
		1.2735	15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606	
		1.2762	75 CrMoNiW 6 7										
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.2826	60 MnSiCr 4										
		1.2833	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302	W 210
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									
		1.6356	X 2 NiCoMoTi 18 12 4										
		1.6358	X 2 NiCoMoTi 18 9 5										
		1.6359	X 2 NiCrMo 18 8 5	Maraging 250								K 92890	
	1.16	1.2311	40 CrMnMo 7			19 520							
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	X 40 CrMo 5 1 1 KU	19 554	BH 13	2242	F-5318	SKD 61	4Ch5MF1S	T 20813	H 13
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2367	X 38 CrMoV 5 3										
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2706	X 3 NiCrMo 18 8 5	E-Z 2 NKD 18		19 662						K 93120	
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662				SKT 4	5ChNM	T 61206	L 6
		1.2714	56 NiCrMoV7										
		1.2738	40 CrMnNiMo 8						F-5303				
		1.2744	57 NiCrMoV 7 7										
M	2.1	1.3941	G-X 4 CrNi 18 13										
		1.3944	G-X 5 CrNi 18 11										
		1.3951	G-X 4 CrNiMoN 22 15										
		1.3952	G-X 4 CrNiMoN 18 14										
		1.3953	G-X 2 CrNiMo 18 15										
		1.3955	G-X 12 CrNi 18 11										
		1.3959	G-X 10 CrNiNb 16 13										
		1.3964	G-X 4 CrNiMn-MoN 19 1										
		1.4001	G-X 7 Cr 13	Z 8 C 13 FF		17 020			F-8401				
		1.4006	G-X 10 Cr 13	Z 10 C 13 M		17 021			F-3401				
		1.4008	G-X 8 CrNi 13	Z 12 CN 13 M		42 2904							
		1.4027	G-X 20 Cr 14	Z 20 C 13 M		42 2906	420 C 29			SCS 2	20Ch13L		
		1.4034	G-X 46 Cr 13	Z 40 C 14 M		17 024			F-3405				
		1.4059	G-X 22 CrNi 17										
		1.4085	G-X 70 Cr 29										
		1.4086	G-X 120 Cr 29										
		1.4107	G-X 8 CrNi 12			42 2904							
		1.4120	G-X 20 CrMo 13										
		1.4122	G-X 35 CrMo 17			17 137							
		1.4136	G-X 70 CrMo 29 2										
		1.4138	G-X 120 CrMo 29 2										
		1.4306	G-X 2 CrNi 18 9			17 249			F-3503				
		1.4308	G-X 6 CrNi 18 9	Z 6 CN 18.10 M		42 2930	304 C 15	2333	F-8411	SCS 13	07Ch18N9L		CF-8
		1.4312	G-X 10 CrNi 18 8			42 2931							
		1.4313	G-X 5 CrNi 13 4										
		1.4339	G-X 32 CrNi 28 10										
		1.4340	G-X 40 CrNi 27 4										
		1.4347	G-X 8 CrNi 26 7										
		1.4404	G-X 2 CrNiMo 18 10			17 349			F-3533				

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
		1.4405	G-X 5 CrNiMo 16 5										
		1.4407	G-X 5 CrNiMo 13 4										
		1.4408	G-X 6 CrNiMo 18 10			42 2940			F-8414				
		1.4414	G-X 4 CrNiMo 13 4										
		1.4437	G-X 6 CrNiMo 18 12			42 2940							
		1.4439	G-X 3 CrNiMo 17 13 5						F-3544				
		1.4446	G-X 2 CrNiMo 17 13 4										
		1.4448	G-X 6 CrNiMo 17 13										
		1.4463	G-X 6 CrNiMo 24 8 2										
		1.4464	G-X 40 CrNiMo 27 5										
		1.4465	G-X 2 CrNiMoN 25 25										
		1.4500	G-X 7 NiCrMo-CuNb 25										
		1.4531	G-X 2 NiCrMo-CuN 20 1										
		1.4536	G-X 2 NiCrMo-CuN 25 2										
		1.4540	G-X 4 CrNiCuNb 16 4										
		1.4552	G-X 5 CrNiNb 18 9			42 2933			F-8413				
		1.4580	G-X 10 CrNiMoNb 18 1						F-3536				
		1.4581	G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12 M	GX 6 CrMoNb 20 11	42 2941	318 C 17			SCS 22			
		1.4585	G-X 7 CrNiMo-CuNb 18										
		1.4729	G-X 40 CrSi 13										
		1.4740	G-X 40 CrSi 17										
		1.4743	G-X 160 CrSi 18										
		1.4745	G-X 40 CrSi 23										
		1.4761	G-X 120 CrSi 23										
		1.4776	G-X 40 CrSi 29										
		1.4777	G-X 130 CrSi 29										
M	**2.1**	1.4809	G-X 40 CrNi 23 14										
		1.4815	G-X 8 CrNi 19 10										
		1.4820	G-X 12 CrNi 26 5										
		1.4822	G-X 40 CrNi 24 5										
		1.4823	G-X 40 CrNiSi 27 4										
		1.4825	G-X 25 CrNiSi 18 9			42 2932							
		1.4826	G-X 40 CrNiSi 22 9			42 2934							
		1.4832	G-X 25 CrNiSi 20 14										
		1.4837	G-X 40 CrNiSi 25 12			42 2936							
		1.4840	G-X 15 CrNi 25 20										
		1.4848	G-X 40 CrNiSi 25 20		GX 40 CrNi 26 20	42 2952							
		1.4849	G-X 40 NiCrSiNb 38 1										
		1.4852	G-X 40 NiCrNb 35 25										
		1.4855	G-X 30 CrNiSiNb 24 2										
		1.4857	G-X 40 NiCrSi 35 25										
		1.4859	G-X 10 NiCrNb 32 20										
		1.4865	G-X 40 NiCrSi 38 18		GX 50 NiCr 39 19		330 C 40			SCH 15; SCH 16			
		1.4868	G-X 50 CrNi 30 30										
		1.4873	G-X 45 CrNiW 18 9										
		1.4927	G-X 5 CrNi 22 10										
		1.4928	G-X 12 CrNiMo-CoVN 12										
		1.4930	G-X 14 CrCoMo 13 10										
		1.4931	G-X 22 CrMoV 12 1										
		1.4957	G-X 15 CrNiCo 21 20										
		1.4968	G-X 7 CrNiNb 16 13										
		1.4988	G-X 8 CrNi-MoVNb 16 1										
		1.6901	G-X 8 CrNi 18 10										

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M	2.1	1.6902	G-X 6 CrNi 18 10										
		1.6905	G-X 5 CrNiNb 18 10										
		1.6982	G-X 3 CrNi 13 4										
	2.2	1.4000	X 6 Cr 13	Z 6 C 13	X 6 Cr 13	17 020	403 S 17	2301		SUS 403	08Ch13	S 40300	403
		1.4002	X 6 CrAl 13	Z 6 CA 13	X 6 CrAl 13		405 S 17	2302	F-3111	SUS 405		S 40500	405
		1.4016	X 6 Cr 17	Z 8 C 17	X 8 Cr 17	17 040	430 S 15	2320	F-3113	SUS 430	12Ch17	S 43000	430
		1.4105	X 4 CrMoS 18						F-3114				
		1.4510	X 6 CrTi 17	Z 8 CT 17	X 6 CrTi 17					SUS 430 LX	08Ch17T	S 43036	XM 8; 430 Ti
		1.4511	X 8 CrNb 17	Z 8 CNb 17	X 6 CrNb 17				F-3122	SUS 430 LX			
		1.4512	X 5 CrTi 12	Z 6 CT 12	X 6 CrTi 12		409 S 19		F-3121	SUH 409		S 40900	409
		1.4528	X 105 CrCoMo 18 2										
	2.3	1.4006	X 10 Cr 13	Z 12 C 13	X 12 Cr 13	17 021	410 S 21	2302	F-3401	SUS 410	12Ch13	S 41000	410; CA-15
		1.4021	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000	420
		1.4024	X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1			
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4057	X 20 CrNi 17 2	Z 15 CN 16.02	X 16 CrNi 16	17 145	431 S 29	2321	F-3427	SUS 431	20Ch17N2	S 43100	431
		1.4106	X 2 CrMoSiS 18 2 1										
		1.4108	X 100 CrMo 13										
		1.4109	X 65 CrMo 14										
		1.4112	X 90 CrMoV 18									S 44003	
		1.4113	X 6 CrMo 17	Z 8 CD 17.01	X 8 CrMo 17		434 S 17	2325	F-3116	SUS 434		S 43400	434
		1.4116	X 45 CrMoV 15						F-3422				
		1.4125	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004	440 C
	2.4	1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4104	X 12 CrMoS 17	Z 10 CF 17	X 10 CrS 17	17 140		2383	F-3403	SUS 430 F		S 43020	430 F
		1.4313	X 5 CrNi 13 4	Z 5 CN 13.4	X 6 CrNi 13 04		425 C 11	2385		SCS 5			CA 6-NM
	2.5	1.4410	X 2 CrNiMoN 25 7 4	Z2 CND 25 07 04 Az					F-3552				F53
		1.4460	X 8 CrNiMo 27 5	Z5 CND 25 05 AZ									329 LN
		1.4462	X 2 CrNiMoN 22 5 3	Z2 CND 22 05 03 AZ (Uranus 45 N)		17 381			F-3308			S 31803	329 A (F51)
		1.4501	X 2 CrNiMoCuWN 25 7 4	Z2 CNDUW 25 07 04 Az (Zeron 100)								S 32760	F55
		1.4507	X 2 CrNiMOCuN 25 6 3	Z3 CNDU 25 07 Az (Uranus 52 N)								S 32750	F61
		1.4539	X 1 NiCrMoCu 25 20 5	Z2 NCDU 25 20 (Uranus B6)									904L
		1.4542	X 7 CrNiCu 16 4 4	Z7 CNU 17 04 04 (17-4PH)									630
		1.4547	X 1 CrNiMoCuN 20 18 17	Z1 CNDU 20 18 06 Az (254 SMO)									F44
		1.4821	X 20 CrNiSi 25 4	Z20 CNS 25 04									
			X 5 CrNiCu 15 5	E-Z5 CNU 15 05 (15-5PH)					F-3308				
	2.6	1.4301	X 5 CrNi 18 10	Z6 CN 18-09		17 240			F-3504				304
		1.4305	X 8 CrNiS 18 9	Z8 CNF 18-03		17 243							303
		1.4306	X 2 CrNi 19-11	Z3 CN 18-10		17 249			F-3503				304 L
		1.4311	X 2 CrNiN 18 10			17 249							304 LN
		1.4401	X 5 CrNiMo 17 12 2	Z6 CND 17 12 02		17 346			F-3543				316
		1.4404	X 2 CrNiMo 17 12 2	Z3 CND 17 12 02		17 349							316 L
		1.4429	X 2 CrNiMoN 17 11 2	Z3 CND 17 11 03 Az									316 LN
		1.4449	X 3 CrNiMo 18 12 3										
		1.4541	X 6 CrNiTi 18 10			17 248							321
		1.4550	X 10 CrNiNb 18-9	Z10 CNNb 18-10		17 245			F-3552 / F-3524				347
		1.4568	X 7 CrNiAl 17 7										17-7 PH
		1.4571	X 6 CrNiMoTi 17 12 2	Z 6 CNT 17.12	X 6 CrNiMoTi 17 12	17 348	320 S 31	2350	F-3535		10Ch17N-13M2T	S 31635	316 Ti
	2.7	1.4747	X 80 CrNiSi 20										
		1.4841	X 15 CrNiSi 25-20	Z15 CNS 25-20									314
		1.4876	X 10 NiCrAlTi 32 21	Z10 NCAT 32-21 (Incoloy 800)					F-3314				

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K	3.1	0.6010	GG-10	Ft 10 D	G 10	42 2410		01 10-00		FC 10	Sc 10		A48-20 B
		0.6015	GG-15	Ft 15 D	G 15	42 2415	Grade 150	01 15-00	FG-15	FC 15	Sc 15		A48-25 B
		0.6020	GG-20	Ft 20 D	G 20	42 2420	Grade 220	01 20-00	FG-20	FC 20	Sc 20		A48-30 B
		0.6025	GG-25	Ft 25 D	G 25	42 2425	Grade 260	01 25-00	FG-25	FC 25	Sc 25		A48-40 B
	3.2	0.6030	GG-30	Ft 30 D	G 30	42 2430	Grade 300	01 30-00	FG-30	FC 30	Sc 30		A48-45 B
		0.6035	GG-35	Ft 35 D	G 35	42 2435	Grade 350	01 35-00	FG-35	FC 35	Sc 35		A48-50 B
		0.6040	GG-40	Ft 40 D		42 2440	Grade 400	01 40-00			Sc 40		A48-60 B
	3.3	0.7033	GGG-35.3			42 2303							
		0.7040	GGG-40	FGS 400-12	GS 400-12	42 2304	SNG 420/12	0717-02	FGE 38-17	FCD 40	VC 42-12		60 40 18
		0.7043	GGG-40.3	FGS 370-17	GSO 42/17	42 2314	SNG 370/17	0717-15			VC 42-12		
		0.7050	GGG-50	FGS 500-7	GS 500/7	42 2305	SNG 500/7	0727-02	FGE 50-7	FCD 50	VC 50-2		65-45-12
	3.4	0.7060	GGG-60	FGS 600-3	GS 600/3	42 2306	SNG 600/3	0732-03		FCD 60	VC 60-2		80-55-06
		0.7070	GGG-70	FGS 700-2	GS 700-2	42 2307	SNG 700/2	0737-01	FGS 70-2	FCD 70	VC 70-2		100-70-03
		0.7080	GGG-80	FGS 800-2	GS 800-2	42 2308	SNG 800/2				VC 80-2		120-90-02
	3.5	0.8035	GTW-35-04			42 2536			GTW 35				
		0.8040	GTW-40-05			42 2540							
		0.8045	GTW-45-07										
	3.6	0.8055	GTW-55										
		0.8065	GTW-65										
	3.7	0.8135	GTS-35-10	MN 35-10		42 2533	B 340/12		GTS 35				
		0.8145	GTS-45-06			42 2545	P 440/7		GTS 45				
	3.8	0.8155	GTS-55-04	MP 50-5		42 2555	P 510/4		GTS 55				
		0.8165	GTS-65-02	MP 60-3			P 570/3		GTS 65				
		0.8170	GTS-70-02	IP 70-2			P 690/2		GTS 70				
N	4.1	3.0205	Al99	1200 (A4)	9001/1	42 4009			L-3001				
		3.0255	Al99.5	1050 A	9001/2	42 4004			L-3051				
		3.0256	E-Al H			42 4105							
		3.0275	Al99.7	1070 A		42 4003			L-3071				
		3.0285	Al99.8	1080 A (A8)		42 4002			L-3081				
		3.0305	Al99.9										
		3.3308	Al99,9Mg0,5										
	4.2	3.0515	AlMn1			42 4432			L-3810				
		3.1255	AlCuSiMn		9002/3								2014
		3.1325	AlCuMg1	2017 A (AU4G)					L-3120				2017 A
		3.1355	AlCuMg2	2024 (AU4G1)	9002/4	42 4203			L-3140				2024
		3.1655	AlCuBiPb	2011 (AU5PbBi)	9002/5				L-3192				2011
		3.3315	AlMg1	5005 (AlMg1)					L-3350				
		3.3545	AlMg4Mn	5086 (AG4MC)	9005/5				L-3322				5083
		3.3547	AlMg4,5Mn0,7	5083 (AlMg5Mn0,7)			N8		L-3321	A 5083			A95083
		3.4335	AlZn4,5Mg1	7020 (AZ5G)	9007/1	42 4441			L-3741				7020
		3.4365	AlZnMgCu1.5	7075 (AZ5GU)		42 4222			L-3710				7075
	4.3	3.1371	G-AlCu4TiMg										
		3.1645	AlCuMgPb	2030 (AU4PB)		42 4254			L-3121				
		3.1841	G-AlCu4Ti										
		3.2134	G-AlSi5Cu1Mg										
		3.2151	G-AlSi6Cu4			42 4357							
		3.2161	G-AlSi8Cu3										
		3.2315	AlMgSi1		9006/4	42 4400							6082
		3.2341	G-AlSi5Mg										
		3.2371	G-AlSi7Mg			42 4334							
		3.2373	G-AlSi9Mg			42 4331							
		3.2381	G-AlSi10Mg			42 4331							
		3.2383	G-AlSi10Mg(Cu)			42 4331							

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N	4.3	3,3206	AlMgSi0,5	6060 (AGS)		42 4401			L-3441				6063
		3.3207	E-AlMgSi0,5		9006/3								6101
		3.3214	AlMgSi0,5		9006/2								6061
		3.3241	G-AlMg3Si										
		3.3261	G-AlMg5Si			42 4515							
		3.3292	GD-AlMg9			42 4519							
		3.3541	G-AlMg3										
		3.3543	G-AlMg3(Cu)										
		3.3561	G-AlMg5										
		3.3591	G-AlMg10										
	4.4	3.2581	G-AlSi12			42 4330							
		3.2583	G-AlSi12(Cu)			42 4330							
	4.5		G-AlSi18										
			G-AlSi17Cu4										
			G-AlSi25CuNiMg										
			G-AlSi21CuNiMg										
	4.6	2.0040	OF-Cu			42 3000							
		2.0060	E-Cu57			42 3001							
		2.0065	E-Cu58			42 3001							
		2.0070	SE-Cu										
		2.0076	SW-Cu										
		2.0090	SF-Cu			42 3003							
		2.1522	CuSi2Mn										
	4.7	2.0205	CuZn0.5										
		2.0850	CuNi2Be										
		2.0853	CuNi1.5Si										
		2.0855	CuNi2Si			42 3054							
		2.0857	CuNi3Si										
		2.1160	CuPb1P										
		2.1191	CuAg0.1P										
		2.1203	CuAg0.1										
		2.1245	CuBe1.7										
		2.1247	CuBe2										
		2.1248	CuBe2Pb										
		2.1265	CuCd0.5										
		2.1266	CuCd1										
		2.1285	CuCo2Be										
		2.1310	CuFe2P										
		2.1322	CuMg0.4										
		2.1323	CuMg0.7										
		2.1356	CuMn3										
		2.1363	CuMn2										
		2.1366	CuMn5										
		2.1491	CuAsP										
		2.1498	CuSP										
		2.1546	CuTeP										
		2.1580	CuZr										
	4.8	2.0916	CuAl5										
		2.1525	CuSi3Mn										
			Ampco 8-16										
	4.9	2.0987	CuAl11Ni6Fe5										
			Ampco 18-26										

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N	4.10	2.1247	CuBe2F125										
			Ampco M-4										
	4.11	2.0331	CuZn36Pb1.5			42 3214							
		2.0371	CuZn38Pb1.5			42 3222							
		2.0375	CuZn36Pb3										
		2.0380	CuZn39Pb2			42 3223							
		2.0401	CuZn39Pb3										
		2.0402	CuZn40Pb2			42 3223							
		2.0410	CuZn44Pb2										
		2.0460	CuZn20Al2										
		2.0470	CuZn28Sn1										
		2.0490	CuZn31Si1										
		2.0500	CuZn23Al6M-n4Fe3										
		2.0510	CuZn37Al1			42 3231							
		2.0525	CuZn38SnAl										
		2.0530	CuZn38Sn1			42 3237							
		2.0540	CuZn35Ni2										
		2.0550	CuZn40Al2										
		2.0561	CuZn40Al1			42 3231							
		2.0572	CuZn40Mn1			42 3234							
		2.0580	CuZn40Mn1Pb										
	4.12	2.0220	CuZn5			42 3200							
		2.0230	CuZn10			42 3201							
		2.0240	CuZn15			42 3202							
		2.0250	CuZn20			42 3203							
		2.0261	CuZn28										
		2.0265	CuZn30			42 3210							
		2.0280	CuZn33			42 3212							
		2.0321	CuZn37		C2700	42 3213							
		2.0332	CuZn37Pb0.5										
		2.0335	CuZn36										
		2.0360	CuZn40			42 3220							
		2.0372	CuZn39Pb0.5			42 3221							
		2.1080	CuSn6Zn6										
		2.1293	CuCrZr			42 3039							
	4.13	PE	Baylon	Lacqtène	Alkathene		Eraclene			Mirason			Alathon
		PE	Dekalen	Natène	Carlona		Fertene			Novatec			Bakelite
		PE	Ertalen		Escorene		Rumiten			Rexlon			Chemplex
		PE	Hostalen							Sholex			Dylan
		PE	Lupolen							Sumikathene			Fortiflex
		PE	Supralen							Suntec			Marlex
		PE	Symalen							Staflene			Microthene
		PE	Vestolen							Yukalon			Paxon
		PE											Petrothene
		PE											Poly-Eth
		PE											Rigidex
		PE											Rotothene
		PP	Daplen	Eltex P	Carlona P		Kastilen			Noblene			Pro-fax
		PP	Hostalen PP	Lacqtène P	Propathene		Moplen			Poly-Pro			Rexene
		PP	Luparen	Napryl	Procom					Sho-Allomer			Tenite
		PP	Novolen		Propyply								
		PP	Symalen PP		Propafoil								
		PP	Vestolen PP										

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N	4.13	PVC	Coroplast	Ekavyl	Breon		Raivinil	Pevikon		Nipeon			Dalvin
		PVC	Hostalit		Carina		Sicron			Nipolit			Geon
		PVC	Mipolam		Corvic		Vipla			Vinika			Kohinor
		PVC	Opalon		Scon		Viplast			Vinichlon			Marvinol
		PVC	Rhodopas		Shell PVC								Pliovic
		PVC	Soflex		Welvic								Vygen
		PVC	Solvec										
		PVC	Supradur										
		PVC	Trosiplast										
		PVC	Trovidur										
		PVC	Vestolit										
		PVC	Vinidur										
		PVC	Vinnol										
		PVC	Vinoflex										
		PVC	Vinylite										
			Delrin, Hostalen										
			Makrolon, Novodur										
			Acrylglas										
	4.14		Ferrozell, Bakelit										
			Pertinax										
			Resopal										
	4.15		GFK										
			CFK										
			AFK										
	4.16	3.5101	G-MgZn4SE1Zr1										
		3.5102	G-MgZn5Th2Zr1										
		3.5103	G-MgSE3Zn2Zr1										
		3.5105	G-MgTh3Zn2Zr1										
		3.5106	G-MgAg3Se2Zr1										
		3.5200	MgMn2										
		3.5312	MgAl3Zn										
		3.5470	GD-MgAl4Si1										
		3.5612	MgAl6Zn										
		3.5612	GD-MgAl6Zn1										
		3.5662	G-MgAl6										
		3.5812	MgAl8Zn			42 4911							
		3.5812	G-MgAl8Zn1			42 4911							
		3.5912	G-MgAl9Zn1			42 4911							
	4.17	Graphit	R8340										
		Graphit	R8500X										
		Graphit	Technograph 15										
		Graphit	Technograph 30										
		Graphit	R8510										
		Graphit	R8650										
		Graphit	Union Poco EDM C-3										
		Graphit	Union Poco EDM1										
		Graphit	Union Poco EDM3										
	4.18		W-NiFe (Densimet W)										
			W-Cu80/20										
			W93NiFe (Denal)										
	4.19		Mo, Mo-50Re										
			TZC, TZM										
			MHC, ODS										

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S	5.1	1.3911	RNi24			42 3481							
		1.3926	RNi12			42 3484							
		1.3927	RNi8			42 3484							
	5.2	1.3912	Ni36	Invar									
		1.3921	Ni49										
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CERATIZIT WNT LIMITED

Terms & Conditions for the Supply of Goods and/or Services
March 2017

1. **INTERPRETATION**

1.1 In these Conditions, the following definitions apply:
Business Day: a day (other than a Saturday, Sunday or public holiday) when banks in London are open for business.
Conditions: the terms and conditions set out in this document.
Consignment Stock Agreement: a consignment stock agreement between the Supplier and the Customer.
Contract: the contract between the Supplier and the Customer for the sale and purchase of the Goods and/or Services in accordance with these Conditions or pursuant to a Consignment Stock Agreement (as the case may be).
Customer: the person or firm who purchases the Goods and/or Services from the Supplier.
Force Majeure Event: has the meaning given in clause 10.
Goods: the goods (or any part of them) set out in the Order.
Order: the Customer's order for the Goods and/or Services, as set out in the order form on the Supplier's website, the Customer's purchase order form, the verbal order provided by the Customer to the Supplier or in the Customer's written acceptance of the Supplier's quotation in the Customer's purchase order form, or overleaf, as the case may be.
Order Confirmation: an order confirmation document sent by the Supplier to the Customer.
Services: the services supplied by the Supplier to the Customer as set out in the Order Confirmation.
Specification: any specification for the Goods and/or Services.
Supplier: Ceratizit WNT Limited (CRN: 03772242).

1.2 In these Conditions, the following rules apply:
(a) A **person** includes a natural person, corporate or unincorporated body (whether or not having separate legal personality).
(b) A reference to a party includes its personal representatives, successors or permitted assigns.
(c) A reference to a statute or statutory provision is a reference to such statute or provision as amended or re-enacted. A reference to a statute or statutory provision includes any subordinate legislation made under that statute or statutory provision, as amended or re-enacted.
(d) Any phrase introduced by the terms **including, include, in particular** or any similar expression shall be construed as illustrative and shall not limit the sense of the words preceding those terms.

2. **BASIS OF CONTRACT**

2.1 These Conditions apply to the Contract to the exclusion of any other terms that the Customer seeks to impose or incorporate, or which are implied by trade, custom, practice or course of dealing.

2.2 To the extent that clauses in these Conditions are not inconsistent with the clauses of the Consignment Stock Agreement, the clauses in the Conditions shall apply to the Consignment Stock Agreement.
In the event of any inconsistency between the Conditions and the Consignment Stock Agreement, the clauses of the Consignment Stock Agreement shall prevail.

2.3 The Order constitutes an offer by the Customer to purchase the Goods and/or Services in accordance with these Conditions. The Customer is responsible for ensuring that the terms of the Order, and any applicable Specification submitted by the Customer (if any), are complete and accurate.

2.4 The Order shall only be deemed to be accepted when the Supplier issues an Order Confirmation, at which point the Contract shall come into existence.

2.5 The Contract constitutes the entire agreement between the parties. The Customer acknowledges that it has not relied on any statement, promise, representation, assurance or warranty made or given by or on behalf of the Supplier which is not set out in the Contract.

2.6 Any samples, drawings, descriptive matter, or advertising produced by the Supplier and any descriptions or illustrations contained in the Supplier's catalogues or brochures or on the Supplier's website are produced for the sole purpose of giving an approximate idea of the Goods described in them. They shall not form part of the Contract or have any contractual force.

2.7 A quotation for the Goods given by the Supplier shall not constitute an offer. A quotation shall only be valid for a period of 20 Business Days from its date of issue.

2.8 All of these Conditions shall apply to the supply of both Goods and Services except where application to one or the other is specified.

3. **GOODS AND SERVICES**

3.1 The Supplier reserves the right to amend the Specification if required by any applicable statutory or regulatory requirements.

3.2 The Supplier shall provide the Services to the Customer in accordance with the Order Confirmation in all material respects.

3.3 The Customer shall co-operate with the Supplier in all matters relating to the provision of the Services.

3.4 The Supplier warrants to the Customer that the Services will be provided using reasonable care and skill.

4. **DELIVERY**

4.1 The Supplier shall ensure that:
(a) each delivery of the Goods is accompanied by a delivery note which shows the date of the Order, all relevant Customer and Supplier reference numbers, the type and quantity of the Goods (including the code number of the Goods, where applicable), special storage instructions (if any) and, if the Order is being delivered by instalments, the outstanding balance of Goods remaining to be delivered; and
(b) if the Supplier requires the Customer to return any packaging materials to the Supplier, that fact is clearly stated on the delivery note. The Customer shall make any such packaging materials available for collection at such times as the Supplier shall reasonably request. Returns of packaging materials shall be at the Supplier's expense.

4.2 The Supplier shall deliver the Goods to the location set out in the Order or such other location as the parties may agree (**Delivery Location**) at any time after the Supplier notifies the Customer that the Goods are ready.

4.3 Delivery of the Goods shall be completed on the Goods' arrival at the Delivery Location.

4.4 Any dates quoted for delivery are approximate only, and the time of delivery is not of the essence.
The Supplier shall not be liable for any delay in delivery of the Goods that is caused by a Force Majeure Event or the Customer's failure to provide the Supplier with adequate delivery instructions or any other instructions that are relevant to the supply of the Goods.

4.5 If the Supplier fails to deliver the Goods, its liability shall be limited to the costs and expenses incurred by the Customer in obtaining replacement goods of similar description and quality in the cheapest market available, less the price of the Goods. The Supplier shall have no liability for any failure to deliver the Goods to the extent that such failure is caused by a Force Majeure Event or the Customer's failure to provide the Supplier with adequate delivery instructions or any other instructions that are relevant to the supply of the Goods.

4.6 The Customer shall not be entitled to reject the Goods if the Supplier delivers up to and including 5 % more or less than the quantity of Goods ordered but a pro rata adjustment shall be made to the Order invoice on receipt of notice from the Customer that the wrong quantity of Goods was delivered.

4.7 The Supplier may deliver the Goods by instalments, which shall be invoiced and paid for separately. Each instalment shall constitute a separate Contract. Any delay in delivery or defect in an instalment shall not entitle the Customer to cancel any other instalment.

5. **QUALITY**

5.1 The Supplier warrants that on delivery and for a period of 20 Business Days from the date of delivery (**warranty period**), the Goods shall:
(a) conform in all material respects with their description and any applicable Specification;
(b) be free from material defects in design, material and workmanship;
(c) be of satisfactory quality (within the meaning of the Sale of Goods Act 1979); and
(d) be fit for any purpose held out by the Supplier.

5.2 Subject to clause 5.3, if the Customer gives notice in writing to the Supplier in the warranty period that:
(a) some or all of the Goods do not comply with any warranty set out in clause 5.1; or
(b) it wishes to return the Goods for any reason the Supplier shall issue a returns number to the Customer and the Customer shall return the Goods to the Supplier by freepost (at the Supplier's cost) or make available for collection by any person nominated by the Supplier (at the Supplier's cost) the Goods. For the avoidance of doubt any other method of returning the Goods shall be at the cost of the Customer. The Customer shall be entitled, at its option, for the returned Goods to be replaced or the price of the returned Goods refunded.

5.3 The Supplier shall not be liable for the Goods' failure to comply with the warranty set out in clause 5.1 and/or return the Goods pursuant to clause 5.2(b) in any of the following events:
(a) the Customer makes any use of such Goods after giving notice in accordance with clause 5.2;
(b) the defect arises because the Customer failed to follow the Supplier's oral or written instructions as to the storage, commissioning, installation, use and maintenance of the Goods or (if there are none) good trade practice regarding the same;
(c) the defect arises as a result of the Supplier following any drawing, design or Specification supplied by the Customer;
(d) the Customer alters or repairs such Goods without the written consent of the Supplier;
(e) the defect arises as a result of fair wear and tear, wilful damage, negligence, or abnormal storage or working conditions; or
(f) the Goods differ from their description or the Specification as a result of changes made to ensure they comply with applicable statutory or regulatory requirements.

5.4 Except as provided in this clause 5, the Supplier shall have no liability to the Customer in respect of the Goods' failure to comply with the warranty set out in clause 5.1.

5.5 The terms implied by sections 13 to 15 of the Sale of Goods Act 1979 are, to the fullest extent permitted by law, excluded from the Contract.

5.6 These Conditions shall apply to any repaired or replacement Goods supplied by the Supplier.

6. **TITLE AND RISK**

6.1 The risk in the Goods shall pass to the Customer on completion of delivery.

6.2 Title to the Goods shall not pass to the Customer the Supplier receives payment in full (in cash or cleared funds) for the Goods.

6.3 Until title to the Goods has passed to the Customer, the Customer shall:
(a) store the Goods separately from all other goods held by the Customer so that they remain readily identifiable as the Supplier's property;
(b) not remove, deface or obscure any identifying mark or packaging on or relating to the Goods;
(c) maintain the Goods in satisfactory condition and keep them insured against all risks for their full price from the date of delivery;
(d) notify the Supplier immediately if it becomes subject to any of the events listed in clause 8.2; and
(e) give the Supplier such information relating to the Goods as the Supplier may require from time to time.

6.4 If before title to the Goods passes to the Customer the Customer becomes subject to any of the events listed in clause 8.2, then, without limiting any other right or remedy the Supplier may have the Supplier may at any time:
(a) require the Customer to deliver up all Goods in its possession which have not been resold, or irrevocably incorporated into another product; and
(b) if the Customer fails to do so promptly, enter any premises of the Customer or of any third party where the Goods are stored in order to recover them.

7. **PRICE AND PAYMENT**

7.1 The price of the Goods and/or Services shall be the price set out in the Order Confirmation, or, if no price is quoted, the price set out in the Supplier's published price list in force as at the date of delivery.

7.2 The price of the Goods is exclusive of the costs and charges of packaging, insurance and transport of the Goods, which shall be invoiced to the Customer.

7.3 The price of the Goods and/or Services is exclusive of amounts in respect of value added tax (**VAT**). The Customer shall, on receipt of a valid VAT invoice from the Supplier, pay to the Supplier such additional amounts in respect of VAT as are chargeable on the supply of the Goods and/or Services.

7.4 The Supplier may invoice the Customer for the Goods and/or Services on or at any time after the completion of delivery.

7.5 The Customer shall pay the invoice in full and in cleared funds by the end of the month following the month the invoice was dated. Payment shall be made to the bank account nominated in writing by the Supplier. Time of payment is of the essence.

7.6 If the Customer fails to make any payment due to the Supplier under the Contract by the due date for payment, then the Customer shall pay interest on the overdue amount at the rate of 4% per annum above Barclays bank plc's base rate from time to time. Such interest shall accrue on a daily basis from the due date until actual payment of the overdue amount, whether before or after judgment. The Customer shall pay the interest together with the overdue amount.

7.7 The Customer shall pay all amounts due under the Contract in full without any set-off, counterclaim, deduction or withholding (except for any deduction or withholding required by law). The Supplier may at any time, without limiting any other rights or remedies it may have, set off any amount owing to it by the Customer against any amount payable by the Supplier to the Customer.

8. **TERMINATION AND SUSPENSION**

8.1 If the Customer becomes subject to any of the events listed in clause 8.2, the Supplier may terminate the Contract with immediate effect by giving written notice to the Customer.

8.2 For the purposes of clause 8.1, the relevant events are:
(a) the Customer suspends, or threatens to suspend, payment of its debts, or is unable (or deemed unable) to pay its debts as they fall due or admits inability to pay its debts;
(b) the Customer commences negotiations with all or any class of its creditors with a view to rescheduling any of its debts, or makes a proposal for or enters into any compromise or arrangement with its creditors;
(c) (being a company) a petition is filed, a notice is given, a resolution is passed, or an order is made, for or in connection with the winding up of the Customer;
(d) (being a company) an application is made to court, or an order is made, for the appointment of an administrator or if a notice of intention to appoint an administrator is given or if an administrator is appointed over the Customer;
(e) (being a company) the holder of a qualifying floating charge over the Customer's assets has become entitled to appoint or has appointed an administrative receiver;
(f) a person becomes entitled to appoint a receiver over the Customer's assets or a receiver is appointed over the Customer's assets;
(g) (being an individual) the Customer is the subject of a bankruptcy petition or order;
(h) a creditor or encumbrancer of the Customer attaches or takes possession of, or a distress, execution, sequestration or other such process is levied or enforced on or sued against, the whole or any part of its assets and such attachment or process is not discharged within 14 days;
(i) any event occurs, or proceeding is taken, with respect to the Customer in any jurisdiction to which it is subject that has an effect equivalent or similar to any of the events mentioned in clause 8.2(a) to clause 8.2(h) (inclusive);
(j) the Customer suspends, threatens to suspends, ceases or threatens to cease to carry on all or a substantial part of its business;
(k) the Customer's financial position deteriorates to such an extent that in the Supplier's opinion the Customer's capability to adequately fulfil its obligations under the Contract has been placed in jeopardy; and
(l) (being an individual) the Customer dies or, by reason of illness or incapacity (whether mental or physical), is incapable of managing his or her own affairs or becomes a patient under any mental health legislation.

8.3 Without limiting its other rights or remedies, the Supplier may suspend provision of the Goods under the Contract or any other contract between the Customer and the Supplier if the Customer becomes subject to any of the events listed in clause 8.2(a) to clause 8.2(l), or the Supplier reasonably believes that the Customer is about to become subject to any of them, or if the Customer fails to pay any amount due under this Contract on the due date for payment.

8.4 On termination of the Contract for any reason the Customer shall immediately pay to the Supplier all of the Supplier's outstanding unpaid invoices and interest.

8.5 Termination of the Contract, however arising, shall not affect any of the parties' rights, remedies, obligations and liabilities that have accrued as at termination.

8.6 Clauses which expressly or by implication survive termination of the Contract shall continue in full force and effect.

9. **LIMITATION OF LIABILITY – THE CUSTOMER'S ATTENTION IS DRAWN IN PARTICULAR TO CLAUSE 9**

9.1 Nothing in these Conditions shall limit or exclude the Supplier's liability for:
(a) death or personal injury caused by its negligence, or the negligence of its employees, agents or subcontractors (as applicable);
(b) fraud or fraudulent misrepresentation;
(c) breach of the terms implied by section 12 of the Sale of Goods Act 1979;
(d) breach of the terms implied by section 2 of the Supply of Goods and Services Act 1982; or
(e) any matter in respect of which it would be unlawful for the Supplier to exclude or restrict liability.

9.2 Subject to clause 9.1:
(a) the Supplier shall under no circumstances whatever be liable to the Customer, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, for any loss of profit, or any indirect or consequential loss arising under or in connection with the Contract; and
(b) the Supplier's total liability to the Customer in respect of damage to the tangible property of the Customer arising under or in connection with the Contract shall be limited to £10,000,000; and
(c) the Supplier's total liability to the Customer in respect of all other losses arising under or in connection with the Contract, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, shall in no circumstances exceed [£[AMOUNT] **OR** the price of the Goods].

9.3 The terms implied by sections 3 to 5 of the Supply of Goods and Services Act 1982 are, to the fullest extent permitted by law, excluded from the Contract.

9.4 This clause 9 shall survive termination of the Contract.

10. **FORCE MAJEURE**

10.1 Neither party shall be liable for any failure or delay in performing its obligations under the Contract to the extent that such failure or delay is caused by a Force Majeure Event. A **Force Majeure Event** means any event beyond a party's reasonable control, which by its nature could not have been foreseen, or, if it could have been foreseen, was unavoidable, including strikes, lock-outs or other industrial disputes (whether involving its own workforce or a third party's), failure of energy sources or transport network, acts of God, war, terrorism, riot, civil commotion, interference by civil or military authorities, national or international calamity, armed conflict, malicious damage, breakdown of plant or machinery, nuclear, chemical or biological contamination, sonic boom, explosions, collapse of building structures, fires, floods, storms, earthquakes, loss at sea, epidemics or similar events, natural disasters or extreme adverse weather conditions, or default of suppliers or subcontractors.

11. **GENERAL**

11.1 The Supplier may at any time assign, transfer, mortgage, charge, subcontract or deal in any other manner with all or any of its rights or obligations under the Contract. The Customer may not assign, transfer, mortgage, charge, subcontract, declare a trust over or deal in any other manner with any or all of its rights or obligations under the Contract without the prior written consent of the Supplier.

11.2 Any notice or other communication given to a party under or in connection with the Contract shall be in writing, addressed to that party at its registered office (if it is a company) or its principal place of business (in any other case) or such other address as that party may have specified to the other party in writing in accordance with this clause, and shall be delivered personally, sent by pre-paid first class post or other next working day delivery service or commercial courier. A notice or other communication shall be deemed to have been received: if delivered personally, when left at the address referred to in this clause; if sent by pre-paid first class post or other next working day delivery service, at 9.00 am on the second Business Day after posting; if delivered by commercial courier, on the date and at the time that the courier's delivery receipt is signed. The provisions of this clause shall not apply to the service of any proceedings or other documents in any legal action.

11.3 If any provision or part-provision of the Contract is or becomes invalid, illegal or unenforceable, it shall be deemed modified to the minimum extent necessary to make it valid, legal and enforceable. If such modification is not possible, the relevant provision or part-provision shall be deemed deleted. Any modification to or deletion of a provision or part-provision under this clause shall not affect the validity and enforceability of the rest of the Contract.

11.4 A waiver of any right or remedy under the Contract or law is only effective if given in writing and shall not be deemed a waiver of any subsequent breach or default. No failure or delay by a party to exercise any right or remedy provided under the Contract or by law shall constitute a waiver of that or any other right or remedy, nor shall it prevent or restrict the further exercise of that or any other right or remedy. No single or partial exercise of such right or remedy shall prevent or restrict the further exercise of that or any other right or remedy.

11.5 A person who is not a party to the Contract shall not have any rights to enforce its terms.

11.6 The Contract, and any dispute or claim arising out of or in connection with it or its subject matter or formation (including non-contractual disputes or claims), shall be governed by, and construed in accordance with the law of England and Wales. Each party irrevocably agrees that the courts of England and Wales shall have exclusive jurisdiction to settle any dispute or claim arising out of or in connection with this Contract or its subject matter or formation (including non-contractual disputes or claims).

Legendary Performance

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