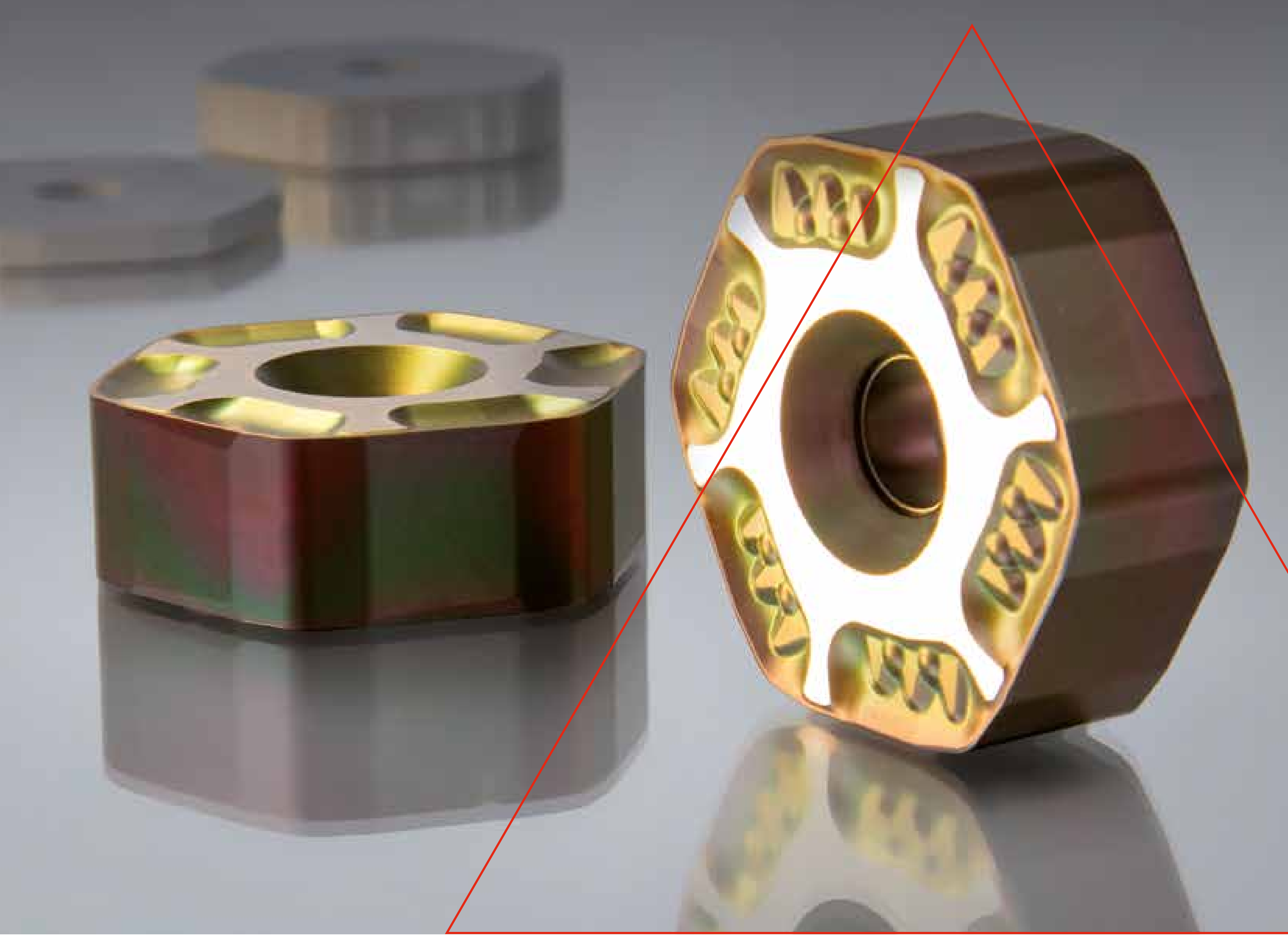
2019 EN

Technical manual

Bar peeling



CERATIZIT is a high-tech engineering group specialised in tooling and hard material technologies.

CUTTING SOLUTIONS BY CERATIZIT

Tooling the Future

www.ceratizit.com

Dear customers,

You know Cutting Solutions by CERATIZIT as a creative partner offering a comprehensive range of premium products for the metal cutting industry. For bar peeling we offer cutting tool solutions which guarantee high process reliability, optimal surface quality and maximum metal removal rates. Benefit from our user manual to find out about the special challenges and possibilities in the field of bar peeling. Discover more about the specific process and our cutting material solutions in this field, which cover the entire range of requirements. The experience of bar peeling with CERATIZIT tools speaks for itself. Our practical examples will impress you.

We are also happy to help you develop your individual solutions for bar peeling, and look forward to speaking to you personally in a dialogue between experts.

Yours,

the Cutting Solutions by CERATIZIT Team

Solutions for bar peeling require out of the box thinking – the CERATIZIT experts have known this for 3 decades

Content

CERATIZIT - your competent Partner for innovative hard material solutions, highly specialized cutting tools and worldwide service

The CERATIZIT Group

For over **95 years**, CERATIZIT has been a **pioneer** developing exceptional hard material products for cutting tools and wear protection.

The privately owned company, based in Mamer, Luxembourg, develops and manufactures highly specialised carbide cutting tools, inserts and rods made of hard materials as well as wear parts.

The CERATIZIT Group is the **global market leader** in several wear part application areas, and successfully develops new types of carbide, cermet and ceramic grades which are used for instance in the wood, metal and stone working industries.

Facts and figures

1 headquarters
Mamer / Luxembourg

34
production sites

> 70
sales subsidiaries

> 9.000
employees

> 100.000
different products

> 1.000
patents and utility models

> 200
employees in R&D

> 10
innovation awards

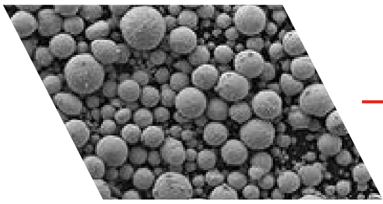
30%
of products developed in the last 5 years

Modern machines, experienced specialists and our mastery of the entire process chain are your guarantee of excellent product quality and stable processes

Always the best quality

Cutting Solutions by CERATIZIT is a quality leader, combining the entire process expertise and far-ranging production skills of the whole CERATIZIT Group.

- Highly skilled and trained specialists in a great variety of fields
- We are on top of things for every step of the production process
- Our modern machine park is constantly being expanded and updated
- Optimised production processes reduce the process costs and ensure the highest quality as well as environmental compatibility of our products
- Independently checked and certified products



Powder preparation and mixing

Forming / pressing

Sintering

Grinding

Coating

Dispatch

Recycling


Sophisticated logistics processes, a global sales network and a flexible high-capacity production guarantee the fast and reliable delivery of your solution

Supreme availability

A majority of our standard products are available from stock. A well-organised warehouse means that we can respond quickly and reliably to your order, even for bulk quantities. Thanks to our advanced supply chain management, our production capacity is flexible and able to produce a maximum of quantities, even in a short time frame.

You can order stock products online around the clock at our E-Techstore.

e-techstore.com
Available 24/7 for you

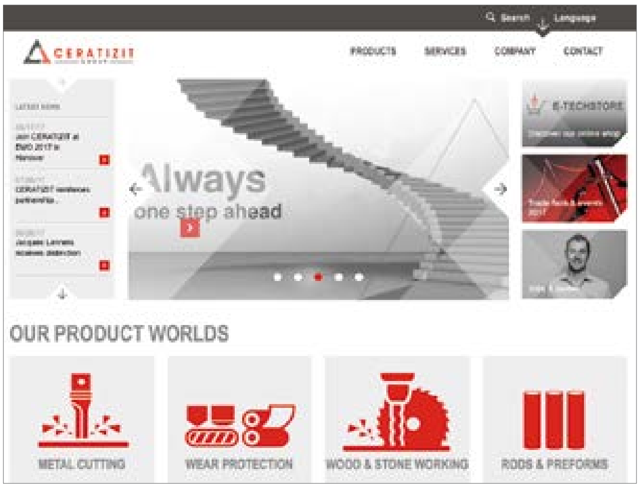
Your benefits

- ▲ Live product availability check
- ▲ Detailed up-to-date technical information and graphic illustrations
- ▲ Fast delivery: orders up to 6.30 pm will leave our warehouse in Kempten, Germany, on the same day
- ▲ Reliable delivery: we work only with the best and most reliable service providers in the sector

CERATIZIT Services

Online-Service

Of course we are also available for you online – around the clock! On the CERATIZIT website you will not only find details about our innovative products, but you can also order them. CERATIZIT's website combines a modern design with increased user-friendliness making it easy and intuitive to use on mobile devices. In our various Product Worlds, you have access to over 80 pages with product details on cutting tools, rods & preforms, wear protection and wood & stone machining. Discover product videos, application examples and success stories.



Connection to your system

Want to connect your ERP system to our shop? No problem! Our e-commerce team will be happy to help. Our IT supports all common linkage formats (EDI, XML, OCI, etc.). Don't hesitate to contact us! Our technical engineer will analyse your requirements together with you and will help you to choose the right technology.

Restore Service

Regrinding service for standard, semi-standard and special tools. Rely on the internationally renowned and consistently high product quality from CERATIZIT and its reliable service tailored to your needs and products. This includes the regrinding of solid carbide tools, as despite both maximum quality and tool life every tool sooner or later reaches its wear limit. As always, the prices of our Restore service are fair and transparent.

Configurate

Your customised tool. Using the online solution Configurate, it is possible to configure a customised semi-standard tool with only a few mouse clicks. Thanks to the Configurate tool we are able to offer simple and easy order processing of customised solid carbide tools. You can configure a customised semi-standard tool with just a few mouse clicks in our E-Techstore – 24 hours a day, 7 days a week.

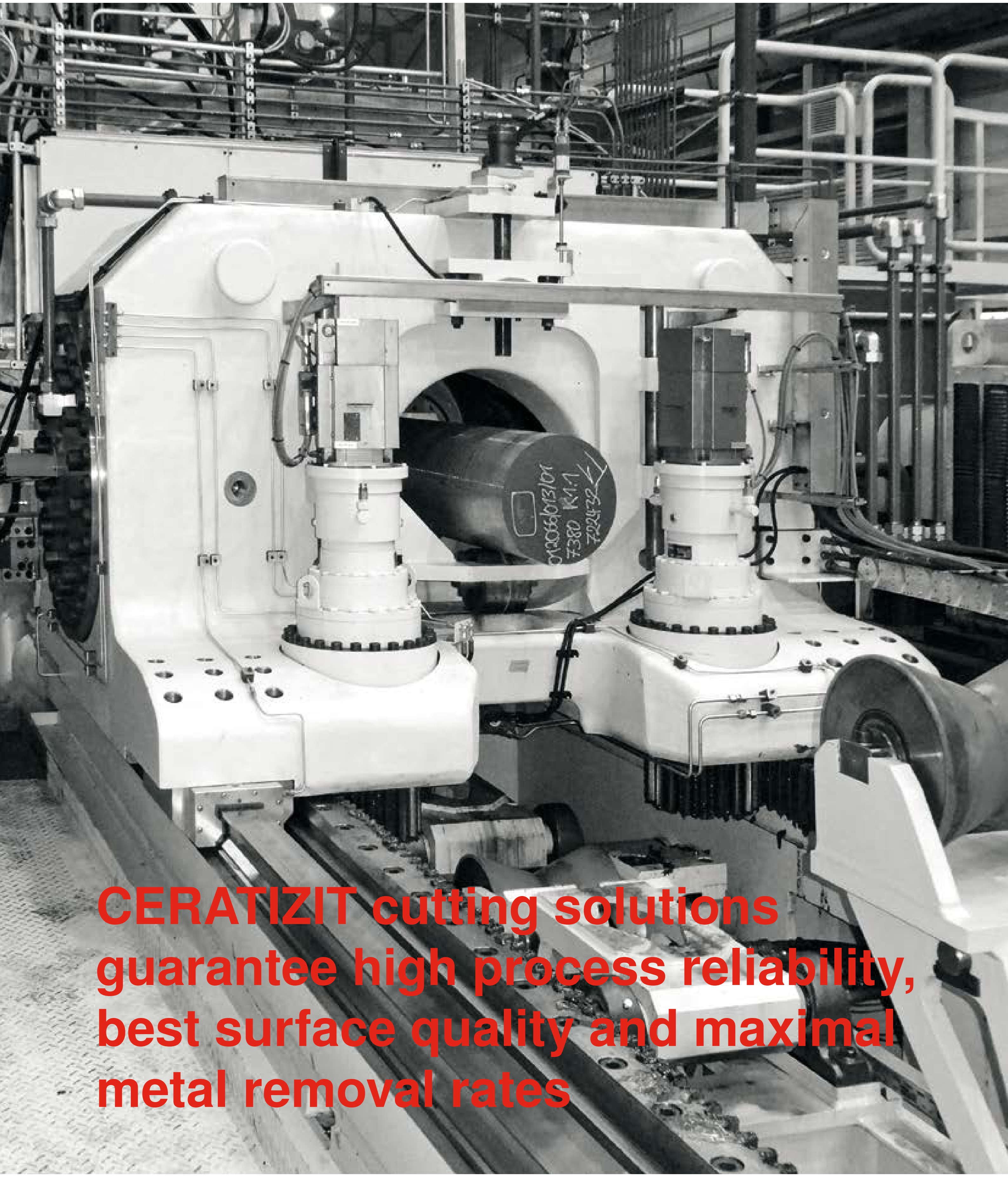
Tooling Academy

Get to know your tools in detail – watch them during the respective applications on machines which today are used in all production departments. To do so, we have established up-to-date machining centres for tests and training courses and the latest analysis technology at our Tooling Academy.

In collaboration with you, we analyse the machinability of the materials and work pieces. Based on the findings of simulations and practical tests, we then deduce specific tool recommendations or develop specific tool solutions for you.

Complete range Cutting Tools

Download at www.ceratizit.com



CERATIZIT cutting solutions guarantee high process reliability, best surface quality and maximal metal removal rates

Bar peeling

For more than 50 years CERATIZIT has supplied cutting tools for bar peeling for the manufacture of bright steel products in various materials. Our tools and tool holders are constantly being further developed to meet your wishes and requirements.

Bar peeling – the customer segment

The bar peeling customer segment supports and supplies customers from the field of bright steel production with:

- carbide peeling inserts
- peeling heads, tool holders and peeling cartridges made of steel
- guide elements for the infeed and outfeed areas of the peeling machine
- milling tools for face milling and chamfering of the bar ends

Bar peeling is used to produce bright steel in all material ranges after a previous drawing, rolling or forging process and is suitable for the following applications:

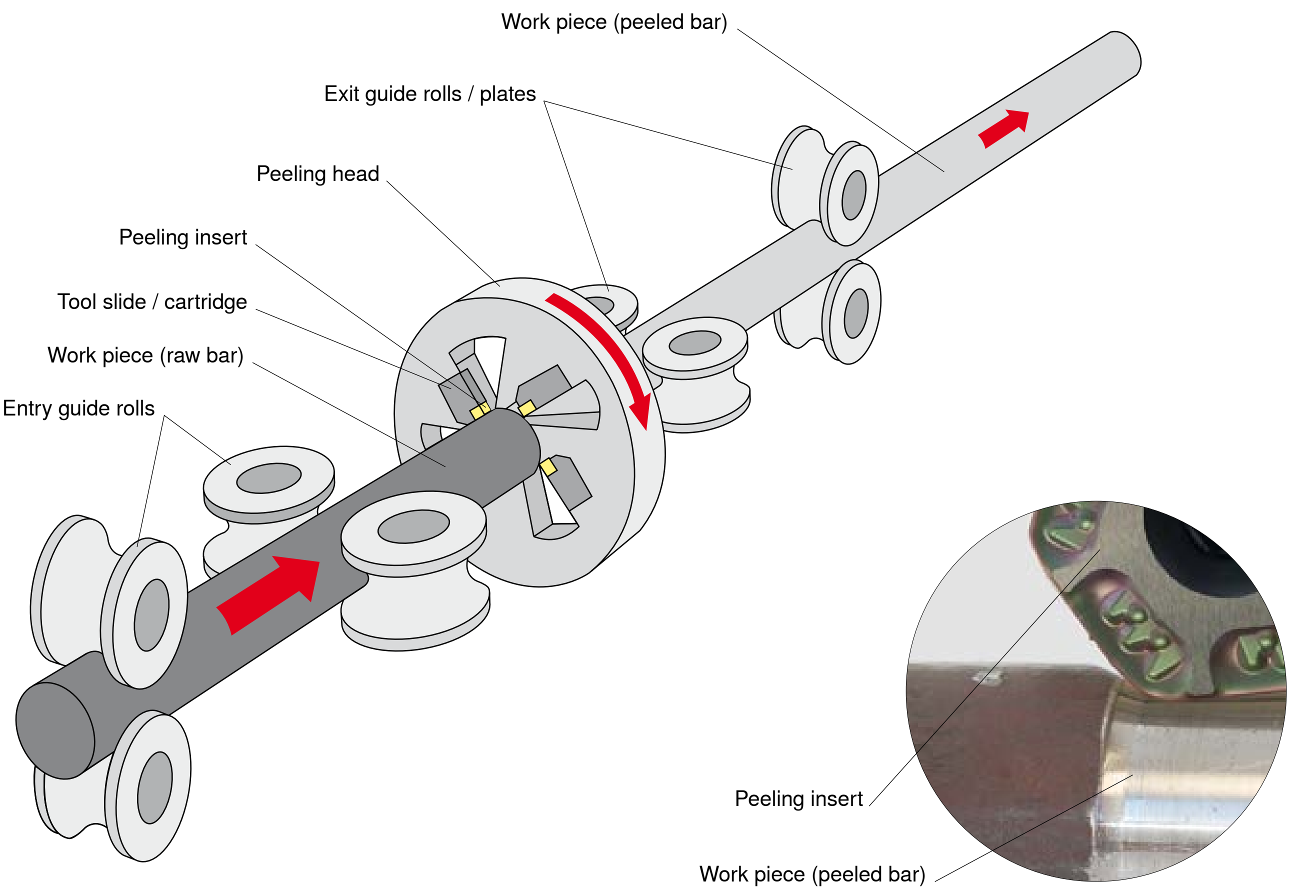
- external peeling of bars and tubes with diameters from 15 to 650 mm
- wire peeling of coils with diameters from 6 to 20 mm
- internal peeling of tubes for the hydraulic cylinders industry with diameters from 35 to 300 mm
- peeling of conical rods for spring production in the automotive industry

Your advantages

- For more than 50 years CERATIZIT has supplied cutting tools for bar peeling for the manufacture of bright steel products in various materials.
- Our tools and tool holders are constantly being further developed to meet our customers' wishes and requirements.
- With CERATIZIT you have a partner you can count on.

Your benefits

- Ultra-modern cutting material solutions and tool holders for all bar peeling applications
- Long tool life with maximum process reliability thanks to the use of tools from a comprehensive standard range
- Special products and tooling systems specifically adapted to your requirements are available upon request.



Bar peeling – the process

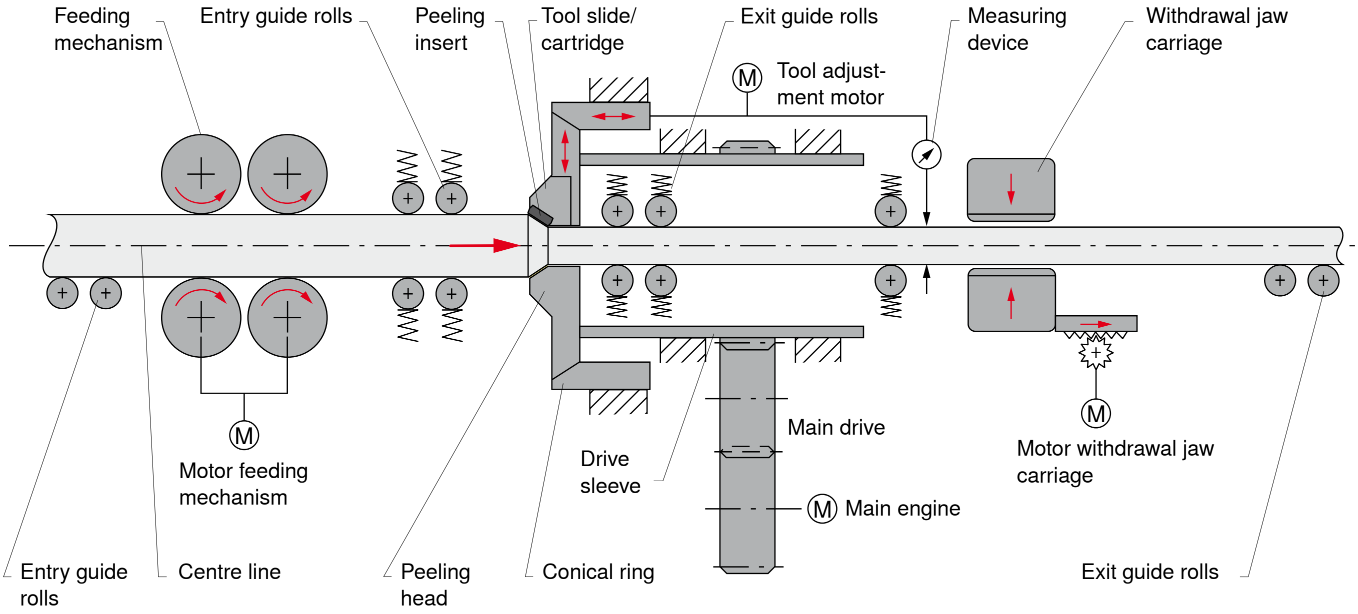
Bar peeling gives bars and tubes in various materials (carbon) steel, spring steel, stainless steel, nickel-based alloy, titanium, aluminium) the requisite surface quality and dimensional and form accuracy.

In the peeling process work pieces with diameters from 6 to 650 mm (in many cases rough forged, but also rolled or drawn) are machined to produce a bright smooth surface while eliminating ruptures caused during the forging and rolling process.

This heavy machining process is seen as very productive and efficient, but at the same time particularly challenging for the tools and machines.

Due to the considerably reduced throughput times compared to the conventional turning process, and the excellent result the bright steel products show in terms of surface quality and dimensional accuracy, costs and outlay are reduced in the final machining of these semi-finished products.

Schematic diagram of a bar peeling machine



Materials Table

DIN	WKS no.	BS	AFNOR	SS	AISI	Japan JIS	$K_c1.1$ N/mm^2	mc	VDI 3323 Group
10 SPb 20	1.0722		10 PbF 2		11 L 08		1350	0,20	1
100 Cr 6	1.2067	BL 3	Y 100 C 6		L 3	SUJ2	1775	0,24	6/9
105 WCr 6	1.2419		105 WC 13			SKS31	1775	0,24	6/9
12 CrMo 9 10	1.7380	1501-622 Gr. 31; 45	10 CD 9.10	2218	A 182-F22	SPVA,SCMV4	1675	0,24	6/7
12 Ni 19	1.5680		Z 18 N 5		2515		2450	0,23	10/11
13 CrMo 4 4	1.7335	1501-620 Gr. 27	15 CD 3.5	2216	A 182-F11; F12	SPVAF12	1675	0,24	6/7
14 MoV 6 3	1.7715	1503-660-440					1675	0,24	6/7
14 Ni 6	1.5622		16 N 6		A 350-LF 5		1675	0,24	6/7
14 NiCr 10	1.5732		14 NC 11		3415	SNC415(H)	1675	0,24	6/7
14 NiCr 14	1.5752	655 M 13	12 NC 15		3310; 9314	SNC815(H)	1675	0,24	6/7
14 NiCrMo 13 4	1.6657						1675	0,24	6/7
15 Cr 3	1.7015	523 M 15	12 C 3		5015		1675	0,24	6/7
15 CrMo 5	1.7262		12 CD 4			SCM415(H)	1675	0,24	6/7
15 Mo 3	1.5415	1501-240	15 D 3	2912	A 204 Gr. A		1675	0,24	6/7
16 MnCr 5	1.7131	527 M 17	16 MC 5	2511	5115	SCR415	1675	0,24	6/7
16 Mo 5	1.5423	1503-245-420			4520	SB450M	1675	0,24	6/7
17 CrNiMo 6	1.6587	820 A 16	18 NCD 6				1675	0,24	6/7
21 NiCrMo 2	1.6523	805 M 20	20 NCD 2	2506	8620	SNCM220(H)	1725	0,24	6/8
25 CrMo 4	1.7218	1717 CDS 110	25 CD 4 S	2225	4130	SM420;SCM430	1725	0,24	6/8
28 Mn 6	1.1170	150 M 28	20 M 5		1330		1500	0,22	2
32 CrMo 12	1.7361	722 M 24	30 CD 12	2240			1775	0,24	6/9
34 Cr 4	1.7033	530 A 32	32 C 4		5132	SCR430(H)	1725	0,24	6/8
34 CrMo 4	1.7220	708 A 37	35 CD 4	2234	4135; 4137	SCM432;SCCRM3	1775	0,24	6/9
34 CrNiMo 6	1.6582	817 M 40	35 NCD 6	2541	4340	SNCM447	1775	0,24	6/9
35 S 20	1.0726	212 M 36	35 MF 4	1957	1140		1525	0,22	2/3
36 CrNiMo 4	1.6511	816 M 40	40 NCD 3		9840	SNCM447	1775	0,24	6/9
36 Mn 5	1.1167						1525	0,22	2/3
36 NiCr 6	1.5710	640 A 35	35 NC 6		3135	SNC236	1800	0,24	3/9
38 MnSi 4	1.5120						1800	0,24	3/9
39 CrMoV 13 9	1.8523	897 M 39					1775	0,24	6/9
40 Mn 4	1.1157	150 M 36	35 M 5		1039		1525	0,22	2/3
40 NiCrMo 2 2	1.6546	311-Type 7	40 NCD 2		8740	SNCM240	1775	0,24	6/9
41 Cr 4	1.7035	530 M 40	42 C 4		5140	SCR440(H)	1775	0,24	6/9
41 CrAlMo 7	1.8509	905 M 39	40 CAD 6.12	2940	A 355 Cl. A	SACM645	1775	0,24	6/9
41 CrMo 4	1.7223	708 M 40	42 CD 4 TS	2244	4142; 4140	SCM440	1775	0,24	6/9
42 Cr 4	1.7045	530 A 40	42 C 4 TS	2245	5140	SCr440	1775	0,24	6/9
42 CrMo 4	1.7225	708 M 40	42 CD 4	2244	4142; 4140	SCM440(H)	1775	0,24	6/9
45 WCrV 7	1.2542	BS 1		2710	S 1		1775	0,24	6/9
50 CrV 4	1.8159	735 A 50	50 CV 4	2230	6150	SUP10	1775	0,24	6/9
55 Cr 3	1.7176	527 A 60	55 C 3	2253	5155	SUP9(A)	1775	0,24	6/9
55 NiCrMoV 6	1.2713		55 NCDV 7		L 6	SKH1;SKT4	1775	0,24	6/9
55 Si 7	1.0904	250 A 53	55 S 7	2085; 2090	9255		1775	0,24	6/9
58 CrV 4	1.8161						1775	0,24	6/9
60 SiCr 7	1.0961		60 SC 7		9262		1775	0,24	6/9
9 SMn 28	1.0715	230 M 07	S 250	1912	1213	SUM22	1350	0,21	1
9 SMn 36	1.0736	240 M 07	S 300		1215		1350	0,21	1
9 SMnPb 28	1.0718		S 250 Pb	1914	12 L 13	SUM22L	1350	0,21	1
9 SMnPb 36	1.0737		S 300 Pb	1926	12 L 14		1350	0,21	1
Al99	3.0205						700	0,25	21

Materials Table

DIN	Wks no.	BS	AFNOR	SS	AISI	Japan JIS	$K_c1.1$ N/mm^2	mc	VDI 3323 Group
AlCuMg1	3.1325						700	0,25	22
AlMg1	3.3315						700	0,25	21
AlMgSi1	3.2315						700	0,25	22
C 105 W1	1.1545		Y1 105	1880	W 110	SK3	1675	0,24	3
C 125 W	1.1663		Y2 120		W 112		1675	0,24	3
C 15	1.0401	080 M 15	AF3 7 C 12; XC 18	1350	1015	S15C	1350	0,21	1
C 22	1.0402	050 A 20	AF 42 C 20	1450	1020	S20C, S22C	1350	0,21	1
C 35	1.0501	060 A 35	AF 55 C 35	1550	1035	S35C	1525	0,22	2/3
C 45	1.0503	080 M 46	AF 65 C 45	1650	1045	S45C	1525	0,22	2/3
C 55	1.0535	070 M 55		1655	1055	S55C	1675	0,24	3
C 60	1.0601	080 A 62	CC 55		1060	S60C	1675	0,24	3
Cf 35	1.1183					S35C	1525	0,22	2/3
Cf 53	1.1213					S50C	1525	0,22	2/3
Ck 101	1.1274	060 A 96		1870	1095		1675	0,24	3
Ck 15	1.1141	080 M 15	XC 15; XC 18	1370	1015	S15C	1350	0,21	1
Ck 55	1.1203	070 M 55	XC 55		1055	S55C	1675	0,24	3
Ck 60	1.1221	080 A 62	XC 60	1665; 1678	1060	S58C	1675	0,24	3
CoCr20W15Ni	2.4764						3300	0,24	35
CuZn15	2.0240						700	0,27	27
CuZn36Pb3	2.0375						700	0,27	26
E-Cu57	2.0060						700	0,27	28
G-AlSi10Mg	3.2381						700	0,25	24
G-AlSi12	3.2581						700	0,25	23
G-AlSi9Cu3	3.2163						700	0,25	23
G-CuSn5ZnPb	2.1096						700	0,27	26
G-CuZn40Fe	2.0590						700	0,27	28
G-X 120 Mn 12	1.3401	Z 120 M 12	Z 120 M 12		A 128 (A)		3300	0,24	35
G-X 20 Cr 14	1.4027	420 C 29	Z 20 C 13 M			SCS2	1875	0,21	12/13
G-X 40 NiCrSi 38 18	1.4865	330 C 40					2600	0,24	31
G-X 45 CrSi 9 3	1.4718	401 S 45	Z 45 CS 9		HNV 3		2450	0,23	10/11
G-X 5 CrNi 13 4	1.4313	425 C 11	Z 5 CN 13.4	2385	CA 6-NM		1875	0,21	12/13
G-X 5 CrNiMoNb 18 10	1.4581	318 C 17	Z 4 CNDNb 18.12 M				2150	0,20	14
G-X 6 CrNi 18 9	1.4308	304 C 15	Z 6 CN 18.10 M	2333	CF-8		2150	0,20	14
G-X 6 CrNiMo 18 10	1.4408						2150	0,20	14
G-X 7 Cr 13	1.4001						1875	0,21	12/13
GG-10	0.6010		Ft 10 D	01 10-00	A48-20 B	FC100	1150	0,20	15
GG-15	0.6015	Grade 150	Ft 15 D	01 15-00	A48-25 B	FC150	1150	0,20	15
GG-20	0.6020	Grade 220	Ft 20 D	01 20-00	A48-30 B	FC200	1150	0,20	15
GG-25	0.6025	Grade 260	Ft 25 D	01 25-00	A48-40 B	FC250	1250	0,24	15/16
GG-30	0.6030	Grade 300	Ft 30 D	01 30-00	A48-45 B	FC300	1350	0,28	16
GG-35	0.6035	Grade 350	Ft 35 D	01 35-00	A48-50 B	FC350	1350	0,28	16
GG-40	0.6040	Grade 400	Ft 40 D	01 40-00	A48-60 B	FC400	1350	0,28	16
GGG-35.3	0.7033					FCD350	1225	0,25	17
GGG-40	0.7040	SNG 420/12	FGS 400-12	0717-02	60-40-18	FCD400	1225	0,25	17
GGG-40.3	0.7043	SNG 370/17	FGS 370-17	0717-15		FCD400	1225	0,25	17
GGG-50	0.7050	SNG 500/7	FGS 500-7	0727-02	65-45-12	FCD500	1350	0,28	18
GGG-60	0.7060	SNG 600/3	FGS 600-3	0732-03	80-55-06	FCD600	1350	0,28	18
GGG-70	0.7070	SNG 700/2	FGS 700-2	0737-01	100-70-03	FCD700	1350	0,28	18
GGG-NiCr 20 2	0.7660	S-NiCr 20 2	S-NC 20 2		A 439 Type D-2		1350	0,28	18

Materials Table

DIN	Mat. no.	BS	AFNOR	SS	AISI	Japan JIS	K_c1.1 N/mm^2	mc	VDI 3323 Group
GGG-NiMn 13 7	0.7652	S-NiMn 13 7	S-NM 13 7				1350	0,28	18
GS-Ck 45	1.1191	080 M 46	XC 42	1672	1045	S45C	1525	0,22	2/3
GTS-35-10	0.8135	B 340/12	MN 35-10				1225	0,25	19
GTS-45-06	0.8145	P 440/7					1420	0,30	20
GTS-55-04	0.8155	P 510/4	MP 50-5				1420	0,30	20
GTS-65-02	0.8165	P 570/3	MP 60-3				1420	0,30	20
GTS-70-02	0.8170	P 690/2	IP 70-2				1420	0,30	20
NiCr20TiAl	2.4631	HR 401; 601	Nimonic 80 A				3300	0,24	33
NiCr22Mo9Nb	2.4856		Inconel 625				3300	0,24	33
NiCu30Al	2.4375		Monel K 500				3300	0,24	34
NiFe25Cr20NbTi	2.4955						3300	0,24	34
S 18-0-1	1.3355	BT 1	Z 80 WCV 18-04-01		T 1		2450	0,23	10/11
S 18-1-2-5	1.3255	BT 4	Z 80 WKCV 18-05-04-0		T 4		2450	0,23	10/11
S 2-9-2	1.3348		Z 100 DCWV 09-04-02-	2782	M 7		2450	0,23	10/11
S 6-5-2	1.3343	BM 2	Z 85 WDCV 06-05-04-0	2722	M 2	SKH9; SKH51	2450	0,23	10/11
S 6-5-2-5	1.3243		Z 85 WDKCV 06-05-05-	2723		SKH55	2450	0,23	10/11
TiAl6V4	3.7165	TA 10 bis TA 13	T-A 6 V				2110	0,22	37
X 10 Cr 13	1.4006	410 S 21	Z 12 C 13	2302	410; CA-15	SUS410	1875	0,21	12/13
X 10 CrNiMoNb 18 12	1.4583				318		2150	0,20	14
X 10 CrNiS 18 9	1.4305	303 S 21	Z 10 CNF 18.09	2346	303		2150	0,20	14
X 100 CrMoV 5 1	1.2363	BA 2	Z 100 CDV 5	2260	A 2		2450	0,23	10/11
X 12 CrMoS 17	1.4104		Z 10 CF 17	2383	430 F	SUS430F	1875	0,21	12/13
X 12 CrNi 17 7	1.4310	301 S 21	Z 12 CN 17.07		301		2150	0,20	14
X 12 CrNi 22 12	1.4829					SUS301	1350	0,28	16
X 12 CrNi 25 21	1.4845	310 S24	Z 12 CN 25.20	2361	310 S	SUH310; SUS310S	2150	0,20	14
X 12 CrNiTi 18 9	1.4878	321 S 20	Z 6 CNT 18.12 (B)	2337	321		2150	0,20	14
X 12 NiCrSi 36 16	1.4864	NA 17	Z 12 NCS 37.18		330	SUH330	2600	0,24	31
X 15 CrNiSi 20 12	1.4828	309 S 24	Z 15 CNS 20.12		309	SUH309	1350	0,28	16
X 165 CrMoV 12	1.2601			2310			2450	0,23	10/11
X 2 CrNiMo 18 13	1.4440						2150	0,20	14
X 2 CrNiMoN 17 13 3	1.4429	316 S 62	Z 2 CND 17.13 Az	2375	316 LN	SUS316LN	2150	0,20	14
X 2 CrNiN 18 10	1.4311	304 S 62	Z 2 CN 18 .10	2371	304 LN	SUS304LN	2150	0,20	14
X 20 CrNi 17 2	1.4057	431 S 29	Z 15 CN 16.02	2321	431	SUS431	1875	0,21	12/13
X 210 Cr 12	1.2080	BD 3	Z 200 C 12		D 3		2450	0,23	10/11
X 210 CrW 12	1.2436			2312			2450	0,23	10/11
X 30 WCrV 9 3	1.2581	BH 21	Z 30 WCV 9		H 21	SKD5	2450	0,23	10/11
X 40 CrMoV 5 1	1.2344	BH 13	Z 40 CDV 5	2242	H 13	SKD61	2450	0,23	10/11
X 46 Cr 13	1.4034	420 S 45	Z 40 C 14				1875	0,21	12/13
X 5 CrNi 18 9	1.4301	304 S 15	Z 6 CN 18.09	2332; 2333	304; 304 H	SUS304	2150	0,20	14
X 5 CrNiMo 17 13 3	1.4436	316 S 16	Z 6 CND 17.12	2343	316	SUS316	2150	0,20	14
X 5 CrNiMo 18 10	1.4401	316 S 16	Z 6 CND 17.11	2347	316	SUS316	2150	0,20	14
X 53 CrMnNiN 21 9	1.4871	349 S 54	Z 52 CMN 21.09		EV 8		1875	0,21	12/13
X 6 Cr 13	1.4000	403 S 17	Z 6 C 13	2301	403	SUS403	1875	0,21	12/13
X 6 Cr 17	1.4016	430 S 15	Z 8 C 17	2320	430	SUS430	1875	0,21	12/13
X 6 CrMo 17	1.4113	434 S 17	Z 8 CD 17.01	2325	434	SUS434	1875	0,21	12/13
X 6 CrNiMoTi 17 12 2	1.4571	320 S 31	Z 6 CNT 17.12	2350	316 Ti		2150	0,20	14
X 6 CrNiNb 18 10	1.4550	347 S 17	Z 6 CNNb 18.10	2338	347		2150	0,20	14
X 6 CrNiTi 18 10	1.4541	321 S 12	Z 6 CNT 18.10	2337	321		2150	0,20	14
X2 CrNi 18-8	1.4317						2150	0,20	14

Hardness values and basic tolerances

Tensile-strength N/mm²	Vickers HV	Brinell HB	Rockwell HRC	Shore C
305	95	90		
320	100	95		
335	105	100		
350	110	105		
370	115	109		
385	120	114		
400	125	119		
415	130	124		
430	135	128		
450	140	133		
465	145	138		
480	150	143		
495	155	147		
510	160	152		
530	165	157		
545	170	162		
560	175	166		
575	180	171		
595	185	176		
610	190	181		
625	195	185		
640	200	190		
660	205	195	13	
675	210	199	14	
690	215	204	15	
705	220	209	15	28
720	225	214	16	
740	230	219	17	29
755	235	223	18	
770	240	228	20.3	30
785	245	233	21.3	

Tensile-strength N/mm²	Vickers HV	Brinell HB	Rockwell HRC	Shore C
800	250	238	22.2	31
820	255	242	23.1	32
835	260	247	24	33
850	265	252	24.8	
865	270	257	25.6	
880	275	261	26.4	34
900	280	268	27.1	
915	285	271	27.8	35
930	290	276	28.5	
950	295	280	29.2	36
965	300	285	29.8	37
995	310	295	31	38
1030	320	304	32.2	39
1060	330	314	33.3	40
1095	340	323	34.3	41
1125	350	333	35.5	42
1155	360	342	36.6	43
1190	370	352	37.7	44
1220	380	361	38.8	45
1255	390	371	39.8	46
1290	400	380	40.8	47
1320	410	390	41.8	48
1350	420	399	42.7	
1385	430	409	43.6	49
1420	440	418	44.5	
1455	450	428	45.3	51
1485	460	437	46.1	52
1520	470	447	46.9	53
1555	480	465	47.7	54
1595	490	466	48.4	
1630	500	475	49.1	57

The figures given are approximate according to DIN EN ISO18265 (02-2004)

Basic tolerances in µm

DIN ISO 286-1, -2 : 1990-11

Nominal dimension in mm				IT toleranz grade																			
				01	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
over		to	3	0,3	0,5	0,8	1,2	2	3	4	6	10	14	25	40	60	100	140	250	400	600	1000	1400
over	3	to	6	0,4	0,6	1	1,5	2,5	4	5	8	12	18	30	48	75	120	180	300	480	750	1200	1800
over	6	to	10	0,4	0,6	1	1,5	2,5	4	6	9	15	22	36	58	90	150	220	360	580	900	1500	2200
over	10	to	18	0,5	0,8	1,2	2	3	5	8	11	18	27	43	70	110	180	270	430	700	1100	1800	2700
over	18	to	30	0,6	1	1,5	2,5	4	6	9	13	21	33	52	84	130	210	330	520	840	1300	2100	3300
over	30	to	50	0,6	1	1,5	2,5	4	7	11	16	25	39	62	100	160	250	390	620	1000	1600	2500	3900
over	50	to	80	0,8	1,2	2	3	5	8	13	19	30	46	74	120	190	300	460	740	1200	1900	3000	4600
over	80	to	120	1	1,5	2,5	4	6	10	15	22	35	54	87	140	220	350	540	870	1400	2200	3500	5400
over	120	to	180	1,2	2	3,5	5	8	12	18	25	40	63	100	160	250	400	630	1000	1600	2500	4000	6300
over	180	to	250	2	3	4,5	7	10	14	20	29	46	72	115	185	290	460	720	1150	1850	2900	4600	7200
over	250	to	315	2,5	4	6	8	12	16	23	32	52	81	130	210	320	520	810	1300	2100	3200	5200	8100
over	315	to	400	3	5	7	9	13	18	25	36	57	89	140	230	360	570	890	1400	2300	3600	5700	8900
over	400	to	500	4	6	8	10	15	20	27	40	63	97	155	250	400	630	970	1550	2500	4000	6300	9700

CERATIZIT designation system for cutting materials

CT	C	P	6	xx
1	2	3	4	5

1 Manufacturer: CERATIZIT

2 Cutting material

W Uncoated carbide
C CVD coated carbide
P PVD coated carbide
T Uncoated cermet
E Coated cermet
N Uncoated silicon nitride
M Coated silicon nitride
S Mixed ceramic
K Whisker ceramic
I Sialon
D PCD
B CBN
L CBN coated
H Sintered HSS

3 Main application (material) Variant 1: number

1 Steel
2 Stainless steel
3 Cast iron
4 Light and non-ferrous metals, non metals
5 Heat-resistant alloys, titanium
6 Hard materials
7 Universal grade for a variety of applications

Main application (material) Variant 2: ISO letter

P Steel
M Stainless steel
K Cast iron
N Light and non-ferrous metals, non metals
S Heat-resistant alloys, titanium
H Hard materials
X Universal grade for a variety of applications

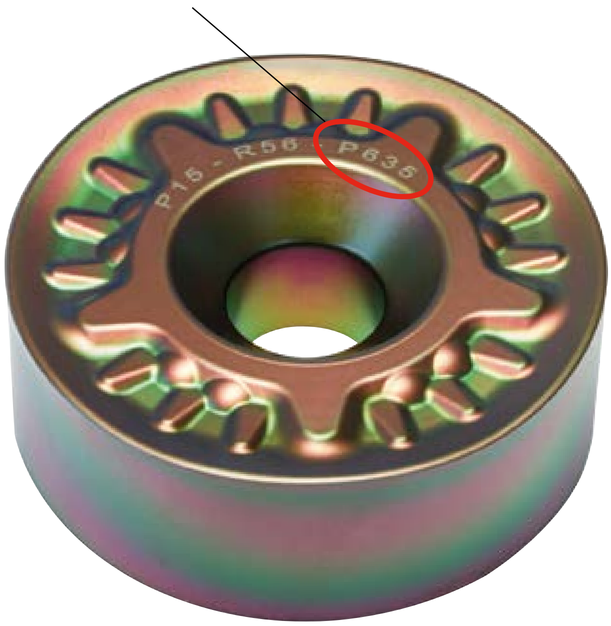
4 Main application (machining method)

1 Turning
2 Milling
3 Parting and grooving
4 Drilling
5 Threading
6 Others / bar peeling / heavy machining
7 Universal grade for a variety of applications

5 ISO 513 Application range

For example.
01
05
10
15
25
35 ISO P35
.
.

▲ Grade designation P635 = CTCP635



Cutting materials grades

Grade designation	Standard designation ISO	Standard designation ANSI	Cutting material	Application range 01 05 10 15 20 25 30 35 40 45 50	P	M	K	N	S	H
CTCP605	HC-P10	C8	C		●			○		
	HC-K20	C2	C				○			
CTCP610	HC-M10	–	C			●				
	HC-S10	–	C						●	
CTCP615	HC-P15	C7	C		●		○			
	HC-M15	–	C			●				
	HC-S15	–	C						●	
CTCP625	HC-P25	C6	C		●					
	HC-M25	–	C			●				
	HC-S25	–	C						●	
CTCP630	HC-P30	C6	C		●					
	HC-M30	–	C			●				
	HC-S30	–	C						●	
CTCP635	HC-P35	C5	C		●					
	HC-M35	–	C			●				
	HC-S35	–	C						●	
CTCP640	HC-P40	C5	C		●					
	HC-M40	–	C			●				
	HC-S40	–	C						●	
H216T	HW-N15	C3	W					○		
	HW-K15	C3	W				●			
	HW-S15	–	W						●	

● Main application
○ Extended application

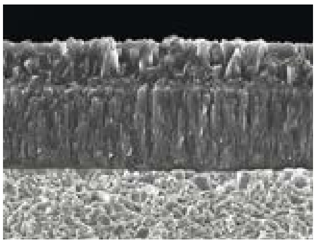
Cutting material grades

CTCP605

● ○ ○

BLACKSTAR™

HC-P10 | HC-K20



Specifications:
Composition: Co 6.0%; TaC 2.0%; WC balance | Grain size: 1 µm |
Hardness: HV_{30} 1630 | Coating specification: CVD TiCN-Al_2O_3

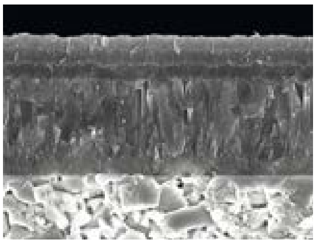
Recommended application:
First choice for high cutting speeds and feed rates on steel materials and with very stable machining conditions.

CTCP610

● ●

COLORSTAR™

C-M10 | HC-S10



Specifications:
Composition: Co 6.0%; TaC 2.0%; WC balance | Grain size: 1 µm |
Hardness: HV_{30} 1630 | Coating specification: CVD TiCN-Al_2O_3

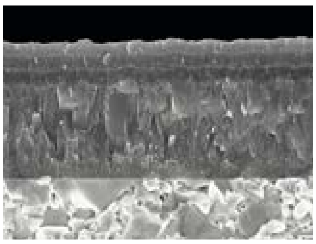
Recommended application:
Top class high-performance grade for heat-resistant alloys with moderade stable machining conditions

CTCP615

● ● ○ ●

COLORSTAR™

HC-P15 | HC-M15 | HC-S15



Specifications:
Composition: Co 6.0%; mixed carbides 3.1%; WC balance | Grain size: fine |
Hardness: HV_{30} 1630 | Coating specification: CVD TiCN-Al_2O_3

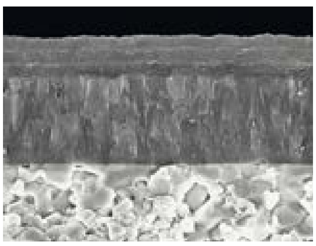
Recommended application:
Wear-resistant carbide grade mainly with finishing inserts in all material classes with stable machining conditions.

CTCP625

● ● ●

COLORSTAR™

HC-P25 | HC-M25 | HC-S25

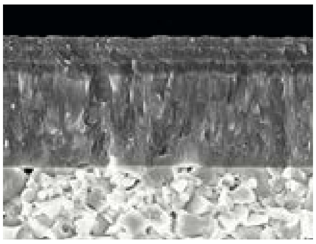


Specifications:
Composition: Co 7.0%; mixed carbides 6.5%; WC balance | Grain size: medium |
Hardness: HV_{30} 1460 | Coating specification: CVD TiCN-Al_2O_3

Recommended application:
Excellent universal grade mainly with finishing inserts in all material classes with medium strengths and unstable machining conditions

CTCP630
COLORSTAR™

HC-P30 | HC-M30 | HC-S30

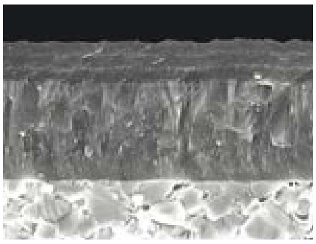


Specifications:
Composition: Co 9.0%; others< 3%; WC balance | Grain size: medium |
Hardness: HV_{30} 1400 | Coating specification: CVD TiCN-Al_2O_3

Recommended application:
Carbide grade mainly for roughing on specific stainless materials and heat-resistant alloys

CTCP635
COLORSTAR™

HC-P35 | HC-M35 | HC-S35

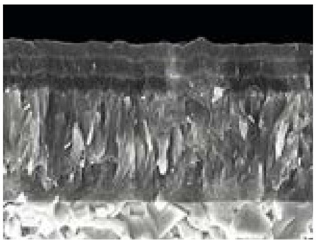


Specifications:
Composition: Co 10.0%; mixed carbides 5.0%; WC balance | Grain size: medium |
Hardness: HV_{30} 1380 | Coating specification: CVD TiCN-Al_2O_3

Recommended application:
Tough universal grade mainly for roughing on all materials under difficult conditions

CTCP640
COLORSTAR™

HC-P40 | HC-M40 | HC-S40

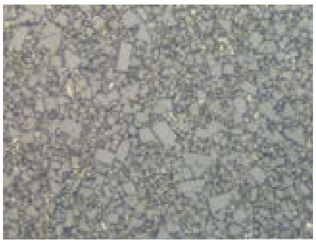


Specifications:
Composition: Co 10.5%; mixed carbides 2.0%; WC balance | Grain size: medium |
Hardness: HV_{30} 1400 | Coating specification: CVD TiCN-Al_2O_3

Recommended application:
Extremely tough carbide grade for roughing under difficult machining conditions

H216T

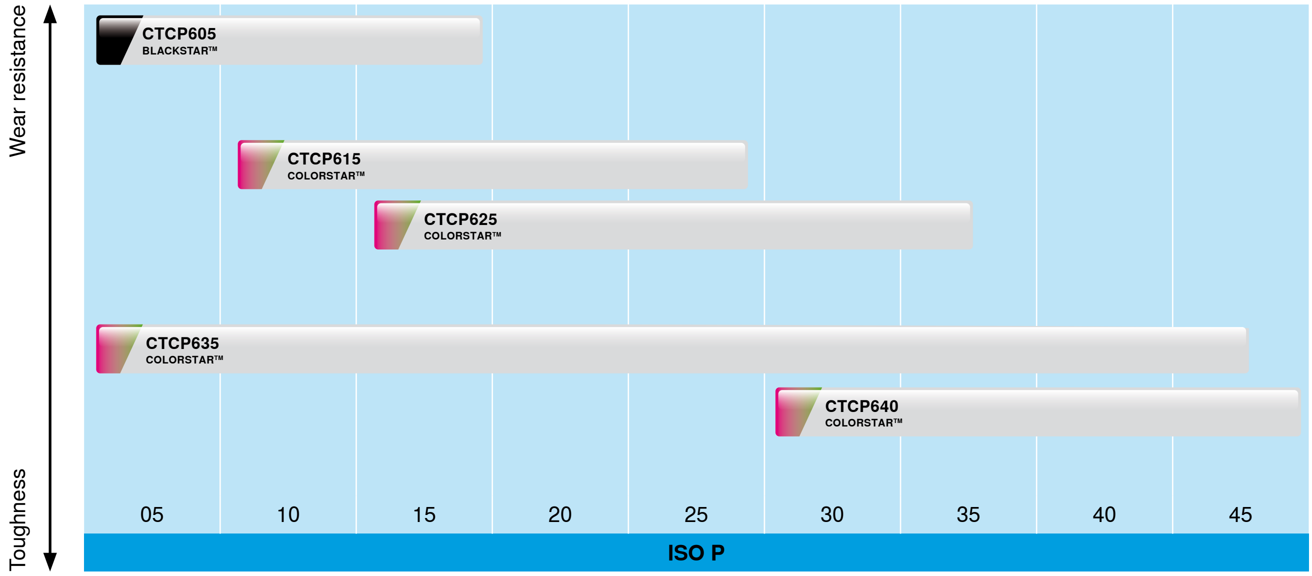
HW-N15 | HW-K15

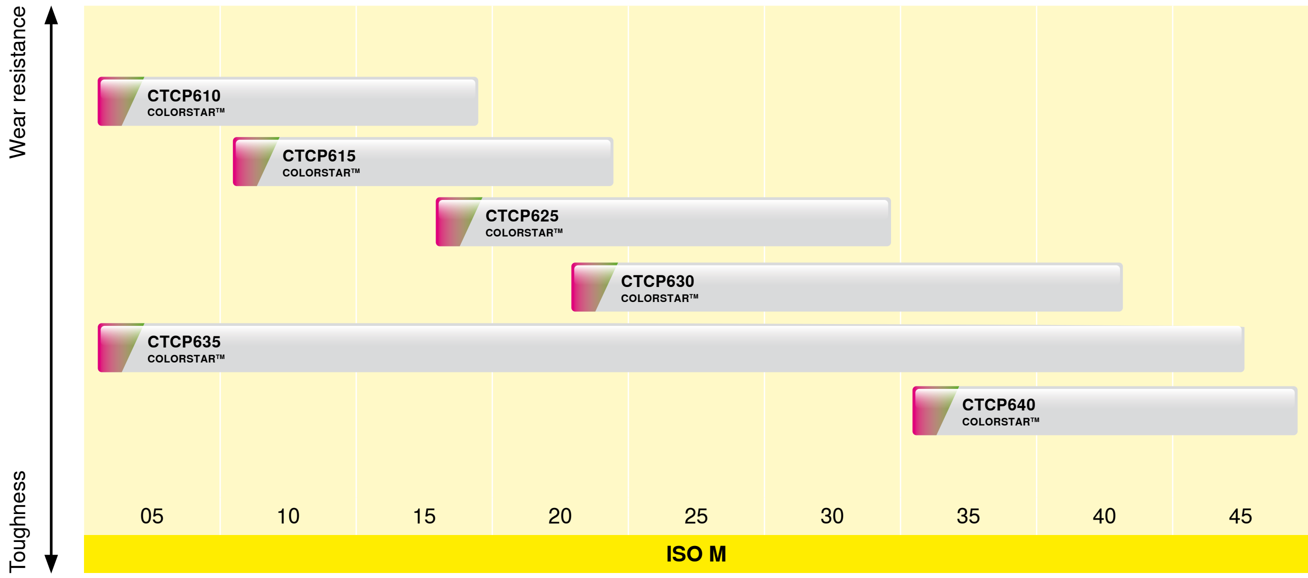


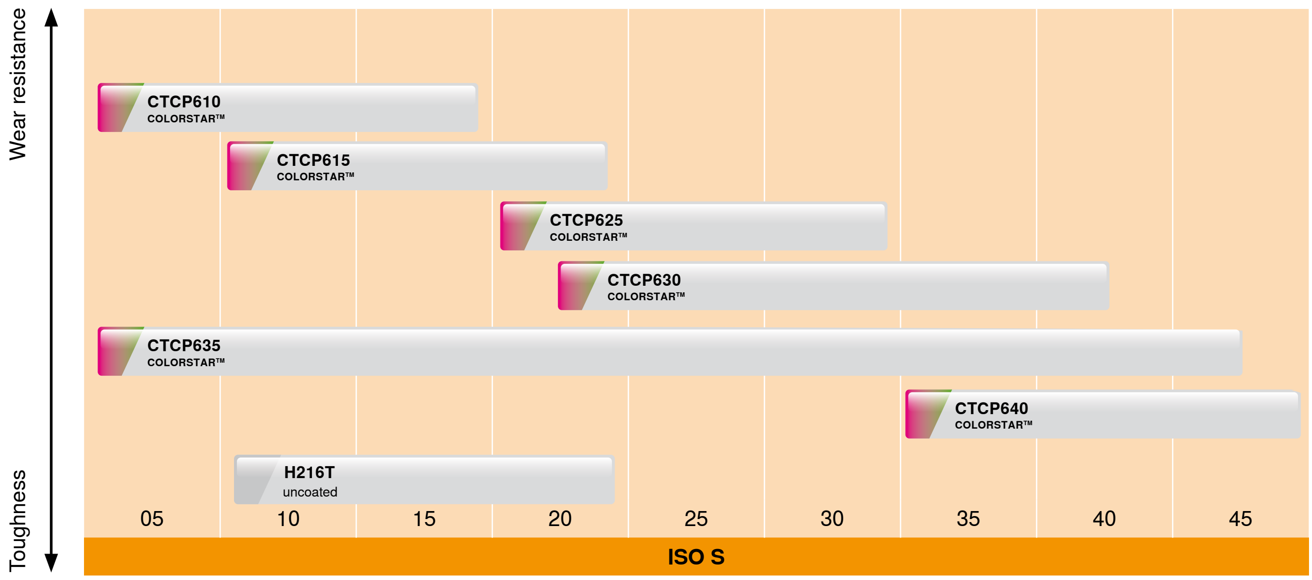
Specifications:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630

Recommended application:
Uncoated carbide grade for the machining of aluminium and other non-ferrous metals

Cutting material grades ISO P / ISO M / ISO S







Recommended CTAT carbide grades per material

	Work piece material	Type of treatment / alloy		VDI 3323 group	Hardness [HB]	Grade
P	Non alloyed steel	annealed	≤ 0.15 % C	1	125	**CTCP625** CTCP635 / CTCP605
P	Non alloyed steel	annealed	0.15 % – 0.45 % C	2	150–250	**CTCP625** CTCP635 / CTCP605
P	Non alloyed steel	tempered	≥ 0.45 % C	3	300	**CTCP615** CTCP605
P	Low alloyed steel	annealed		6	180	**CTCP625** CTCP635 / CTCP605
P	Low alloyed steel	tempered		7 / 8	250–300	**CTCP615** CTCP625 / CTCP605
P	Low alloyed steel	tempered		9	350	**CTCP615** CTCP605
P	High alloyed steel	annealed		10	200	**CTCP625** CTCP615
P	High alloyed steel	tempered		11	350	**CTCP615** CTCP605
P	Stainless steel	annealed	ferritic / martensitic	12	200	**CTCP625**
P	Stainless steel	tempered	martensitic	13	325	**CTCP625** CTCP615
P	Stainless steel	heat-treated	ferritic / martensitic	13	200	**CTCP625**
M	Stainless steel	quenched	austenitic	14	180	**CTCP625** CTCP635
M	Stainless steel	quenched	ferritic / austenitic (duplex)	14	230–260	**CTCP625** CTCP635 / CTCP610
M	Stainless steel	hardened	austenitic, precipitation hardened (PH)	14	330	**CTCP630** CTCP635 / CTCP610
K	Cast iron			15–20	130–260	**CTCP615** CTCP605
N	Non-ferrous metals			21–30	80–130	**CTCP615** CTCP605 / H216T
S	Heat-resistant materials			31–35	200–350	**CTCP625** CTCP630 / CTCP640
S	Titanium alloys			36 / 37	150–300	**CTCP615** CTCP610 / H216T

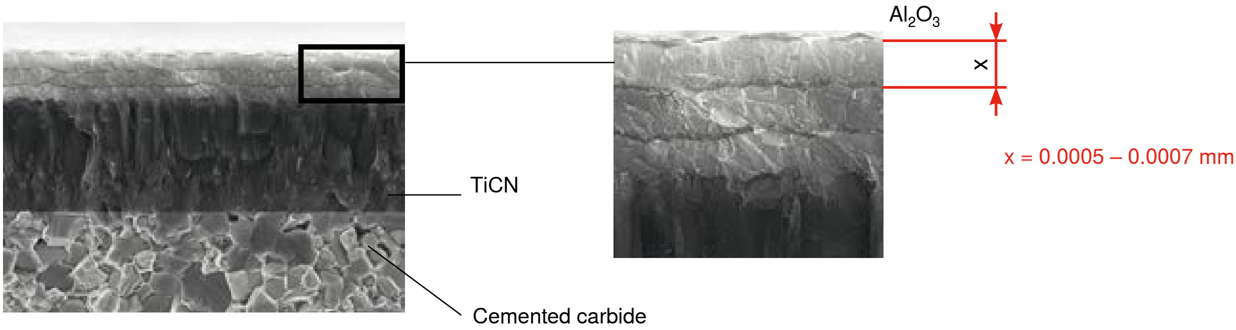
Development of the COLORSTAR™ coating

The continuous development of production technologies is one of CERATIZIT's highest priorities: for example, the new COLORSTAR™ coating is made up of a multi-layer aluminium oxide structure, exhibiting very fine crystals and making the colour of the inserts appear green and red.

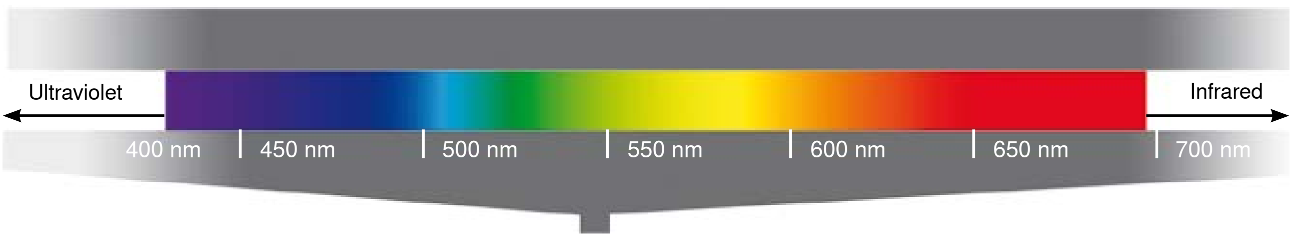
On the one hand, improved mechanical properties are achieved by this fine, crystalline structure, while at the same time the intrinsic roughness of the surface is reduced, resulting in optimal chip evacuation. This in turn reduces frictional contact and causes minimal heating of the cutting material.

Our COLORSTAR™ grades, developed and optimised for the peeling process, are particularly robust in this regard and, thanks to their special layer structure, feature a perfect protective function for the cutting edge against micro-cracks and spalling. On top of this, they also exhibit the usual excellent physical properties such as high toughness, wear resistance, heat resistance, and temperature and chemical resistance.

The secret of the colour



The visible spectrum

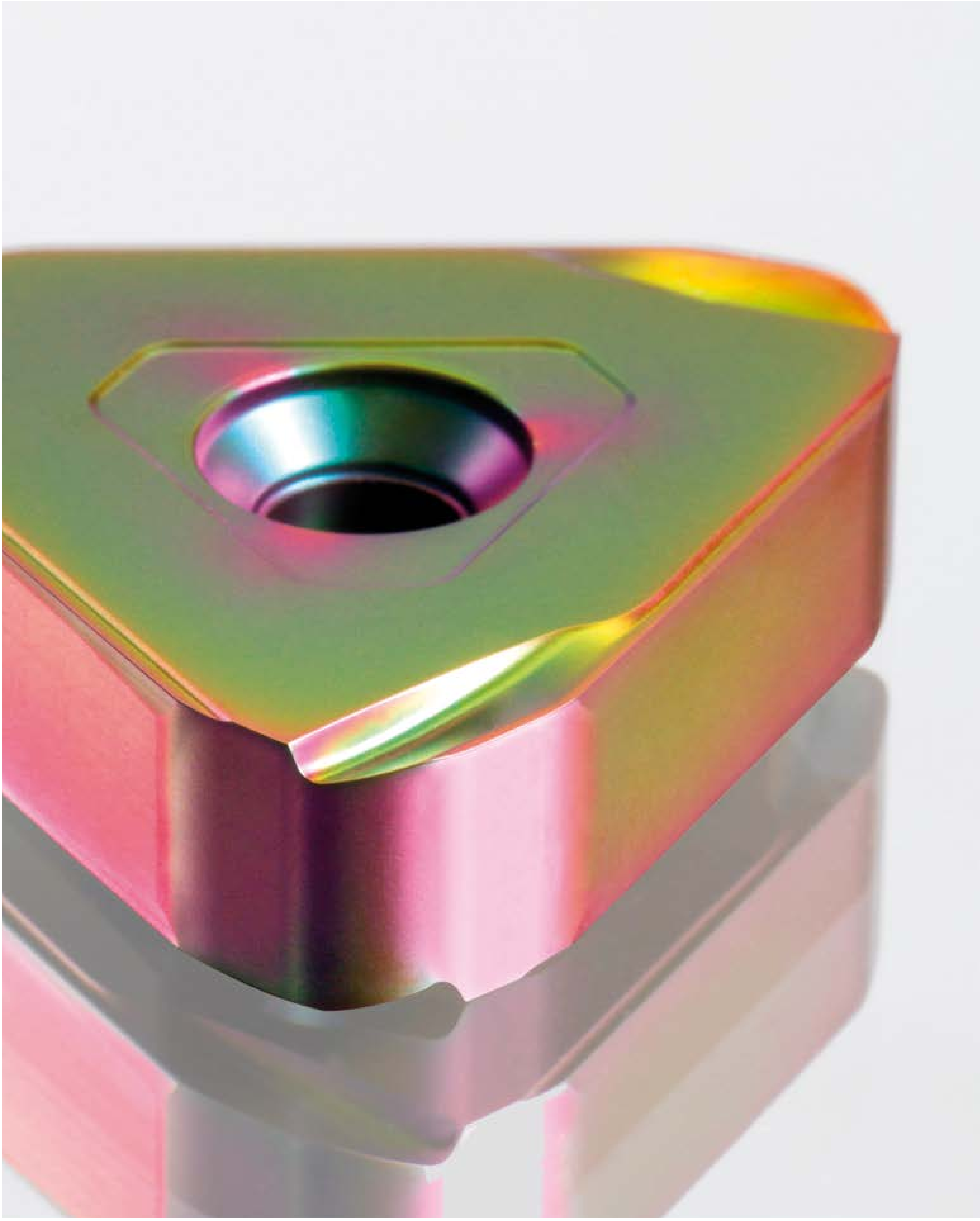


- The COLORSTAR™ coating has a titanium-carbonitride base layer, with a fine columnar structure, and another layer above, consisting of several very thin aluminium oxide layers with a thickness of only 500 to 700 nanometres.
- With this layer thickness, aluminium oxide, which normally does not reflect light, becomes a light-breaking prism. This is why the inserts shimmer in red or green, which is an important quality feature.

Innovative coating:
The ultra-fine crystal structure ensures extremely smooth surfaces.

Success factors

- Edge chipping reduced to a minimum. The tough coating guarantees stable cutting edges without the risk of chipping together with maximum reliability.
- Tool life increased to a maximum. The smooth surface ensures optimal chip evacuation.



Machining of super duplex steel P550

SUCCESS STORY

SITUATION

Work piece	boring bar for oil industry Ø 223 mm, L = 9.5 m
Material	super duplex steel P550
Strength	1035 N/mm^2 (304 HB)
Machine	Bültmann SH280

BEFORE

Tool	TCA12-RN38WN16
Insert	RNMH-3812-BML-M1
Grade	LC228E

PROBLEMS / CRITERIA

▲ Improve tool life and reduce cost

CERATIZIT

Tool	TCA12-RN38WN16
Insert	RNGH 3812MOP15-R56
Grade	CTCP635

RESULT

	COMPETITOR	CERATIZIT
V_C [m/min]	13	**13**
a_P [mm]	4.0	**4.0**
f [mm/rev.]	13.2	**13.2**
Coolant	emulsion	**emulsion**

RESULT

▲ Tool life improved by 100%

▲ Perfect edge stability and high process security

▲ Excellent performance from grade CTCP635.

▲ Manufacturng of a second bar possible without any failure of the insert performance.

Tandem cartridge
TCA12-RN38WN16

RNGH 3812MOP15-R56
CTCP635

Page 22–29

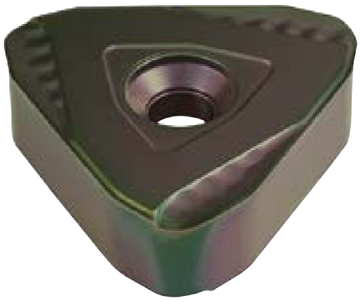
Page 72

Page 75

Page 102

Machining of stainless steel X2CrNiMoV 22-5-3

SUCCESS STORY



SITUATION

Work piece	bright steel bar, Ø 320 mm
Material	stainless steel X2CrNiMoV 22-5-3 (1.4462)
Strength	880 N/mm^2 (260 HB)
Machine	Kieserling WDHS 300

BEFORE

Tool	TCA14-RN50NN20
Insert	YNUF 201220S50-M50
Grade	CTC1125

PROBLEMS / CRITERIA

- Replace the currently used insert YNUF 201220-M50 with moderate chip control and 4 cutting edges against insert NNUX 201020-M43 with 6 cutting edges and improved chip formation

CERATIZIT

Tool	TCA14-RN50NN20
Insert	NNUX 201020S50-M43
Grade	CTCP625

RESULT

	COMPETITOR	CERATIZIT
V_C [m/min]	30	**30**
a_P [mm]	7.5	**7.5**
f [mm/rev.]	12	**12**
Coolant	emulsion	**emulsion**

RESULT

- New M43 chip breaker design provides shorter chips: chip jam reduced to a minimum.
- By using the NNUX 201020S50-M43 insert with 6 cutting edges cost saving of 30% for the customer.

Tandem cartridge
TCA14-RN50NN20

NNUX 201020S50-M43
CTCP625

Page 22–29

Page 72

Page 70

Page 100

Machining of soft tool steel C15E2

SUCCESS STORY

PROBLEMS / CRITERIA

▲ Improve tool life with steel materials

SITUATION

Work piece	bright steel, automotive industry Ø 50 mm
Material	Soft tool steel C15E2 soft
Strength	350 N/mm^2 (105 HB)
Machine	Kieserling WDHX 100

BEFORE

Tool	CA00-YNUF20
Insert	LKGC 182020 SF
Grade	VTA420

CERATIZIT

Tool	CA00-YNUF20
Insert	YNUF 201220P60-M50
Grade	CTCP635

RESULT

	COMPETITOR	CERATIZIT
V_c [m/min]	174	**174**
a_p [mm]	0.8	**0.8**
f [mm/rev.]	18.5	**18.5**
Coolant	emulsion	**emulsion**

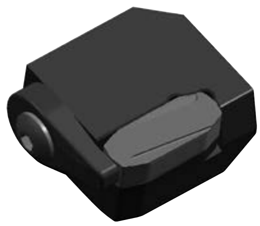
RESULT

▲ Tool life improved by 200%

▲ Perfect chip evacuation - less material sticking tendency

▲ 21 tons of material were peeled with one cutting edge (= 265 bars) – in comparison, the competitor's insert cut only 7.5 tons.

▲ Extremely tough coating guarantees stable cutting edges to minimize the risk of chipping and give maximum reliability.



Single cartridge
CA00-YNUF20

YNUF 201220P60-M50
CTCP635

Page 22–29

Page 80

Page 90

Machining of Nimonic 80A

SUCCESS STORY

SITUATION

Work piece	bright steel Ø 62.8 mm, L = 4000 mm
Material	Nimonic 80A
Strength	1050 N/mm^2 (311 HB)
Machine	Medard 4R – peeling head with 6 tool holders

BEFORE

Tool	CA00-WNGU15
Insert	TNMX 1509-2
Grade	4225

PROBLEMS / CRITERIA

- ▲ Improve tool life

CERATIZIT

Tool	CA00-WNGU15
Insert	WNGU 151015S50-M50
Grade	CTCP635

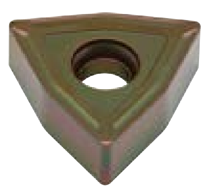
RESULT

	COMPETITOR	CERATIZIT
V_C [m/min]	22	**22**
a_P [mm]	2.3	**2.3**
f [mm/rev.]	8.0	**8.0**
Coolant	emulsion	**emulsion**

RESULT

- ▲ Tool life improved by 70%
- ▲ Competitor's insert = 10 bars per cutting edge
  CERATIZIT insert = 17 bars per cutting edge
- ▲ Excellent edge stability and process security by using grade CTCP635
- ▲ Cost reduction – more bars per cutting edge

Single cartridge
CA00-WNGU15



WNGU 151015S50-M50
CTCP635

Page 22–29

Page 76

Machining of bright steel

SUCCESS STORY

PROBLEMS / CRITERIA

- ▲ Achieving the specified cutting data in different materials for the machine acceptance test.

SITUATION

Work piece	bright bars Ø 20 mm / L = 4000 mm
Material	X6NiCrTiMoVB25-15-2 (1.4980)
Properties/Hardness	1180 N/mm^2 (350 HB)
Machine	SMS Schumag PM35

BEFORE

Tool	CA00-YNUF17
Insert	LPUC 121517 PF
Grade	VTA420

CERATIZIT

Tool	CA00-YNUF17
Insert	YNUF 170820P33-M50
Grade	CTCP610

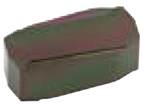
RESULT

	COMPETITOR	CERATIZIT
V_c [m/min]	50	**65**
a_p [mm]	0,5	**0,5**
f [mm/U]	10	**12**
Coolant	emulsion	**emulsion**
Tool life/cutting edge [min:sec]	45′	**45′**

RESULT

- ▲ Improved productivity achieved
- ▲ Highest quality of the products
- ▲ The cutting parameters specified by the customer, the tool life and the quality of the bars could be achieved

Single cartridge
CA00-YNUF17



YNUF 170820P33-M50
CTCP610

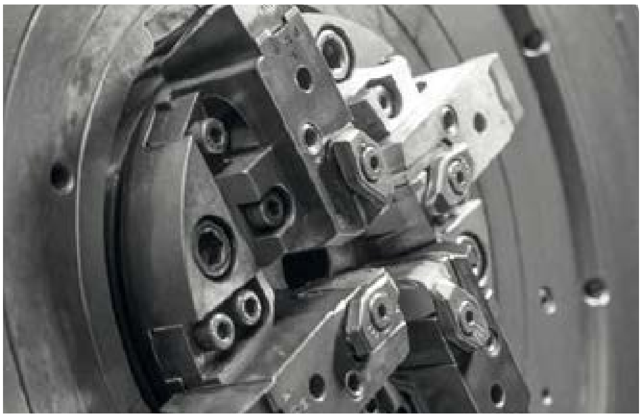
Page 22–29

Page 80

Page 90

Machining of bright steel

SUCCESS STORY



PROBLEMS / CRITERIA

- ▲ High scrap rate at bar peeling start due to poor roundness (IT09)
- ▲ Tool life improvement

SITUATION

Work piece	bright bars, Ø 29.8 mm, L = 5890 mm
Material	V953SB (1.1210)
Properties/Hardness	900 N/mm^2 (268 HB)
Machine	SMS Schumag PM1

BEFORE

Tool	CA00-YNUF24
Insert	LPUC 151224 MF
Grade	VTA420

CERATIZIT

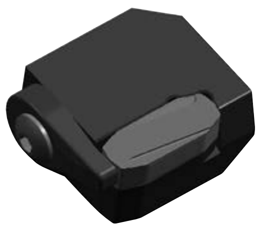
Tool	CA00-YNUF24
Insert	YNUF 241020S60-M50
Grade	CTCP605

RESULT

	COMPETITOR	CERATIZIT
V_C [m/min]	160	**136**
a_P [mm]	0.9	**0.9**
f [mm/U]	13.2	**15.5**
Coolant	emulsion	**emulsion**
Pieces/cutting edge	225	**394**

RESULT

- ▲ Customer no longer has any scrap parts at the start of production with CERATIZIT insert assembly
- ▲ Roundness of the bars at 0.01mm from the beginning
- ▲ Tool life increased by 75%



Single cartridge
CA00-YNUF24

YNUF 241020S60-M50
CTCP605

Page 22–29

Page 80

Page 90

Bar peeling inserts – influencing factors for choosing the correct insert

In order to select the best-suited peeling insert, the following criteria have to be taken into consideration:

- ▲ Composition and properties of the material to be machined
- ▲ Hardness of the material
- ▲ Diameter
- ▲ Depth of cut
- ▲ Required surface quality

The most important criterion for the correct choice of the peeling insert and its carbide grade is the material which has to be machined, its degree of finishing and its hardness. The wide variety of material composition that can occur, may however make it necessary in some cases to deviate from the prescribed recommendations; practical tests are a useful resource in this context. For different application cases different cutting edge geometries and various carbide grades have been developed which can then be combined with different support chamfers. A detailed Designation of these and the criteria of how to select them can be found on the following pages.

Another criterion is the diameter which has to be machined together with the depth of cut. In this context the manufacturing process of the bars plays an important role. Drawn and rolled bars with diameters up to 150mm normally feature better surface quality of the blank than forged bars with diameters above 150mm, which besides the irregular surface structure can also show ruptures, cavities and flaking.

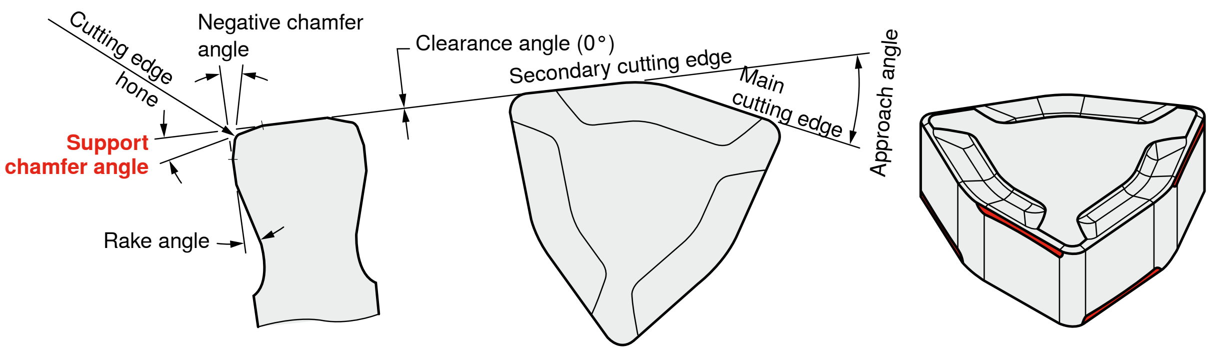
Increased metal removal rates and greater depths of cut are the consequence.

Other influencing factors

In addition to the above 5 selection criteria, other influencing factors which are decisive for the correct selection of the cutting insert are the following:

- ▲ Condition and characteristics of the peeling machine (maintenance)
- ▲ Condition and accuracy of the tool holder and cartridges (insert seat and insert clamping)
- ▲ Condition and setting of the guide elements (central infeed, pressurisation, wear of the rolls and guiding elements).
- ▲ Condition and characteristics of the blank bar (roundness, deflection, bar end hardening, chamfers, surface damages such as cracks, flat spots and flaking) ...
- ▲ Sufficient cooling in accurate concentration, sufficient pressure and quantity directly on the cutting edge
- ▲ Optimal chip evacuation – no chip jamming in the peeling head

Peeling inserts – different angles on the peeling insert

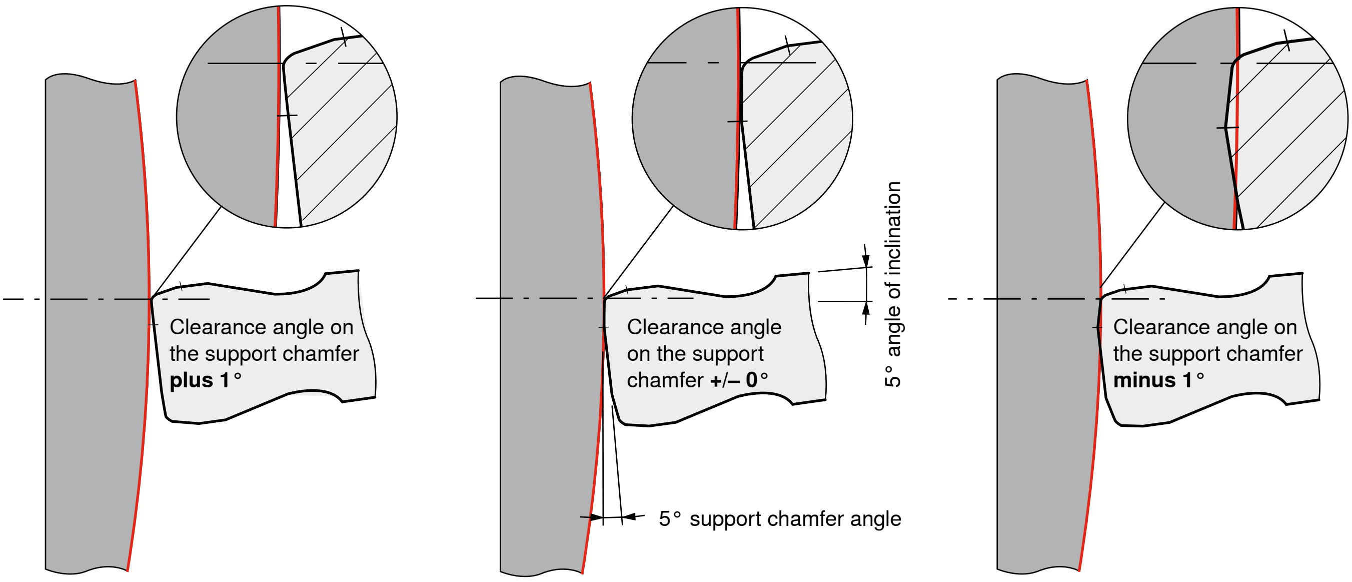


Support chamfer angle

Support chamfer type **S42**
(Support chamfer angle **4°**)

Support chamfer type **S50**
(Support chamfer angle **5°**)

Support chamfer type **S60**
(Support chamfer angle **6°**)

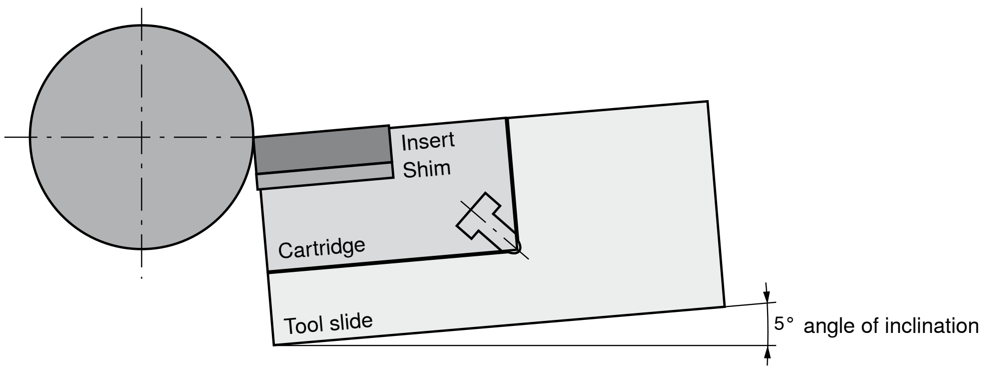


Soft cutting conditions
Positive insert

Neutral conditions
Insert has a form lock with the bar

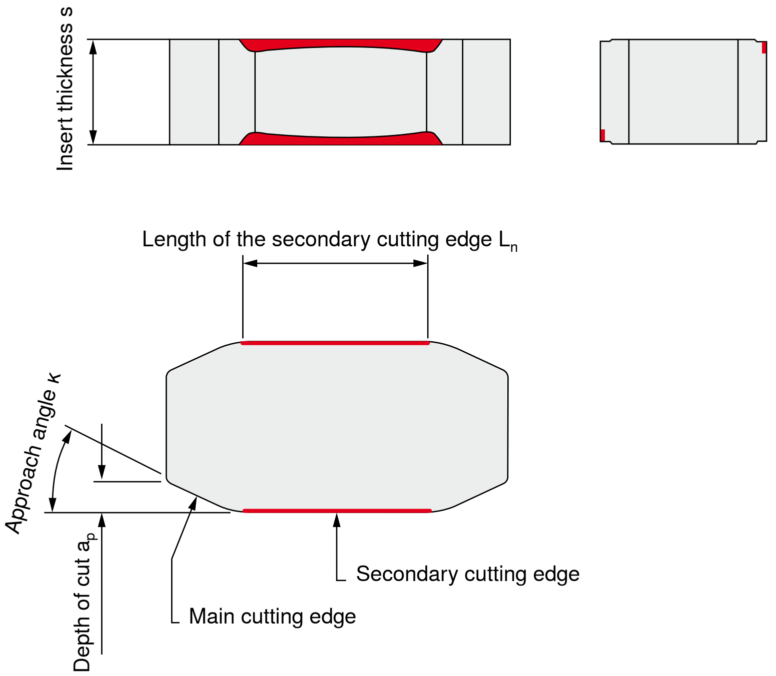
Stable conditions
Negative insert

Inclination angle of the insert in the cartridge mainly 5°

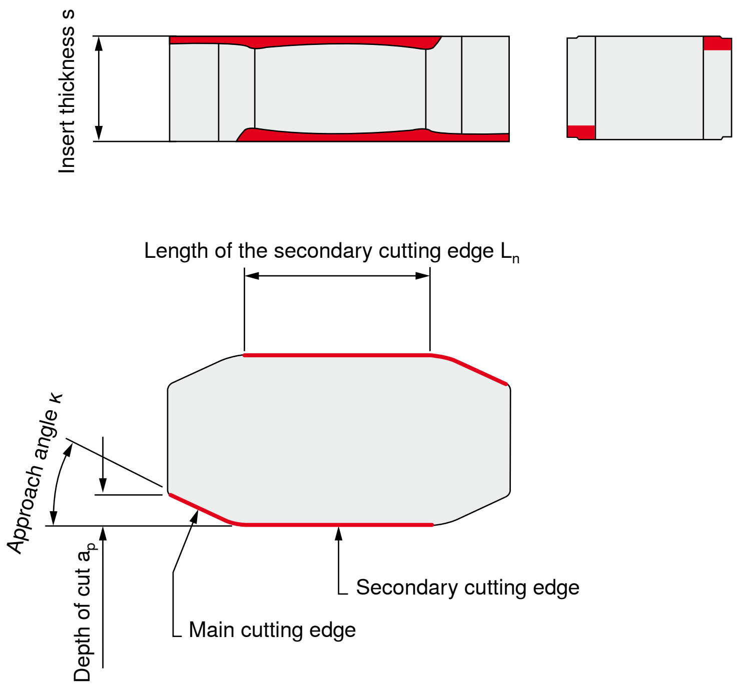


Peeling inserts – various types of support chamfer preparation

Support chamfer type S
(chamfer only on the secondary cutting edge)



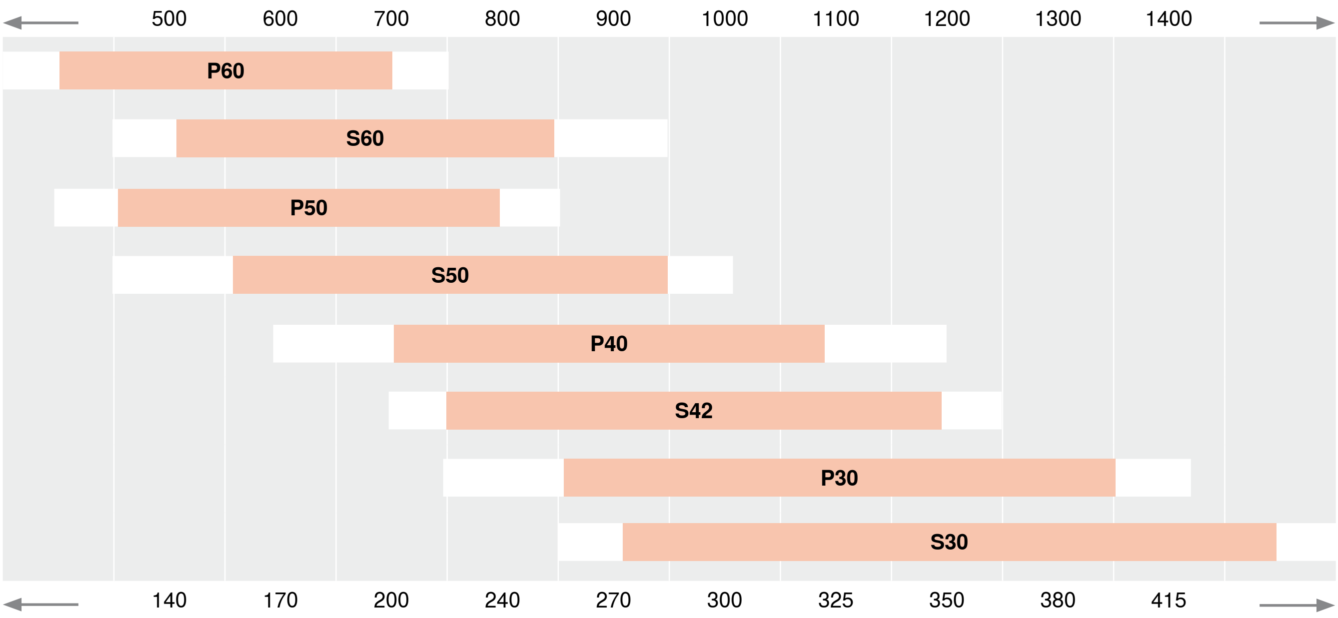
Support chamfer type P
(chamfer on the main and secondary cutting edge)



Peeling inserts – support chamfer overview

Chamfer	Designation	Application range	Tensile strength (Brinell hardness)
P60	Main and secondary cutting edge chamfer angle 6°	< Annealed > e.g.: contruction steel, tool steel, mainly used with vibration-sensitive materials and under unstable machining conditions	300–700 N/mm^2 (90–210 HB))
S60	Secondary cutting edge chamfer angle 6°	< Annealed > e.g.: contruction steel, tool steel	500–850 N/mm^2 (150–250 HB)
P50	Main and secondary cutting edge chamfer angle 5°	< Full-hard> e.g.: contruction steel, tool steel, stainless steel (austenitic)	450–800 N/mm^2 (135–240 HB)
S50	Secondary cutting edge chamfer angle 5°	< Full-hard > e.g.: contruction steel, tool steel, stainless steel (austenitic)	550–950 N/mm^2 (160–280 HB)
P40	Main and secondary cutting edge chamfer angle 4°	< Full-hard > heat-resistant alloys	700–1100 N/mm^2 (210–235 HB)
S42	Secondary cutting edge chamfer angle 4°	< Tempered > e.g. tempered steel, tool steel, stainless steel (duplex), Ni base alloys	750–1200 N/mm^2 (220–350 HB)
P30	Main and secondary cutting edge chamfer angle 3°	< Tempered > e.g. tempered steel, tool steel, stainless steel (duplex), Ni base alloys	850–1350 N/mm^2 (250–400 HB)
S30	Secondary cutting edge chamfer angle 3°	< Tempered > e.g. tempered steel, tool steel	900–1500 N/mm^2 (280–470 HB)

Recommended application range for support chamfers based on the tensile strength of the steel material (N/mm^2)



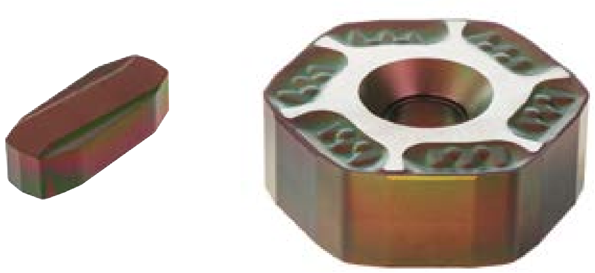
Recommended application range for support chamfers based on the BRINELL hardness of the steel material (HB)

CERATIZIT peeling insert range

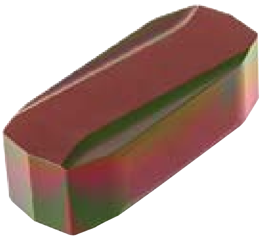
The principal uses of CERATIZIT peeling tools are in bright steel production, the bar end machining of semi-finished products for the automotive industry, bar and wire peeling from the coil, internal peeling of bars for the manufacture of hydraulic cylinders and conical peeling, for example in spring production. For all material classes and diameter ranges, as well as cylindrical and tapered machining, we offer numerous insert styles in a variety of geometries and carbide grades, customised tools and holistic solutions for boosting both quality and productivity.

Peeling inserts for every application

▲ Depths of cut 0.5 – 12 mm

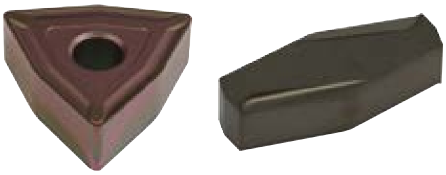


▲ Feed rates up to 27 mm/rev.

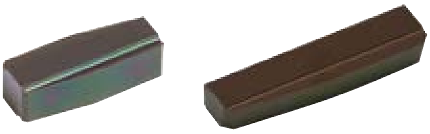


▲ Cutting edges and chip grooves available for all material classes, e.g. titanium machining

▲ Cylindrical and conical machining



▲ Inserts for internal peeling

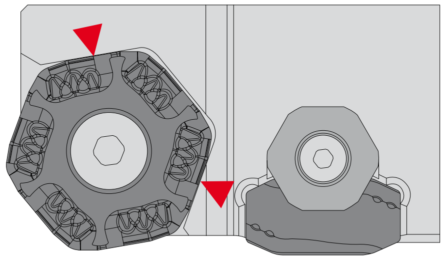


Hexagonal roughing inserts – the 10 convincing benefits

1

Perfect positioning in the cartridge

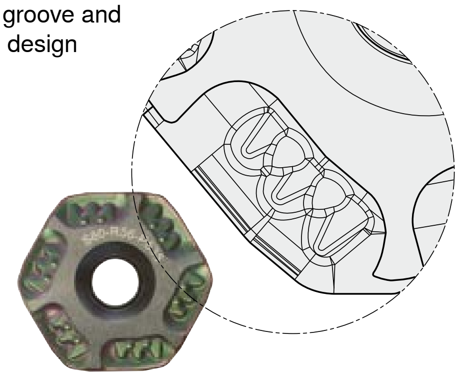
- Geometrically exact positioning of the insert with 6 fully usable cutting edges
- No rotation or uncontrolled loosening of the insert can happen during the production process



10

Chip groove -R56 for general steel applications

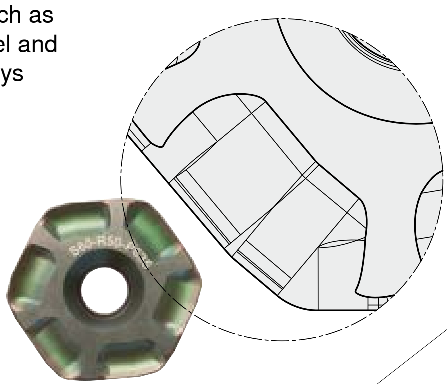
- Best performance thanks to special chip groove and cutting edge design

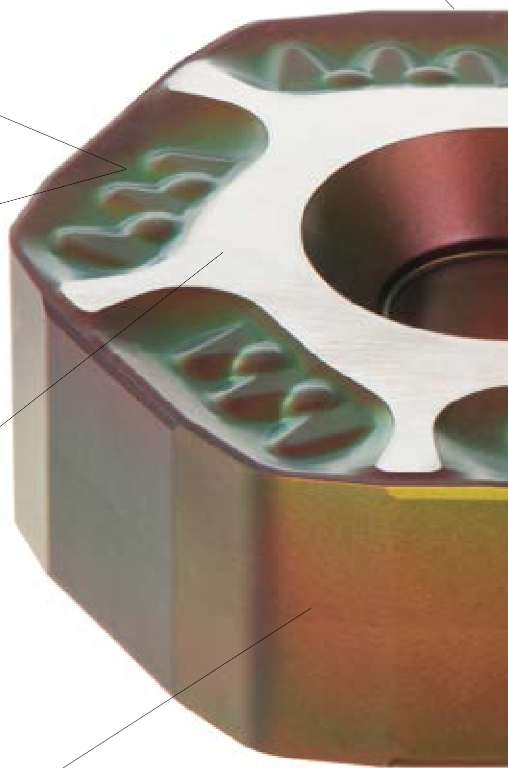


9

Chip groove -R50 for long-chipping materials

- Optimised design of the chip groove for soft/tough materials, such as stainless steel and Ni-based alloys





8

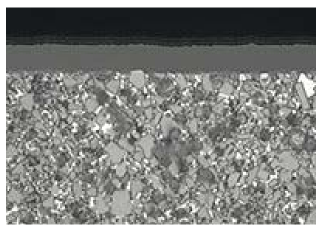
Uncoated contact faces

- Improved heat transfer away from the insert thanks to ground contact faces.

7

COLORSTAR™ coating

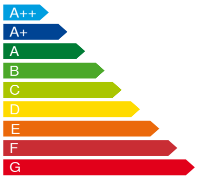
- The latest nano coating technology produces tough coatings and reduces edge chipping
- Superior chip evacuation due to the extremely smooth coating surface.
- Reduces material adhesion

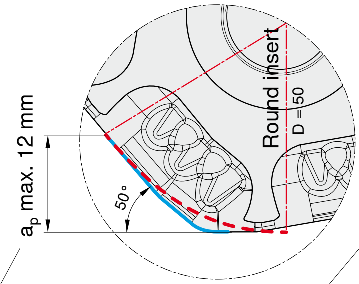


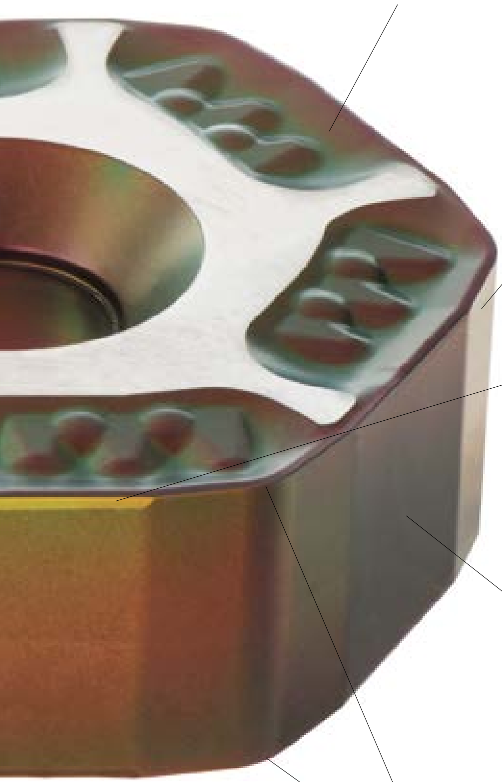
2

Lower energy consumption

- Shorter contact length of the cutting edge in comparison with the RNMH 5018 roughing insert reduces power consumption by a factor of up to 0.7
- Less stress on the cutting edge reduces insert breakages



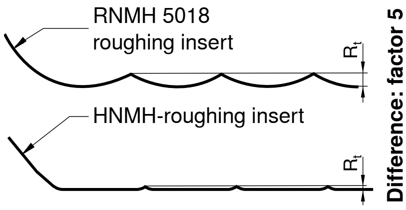




3

Optimised roughing surface of the rod

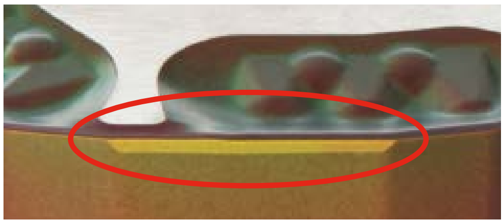
- The wiper edge integrated with the roughing insert reduces surface roughness by a factor of up to 5
- Longer service life of the subsequent finishing insert as application conditions remain constant



4

First roughing insert with protective chamfer

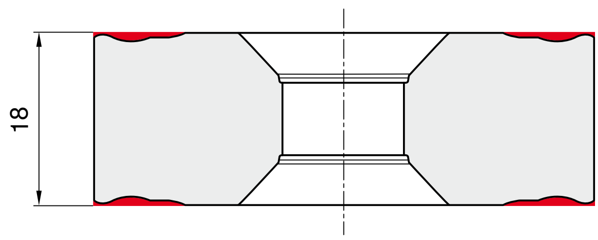
- Protective chamfers partially placed on the cutting edge stabilise the cutting edge in exposed areas
- Reduces vibrations and improves both the cutting and wear rates of the insert



6

Twice as many cutting edges with HNMJ

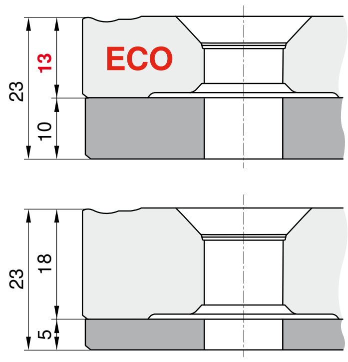
- Reduced costs per cutting edge based on double-sided version with 12 cutting edges



5

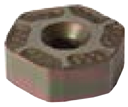
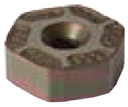
ECO version with 13 mm insert thickness

- Save valuable carbide in medium-stress applications, allowing a lower cost insert.
- By using shims of different thicknesses the insert can be clamped in the same cartridge



Peeling inserts for ROUGHING – code „R“

HNMH 2212..-R50	HNMH 2212..-R56	HNMJ 2212..-R50	HNMJ 2212..-R56
			
a_p = 8.0	a_p = 8.0	a_p = 8.0	a_p = 8.0

HNMH 2813..-R50	HNMH 2818..-R50	HNMJ 2818..-R50	HNMH 2813..-R56	HNMH 2818..-R56	HNMJ 2818..-R56
					
ECO a_p = 9.0	a_p = 12.0	a_p = 12.0	ECO a_p = 9.0	a_p = 12.0	a_p = 12.0

RNMH 2008..-R50	RNMH 2008..-R56
	
a_p = 3.0	a_p = 3.0

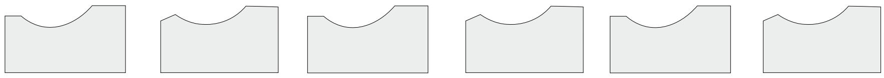
RNMH 2810..-R50	RNMH 2810..-R56
	
a_p = 5.0	a_p = 5.0

RNGH 3812..-R50	RNGH 3812..-R55	RNGH 3812..-R56	RNGX 3812..-R56
			
a_p = 7.0	a_p = 7.0	a_p = 7.0	a_p = 7.0

RNMX 5018..-R50	RNMH 5018..-R55	RNMH 5018..-R56
		
a_p = 9.0	a_p = 9.0	a_p = 9.0

a_p = maximum depth of cut

Chip groove code – ROUGHING inserts – code „R“



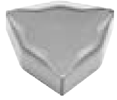
Roughing insert code „R“		neutral	negative	neutral	negative	neutral	negative
Chip groove code		R50		R55		R56	
HNMH/J 221250	Page 68	S60					S60
HNMH 281350	Page 68	S60					S60
HNMH/J 281850	Page 68	S60					S60
RNMH 200800	Page 72	E00				E00	P15
RNMH 281000	Page 72	E00				E00	P15
RNGH 381200	Page 72		P15		P15	E00	P15
RNGX 381200	Page 72					E00	P15
RNMH 5018MO	Page 72			E00		E00	P15
RNMX 5018MO	Page 72	E00					

Peeling inserts for ROUGHING and FINISHING – code ”R“

LNGF 2310..-R50	LNGF 2310..-R51	LNGF 2312..-R50	LNGF 2312..-R51
			
L_n = 23 a_p = 3.0	L_n = 23 a_p = 3.0	L_n = 23 a_p = 3.0	L_n = 23 a_p = 3.0

WNEF 16..-R50	WNEF 16..-R51	WNEF 16..-R55
		
L_n = 16 ap = 7.0	L_n = 16 ap = 7.0	L_n = 16 ap = 7.0

WNEU 16..-R50	WNEU 16..-R51	WNEU 16..-R55
		
L_n = 16 a_p = 7.0	L_n = 16 a_p = 7.0	L_n = 16 a_p = 7.0

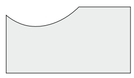
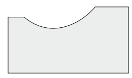
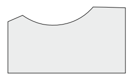
WNMF 15..-R41	WNMF 96..
	
L_n = 15 a_p = 5.0	L_n = 16 a_p = 6.0

YNGX 15..-R50	YNGX 15..-R52	YNGX 17..-R52
		
L_n = 15 a_p = 3.5	L_n = 15 a_p = 3.5	L_n = 17 a_p = 4.0

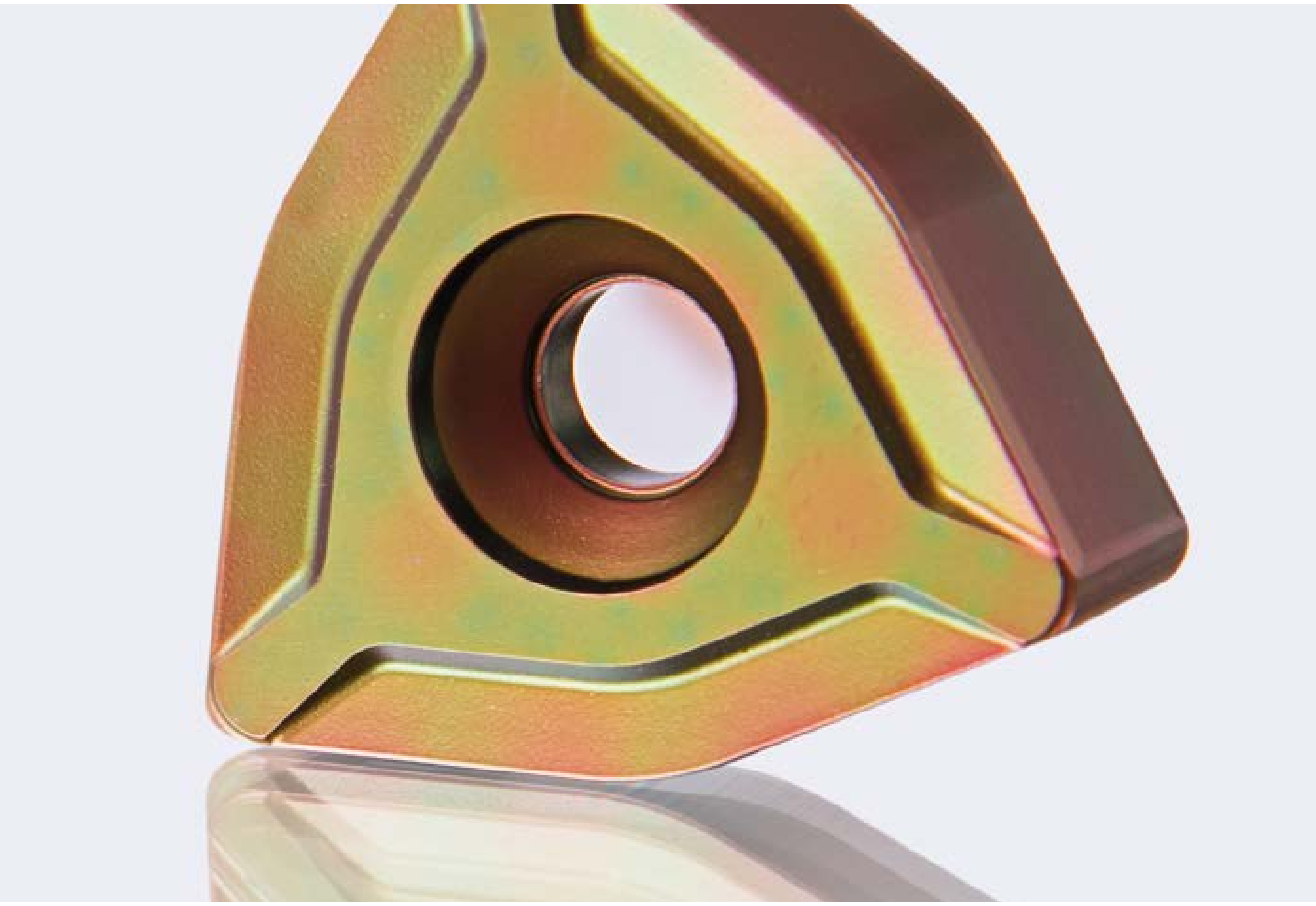
L_n = length of secondary cutting edge

a_p = maximum depth of cut

Chip groove code ROUGHING/FINISHING inserts – code ”R“

Finishing insert code “R“ R = Rough (depth of cut a_p > 3.0 mm)		positive	neutral chip groove code	negative
LNGF 231025	Page 69	R50	R51	
LNGF 231225	Page 69	R50	R51	
WNEF 161325	Page 74		R55	R50
WNEU 161325	Page 75		R55	R50
WNEU 161425	Page 75		R55	R50
WNMF 151025	Page 77		R41	
WNMF 96	Page 77	–		
YNGX 150820	Page 78	R50		R52
YNGX 171215	Page 78			R52



Peeling inserts for FINISHING – code ”M“ and ”F“

NNUX 12..-M40

$L_n = 12$ $a_p = 1.5$

NNUX 15..-M46

$L_n = 15$ $a_p = 2.0$

NNUX 20..-M40

$L_n = 20$ $a_p = 2.5$

NNUX 20..-M41

$L_n = 20$ $a_p = 2.5$

NNUX 20..-M43

$L_n = 20$ $a_p = 2.5$

NNXX 20..-M40

$L_n = 20$ $a_p = 2.5$

NNUX 27..-M43

$L_n = 27$ $a_p = 2.5$

WNGU 10..-M46

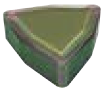
$L_n = 10$ $a_p = 3.0$

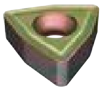
WNGU 15..-M50

$L_n = 15$ $a_p = 3.0$

WNGU 15..-M52

$L_n = 15$ $a_p = 3.0$

WNMF 11..-M43

$L_n = 11$ $a_p = 3.0$

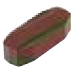
WNMU 11..-M43

$L_n = 11$ $a_p = 3.0$

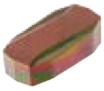
WNMF 11..-M41

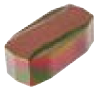
$L_n = 11$ $a_p = 3.0$

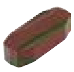
YNGX 15..-M50

$L_n = 15$ $a_p = 3.0$

YNUF 17..-M48

$L_n = 17$ $a_p = 1.5$

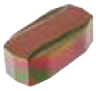
YNUF 2009..-M48

$L_n = 20$ $a_p = 2.0$

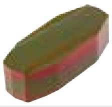
YNUF 2012..-M48

$L_n = 20$ $a_p = 2.0$

YNUF 17..-M50

$L_n = 17$ $a_p = 1.5$

YNUF 2009..-M50

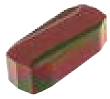
$L_n = 20$ $a_p = 2.0$

YNUF 2012..-M50

$L_n = 20$ $a_p = 2.0$

YNGF 20..-M50

$L_n = 20$ $a_p = 3.0$

YNUF 24..-M50

$L_n = 24$ $a_p = 1.2$

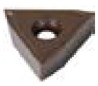
YNUF 27..-M50

$L_n = 27$ $a_p = 2.0$

YNUR 27..-M40

$L_n = 27$ $a_p = 3.0$

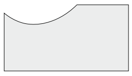
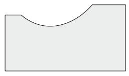
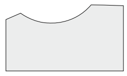
YNUX 10..-M50

$L_n = 10$ $a_p = 2.0$

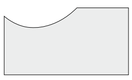
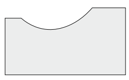
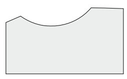
TNGT 22..-F46

$L_n = 22$ $a_p = 1.0$

L_n = length of secondary cutting edge a_p = maximum depth of cut

Chip groove code FINISHING – code ”M“ and ”F“

Finishing insert code “M“ M = Medium (depth of cut a_p 1.0–3.0 mm)		positive	neutral chip groove code	negative
NNUX 120800	Page 70	M40		
NNUX 150820	Page 71			M46
NNUX 201020	Page 70	M35 M40	M41 M42 M43	
NNXX 201020	Page 71		M40	
NNUX 271220	Page 70		M43	
WNGU 101025	Page 76			M46
WNGU 151015	Page 76		M50	M52
WNMF 110615	Page 77		M41 M43	
WNMU 110615	Page 77		M43	
YNGX 150815	Page 78			M50
YNUX 100615	Page 79	M50		
YNUF 170820	Page 80	M48	M50	
YNUF 200920	Page 80	M48	M50	
YNUF 201220	Page 80	M48	M50	
YNGF 201220	Page 81		M50	
YNUF 241020	Page 81		M50	
YNUF 271220	Page 81		M50	
YNUR 271220	Page 82		M40	

Finishing insert code “F“ F = Fine (depth of cut a_p < 1.0 mm)		positive	neutral chip groove code	negative
TNGT 220815	Page 73			F46

Peeling tools – tool holders and cartridges

The majority of the bar peeling tools used on the market are types specific to the manufacturers. Below you can find an extract of peeling machine types including the names of manufacturers which are used by our customers:

- ▲ Bültmann, Germany
- ▲ EJP – Farmer Norton, Germany
- ▲ Lindemann - Calow, Germany
- ▲ SMS Schumag - Kieserling, Germany
- ▲ Danieli, Italy
- ▲ Landgraf, Italy
- ▲ MAIR Research, Italy
- ▲ SAS, Italy
- ▲ Daisho, Japan
- ▲ Hetran, USA
- ▲ Medart, USA

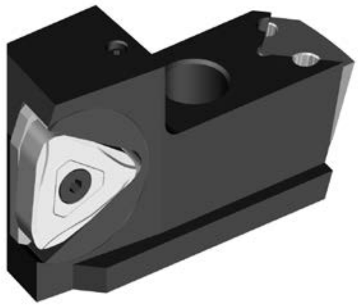
Due to the numerous different products and versions, we only have some of the more frequently used types as standard articles in stock.

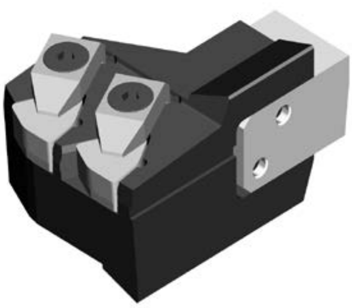
But of course we do offer our customers the possibility of ordering exactly their machine-specific tool holder and/or cartridge type from us. These tools are produced to order with acceptable delivery. High-quality tool steels are used here, observing close tolerances and case-hardened against wear.

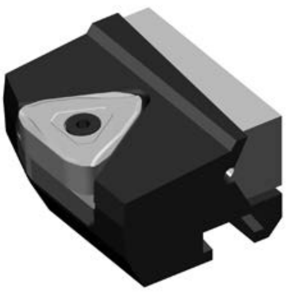
Examples of machine-specific tool holders:


Bültmann / SMS Schumag


MAIR Research


Kieserling


Daisho


Calow


Farmer Norton

Based on the metal removal performance required from the machine, different cartridge systems are used: from the SINGLE system to the TANDEM system or TRIO system.

By increasing the number of inserts in the cartridge the total depth of cut is divided into various single depths of cut, thus reducing the stress per insert and so maximising the tool life of the entire system.

SINGLE cartridge system

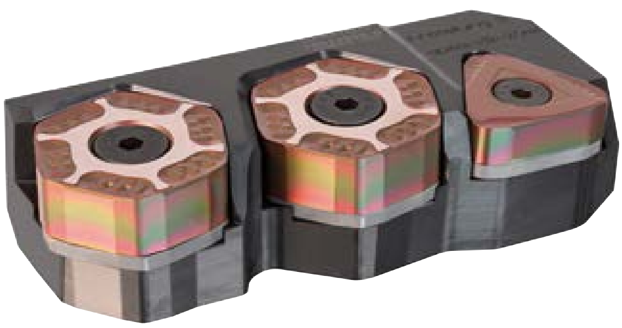
- ▲ For light to medium machining
- ▲ Low depth of cut up to max. a_p = 2.0 mm

TANDEM cartridge system

- ▲ For roughing and medium machining
- ▲ Depth of cut a_p = 5.0 + 1.5 mm = 6.5 mm

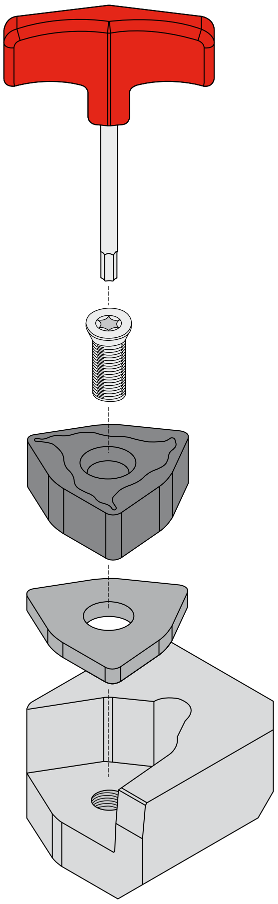
TRIO cartridge system

- ▲ For rough machining with maximum metal removal rates
- ▲ Depth of cut a_p = 5.0 + 3.5 + 1.5 mm = 10 mm and more

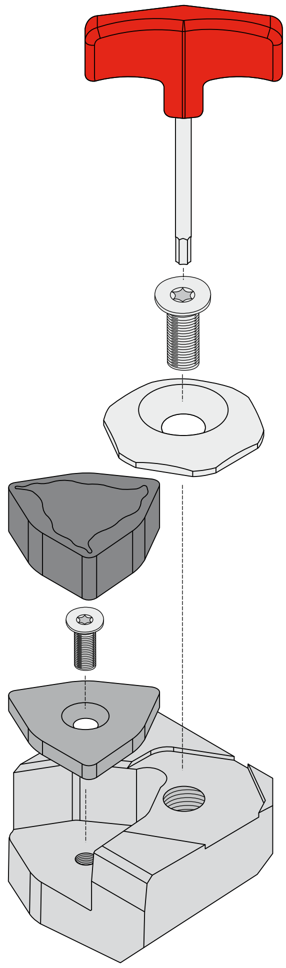


Peeling tools – different insert clamping methods

The basic condition for a satisfactory peeling result is the exact and secure fixing of the insert in the peeling tool. In practice the following two variants of insert clamping are used:



Clamping with a screw



Clamping with a claw

Advantages of screw clamping

Compared to insert clamping with a claw, the clamping method with a screw allows the precise positioning of the insert in the seat, clamping it accurately in both radial and axial direction.
The screw clamping system is an economical solution, as the screw is the only spare part. The very compact design, without protruding components, avoids chip evacuation problems and wear of the clamping parts.

Advantages of claw clamping

To index or change the insert, the claw need only be lifted by a small amount to release the insert. This is much faster than screw clamping, where the screw must be completely detached.

Locking torque of fixing screws

	maximum locking torque [Nm] per property class		
Screw thread	8.8	10.9	12.9
M4	3	4.6	6.1
M5	5.9	8.6	10
M6	10.1	14.9	17.4
M8	24.6	36.1	42.2
M10	48	71	83

Peeling tools – use of carbide shims

A crucial point for the reliable operation of peeling tools is the use of a carbide shim adapted to the external profile of the peeling insert.
On the one hand it gives the cutting insert the necessary support in the insert seat, while on the other it protects the location face of the insert seat from deformation and dents. Moreover the carbide shim prevents erosion of the tool holder caused by swarf damage which frequently occurs in peeling operations due to the limited space inside the peeling head.

In the peeling process, fundamentally the secondary cutting edge must be exactly aligned with the work piece axis. A cutting edge positioned below the centre causes vibrations, one positioned above the bar axis causes high cutting pressure, hardening of the bar surface and plastic deformation of the cutting edge, which in the long run eventually has a negative impact on the insert's service life.

Thanks to the varying thickness of the shims the correct position of the cutting edge can be set to the centre of the bar. The absence of wear markings on the support chamfer, splintering on the cutting edge and massive wear on the chip groove indicate that the cutting edge is positioned below the work piece axis. Extreme wear on the support chamfer on the other hand, together with reduced wear on the chip groove, indicates that the cutting edge is above the work piece axis.

The use of carbide shims prevents erosion, deformation and dents in the tool holder.

U-LNGF 2312

U-RNMH 5018

U-WNEU 1613

The carbide shim is adapted to the external profile of the insert.

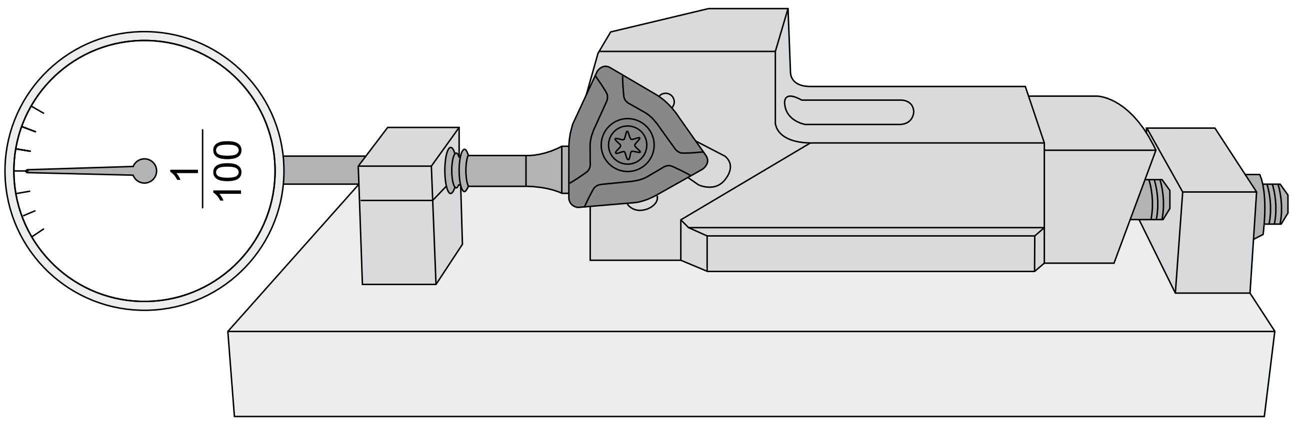
Peeling tools – precise setting of the tool holders

Adjustable tool holder

Non-adjustable tool holder

Mounting device for presetting of a tool holder

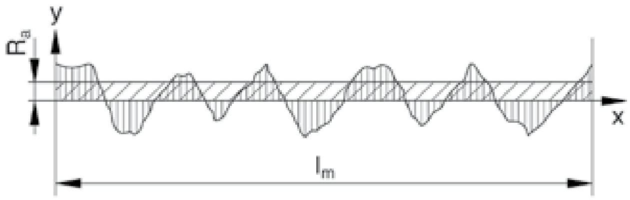
The roundness and diameter tolerance of the bright steel bars produced depends essentially on the precision of the tool holder set. So when producing bars with precise ISO tolerances, in additional to regular cleaning and maintenance of the tool holders, it is essential to set them accurately, off the machine, before mounting them on the peeling head.



For exact pre-setting of the tool holder set's length, the gauge on the ground support chamfer has to be positioned as accurately as possible in the centre of the secondary cutting edge. The same reference point must be chosen for each tool set for the point of conctact of the adjustable wedge, to avoid measurement deviations.

This guarantees that all insert cutting edges of a tool holder set (generally comprising 4 to 8 tool holders) work to the same circumference, in such a way as to ensure the required roundness and surface roughness of the bar.

Surface quality

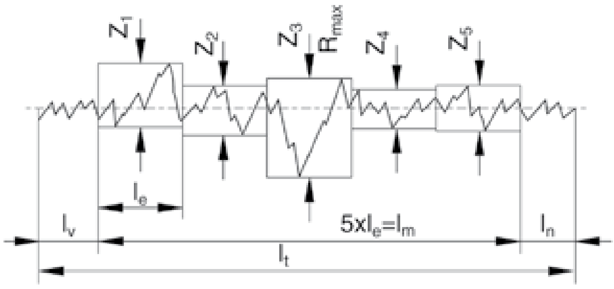


Average roughness value Ra (DIN 4768)

This is defined as the arithmetical mean of the absolute sums of the roughness profile R within the entire measured length l_m.

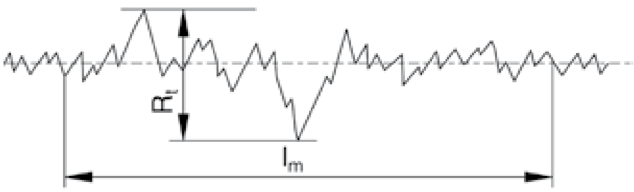
Average roughness depth Rz (DIN 4768)

This is defined as the average value resulting from the single roughness depths of five successive single measured lengths l_e.



Single surface roughness depth Z_1 ... Z_5

This is the vertical distance between the highest and the lowest point of the roughness profile R within a single measured length l_e.



Maximum surface roughness depth R_t (DIN 4768/1)

This is the distance between the elevation and depression of the line within the measured length (reference distance) of profile filtered according to DIN 4768 sheet 1.

Surface quality based on the production method

Surface symbol according to ISO 1302	new	0.025 √	0.05 √	0.1 √	0.2 √	0.4 √	0.8 √	1.6 √	3.2 √	6.3 √	12.5 √	25 √	50 √
Surface symbol according to ISO 3141	until now	▽▽▽▽					▽▽▽		▽▽		▽		
Roughness index		N 1	N 2	N 3	N 4	N 5	N 6	N 7	N 8	N 9	N 10	N 11	N 12
Arithmetic mean value	R_a [μm]	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
Surface roughness depth	R_z [μm]	0.25	0.63	1	1.6	2.5	4–6.3	10	16–25	40	63	100	160
Longitudinal turning – face turning													
Longitudinal grinding Surface grinding													

≙ Surface roughness (produced through special methods)

≙ Surface roughness (produced through normal workshop methods)

≙ Surface roughness (produced through rough machining methods)

Productivity and efficiency

Along with high process reliability and high metal removal rates, the need for perfect bar surfaces and form accuracy are the most important criteria for our bar peeling customers. An important prerequisite for the above requirements is the choice of the peeling machine. Different machining methods and combinations of cutting inserts in SINGLE, TANDEM or TRIO cartridge systems entail varying levels of power consumption on the part of the peeling machine. The formula below serves for an approximate calculation of the necessary power consumption P [kW], on the basis of which the number of the usable cutting edges or inserts can then be determined:

Formula for the calculation of power consumption

$$P = \frac{(v_c \cdot a_p \cdot f \cdot K_c1.1)}{60000} \cdot \left(\frac{0.4}{f}\right)^{0.29} \quad [kW]$$

v_c	= cutting speed	[m/min]
a_p	= depth of cut	[mm]
f	= feed rate per cartridge	[mm/rev.]
$K_c1.1$	= specific cutting force	[N/mm^2]

It has to be taken into account that the approximately calculated drive output applies only to one cartridge system. If the peeling machine is equipped with a peeling head comprising 4 cartridges / tool slides, the power consumption resulting from the formula has to be multiplied by a factor of 4. Regarding the depth of cut (a_p), it has to be taken into account that in case of a TANDEM or TRIO system the individual radial depths of cut of all roughing and finishing inserts are cumulated.

Feed rate and depth of cut

The major influencing factors in terms of productivity are the feed rate and the depth of cut. These, however, are limited by the possibilities and the state of repair of the peeling machine and its peeling tools, as well as by the condition of the raw material, all of which inevitably generate vibrations. In the last resort, the reduction of vibrations during the peeling process is the winning formula for productivity and product quality.

The preparation of the support chamfer, based on the quality and hardness of the material which is to be machined, contributes additional stability to the peeling process. The nominal value of the support chamfer angle determines whether the finishing insert, which is aligned parallel to the axis, forms a clearance angle between the bar and the support chamfer. If it does so, these are described as positive inserts. The inserts are described as neutral when they have a form lock with the bar, while negative inserts exert massive pressure on the bars. Depending on their nature, different materials need the properties of the cutting insert to be adapted accordingly.

The support chamfer angle and the length of the secondary cutting edge in the last resort influence the surface quality of the bars, and also, importantly, the choice of the correct insert for the respective depth of cut a_p.

Chip grooves which are specifically adapted to the material's properties break the chips produced during the peeling process to an acceptable length. In this context the depth of cut is a significant factor.

As described in previous sections, in bar peeling there are different inserts for roughing, for medium machining and for finish machining. The designations of the CERATIZIT chip grooves already indicate the application range in terms of depth of cut a_p.

Chip groove designations with the letter R (Rough) should be used for depths of cut larger than 3.0 mm. Chip grooves with the letter M (Medium) should be used for depths of cut between 1.0 and 3.0 mm, and those with the letter F (Fine) for depths of cut less than 1.0 mm – these are in all cases suitable for finishing operations.

Based on this selection the best possible cutting conditions can be obtained, the cutting forces are optimally distributed and tool life will be ideally prolonged. When using TANDEM cartridge systems, the major part of the material should be removed by the roughing insert: the depth of cut of the finishing insert – depending on its type – should be between 0.5 and 1.8 mm.

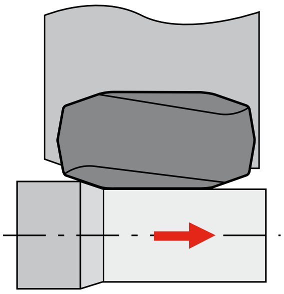
Machining examples

Finishing with the SINGLE system
Depth of cut a_p = 1.2 mm
Bar diameter = 28 mm h9
Material: Cf 53 W.Nr. 1.1213

Specific cutting force:
$k_{c\,1.1}$ = 1525 N/mm²

Insert:
YNUF 241020-M50

f = 16 mm/rev.
v_c = 135 m/min
→ **P** **= 23 kW**

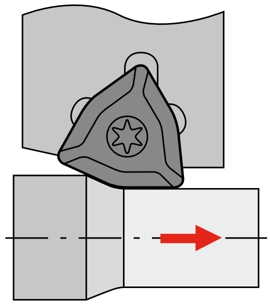


Medium maching with the SINGLE system
Depth of cut a_p = 3 mm
Bar diameter = 70 mm
Material: X 20 CrNi 17-2 W.Nr. 1.4057

Specific cutting force:
$k_{c\,1.1}$ = 1875 N/mm²

Insert:
WNEU 161425-R50

f = 12 mm/rev.
v_c = 100 m/min
→ **P** **= 42 kW**

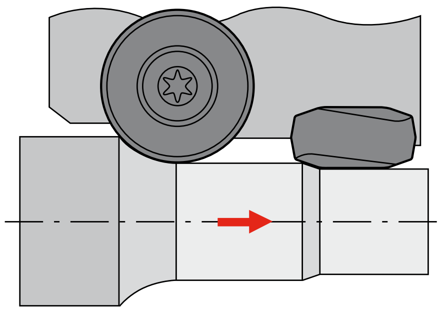


Roughing and medium machining with the TANDEM system
Depth of cut a_p = 3.5 + 1.5 = 5 mm
Bar diameter = 220 mm
Material: X6 CrNiMoTi 17-12-2 W.Nr. 1.4571

Specific cutting force:
$k_{c\,1.1}$ = 2150 N/mm²

Insert:
RNMH 5018MO
+ YNUF 201220-M50

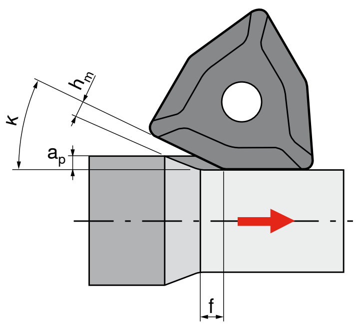
f = 14 mm/rev.
v_c = 60 m/min
→ **P** **= 54 kW**



The calculated power value applies to just one tool holder. In case of a peeling head with 4 tool holders, the power has to be multiplied by 4.

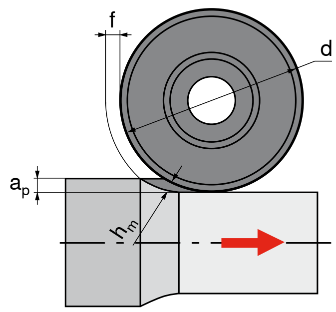
Calculation of the medium chip thickness h_m

For inserts form L, N, T, W, Y



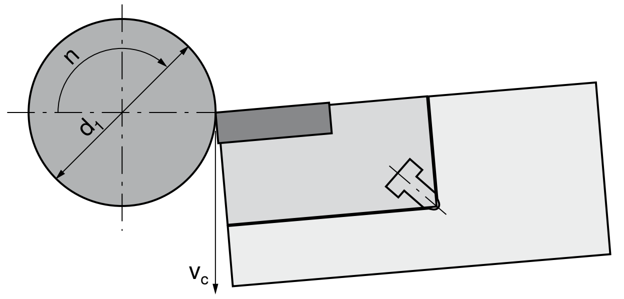
$$h_m \approx f \cdot \sin(\kappa)$$

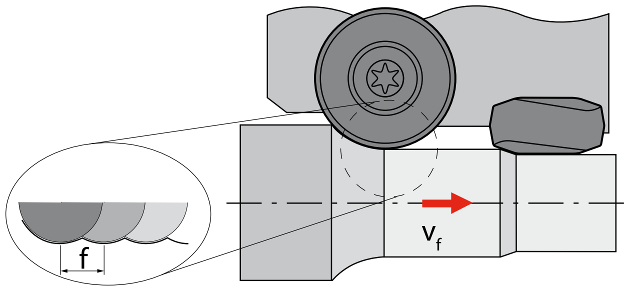
For inserts form R



$$h_m \approx f \cdot \sqrt{\frac{a_p}{d}}$$

Bar peeling Formulas





Cutting speed [m/min]:

$$v_c = \frac{d_1 \cdot \pi \cdot n}{1000}$$

Peeling head rev number [rev./min]

$$n = \frac{v_c \cdot 1000}{d_1 \cdot \pi}$$

Feed rate per revolution [mm/rev.]

$$f = \frac{V_f}{n}$$

Feed rate [m/min]

$$v_f = f \cdot n$$

Metal removal rate [cm³/min]

$$Q = a_p \cdot f \cdot v_c$$

Calculation example:

Insert:
YNUF 271220S50-M50 CTCP625

Bar diameter:
Ø 77 mm

Depth of cut (a_p):
1 mm

Feed rate (f):
22 mm/U

Selected cutting speed (V_c):
160 m/min

Calculation of rev number:

$$n = \frac{160 \cdot 1000}{77 \cdot \pi} = 661 \text{ (rev./min)}$$

Feed rate calculation:

$$v_f = 22 \cdot 661 = 14542 \text{ mm/min} = 14.5 \text{ m/min}$$

Calculation of metal removal rate:

$$Q = 1 \cdot 22 \cdot 160 = 3520 \text{ (cm}^3\text{/min)}$$

Conversion inch ↔ metrisch

1 inch	=	2.54 cm = 0.0254 m
1 foot	=	12 inches = 30.48 cm = 0.3048 m
1 meter	=	approx. 39.37 inches = approx. 3.2808 feet

Troubleshooting for turning problems

Type of problem

Type of wear							Work piece problems			
Flank wear	Cratering	Notching	Thermal cracking	Edge chipping	Insert breakage	Flaking	Surface quality	Vibration	Formation of burrs	**Corrective measures**
	⇓		⇓			↓	⇑	↓		Cutting speed v_c
⇑	⇑	⇓	⇓	↓		⇑	⇓	≈	↑	Feed rate f
⇑			⇓	↓					↑	Depth of cut a_p
	⇓		↓	⇑	⇑	⇓	↓		⇓	Chamfer angle 35° heavily interrupted cut Chamfer angle 25° continuous or slightly interrupted cut Chamfer angle 15° continuous or slightly interrupted cut
		⇑		⇑	⇑		⇑	⇓	↓	Corner radius — larger ↑ ↓ smaller
↓	↓		↓	↓	⇑	↓	↓	↓	↓	Hone
	⇓	⇑	⇑	⇑	⇑					PCBN content — BH / BL; wear resistance ↑ ↓ toughness
				≈	≈	≈	≈	≈		Clamping of tool
				≈	≈	≈	≈	≈		Clamping of work piece
				≈	≈	↓	↓	⇓		Overhang
≈				≈	≈	≈	≈	≈		Tip height
□		□	□	□	□				■	Cooling lubricant

⇑ raise, increase, large influence

↑ raise, increase low influence

⇓ avoid, reduce large influence

↓ avoid, reduce low influence

≈ check, optimise

■ use

□ don't use

Troubleshooting for bar peeling problems

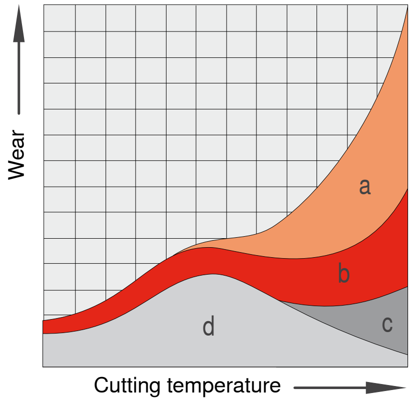
Problems, corrective measures

Problem	Possible causes	Corrective measures
Bar not perfectly round	▲ Inserts not on the same circumference	▲ Readjust tool holder, check insert tolerance, perhaps use ground inserts
	▲ The bar is not inserted centrally in relation to the peeling head	▲ Check position of guide rolls
	▲ Large variety of initial material	▲ Check for deviations
Gradations on the surface (saw-tooth pattern)	▲ The secondary cutting edge of one or more of the inserts is not parallel to the bar	▲ Check position of secondary cutting edge, and adjust if necessary
	▲ Feed rate per revolution exceeds the length of the secondary cutting edge	▲ Reduce feed rate
	▲ Incorrect clamping in the insert seat (soiling in the insert seat)	▲ Check clamping, clean insert seat
Poor chip formation	▲ Insufficient feed rate	▲ Increase feed rate
	▲ Wrong chip groove	▲ Check suitability of chip groove
	▲ Insufficient coolant	▲ Increase coolant supply
Vibration marks	▲ Incorrect support chamfer	▲ Check support chamfer size
	▲ Secondary cutting edge too sharp (hacks into the material)	▲ Hone edge
	▲ Cutting edge is too far below the centre	▲ Check centre height
	▲ Guide rolls or jaws are not positioned correctly	▲ Check and readjust
Widely varying wear from one insert to the next	▲ Tools incorrectly adjusted (one insert works at greater depth of cut than the others)	▲ Check alignment and readjust
Edge chipping	▲ Wrong protective chamfer for cutting edge	▲ Increase width of chamfer, increase chamfer angle
	▲ Feed rate too high	▲ Reduce feed rate
	▲ Honing too small	▲ Further honing needed
	▲ Wrong grade being used	▲ Use tougher grade

Causes of wear

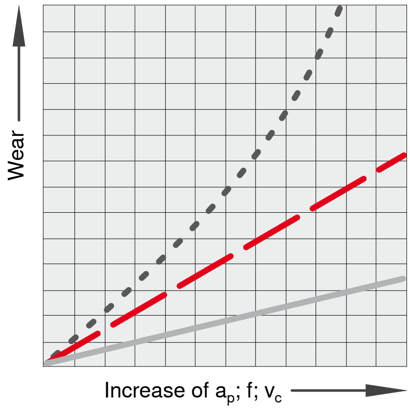
Wear is caused through simultaneous mechanical and thermal stress of the cutting edge. The most common causes are:

- ▲ Mechanical abrasion
- ▲ Damage due to built-up edge (BUE)
- ▲ Oxidation processes
- ▲ Diffusion



With increasing cutting temperature the thermally caused wear types of oxidation and diffusion prevail.

a = diffusion
b = mechanical abrasion
c = oxidation
d = built-up edge (BUE)



Cutting temperature and wear depend decisively upon the machining conditions.

- Cutting speed
- Feed rate
- Depth of cut

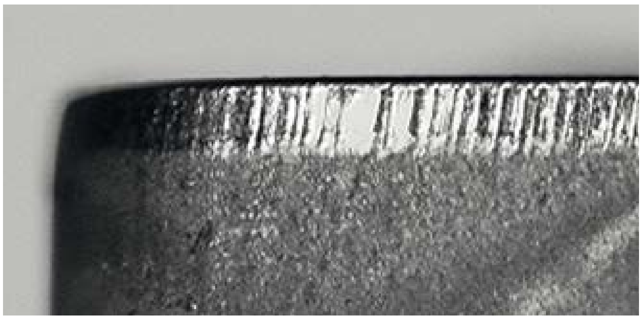
Benefits of hard material coatings

Depositing hard material layers on carbide tools positively influences wear characteristics.

- ▲ Friction
- ▲ Temperature changes
- ▲ Oxidation
- ▲ Diffusion

Causes of wear

Flank wear

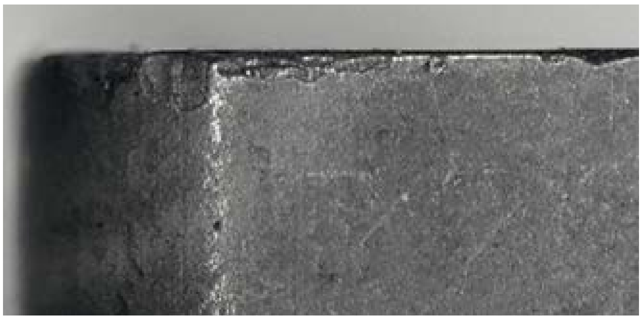


Abrasion on flank, normal wear after a certain machining time.

Cause
- Cutting speed too high
- Carbide grade with insufficient wear resistance
- Incorrect feed rate

Remedy
- Reduce cutting speed
- Select more wear-resistant carbide grade
- Adapt feed rate to cutting speed and cutting depth (increase feed rate)

Edge chipping

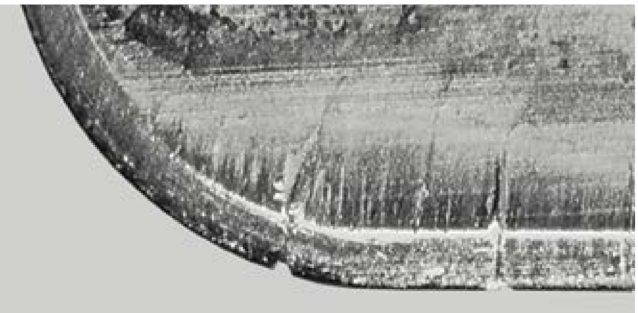


Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Cause
- Grade with too high wear resistance
- Vibration
- Feed rate too high or excessive cutting depth
- Interrupted cut
- Swarf damage

Remedy
- Use tougher grade
- Use negative cutting edge geometry with chip groove
- Increase stability (tool, work piece)

Thermal cracking

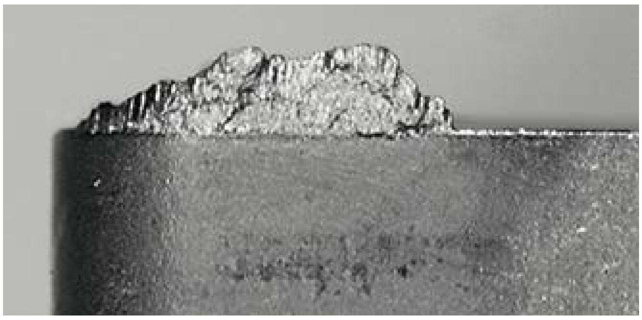


Small cracks at 90° to cutting edge.

Cause
- Varying temperature of cutting edge, thermal shock
- Incorrect cooling
- High tensile materials
- Cutting speed too high

Remedy
- Use grade that is resistant to thermal cracking
- Apply cooling lubricant abundantly or use dry milling
- Reduce cutting speed
- Reduce feed rate

Built-up edge

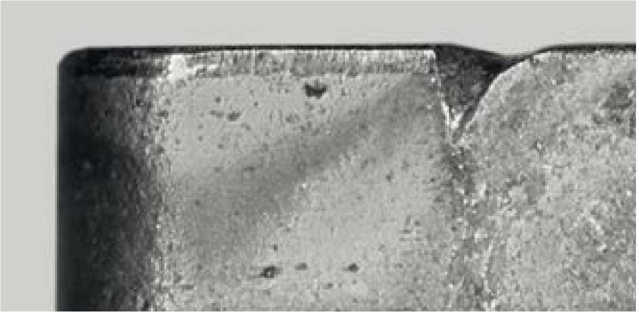


Built-up edge occurs when the chip is not evacuated properly due to insufficient cutting temperature.

Cause
- Cutting speed too low
- Rake angle too small
- Wrong cutting material
- Lack of cooling / lubrication

Remedy
- Increase cutting speed
- Increase rake angle
- Apply TiN coating
- Use emulsion with higher concentration

Notching



Notch at the maximum cutting depth.

Cause
- Cold work hardening materials (e.g. super alloys)
- Cast and forging skin
- Formation of burrs

Remedy
- Decrease cutting speed
- Climb milling
- Change working orientation of the milling cutter
- Reduce approach angle

Insert breakage

Excessive stress of the insert causes breakage.

Cause
- Excessive stress of the carbide grade
- Lack of stability
- Corner angle too small
- Excessive notching
- Sudden changes of cutting forces

Remedy
- Use tougher cutting material
- Use protective edge chamfer
- Increase edge hone

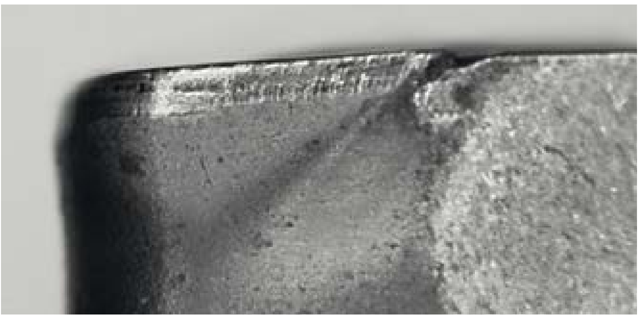
Cratering

The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

Cause
- Cutting speed and / or feed rate too high
- Rake angle too shallow
- Grade with low wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed and / or feed rate
- Increase coolant quantity and / or pressure, optimise coolant supply
- Use grade with higher resistance 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
- Damaged coatings
- Chip groove too narrow

Remedy
- Reduce cutting speed
- Choose carbide grade with higher wear resistance
- Provide cooling

First-class cutting grades combined with advanced chip breakers create a head start on performance

Insert range

Based on the different application cases, CERATIZIT offers an extensive range of bar peeling inserts in different geometries and carbide grades for the machining of all classes of material, with the goal of increasing both the productivity and efficiency of the manufacturing processes as well as the quality of the resulting products.

See for yourself!

Designation system (CERATIZIT STANDARD)

L	N	G	F	23	10	25	S	50	-	R	50
1	2	3	4	5	6	7	8	9		10	11

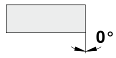
1

Insert shape

	90°	L
	120°	H
	60°	N
	–	R
	60°	T
	80°	W
	100°	Y

2

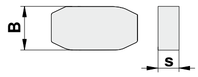
Clearance angle



0°	N

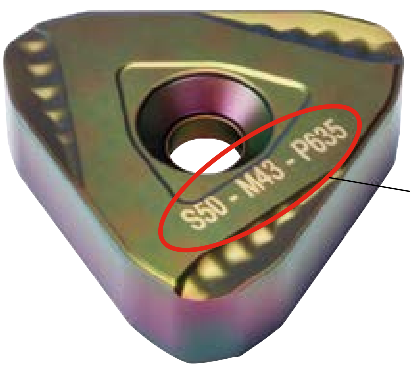
3

Tolerances



	B ± [mm]	B ± [inch]	s ± [mm]	s ± [inch]
C	0.025	.0010	0.025	.0010
E	0.025	.0010	0.05	.0020
G	0.025-0.15*	.0010-.0060*	0.13	.0050
M	0.05-0.17*	.0020-.0070*	0.13	.0050
U	0.08-0.25*	.0030-.0100*	0.13	.0050
X	0.08-0.25*	.0030-.0100*	0.13	.0050

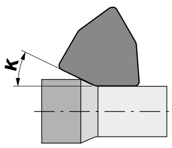
* depends on insert type



- Support chamfer type S50 8 + 9
- Chip groove code M43 10 + 11
- Grade designation P635 = CTCP63 (page 22–29)

7

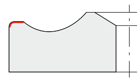
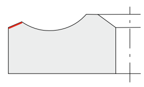
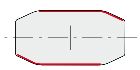
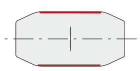
Approach angle



κ	Angle° / radius
MO	radius
00	radius
08	8°
10	10°
15	15°
20	20°
25	25°
50	50°

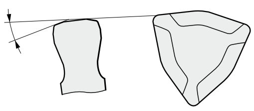
8

Support chamfer type

	Definition	
E	NO support chamfer on round inserts – honed cutting edge	
P	NO support chamfer on round inserts – negative chamfer on cutting edge	
P	Support chamfer on main and secondary cutting edge	
S	Support chamfer on secondary cutting edge	

9

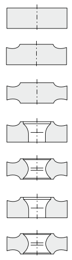
Support chamfer angle



	Definition
00	0° – for round inserts
15	15° negative chamfer angle – for round inserts
30/33/35/37	3°
40(42)/43/45/47	4°
50/53/55/57	5°
60/63/65/67	6°

4

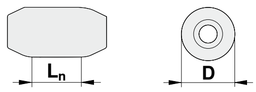
Form of top surface



N	
R	
F	
T	
U	
H	
J	
X	Special version

5

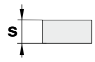
Length of the secondary cutting edge or diameter when using round inserts



	L_n [mm]	D [mm]
07	7	
08	8	
09	9	
10	10	
11	11	
12	12	
15	15	
16	16	
17	17	
20	20	20
22	22	
23	23	
24	24	
27	27	
28	28	28
38		38
50		50

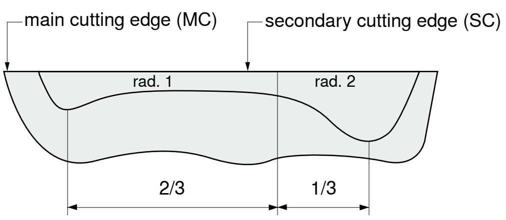
6

Insert thickness



s	[mm]	s	[mm]
03	3.50	12	11.90
04	4.76	12	12.15
05	5.00	12	12.20
06	6.00	12	12.35
06	6.35	12	12.45
08	7.50	12	12.70
08	7.70	13	13.20
08	8.00	13	13.30
08	8.10	14	14.20
09	9.05	18	18.20
10	09.70	18	18.30
10	10.00		
10	10.15		
10	10.20		
10	10.35		
10	10.45		
10	10.60		

Example “S53”



Detailed definition “S50 / S53 / S55 / S57”

Support chamfer angle	Angle	Support chamfer radius	Support chamfer allocation
50	5°	rad. 1	whole width of SC
53	5°	rad. 1 / rad. 2	2/3 or 1/3 of SC
55	5°	rad. 1 / rad. 2	1/2 or 1/2 of SC
57	5°	rad. 1 / rad. 2 / rad. 3	1/5 or 3/5 or 1/5 of SC

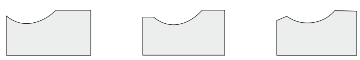
10

Chip groove application range

	Definition	a_p
F	fine	< 1.0 mm
M	medium	1.0 to 3.0 mm
R	rough	> 3.0 mm

11

Chip groove code

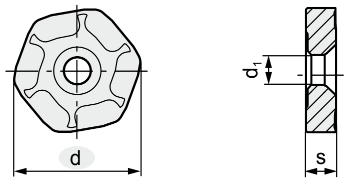


Positive Neutral Negative

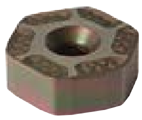
	Definition
35	
40	
41	
42	
43	
46	
48	
50	
51	For details see page 44 to page 49
52	
53	
54	
55	
56	
57	
59	

HNMH.. / HNMJ..

	CTCP625	CTCP630	CTCP635	CTCP640
P			●	
M		●	●	
K				
N				
S		●	●	
H				



		CTCP625	CTCP630	CTCP635	CTCP640	d [mm]	a_p max. [mm]	s [mm]	d_1 [mm]	Number of cutting edges	
HN..-R50	HNMH 221250S60-R50		○	●		38	8.0	12.7	9.2	6	E1
	HNMJ 221250S60-R50		○	●		38	8.0	12.7	9.2	12	E1
	HNMH 281350S60-R50		○	●		50	9.0	13 (ECO)	12.2	6	E2
	HNMH 281850S60-R50		○	●		50	12.0	18	12.2	6	E3
	HNMJ 281850S60-R50		○	●		50	12.0	18	12.2	12	E3
HN..-R56	HNMH 221250S60-R56		○	●		38	8.0	12.7	9.2	6	E1
	HNMJ 221250S60-R56		○	●		38	8.0	12.7	9.2	12	E1
	HNMH 281350S60-R56		○	●		50	9.0	13 (ECO)	12.2	6	E2
	HNMH 281850S60-R56		○	●		50	12.0	18	12.2	6	E3
	HNMJ 281850S60-R56		○	●		50	12.0	18	12.2	12	E3

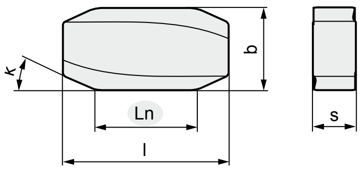
● Standard inserts available from stock
○ Inserts with limited availability


E01	1342301	12144314
E02	11363596	12090025
E03	11363596	12090033

Page 22–29 Page 104–105

LNGF..

	CTCP615	CTCP625	CTCP630	CTCP635
P	●	●		●
M	○	●		●
K				
N				
S	○	●		●
H				



			CTCP615	CTCP625	CTCP630	CTCP635	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	l [mm]	b [mm]	Number of cutting edges	
LNGF..-R50		LNGF 231025S42-R50	○	○		○	23	3	10	25	40	20	4	E01
		LNGF 231025S50-R50	○	●		●	23	3	10	25	40	20	4	E01
		LNGF 231025P50-R50					23	3	10	25	40	20	4	E01
		LNGF 231025P60-R50		○			23	3	10	25	40	20	4	E01
		LNGF 231225S42-R50	○	○			23	3	12	25	40	20	4	E02
		LNGF 231225S50-R50	○	○			23	3	12	25	40	20	4	E02
		LNGF 231225P50-R50					23	3	12	25	40	20	4	E02
		LNGF 231225P60-R50					23	3	12	25	40	20	4	E02
LNGF..-R51		LNGF 231025S42-R51	●	●			23	3	10	25	40	20	4	E01
		LNGF 231025S50-R51	●	●			23	3	10	25	40	20	4	E01
		LNGF 231025P50-R51		●		○	23	3	10	25	40	20	4	E01
		LNGF 231025P60-R51					23	3	10	25	40	20	4	E01
		LNGF 231225S42-R51	●	●			23	3	12	25	40	20	4	E02
		LNGF 231225S50-R51	●	●			23	3	12	25	40	20	4	E02
		LNGF 231225P50-R51		●		○	23	3	12	25	40	20	4	E02
		LNGF 231225P60-R51		●		○	23	3	12	25	40	20	4	E02

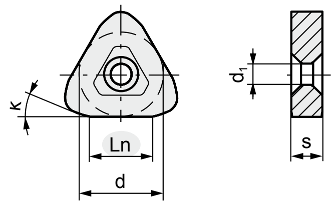
● Standard inserts available from stock
○ Inserts with limited availability

		
E01	11364020	11365730
E02	11364027	11365730


Page 22–29


Page 104–105

NNUX.. / NNXX..



	CTCP615	CTCP625	CTCP635
P	●	●	●
M	○	●	●
K			
N			
S	○	●	●
H			

	Designation	CTCP615	CTCP625	CTCP635	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	d [mm]	d_1 [mm]	Number of cutting edges	
NNUX..-M40 	NNUX 120800S42-M40				12	1.5	8	20	22	7	6	E01
	NNUX 120800S50-M40	○	○	○	12	1.5	8	20	22	7	6	E01
	NNUX 120800P60-M40				12	1.5	8	20	22	7	6	E01
	NNUX 201020S42-M40	●	●		20	2.5	10	20	28	7	6	E03
	NNUX 201020S50-M40	●	●	●	20	2.5	10	20	28	7	6	E03
	NNUX 201020P60-M40				20	2.5	10	20	28	7	6	E03
NNUX..-M41 	NNUX 201020S50-M41	○			20	2.5	10	20	28	7	6	E03
NNUX..-M43 	NNUX 201020P30-M43	○			20	2.5	10	20	28	7	6	E03
	NNUX 201020S42-M43	●	●		20	2.5	10	20	28	7	6	E03
	NNUX 201020S50-M43	●	●	●	20	2.5	10	20	28	7	6	E03
	NNUX 201020P60-M43		○	○	20	2.5	10	20	28	7	6	E03
	NNUX 271220P30-M43				27	2.5	12	20	32	9	6	E04
	NNUX 271220S42-M43				27	2.5	12	20	32	9	6	E04
	NNUX 271220S50-M43		○		27	2.5	12	20	32	9	6	E04
	NNUX 271220P60-M43		○		27	2.5	12	20	32	9	6	E04

● Standard inserts available from stock
○ Inserts with limited availability

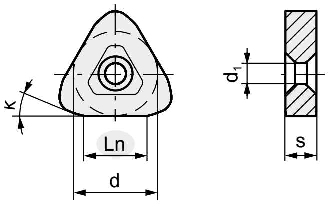
		
E01	12535687	12556277
E03	12535687	11364028
E04	1342301	11910314


Page 22–29


Page 104–105

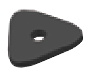
NNUX.. / NNXX..

	CTCP615	CTCP625	CTCP635
P	●	●	●
M	○	●	●
K			
N			
S	○	●	●
H			



		CTCP615	CTCP625	CTCP635	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	d [mm]	d_1 [mm]	Number of cutting edges	
NNUX..-M46 	NNUX 150820S42-M46	●	●		15	2.0	8	20	22	7	6	E02
	NNUX 150820S50-M46	●	●	●	15	2.0	8	20	22	7	6	E02
	NNUX 150820P60-M46		●	●	15	2.0	8	20	22	7	6	E02
NNXX..-M40 	NNXX 201020S42-M40				20	2.5	10	20	28	7	6	E03
	NNXX 201020S50-M40	○			20	2.5	10	20	28	7	6	E03

● Standard inserts available from stock
○ Inserts with limited availability

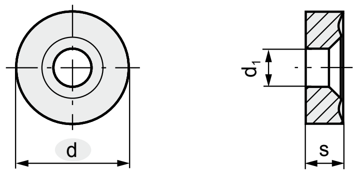
		
E02	12535687	12124545
E03	12535687	11364028


Page 22–29


Page 104–105

RNGH.. / RNMH.. / RNGX.. / RNMX..

	CTCP625	CTCP630	CTCP635	CTCP640
P	●		●	●
M	●	●	●	●
K				
N				
S	●	●	●	●
H				



		CTCP625	CTCP630	CTCP635	CTCP640	d [mm]	a_p max. [mm]	s [mm]	d1 [mm]	Number of cutting edges	
RN..-R50 	RNMH 200800E00-R50	○		●		20	3.0	8	7	(5)	E01
	RNMH 281000E00-R50	○		●		28	5.0	10.5	9	(5)	E02
	RNGH 381200P15-R50			●		38	7.0	12	12.7	(5)	E03
	RNMX 5018MOE00-R50			○	○	50	9.0	18	12.7	(5)	E05
RN..-R55 	RNGH 381200E00-R55			○		38	7.0	12	12.7	(5)	E03
	RNGH 381200P15-R55			●		38	7.0	12	12.7	(5)	E03
	RNMH 5018MOE00-R55			●		50	9.0	18	12.7	(5)	E05
	RNMH 5018MOP15-R55			○		50	9.0	18	12.7	(5)	E05
RN..-R56 	RNMH 200800E00-R56	○		●		20	3.0	8	7	(5)	E01
	RNMH 200800P15-R56	○		●		20	3.0	8	7	(5)	E01
	RNMH 281000E00-R56	○		●		28	5.0	10.5	9	(5)	E02
	RNMH 281000P15-R56	○		●		28	5.0	10.5	9	(5)	E02
	RNGH 381200E00-R56			○		38	7.0	12	12.7	(5)	E03
	RNGH 381200P15-R56			●		38	7.0	12	12.7	(5)	E03
	RNGX 381200E00-R56			○		38	7.0	12	9.2	(5)	E04
	RNGX 381200P15-R56			○		38	7.0	12	9.2	(5)	E04
	RNMH 5018MOE00-R56			○	○	50	9.0	18	12.7	(5)	E05
	RNMH 5018MOP15-R56		○	●	○	50	9.0	18	12.7	(5)	E05

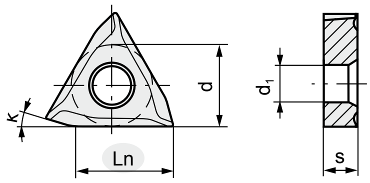
● Standard inserts available from stock
○ Inserts with limited availability

		
E01	12535687	12556291
E02	6210871	12429188
E03	11363596	11356071
E04	1342301	11356071
E05	11363596	11363153

Page 22–29 Page 104–105

TNGT..

	CTCP615	CTCP625	CTCP635
P	●	●	
M	○	●	
K			
N			
S	○	●	
H			



		CTCP615	CTCP625	CTCP635	Ln [mm]	ap max. [mm]	s [mm]	K [°]	d [mm]	d1 [mm]	Number of cutting edges	
TNGT..-F46	TNGT 220815S42-F46	●	●		22	1.0	8	15	19	8	3	E01
	TNGT 220815S50-F46	●	●		22	1.0	8	15	19	8	3	E01
	TNGT 220815P60-F46	○	○		22	1.0	8	15	19	8	3	E01

● Standard inserts available from stock
○ Inserts with limited availability


E01


11227329

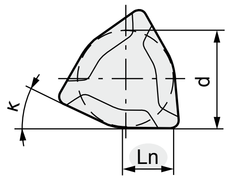

12556298

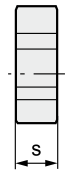

Page 22–29

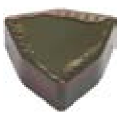

Page 104–105

WNEF..

	CTCP615	CTCP625	CTCP630	CTCP635	H216T
P	●	●		●	
M	○	●		●	
K					
N					
S	○	●		●	●
H					





		Designation	CTCP615	CTCP625	CTCP630	CTCP635	H216T	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	d [mm]	Number of cutting edges	
WNEF..-R50		WNEF 161325S42-R50						16	7.0	13	25	32	6	E01
		WNEF 161325S50-R50		●				16	7.0	13	25	32	6	E01
		WNEF 161325P50-R50		○		○		16	7.0	13	25	32	6	E01
		WNEF 161325P60-R50		○		○		16	7.0	13	25	32	6	E01
WNEF..-R51		WNEF 161325P50-R51					○	16	7.0	13	25	32	6	E01
														E01
WNEF..-R55		WNEF 161325S42-R55	○	○				16	7.0	13	25	32	6	E01
		WNEF 161325S50-R55	○	●		○		16	7.0	13	25	32	6	E01
		WNEF 161325P50-R55						16	7.0	13	25	32	6	E01
		WNEF 161325P60-R55						16	7.0	13	25	32	6	E01

● Standard inserts available from stock
○ Inserts with limited availability

E01

11458166

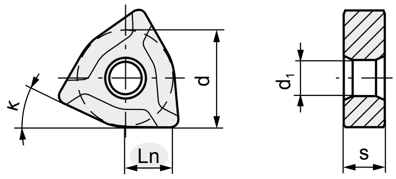
11365730

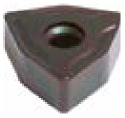
Page 22–29

Page 104–105

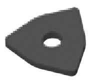
WNEU..

	CTCP615	CTCP625	CTCP630	CTCP635	H216T
P	●	●		●	
M	○	●		●	
K					
N					
S	○	●		●	●
H					



		CTCP615	CTCP625	CTCP630	CTCP635	H216T	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	d [mm]	d_1 [mm]	Number of cutting edges	
WNEU..-R50 	WNEU 161325S42-R50	●	○				16	7.0	13	25	32	9	6	E01
	WNEU 161325S50-R50	●	●		●		16	7.0	13	25	32	9	6	E01
	WNEU 161425S42-R50	●	○				16	7.0	14	25	32	9	6	E02
	WNEU 161425S50-R50	●	●				16	7.0	14	25	32	9	6	E02
WNEU..-R51 	WNEU 161325P50-R51					○	16	7.0	13	25	32	9	6	E01
WNEU..-R55 	WNEU 161325S42-R55	●	○				16	7.0	13	25	32	9	6	E01
	WNEU 161325S50-R55	●	●				16	7.0	13	25	32	9	6	E01
	WNEU 161425S42-R55	●	○				16	7.0	14	25	32	9	6	E02
	WNEU 161425S50-R55	●	●				16	7.0	14	25	32	9	6	E02

● Standard inserts available from stock
○ Inserts with limited availability

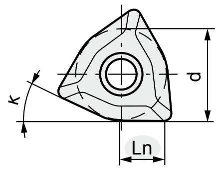
		
E01	11417617	11357792
E02	11417617	11451724

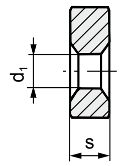
Page 22–29

Page 104–105

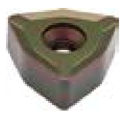
WNGU..

	CTCP615	CTCP625	CTCP635
P	●	●	●
M	○	●	●
K			
N			
S	○	●	●
H			





		CTCP615	CTCP625	CTCP635	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	d [mm]	d_1 [mm]	Number of cutting edges	
WNGU..-M46	WNGU 101025S42-M46	●	●		10	3.0	10	25	22	6	6	E01
	WNGU 101025S50-M46	●	●		10	3.0	10	25	22	6	6	E01
	WNGU 101025P60-M46	○	○		10	3.0	10	25	22	6	6	E01
WNGU..-M50	WNGU 151015E00-M50	○	○	○	15	3.0	10	15	22	8	6	E02
	WNGU 151015S42-M50	○	●		15	3.0	10	15	22	8	6	E02
	WNGU 151015S50-M50	○	●	○	15	3.0	10	15	22	8	6	E02
	WNGU 151015P60-M50		○	○	15	3.0	10	15	22	8	6	E02



● Standard inserts available from stock
○ Inserts with limited availability



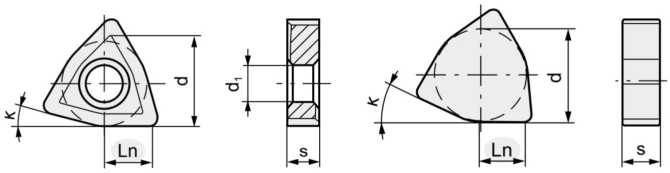
E01	11801691	12556308
E02	12535687	12292429

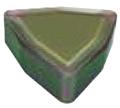
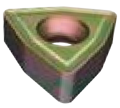
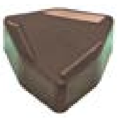
Page 22–29

Page 104–105

WNMF..

	CTCP615	CTCP625	CTCP630	CTCP635	H216T
P	●	●		●	
M	○	●		●	
K					
N					
S	○	●		●	●
H					



		CTCP615	CTCP625	CTCP630	CTCP635	H216T	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	d [mm]	d_1 [mm]	Number of cutting edges	
WNMF..-M43 	WNMF 110615S50-M43		○				11	3.0	6	15	15	-	6	E01
WNMU..-M43 	WNMU 110615E00-M43		○				11	3.0	6	15	15	7	6	E02
	WNMU 110615S50-M43		○				11	3.0	6	15	15	7	6	E02
WNMF..-M41 	WNMF 110615S50-M41	○					11	3.0	6	15	15	-	6	E01
WNMF..-R41 	WNMF 151025S42-R41		○				15	5.0	10	25	22	-	6	E03
	WNMF 151025S50-R41		○				15	5.0	10	25	22	-	6	E03
	WNMF 151025P60-R41		○				15	5.0	10	25	22	-	6	E03
WNMF 96.. 	WNMF 96					○	16	6.0	9	30	28	-	6	E04

● Standard inserts available from stock
○ Inserts with limited availability

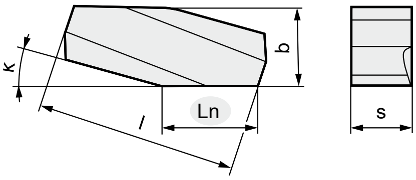
			
E01	-	11414040	12535753
E02	11227329	11414040	-
E03	-	11354688	12535753
E04	-	11394214	12535753


Page 22–29


Page 104–105

YNGX..

	CTCP615	CTCP625	CTCP635
P	●	●	●
M	○	●	●
K			
N			
S	○	●	●
H			



		CTCP615	CTCP625	CTCP635	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	l [mm]	b [mm]	Number of cutting edges	
YNGX..-M50 	YNGX 150815S42- M50		○		15	3.0	8	15	31	12	4	E01
	YNGX 150815S50-M50		○	●	15	3.0	8	15	31	12	4	E01
YNGX..-R50 	YNGX 150820S42-R50		○		15	3.5	8	20	31	12	4	E02
	YNGX 150820S50-R50		○		15	3.5	8	20	31	12	4	E02
YNGX..-R52 	YNGX 150820S42-R52			○	15	3.5	8	20	31	12	4	E02
	YNGX 150820S57-R52			○								E02
	YNGX 150820P57-R52			○								E02
YNGX..-R52 	YNGX 171215S42-R52	○	○		17	4.0	12	15	37	18	4	E03
	YNGX 171215S50-R52	○	○		17	4.0	12	15	37	18	4	E03
	YNGX 171215P60-R52		○	○	17	4.0	12	15	37	18	4	E03

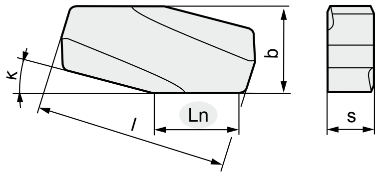
● Standard inserts available from stock
○ Inserts with limited availability

		
E01	12556319	12535753
E02	12556320	12535753
E03	12556322	12535753

Page 22–29 Page 104–105

YNUX..

	CTCP615	CTCP625	CTCP635
P	●	●	●
M	○	●	●
K			
N			
S	○	●	●
H			



YNUX..-M50

	CTCP615	CTCP625	CTCP635	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	l [mm]	b [mm]	Number of cutting edges	
YNUX 100615S50-M50		○		10	2.0	6	15	22	10	4	E01

● Standard inserts available from stock
○ Inserts with limited availability


E01


11356624

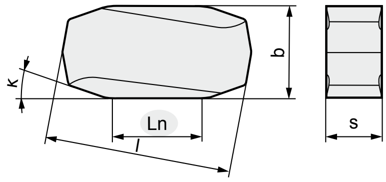

12535753


Page 22–29


Page 104–105

YNUF.. / YNGF..

	CTCP605	CTCP610	CTCP615	CTCP625	CTCP635
P	●		●	●	●
M		●	○	●	●
K					
N					
S			○	●	●
H					



	Designation	CTCP605	CTCP610	CTCP615	CTCP625	CTCP635	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	l [mm]	b [mm]	Number of cutting edges	
YNUF..-M48 	YNUF 170820P30-M48	○					17	1.5	8	20	31	12	4	E01
	YNUF 170820S42-M48	○					17	1.5	8	20	31	12	4	E01
	YNUF 170820S50-M48	○		○	○		17	1.5	8	20	31	12	4	E01
	YNUF 170820S60-M48	○		○	○		17	1.5	8	20	31	12	4	E01
	YNUF 170820P60-M48	○		○	○		17	1.5	8	20	31	12	4	E01
	YNUF 200920P30-M48	○					20	2.0	9	20	37	18	4	E02
	YNUF 200920S42-M48	○					20	2.0	9	20	37	18	4	E02
	YNUF 200920S50-M48	○		○	○		20	2.0	9	20	37	18	4	E02
	YNUF 200920S60-M48	○		○	○		20	2.0	9	20	37	18	4	E02
	YNUF 200920P60-M48	○		○	○		20	2.0	9	20	37	18	4	E02
	YNUF 201220P30-M48	○					20	2.0	12	20	37	18	4	E02
	YNUF 201220S42-M48	○					20	2.0	12	20	37	18	4	E02
	YNUF 201220S50-M48	○		○	○		20	2.0	12	20	37	18	4	E02
	YNUF 201220S60-M48	○		○	○		20	2.0	12	20	37	18	4	E02
	YNUF 201220P60-M48	○		○	○		20	2.0	12	20	37	18	4	E02
YNUF..-M50 	YNUF 170820P30-M50	○		○	○		17	1.5	8	20	31	12	4	E01
	YNUF 170820S42-M50	○	○	●	●		17	1.5	8	20	31	12	4	E01
	YNUF 170820S50-M50	○	○	●	●	●	17	1.5	8	20	31	12	4	E01
	YNUF 170820S60-M50	○		○	○	○	17	1.5	8	20	31	12	4	E01
	YNUF 170820P60-M50	○		●	●	●	17	1.5	8	20	31	12	4	E01
	YNUF 200920P30-M50	○		○	○		20	2.0	9	20	37	18	4	E02
	YNUF 200920S42-M50	○		○	○		20	2.0	9	20	37	18	4	E02
	YNUF 200920S50-M50	○		○	○	○	20	2.0	9	20	37	18	4	E02
	YNUF 200920S60-M50	○		○	○	○	20	2.0	9	20	37	18	4	E02
	YNUF 200920P60-M50	○		○	○	○	20	2.0	9	20	37	18	4	E02
	YNUF 201220P30-M50	○		○	○		20	2.0	12	20	37	18	4	E02
	YNUF 201220S42-M50	○	○	●	●		20	2.0	12	20	37	18	4	E02
	YNUF 201220S50-M50	○	○	●	●	●	20	2.0	12	20	37	18	4	E02
	YNUF 201220S60-M50	○		○	○	○	20	2.0	12	20	37	18	4	E02
	YNUF 201220P60-M50	○		●	●	●	20	2.0	12	20	37	18	4	E02

● Standard inserts available from stock
○ Inserts with limited availability

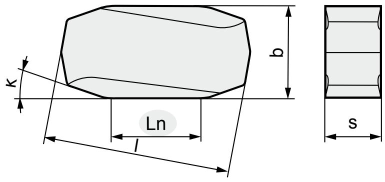
		
E01	11262436	12535753
E02	11262407	11365730


Page 22–29


Page 104–105

YNUF.. / YNGF..

	CTCP605	CTCP610	CTCP615	CTCP625	CTCP635
P	●		●	●	●
M		●	○	●	●
K					
N					
S			○	●	●
H					



YN.F..-M50

	CTCP605	CTCP610	CTCP615	CTCP625	CTCP635	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	l [mm]	b [mm]	Number of cutting edges	
YNGF 201220S42-M50			○			20	3.0	12	20	43	18	4	E03
YNGF 201220S50-M50			○		○	20	3.0	12	20	43	18	4	E03
YNGF 201220S60-M50			○		○	20	3.0	12	20	43	18	4	E03
YNGF 201220P60-M50			○		○	20	3.0	12	20	43	18	4	E03
YNUF 241020P30-M50	○					24	1.2	10	20	35	15	4	E04
YNUF 241020S42-M50	○					24	1.2	10	20	35	15	4	E04
YNUF 241020S50-M50	○					24	1.2	10	20	35	15	4	E04
YNUF 241020S60-M50	○					24	1.2	10	20	35	15	4	E04
YNUF 241020P60-M50	○					24	1.2	10	20	35	15	4	E04
YNUF 271220P30-M50	○		○	○		27	2.0	12	20	43	18	4	E05
YNUF 271220S42-M50	○		●	○		27	2.0	12	20	43	18	4	E05
YNUF 271220S50-M50	○		●	●	○	27	2.0	12	20	43	18	4	E05
YNUF 271220S60-M50	○		○	○	○	27	2.0	12	20	43	18	4	E05
YNUF 271220P60-M50	○		●	○	●	27	2.0	12	20	43	18	4	E05

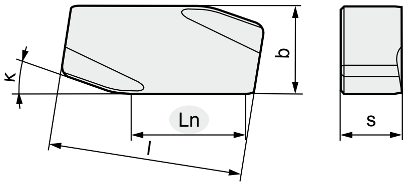
● Standard inserts available from stock
○ Inserts with limited availability

		
E03	12556318	11365730
E04	12148501	11365730
E05	11262435	11365730


Page 22–29


Page 104–105

YNUR..



	CTCP615	CTCP625	CTCP635
P	●	●	●
M	○	●	●
K			
N			
S	○	●	●
H			

		CTCP615	CTCP625	CTCP635	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	l [mm]	b [mm]	Number of cutting edges	
YNUR..-M40 	YNUR 271220550-M40	○	○	○	27	3.0	12	20	38	18	2	E01

● Standard inserts available from stock
○ Inserts with limited availability

		
E01	11369058	12535753


Page 22–29


Page 104–105

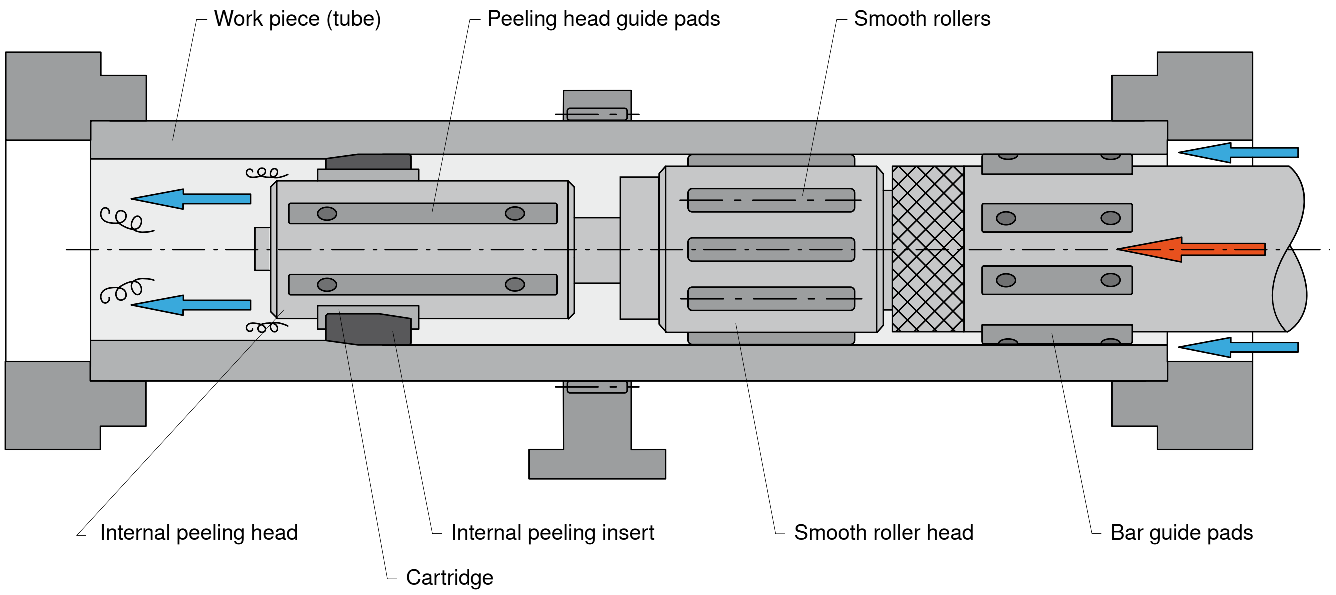
Internal peeling – the process

In internal peeling, the internal diameter of seamless steel tubes (as well as cold welded or cold drawn precision steel tubes, used for the production of cylindrical tubes for example) undergoes finish machining.
In most cases a combination of peeling and smooth rolling tools is used.

The peeling inserts are positioned and clamped in cartridges in the front part of the internal peeling head. In most cases only 2 inserts, positioned at an offset of 180° to the diameter, are actively involved.

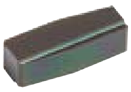
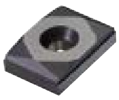
To increase material removal rate, tandem systems may also be used. Here 2 internal peeling inserts are contained in the cartridge, positioned one behind the other in the direction of the axis.

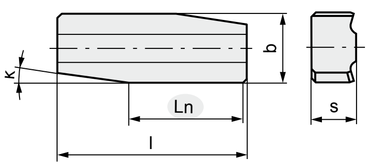
The subsequent smooth rolling tool further optimises the peeling surface, combining roller pressure and rotation in a single operation; the material is compressed, roughness and uneven spots are depressed, making the internal tube surface more even, smoother and more wear-resistant.



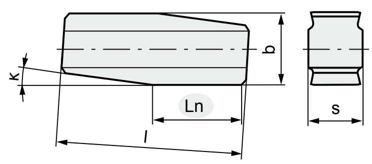
YNCR.. / YNCF.. / LNGX.. / Z 100..

	CTCP615	CTCP125	CTCP625	CTCP635	CTPM225	1310
P	●	●	●	●	●	●
M	●	○	●	●	●	●
K						
N						
S		●	●		●	●
H						

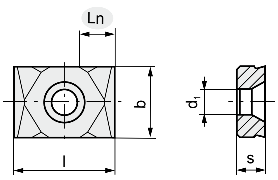
		CTCP615	CTCP125	CTCP625	CTCP635	CTPM225	1310	L_n [mm]	a_p max. [mm]	s [mm]	K [°]	l [mm]	b [mm]	d_1 [mm]	Number of cutting edges	
YNCR.. 	YNCR 080308P10-F50			○				8	0.5	3.5	8	14.85	5.5	-	2	-
	YNCR 080308P10-F51			○				8	0.5	3.5	8	14.85	5.5	-	2	-
YNCF..-F50/51 	YNCF 090608P90-F50		○	○				9	0.8	6	8	20.45	8	-	4	-
	YNCF 090608P90-F51		○	○				9	0.8	6	8	20.45	8	-	4	-
YNCF..-F52 	YNCF 090608S93-F52			○				9	0.8	6	8	20.45	8	-	4	-
	YNCF 090608P93-F52			○				9	0.8	6	8	20.45	8	-	4	-
LNGX.. 	LNGX 170400EN 10017528					○		6	0.7	4.76	6	17.00	12	4.3	4	E01
Z 100.. 	Z 10009553-0/1/0			○			○	0	0.7	4	R120	20.90	6	-	1	-
	Z 10015283-0/1/0			○				0	1.0	5	R165	30.58	9	-	1	-
	Z 10015281-0/1/0			○				0	1.5	6	R165	35.85	10	-	1	-



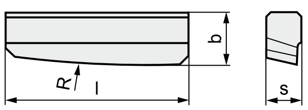
YNCR..



YNCF..



LNGX..



Z 100..

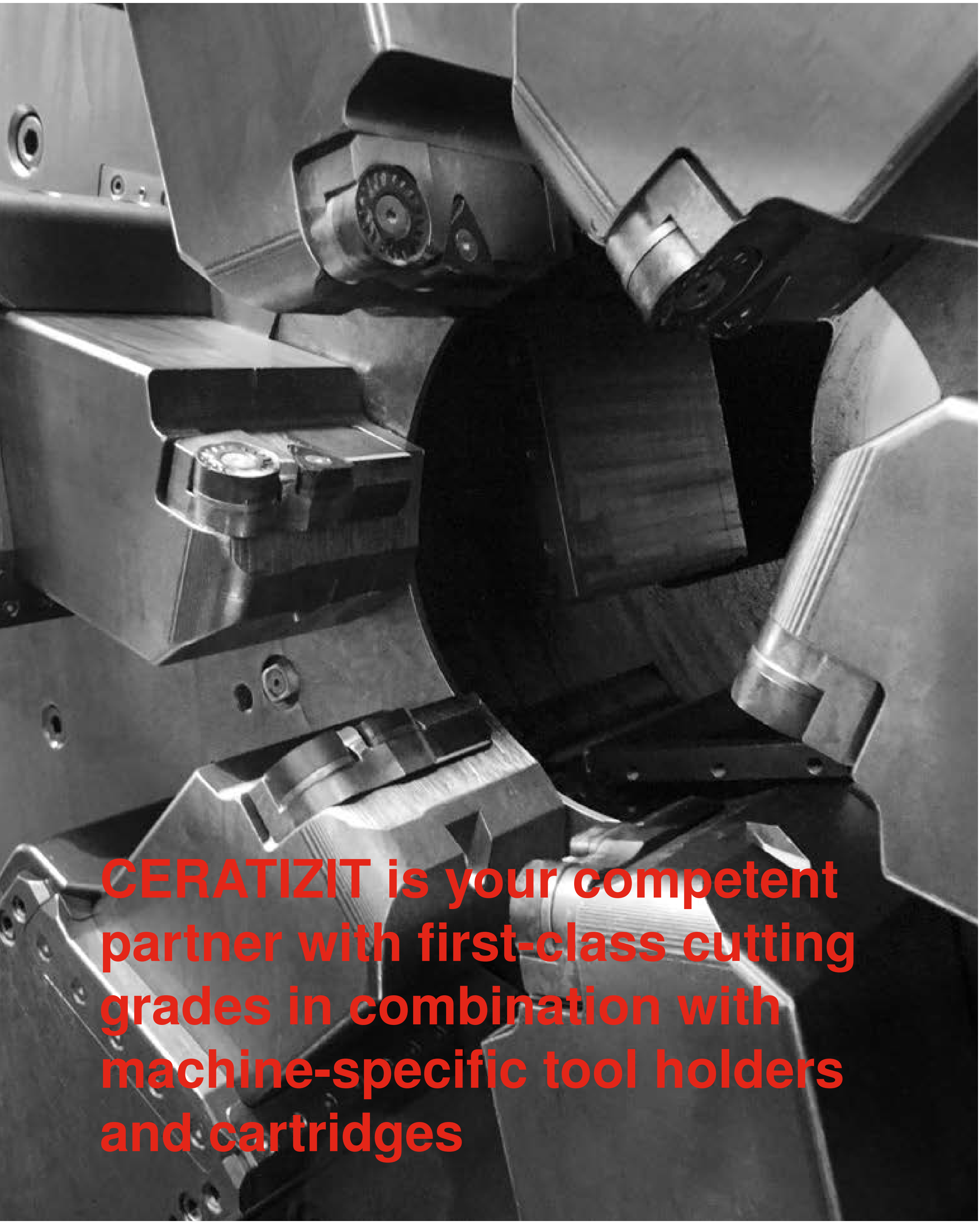
● Standard inserts available from stock
○ Inserts with limited availability

E01

11450042

Page 22–29

Page 104–105



CERATIZIT is your competent partner with first-class cutting grades in combination with machine-specific tool holders and cartridges

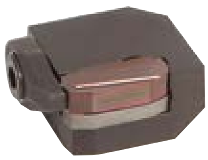
Tooling range

In the field of tool holders and cartridges as well, CERATIZIT is your expert partner of choice. In view of the wide range of different machine products and versions, we only keep some of the more frequently used types as standard articles in stock. But of course we do offer our customers the option of ordering their machine-specific tool holder and/or cartridge type from us.

Delivery times adapted to market requirements, along with the high manufacturing quality of the tools, will convince you.

Designation system cartridges and tool holders

Standard cartridges



CA	00	-	LNGF	23	10
1	2		3	4	5

CA	00	-	TNGT	22	-	30
1	2		3	4		6

T CA	10	-	RN	50	YN	20
1	2		3	4	3	4

TR CA	12	-	RN	50	RN	50	NN	20
1	2		3	4	3	4	3	4

Special cartridges

CA	XX	-	LNGF	23	10	-	22	.	55	.	50
1	2		3	4	5		6		7		8

TCA	XX	-	RN	28	YN	20	-	90	10011354
1	2		3	4	3	4		8	9

TR CA	XX	-	RN	50	RN	50	LN	23	12	10011439
1	2		3	4	3	4	3	4	5	9

Tool holders “Monobloc“

THM	-	WN	16	-	D150-170	L151	10026376
1		3	4		10	8	9

Tool holders “Cartridge”

THC	-	D150-170	-	L151	10026377
1		10		8	9

1 Cartridges /Tool holders

CA	SINGLE cartridge (1 insert seat)
T	TANDEM cartridge (2 insert seats)
TR	TRIO cartridge (3 insert seats)
THM	Tool holder MONOBLOC
THC	Tool holder CARTRIGDE

2 Cartridge definition

00 10 12 14 15	CERATIZIT standard cartridges – for Bültmann and Kieserling peeling machines – the figures define different clamping methods
XX	CERATIZIT special cartridges

3 Insert seat definition

LNGF NNUX TNGT WNEF WNEU WNGU YNUF	Insert designation
WN LN NN RN TN YN	One part of the insert designation

4 Insert size

07 08 09 10 11 12 15 16 17 20 22 23 24 27 28 38 50	By analogy with the insert designation system

5 Insert thicknesses

09 10 12	Definition of different insert thicknesses depending on the insert type

6 Cartridge height

22 etc.	Cartridge height in mm

7 Cartridge depth

55 etc.	Cartridge depth in mm

8 Cartridge length

50 etc.	Cartridge length in mm

9 Drawing number

10011345 etc.	CERATIZIT drawing number

10 Diameter range tool holder

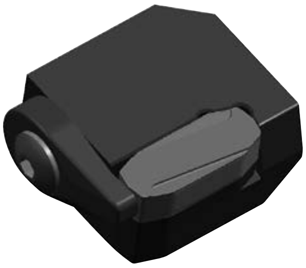
D150–170	Ø 150 to 170 mm

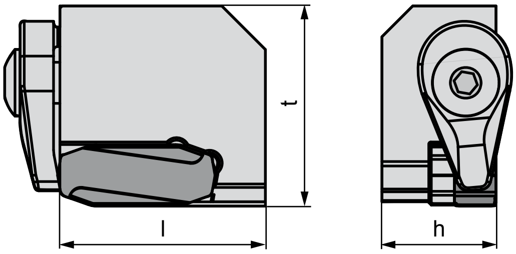
Tools upon request

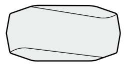
All peeling cartridges except the CA00 standard cartridge are produced upon request.

If you are interested in CERATIZIT peeling cartridges, please send your enquiry to: info.austria@ceratizit.com

SINGLE CARTRIDGES CA00-YNUF...

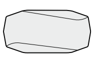




Type, Designation	l [mm]	h [mm]	t [mm]		
CA00-YNUF17	40	22	39	YNUF 170820..	E01
CA00-YNUF2009	42	22	39	YNUF 200920..	E02
CA00-YNUF20	42	22	39	YNUF 201220..	E02
CA00-YNUF24	42	22	39	YNUF 241020..	E03
CA00-YNUF27	49	22	39	YNUF 271220..	E04

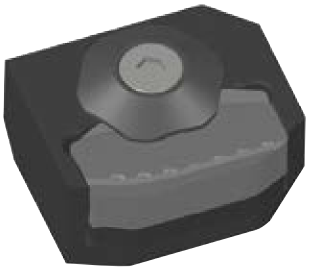
				
E01	11329186	11880977	11262436	12535753
E02	11329186	11880977	11262407	11365730
E03	11329186	11880977	12148501	11365730
E04	11329186	11880977	11262435	11365730

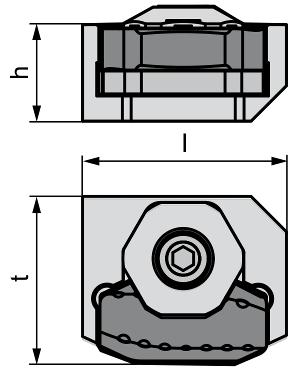

Page 22-29


Page 80–81


Page 104–105

SINGLE CARTRIDGES CA00-LNGF...



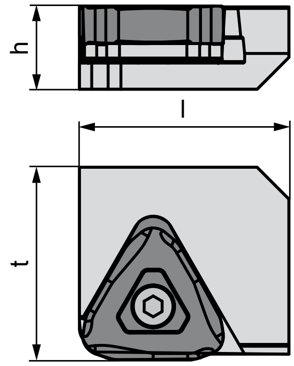


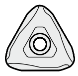
Type, Designation	l [mm]	h [mm]	t [mm]		
CA00-LNGF2310	49	22	40	LNGF 231025..	E01
CA00-LNGF2312	49	22	40	LNGF 231225..	E02

E01	11378194	11377574	11364020	11365730
E02	11378194	11377574	11364027	11365730

Page 22–29 Page 69 Page 104–105

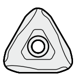
SINGLE CARTRIDGES CA00-NNUX / CAXX-NNUX...



Type, Designation	l [mm]	h [mm]	t [mm]		
CA00-NNUX12	42	22	39	NNUX 120800..	E01
CA00-NNUX15	42	22	39	NNUX 150820..	E02
CAXX-NNUX20	51	25	46	NNUX 201020..	E03

		
E01	12535687	12556277
E02	12535687	12124545
E03	12535687	11364028

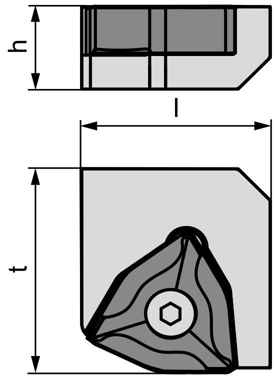
Page 22–29

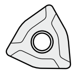


Page 70

Page 104–105

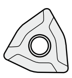
SINGLE CARTRIDGES CAXX / WNEU...



Type, Designation	l [mm]	h [mm]	t [mm]		
CAXX-WNEU1613	50	22	55	WNEU 161325..	E01
CAXX-WNEU1614	50	22	55	WNEU 161425..	E01

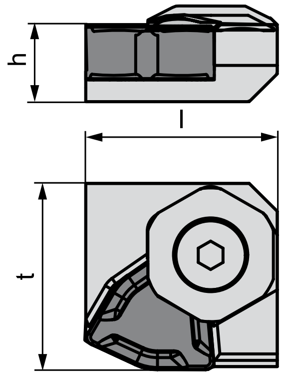
	
E01	11417617


Page 22–29


Page 75


Page 104–105

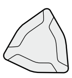
SINGLE CARTRIDGES CAXX-WNEF...



Type, Designation	l [mm]	h [mm]	t [mm]		
CAXX -WNEF1613	58	22	55	WNEF 161325..	E01

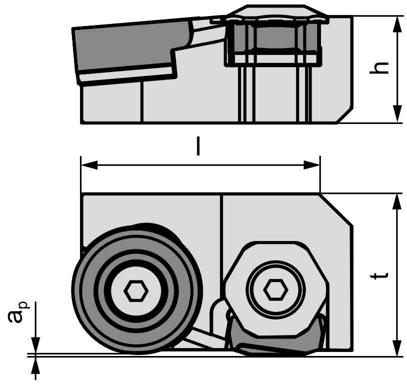
		
E01	11268345	11363595


Page 22–29


Page 74


Page 104–105

TANDEM CARTRIDGES TCA...RN...YN...



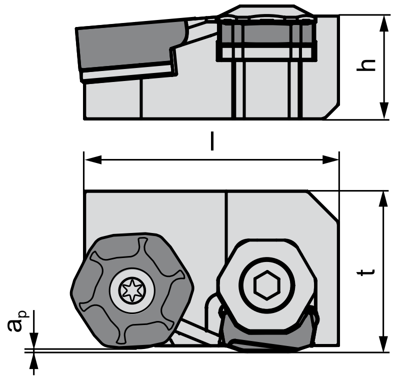
Type. Designation	l [mm]	h [mm]	t [mm]	a_p [mm]			
TCA10-RN50YN20	110	40	65	1.5	RNMH 5018..	YNUF 201220..	E01
TCA12-RN50YN20	110	40	65	1	RNMH 5018..	YNUF 201220..	E01
TCA12-RN38YN20	110	40	65	0.8	RNGH 3812..	YNUF 201220..	E02
TCA12-RN38YN27	110	40	65	0.8	RNGH 3812..	YNUF 271220..	E03
TCA14-RN50YN20	110	40	65	1.5	RNMH 5018..	YNUF 201220..	E01

E01	11363596	11363153	11268345	11363595
E02	11363596	11356071	11268345	11363595
E03	11363596	11356071	11268345	11363595

E01	11262407	11365730
E02	11262407	11365730
E03	11262435	11365730

Page 22–29 Page 72 Page 80–81 Page 104–105

TANDEM CARTRIDGES TCA...HN...YN...

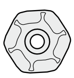


Type. Designation	l [mm]	h [mm]	t [mm]	a_p [mm]			
TCA10-HN28YN20	110	40	65	1.2	HNMH 2818..	YNUF 201220..	E01
TCA12-HN28YN20	110	40	65	1.0	HNMH 2818..	YNUF 201220..	E01
TCA12-HN22YN20	110	40	65	0.8	HNMH 2212..	YNUF 201220..	E02
TCA12-HN22YN27	110	40	65	0.8	HNMH 2212..	YNUF 271220..	E03
TCA14-HN28YN20	110	40	65	1.2	HNMH 2818..	YNUF 201220..	E01

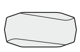
E01	11363596	12090033	11268345	11363595
E02	1342301	12144314	11268345	11363595
E03	1342301	12144314	11268345	11363595

E01	11262407	11365730
E02	11262407	11365730
E03	11262435	11365730

Page 22–29



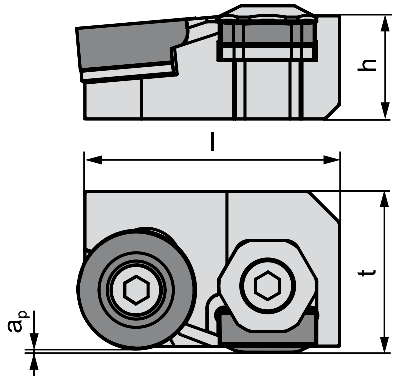
Page 68



Page 80–81

Page 104–105

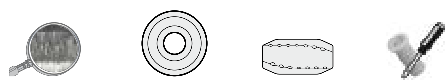
TANDEM CARTRIDGES TCA...RN...LN...



Type. Designation	l [mm]	h [mm]	t [mm]	a_p [mm]			
TCA12-RN50LN23	110	40	65	1.0	RNMH 5018..	LNGF 231225..	E01

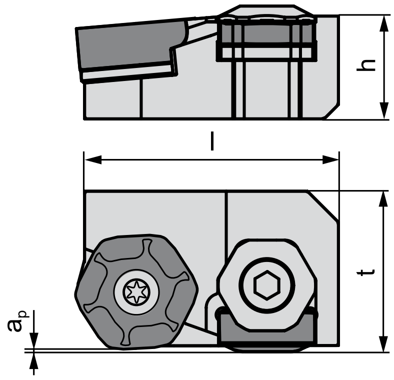
E01	11363596	11363153	11268345	11363595

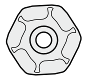
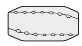
E01	11364027	11365730

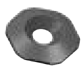


Page 22–29 Page 72 Page 69 Page 104–105

TANDEM CARTRIDGES TCA...HN...LN...



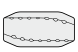
Type, Designation	l [mm]	h [mm]	t [mm]	a_p [mm]			
TCA12-HN28LN23	110	40	65	1.2	HNMH 2818..	LNGF 231225..	E01

				
E01	11363596	12090033	11268345	11363595

		
E01	11364027	11365730

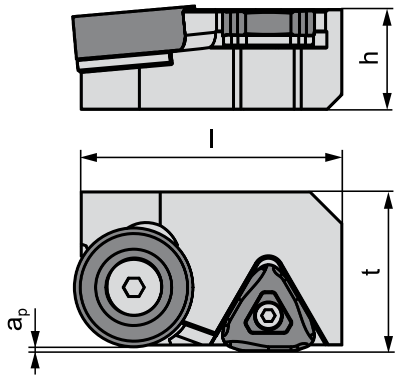

Page 22–29

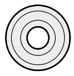

Page 68

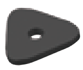

Page 69


Page 104–105

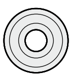
TANDEM CARTRIDGES TCA...RN...NN...



Type, Designation	l [mm]	h [mm]	t [mm]	a_p [mm]			
TCA12-RN50NN20	110	40	65	1.5	RNMH 5018..	NNUX 201020..	E01
TCA14-RN50NN20 10009853	110	40	65	1.5	RNMH 5018..	NNUX 201020..	E01

				
E01	11363596	11363153	12535687	11364028

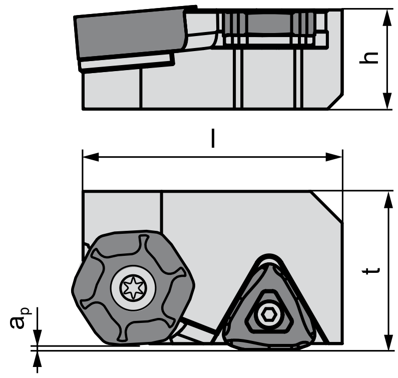

Page 22–29

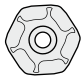
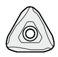

Page 72


Page 70


Page 104–105

TANDEM CARTRIDGES TCA...HN...NN...

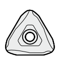


Type, Designation	l [mm]	h [mm]	t [mm]	a_p [mm]			
TCA12-HN28NN20	110	40	65	1.2	HNMH 2818..	NNUX 201020..	E01
TCA14-HN28NN20	110	40	65	1.2	HNMH 2818..	NNUX 201020..	E01

				
E01	11363596	12090033	12535687	11364028

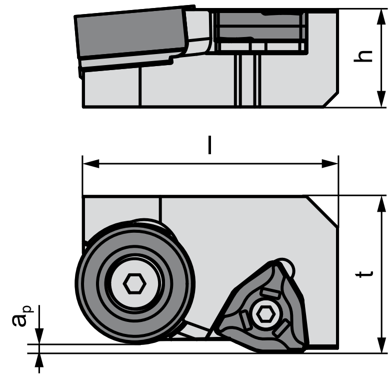

Page 22–29

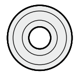
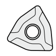

Page 68

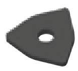

Page 70


Page 104–105

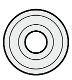
TANDEM CARTRIDGES TCA...RN...WN...



Type, Designation	l [mm]	h [mm]	t [mm]	a_p [mm]			
TCA12-RN38WN16	110	40	65	2.5	RNGH 3812..	WNEU 1613/1425..	E01
TCA12-RN50WN16	110	40	65	3.5	RNMH 5018..	WNEU 1613/1425..	E02

				
E01	11363596	11356071	11181940	11357792
E02	11363596	11363153	11181940	11357792


Page 22–29


Page 72


Page 75


Page 104–105

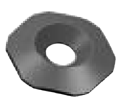
Spare parts

Screws

Material-No.	Type, Designation	Length	Size of thread	Wrench size
1342301	M8X30 DIN 7991 12.9	30	M8	SW5
6210871	C/26381 DIN7991 M8X25 10.9	25	M8	SW5
11181940	10006286/M8,0X30 SW5	30	M8	SW5
11227329	M6X16-25IP/10003048	16	M6	T25IP
11363595	M10X20 DIN 7991 10.9	20	M10	SW6
11363596	M10X35 DIN 7991 10.9	35	M10	SW6
11365730	M5X8 DIN 7991 10.9	8	M5	SW3
11377574	M6X12 SW4 DIN7991 10.9	6	M6	SW4
11417617	10006285/M8,0X20 SW5	20	M8	SW5
11450042	10006887/M3,5x8,6/15IP	8.6	M3.5	T15IP
11801691	M5X20 DIN 7991 10.9	20	M5	SW3
12535687	S-M6X18/T20 12.9 50060196	18	M6	T20
12535753	S-M4X8 ISO 10642 10.9	8	M4	SW2.5

Material-No.	Type, Designation	Length	Size of thread	Wrench size
11880977	M8X16 DIN 6912 10.9	16	M8	

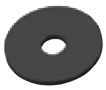
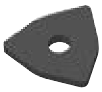
Claws

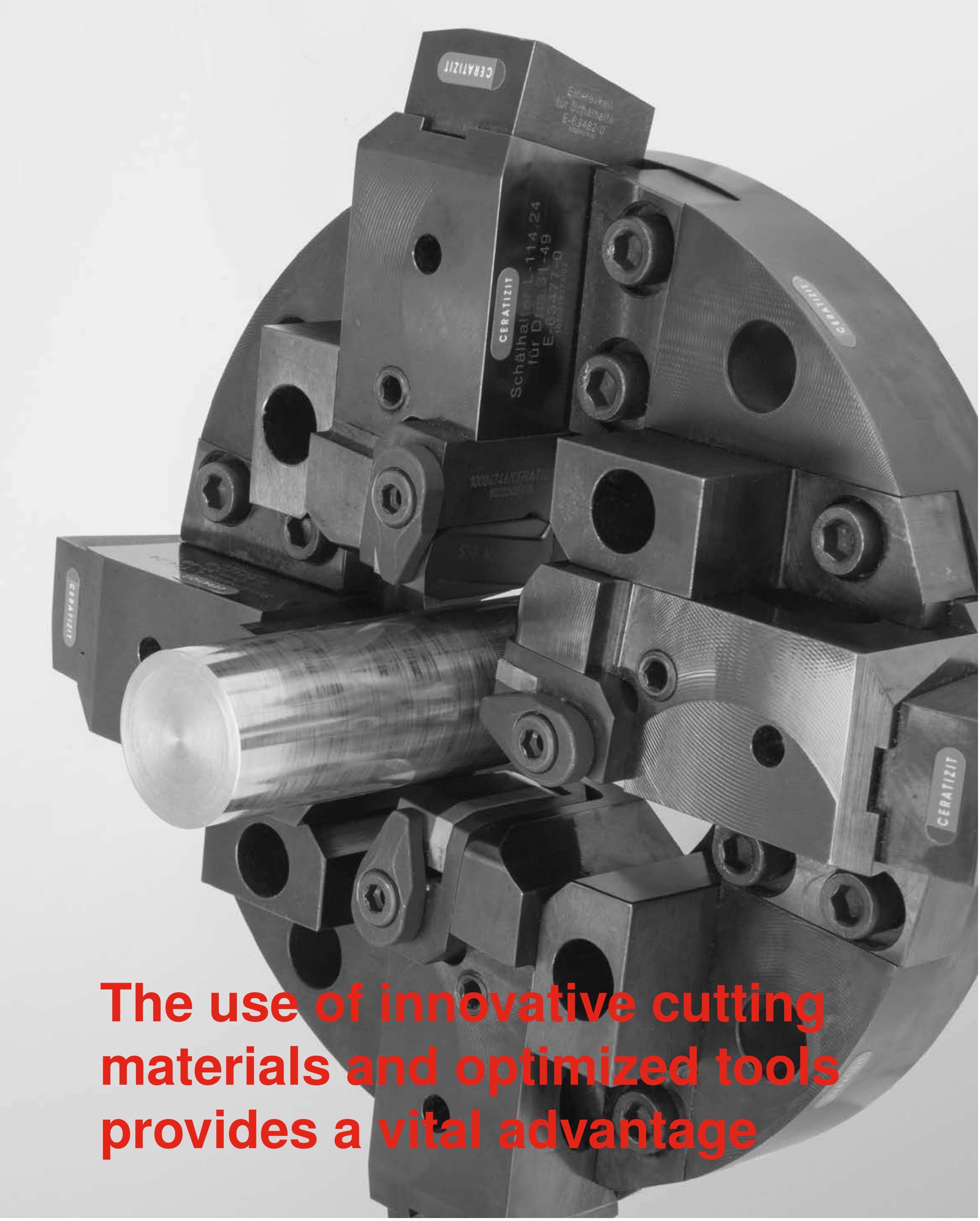


Material-No.	Type, Designation
11378194	KLF-D29
11268345	KLF-D38

Material-No.	Type, Designation
11329186	SPP-33

Shims

		Material-No.	Type. Designation	Strength s [mm]
HNMH/J..		12090025	U-HNMH2813	10.0
		12090033	U-HNMH2818	5.0
		12144314	U-HNMH2212	5.0
LNGF..		11364020	U-LNGF2310	6.0
		11364027	U-LNGF2312	4.0
NNUX..		11364028	U-NNUX2010	3.0
		11910314	U-NNUX2712	5.0
		12124545	U-NNUX1508	3.0
		12556277	U-NNUX1208	3.0
RNGH../RNMH..		11356071	U-RNGH/X3812	5.0
		11363153	U-RNMH5018	5.0
		12429188	U-RNMH2810	3.0
		12556291	U-RNMH2008	3.0
TNGT..		12556298	U-TNGT220815	3.0
WNEF../WNEU../WNGU../WNMF..		11354688	U-WNMF1510	3.0
		11357792	U-WNEU1613	6.0
		11414040	U-WNMF1106	3.0
		11451724	U-WNEU1614	5.0
		11458166	U-WNEF1613	5.0
		12292429	U-WNGU1510	3.0
		12556308	U-WNGU1010	3.0
		11394214	U-WNMF96	4.75
YNGF../YNGX../YNUF../YNUR../YNUX..		11262407	U-YNUF2012	5.0
		11262435	U-YNUF2712	5.0
		11262436	U-YNUF1708	5.0
		11356624	U-YNUX1006	3.0
		11369058	U-YNUR2712	3.0
		12148501	U-YNUF2410	5.0
		12556318	U-YNGF2012	5.0
		12556319	U-YNGX150815	3.0
		12556320	U-YNGX150820	3.0
		12556322	U-YNGX1712	3.0



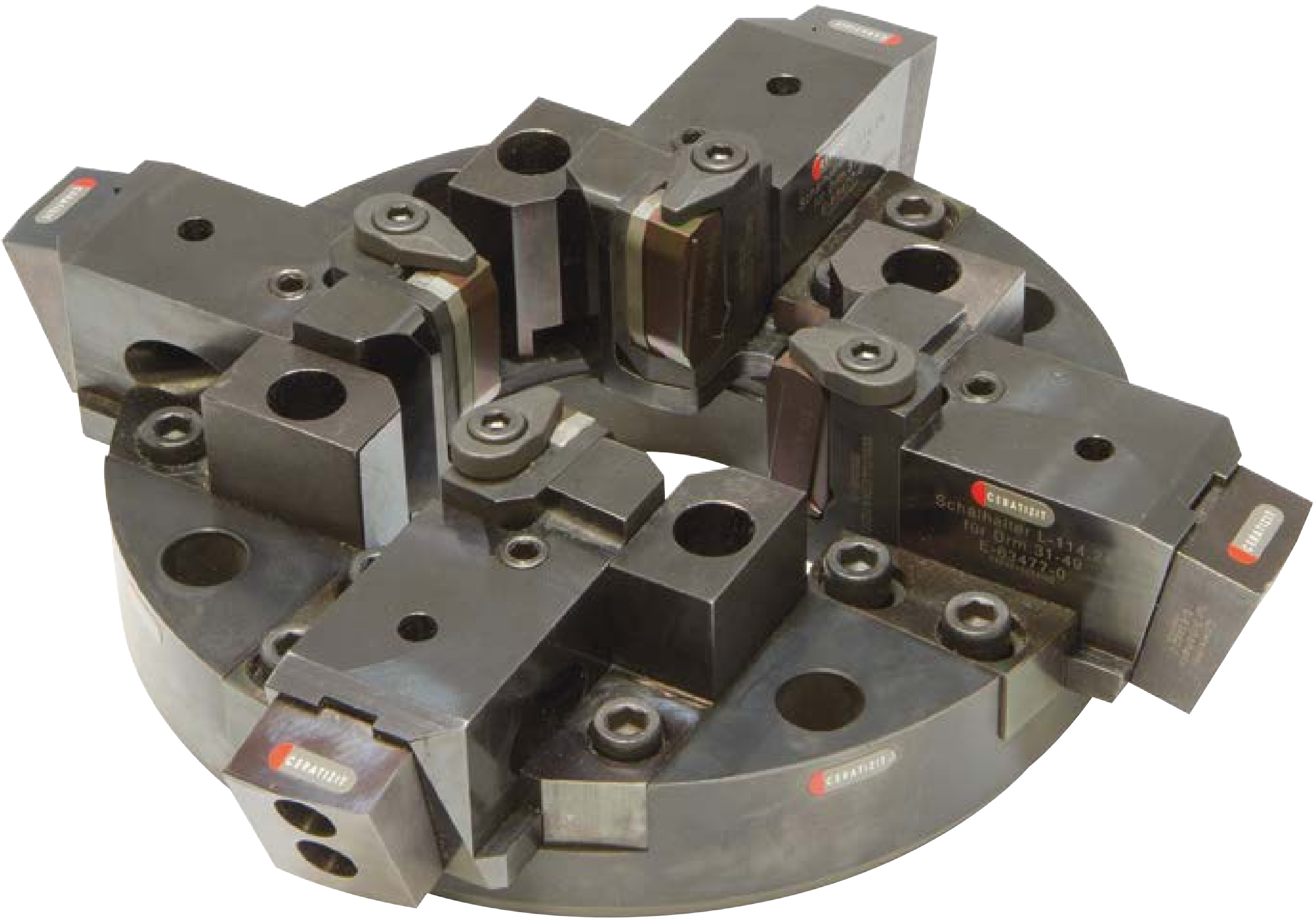
The use of innovative cutting materials and optimized tools provides a vital advantage

Peeling heads and accessories

In addition to inserts, CERATIZIT also offers all the spare parts which are needed for bar peeling. All peeling heads and the associated spare parts are produced upon request.

Peeling heads for bars

Peeling head for bars – Ø 15 to 100 mm



Peeling heads for bars – Ø 150 to 350 mm

Peeling heads and accessories

In addition to inserts, CERATIZIT also offers all the spare parts which are needed for bar peeling.

Cartdridges

- SINGLE cartridges
- TANDEM cartridges
- TRIO cartridges

Tool holders with defined length and adjusting wedge

- Integrated cartridge seat
- Integrated insert seat

Spare parts

- Clamping claws
- Clamping screws
- Shims
- Adjusting wedges
- Clamping and guide bars

Clamping elements

- Locking tapers
- Locking pins

Guide components in steel and carbide

- Guide rolls
- Guide axes
- Guide strips

Peeling head and all spare parts available upon request

All peeling heads and the associated spare parts are produced upon request.

If you are interested in CERATIZIT peeling cartridges, please send your enquiry to: info.austria@ceratizit.com

Clamping components

Locking pins

Adjusting wedges

Locking tapers

Clamping and guide bars

Guide components

Guide components

Roll holders

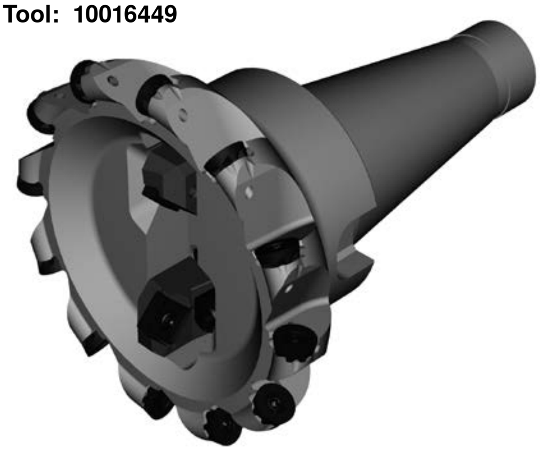
Clamping and guide components upon request

All clamping and guide components and the associated spare parts are produced upon request.

If you are interested in CERATIZIT Clamping and guide components, please send your enquiry to: info.austria@ceratizit.com

Tools and inserts for bar end machining and chamfering

Tool: 10016449



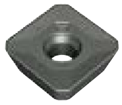
Insert: RPHX 1605M8

SNKU 150510SN-M50

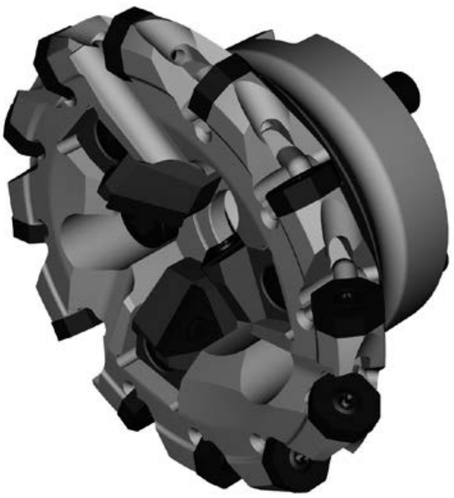
Tool: 10023283

Insert: OAKU 060508SR-M50

SDHT 1204AESN

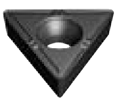


Tool: 10010504



Insert: OAKU 060508SR-M50

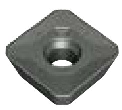
TCMT 220408EN-M55



Tool: 10023262

Insert: OAKU 060508SR-M50

SDHT 1204AESN



Milling tools upon request

This page shows various examples of milling tools which we produce upon request according to the specifications and requirements of our customer.

If you are interested in CERATIZIT peeling cartridges, please send your enquiry to: info.austria@ceratizit.com

We supply you with complete and customized solutions and expert support on site

OEM services

We not only offer our partners excellent cutting tools but also customised complete solutions. Every project is managed and centrally coordinated by a dedicated OEM team. The experts at the CERATIZIT centre of excellence for cutting tool solutions are concerned to meet your individual requirements providing complete process solutions and tool packages for the most varied challenges. In this way you can count on being given the solution best adapted to your needs.

Customised complete solutions

In collaboration with machine manufacturers CERATIZIT offers complete process solutions. We not only supply you with excellent cutting tools, we will also give you the expert support you need when implementing your specific concept on site with CERATIZIT OEM services.

CERATIZIT OEM-Services

For every project we set up a dedicated team of experts comprising various specialisations. Make use of the fund of knowledge we have amassed at the CERATIZIT cutting tools centre - ranging from application engineering to design, comprising construction, production, sales and logistics.

In this way we are able to guarantee maximum professionalism and reliability as well as solutions that are individually adapted to your needs. Additionally, we will help you to implement your specific concept on site.

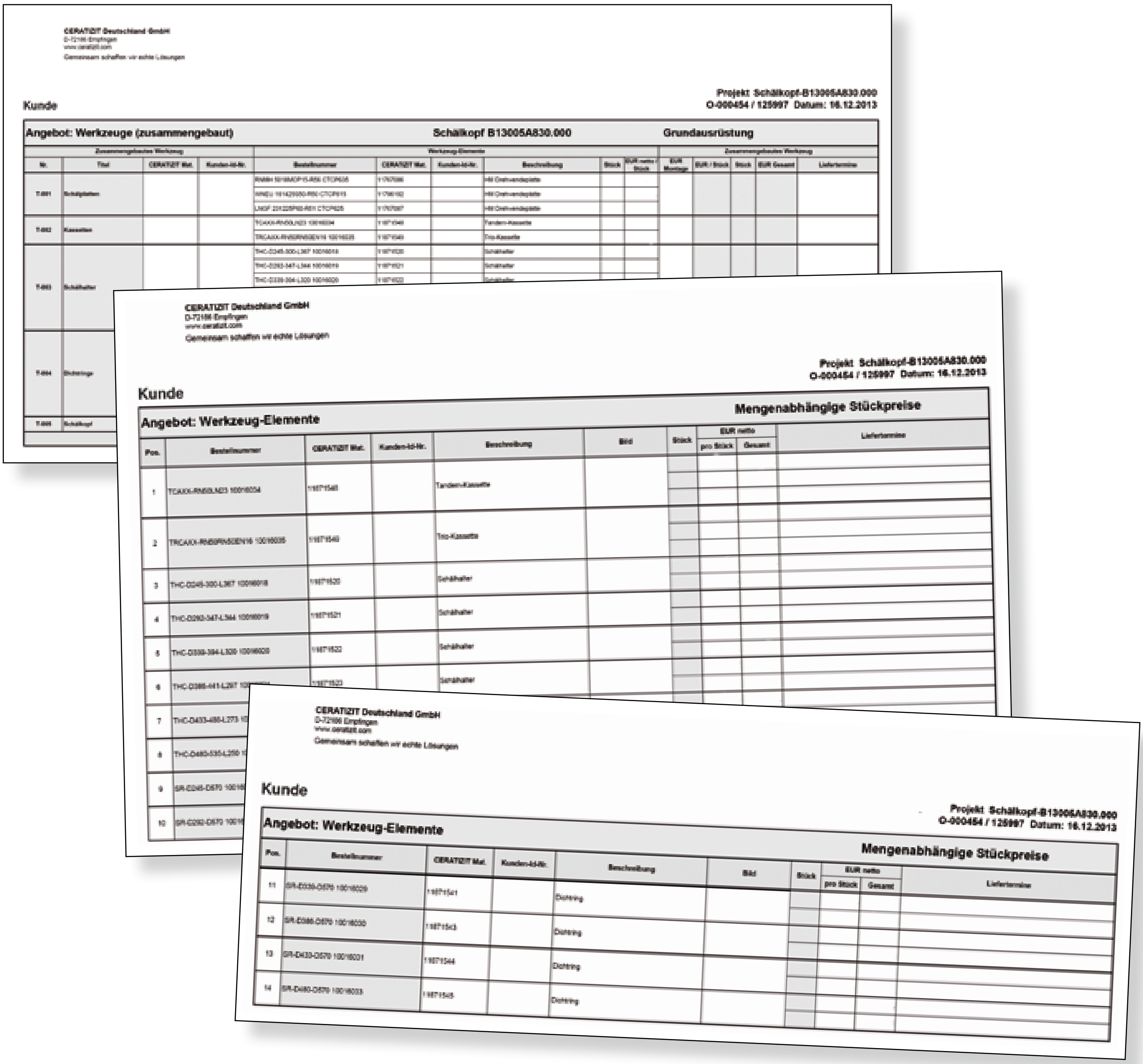
Tooling studies

Tooling sheets provide detailed information about the different tools and tool holders mounted on the peeling heads. The technical drawings convey precise specifications as to these components, their main dimensions as well as their standard and spare parts. With the tooling sheets you have all the important information you need for an optimal work flow at your fingertips.

Tooling elements

The tooling element sheets give an overview of all the components used in the peeling head along with the different order numbers. They convey information about the necessary basic equipment of tooling systems and inserts, including quantity-based prices.

If needed, we can also recommend the most suitable cutting parameters for your material.



CERATIZIT Deutschland GmbH
D-72186 Empfingen
www.ceratizit.com
Gemeinsam schaffen wir echte Lösungen

Kunde

Projekt Schälkopf-B13005A830.000
O-000454 / 125997 Datum: 16.12.2013

Angebot: Werkzeug-Elemente

Pos.	Bestellnummer	CERATIZIT Mat.	Kunden-Id-Nr.	Beschreibung	Bild	Stück	EUR netto pro Stück	EUR netto Gesamt	Liefertermine
11	SR-D339-D570 10016029	11871541		Dichtring					
12	SR-D386-D570 10016030	11871543		Dichtring					
13	SR-D433-D570 10016031	11871544		Dichtring					
14	SR-D480-D570 10016033	11871545		Dichtring					


Tooling Academy
CERATIZIT
hyperion

Industry Solutions & Technical manuals

Changing markets, new technologies and the development of complex materials present major challenges to entire industries – ranging from the automotive industry to the energy, aviation and aerospace sectors. As your creative and fully qualified partner, we will work together with you to develop industry-specific applications and individually customised solutions. Information on the individual segments, including detailed technical information, cutting grade Designations, cutting data, valuable tips and specific application data can be found in the technical manuals.

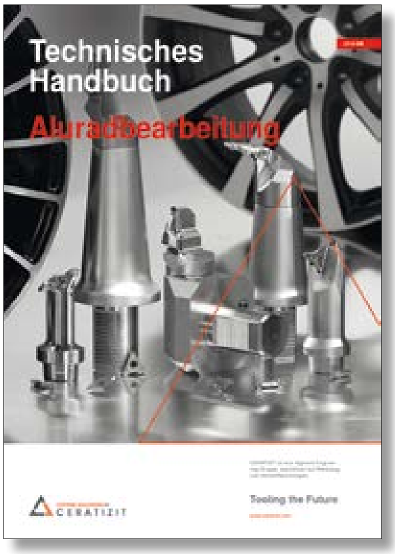
Download at www.ceratizit.com

Catalogue No. 705 Industry Solution

Catalogue No. 702 Technical Manual: Heavy duty machining

Catalogue No. 703 Technical Manual: Brake disc machining

Catalogue No. 668 Technical Manual: Wheel set machining



Catalogue No. 717 Technical Manual: Aluminium wheel machining

Catalogue No. 667 Technical Manual: Machining with PCBN

Headquarters:

CERATIZIT S.A.
LU-8232 Mamer
T. +352 31 20 85-1
E. info@ceratizit.com

www.ceratizit.com

Austria
CERATIZIT Austria GmbH
AT-6600 Reutte
T. +43 5672 200-0
E. info.austria@ceratizit.com

Brazil
CERATIZIT América Latina Ltda.
BR-06453-002 Barueri, São Paulo
T. +55 11 4133 2300
E. info.americalatina@ceratizit.com

Bulgaria
CERATIZIT Bulgaria AG
BG-5301 Gabrovo
T. +359 66 812 206
E. info.bulgaria@ceratizit.com

China
CB-CERATIZIT Tianjin
CN-300384 Tianjin
T. +86 22 5810 7000

Czech Republic / Slovak Republic
CERATIZIT Office Czech Republic
CZ-594 01 Velké Meziříčí
T. +420 566 520 341
E. info.czechrepublic@ceratizit.com

France / Luxembourg / Belgium
CERATIZIT Luxembourg S.à r.l.
LU-8232 Mamer
T. +352 31 20 85-1
E. info@ceratizit.com

Germany
CERATIZIT Deutschland GmbH
DE-72186 Empfingen
T. +49 7485 99802 0
E. info.deutschland@ceratizit.com

Great Britain
Ceratizit UK & IRELAND LTD.
UK-Sheffield S9 1XU
Toll Free 0800 048 4877 / 4878
T. +44 1925 261 161
E. info.uk@ceratizit.com

Hungary
CERATIZIT Office Hungary
HU-1138 Budapest
T. +36 1 437 0930
E. info.hungary@ceratizit.com

India
CERATIZIT India Pvt. Ltd.
IN-Bengaluru 560099
T. +91 80 4043 1262
E. ctindia.south@ceratizit.com

CERATIZIT India Pvt. Ltd.
IN-Chennai 600037
T. +91 44 4269 4350
E. ctindia.south@ceratizit.com

CERATIZIT India Pvt. Ltd.
IN-Coimbatore 641009
T. +91 4224 273 373
E. ctindia.south@ceratizit.com

CERATIZIT India Pvt. Ltd.
IN-Gurgaon 122002
T. +91 124 4018 481
E. ctindia.north@ceratizit.com

CERATIZIT India Pvt. Ltd.
IN-Pune 411018
T. +91 20 6529 0628
E. ctindia.west@ceratizit.com

Indonesia
CB-CERATIZIT Indonesia
ID-17530 Bekasi
T. +62-21-2961-2351

Italy
CERATIZIT Italia S.p.A.
IT-22040 Alserio (CO)
T. +39 031 6349 211
E. info.italia@ceratizit.com

Mexico
CERATIZIT México, S.A. de C.V.
MX-76040 Querétaro, QRO
T. +52 442 225 9173
E. info.mexico@ceratizit.com

Netherlands
CERATIZIT Nederland B.V.
NL-4707 AT Roosendaal
T. +31 165 55 08 00
E. info.nederland@ceratizit.com

Poland
CERATIZIT Office Poland
PL-30-443 Kraków
T. +48 12 252 8591
E. info.polska@ceratizit.com

Spain / Portugal
CERATIZIT Ibérica S.L.
ES-28031 Madrid
T. +34 91 351 0609
E. info.iberica@ceratizit.com

Taiwan
CB-CERATIZIT Tamsui
TW-25152-Tamsui
T. +886 2 2622 1668

Turkey
CERATIZIT Turkey
TR-34870 Kartal, İstanbul
T. +90 216 353 66 43
E. info.turkey@ceratizit.com

USA / Canada
CERATIZIT USA, Inc.
US-Warren, MI 48089-1833
Toll free +1-800-783-2280
T. +1-586-759-2280
E. info.usa@ceratizit.com

CERATIZIT GROUP

7003079
MA-PRO-0679-EN-03/19