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WNT MASTERTOOL PERFORMANCE

Premium quality tools for high performance.

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

WNT MASTERTOOL STANDARD

Quality tools for standard applications.

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

Overview

Tapping

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

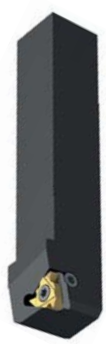
Thread milling

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

Circular Milling

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

Thread turning



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

Explanation of symbols – Taps

Chamfer form

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

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

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

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

Helix angle

42° — Example: helix angle 42°

Tap Material

HSS-E — High-performance high speed steel

Thread types

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

Tolerances

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

Tensile strength

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

2

Explanation of symbols – Circular and thread milling cutters

Version

central internal coolant

lateral internal coolant

VHM — Solid carbide

Thread / Flank angle

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

55° — Flank angle 55°

60° — Flank angle 60°

Shank

DIN 6535
HA
HB

Applications

Full radius slot milling

Slot milling

Multipurpose milling

Chamfering and Deburring

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

● = **Main Application**

○ = Extended application

Explanation of symbols – Thread turning

Flank angle

55° — Flank angle 55°

60° — Flank angle 60°

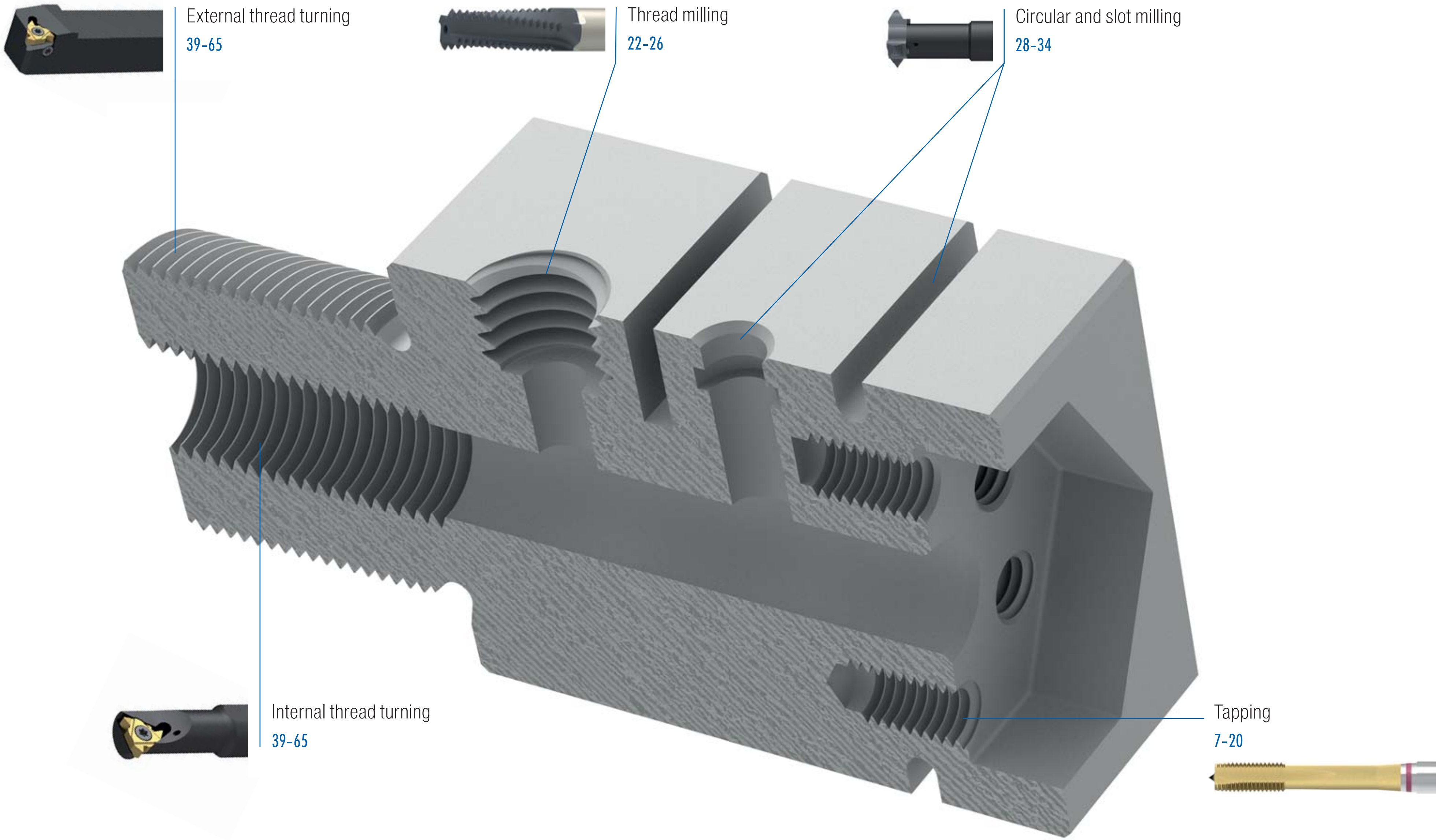
Threading

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

● = **Main Application**

○ = Extended application

WNT Toolfinder



Highlights

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

Taps Overview

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

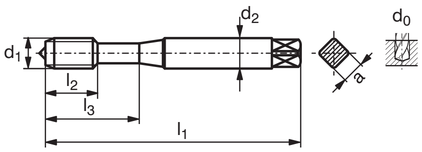
Taps Overview

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

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

Through hole – Machine taps, right hand

M | Stabil



DIN 371 with reinforced shank

	22 501 ...	22 503 ...
	UNI	UNI
	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H
	nitr. + vap.	TiN
		
	HSS-E	HSS-E
	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD
	U0	U0

d1 TD	p TP mm	l1 OAL mm	d2 DCONMS mm	a DRVS mm	d0 PHD mm	l2 THL mm	l3 LU mm	Flutes	£	Article no. 22 501 ...	£	Article no. 22 503 ...
M1	0.25	40	2.5	2.1	0.75	5	13	2	97.77	**010** 1)		
M1,2	0.25	40	2.5	2.1	0.95	5	13	2	94.15	**012** 1)		
M1,4	0.30	40	2.5	2.1	1.10	7	13	3	83.77	**014** 1)		
M1,6	0.35	40	2.5	2.1	1.25	8	11	3	59.41	**016**		
M1,7	0.35	40	2.5	2.1	1.35	6	11	2	90.99	**017**		
M1,8	0.35	40	2.5	2.1	1.45	6	11	2	126.16	**018**		
M2	0.40	45	2.8	2.1	1.60	7	12	2			42.71	**020**
M2	0.40	45	2.8	2.1	1.60	8	8	3	43.72	**020**		
M2,2	0.45	45	2.8	2.1	1.75	7	12	2	45.27	**022**		
M2,5	0.45	50	2.8	2.1	2.05	9	14	2	42.64	**025**		
M3	0.50	56	3.5	2.7	2.50	11	18	3	28.35	**030**	35.20	**030**
M3,5	0.60	56	4.0	3.0	2.90	12	20	3	34.94	**035**		
M4	0.70	63	4.5	3.4	3.30	13	21	3	25.01	**040**	33.72	**040**
M5	0.80	70	6.0	4.9	4.20	15	25	3	26.21	**050**	34.14	**050**
M6	1.00	80	6.0	4.9	5.00	17	30	3	26.21	**060**	41.66	**060**
M7	1.00	80	7.0	5.5	6.00	17	30	3	42.23	**070**		
M8	1.25	90	8.0	6.2	6.80	20	35	3	31.04	**080**	45.48	**080**
M10	1.50	100	10.0	8.0	8.50	22	39	3	37.23	**100**	67.99	**100**
M12	1.75	110	12.0	9.0	10.20	24	44	3	51.62	**120**		

Material	22 501	22 503
Steel	**6-20**	**6-25**
Stainless steel	**4-8**	**5-10**
Cast iron	**6-15**	**10-20**
Non ferrous metals		**12-25**
Heat resistant alloys		
hardened materials		

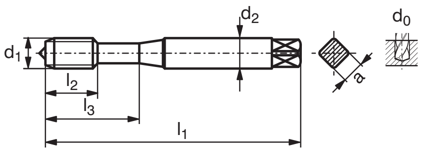
1) Tol. ISO 1 4H ≤ M1.4

2

Blind hole – Machine taps, right hand

M | Salo-Rex

	22 518 ...	22 520 ...
	UNI	UNI
	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H
	vap.	TiN
	HSS-E	HSS-E
	◁ 42°	◁ 42°
	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 3xD	≤ 3xD
	U0	U0



DIN 371 with reinforced shank

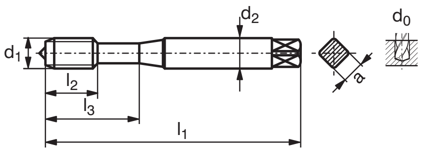
d_1 TD	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	l_3 LU mm	Flutes	£	Article no. 22 518 ...	£	Article no. 22 520 ...
M2	0.40	45	2.8	2.1	1.60	4.0	12	2	34.11	**020**	49.86	**020**
M2,2	0.45	45	2.8	2.1	1.75	4.5	12	2	38.43	**022**		
M2,3	0.40	45	2.8	2.1	1.90	4.5	12	2	41.66	**023**	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

	22 518 ...	22 520 ...
Steel	**6-20**	**6-25**
Stainless steel	**4-8**	**5-10**
Cast iron	**6-15**	**10-20**
Non ferrous metals		**12-25**
Heat resistant alloys		
hardened materials		

Through hole – Machine taps, right hand

MF | Stabil

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



DIN 371 with reinforced shank

	HSS-E	HSS-E
	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD
	U0	U0

d_1 TD	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	l_3 LU mm	Flutes	Article no. 22 590 ... £		Article no. 22 550 ... £	
M4x0,5	0.50	63	4.5	3.4	3.5	10	21	3	56.95	**040**	67.18	**040**
M5x0,5	0.50	70	6.0	4.9	4.5	11	25	3	56.95	**050**	67.18	**050**
M6x0,5	0.50	80	6.0	4.9	5.5	13	30	3	61.53	**060**	83.17	**060**
M6x0,75	0.75	80	6.0	4.9	5.2	13	30	3	61.53	**062**	83.17	**062**
M8x1	1.00	90	8.0	6.2	7.0	17	35	3	59.92	**084**	79.75	**080**
M10x1	1.00	90	10.0	8.0	9.0	18	35	4	61.53	**102**	90.97	**100**

	22 590	22 550
Steel	**6-20**	**6-25**
Stainless steel	**4-8**	**5-10**
Cast iron	**6-15**	**10-20**
Non ferrous metals		**12-25**
Heat resistant alloys		
hardened materials		

Blind hole – Machine taps, right hand

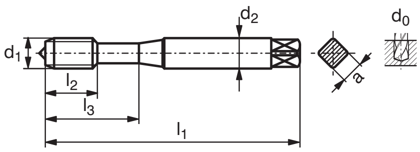
MF | Salo-Rex

UNI

C
2–3

ISO 2
6H

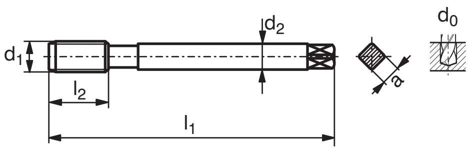
vap.



DIN 371 with reinforced shank

HSS-E
◁ 42°
≤ 1100 N/mm²
≤ 3xD

d1 TD	p TP mm	l1 OAL mm	d2 DCONMS mm	a DRVS mm	d0 PHD mm	l2 THL mm	Flutes	U0 Article no. 22 202 ... £	
M4x0,5	0.50	63	4.5	3.4	3.5	5	3	63.28	040
M5x0,5	0.50	70	6.0	4.9	4.5	5	3	57.25	050
M6x0,75	0.75	80	6.0	4.9	5.2	8	3	63.28	062
M6x0,5	0.50	80	6.0	4.9	5.5	5	3	63.28	060



DIN 374 with reduced shank

d1 TD	p TP mm	l1 OAL mm	d2 DCONMS mm	a DRVS mm	d0 PHD mm	l2 THL mm	Flutes	U0 Article no. 22 553 ... £	
M6x0,75	0.75	80	4.5	3.4	5.2	8	3	54.81	062
M8x0,75	0.75	80	6.0	4.9	7.2	8	3	51.19	080
M8x1	1.00	90	6.0	4.9	7.0	10	3	46.40	082
M10x0,75	0.75	90	7.0	5.5	9.2	10	4	106.10	101
M10x1	1.00	90	7.0	5.5	9.0	10	3	49.57	100
M10x1,25	1.25	100	7.0	5.5	8.8	16	3	120.96	102
M12x1	1.00	100	9.0	7.0	11.0	11	4	64.48	120
M12x1,25	1.25	100	9.0	7.0	10.8	15	4	97.77	122
M12x1,5	1.50	100	9.0	7.0	10.5	15	4	60.89	124

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

Through hole – Machine taps, right hand

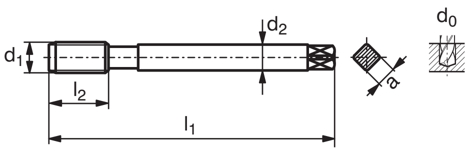
G | Stabil

UNI

B 4–5

ISO 228

TiN



DIN 5156 with reduced shank

HSS-E
∢ 0°
≤ 1100 N/mm²
≤ 4xD

d₁ TDIN	p TP mm	l₁ OAL mm	d₂ DCONMS mm	a DRVS mm	d₀ PHD mm	l₂ THL mm	Flutes	U0 Article no. 22 630 ... £	
1/8-28	0.907	90	7	5.5	8.80	18	3	94.45	**012**
1/4-19	1.337	100	11	9.0	11.80	22	3	124.69	**025**
3/8-19	1.337	100	12	9.0	15.25	22	3	144.42	**037**
1/2-14	1.814	125	16	12.0	19.00	25	4	223.16	**050**

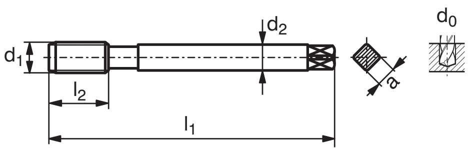
Steel	**6-25**
Stainless steel	**5-10**
Cast iron	**10-20**
Non ferrous metals	**12-25**
Heat resistant alloys	
hardened materials	

2

Blind hole – Machine taps, right hand

G | Salo-Rex

	22 633	22 635
	UNI	UNI
	C 2–3	E 1,5–2
	ISO 228	ISO 228
	vap.	vap.



DIN 5156 with reduced shank

	HSS-E	HSS-E
	◁ 42°	◁ 42°
	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 3xD	≤ 3xD
	U0	U0

d_1 TDIN	p TP mm	l_1 OAL mm	d_2 DCONMS mm	a DRVS mm	d_0 PHD mm	l_2 THL mm	Flutes	Article no. 22 633 ... £		Article no. 22 635 ... £	
1/8-28	0.907	90	7	5.5	8.80	10	3	57.14	**012**		
1/8-28	0.907	90	7	5.5	8.80	10	4			58.72	**012**
1/4-19	1.337	100	11	9.0	11.80	15	4	81.91	**025**		
1/4-19	1.337	100	11	9.0	11.80	15	5			78.82	**025**
3/8-19	1.337	100	12	9.0	15.25	15	4	99.47	**037**		
3/8-19	1.337	100	12	9.0	15.25	15	5			96.83	**037**
1/2-14	1.814	125	16	12.0	19.00	17	4	131.47	**050**		
1/2-14	1.814	125	16	12.0	19.00	17	5			125.48	**050**

	22 633	22 635
Steel	**6-20**	**6-25**
Stainless steel	**4-8**	**4-10**
Cast iron	**6-15**	**6-20**
Non ferrous metals		**12-25**
Heat resistant alloys		
hardened materials		

Through hole – Machine taps, right hand

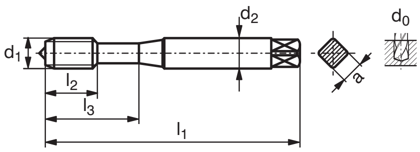
UNC | Stabil

UNI

B 4–5

2B

nitr. + vap.



DIN 371 with reinforced shank

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

U0

d1 TDIN	p TP mm	l1 OAL mm	d2 DCONMS mm	a DRVS mm	d0 PHD mm	l2 THL mm	l3 LU mm	Flutes	£	Article no. 22 572 ...
Nr. 2-56	0.454	45	2.8	2.1	1.85	7	12	2	76.84	002
Nr. 4-40	0.635	56	3.5	2.7	2.35	11	18	2	42.32	004
Nr. 6-32	0.794	56	4.0	3.0	2.85	12	20	3	35.90	006
Nr. 8-32	0.794	63	4.5	3.4	3.50	13	21	3	36.26	008
Nr. 10-24	1.058	70	6.0	4.9	3.90	15	25	3	39.21	010
Nr. 12-24	1.058	80	6.0	4.9	4.50	16	30	3	47.41	012
1/4-20	1.270	80	7.0	5.5	5.10	17	30	3	41.36	025
5/16-18	1.411	90	8.0	6.2	6.60	20	35	3	49.29	031
3/8-16	1.588	100	10.0	8.0	8.00	22	39	3	54.40	037

Material	U0
Steel	6-20
Stainless steel	4-8
Cast iron	6-15
Non ferrous metals	
Heat resistant alloys	
hardened materials	

2

Blind hole – Machine taps, right hand

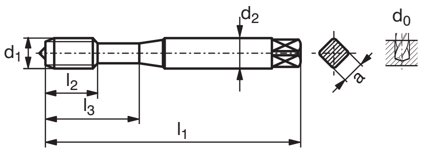
UNC | Salo-Rex

UNI

C
2–3

2B

vap.



DIN 371 with reinforced shank

HSS-E

◁ 42°
≤ 1100 N/mm²
≤ 3xD

U0

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

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

Through hole – Machine taps, right hand

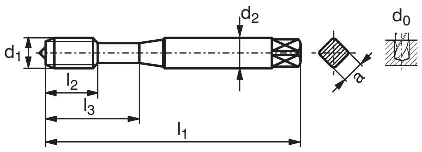
UNF | Stabil

UNI

B
4–5

2B

nitr. + vap.



DIN 371 with reinforced shank

HSS-E

0°
≤ 1100 N/mm²
≤ 4xD

U0

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

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

2

Blind hole – Machine taps, right hand

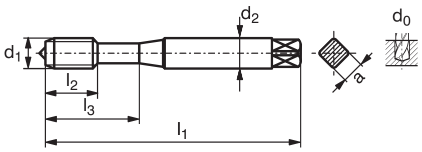
UNF | Salo-Rex

UNI

C 2–3

2B

vap.



DIN 371 with reinforced shank

HSS-E

◁ 42°
≤ 1100 N/mm²
≤ 3xD

U0

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

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

Through hole – Machine taps, right hand

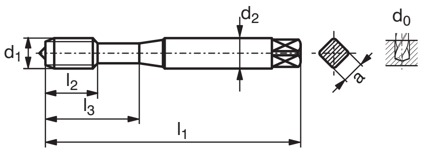
UNJF | DL

Ti

D 4–5

3BX

TiCN



DIN 371 with reinforced shank

HSS-E
15°
≤ 1200 N/mm²
≤ 4xD

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

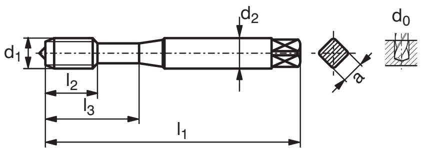
Steel	**6-8**
Stainless steel	**4-10**
Cast iron	
Non ferrous metals	**10-12**
Heat resistant alloys	**4-6**
hardened materials	

2

Blind hole – Machine taps, right hand

UNJF | SL

Ti
C 2–3
3BX
TiCN



DIN 371 with reinforced shank

HSS-E
15°
≤ 1200 N/mm²
≤ 2xD
U0

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

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

Through hole – Machine taps, right hand

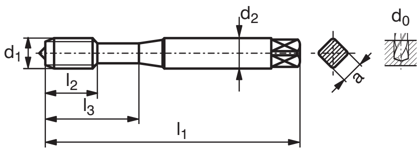
BSW **Stabil**

UNI

B
4–5

med.

nitr. + vap.



DIN 371 with reinforced shank

HSS-E

∢ 0°
≤ 1100 N/mm²
≤ 4xD

U0

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

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

Blind hole – Machine taps, right hand

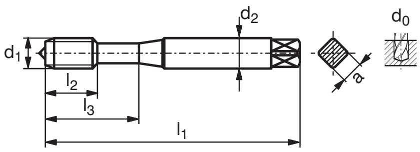
BSW | Salo-Rex

UNI

C 2–3

med.

vap.



DIN 371 with reinforced shank

HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

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

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

Highlights

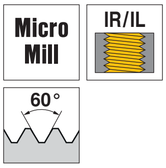
- Excellent surface qualities
  Improves thread quality
- Thread forming to the bottom of the hole
  Complete utilisation of the hole
- High process security
  No chip breakage problems
- Reduced cutting pressure
  Ideal for unstable parts

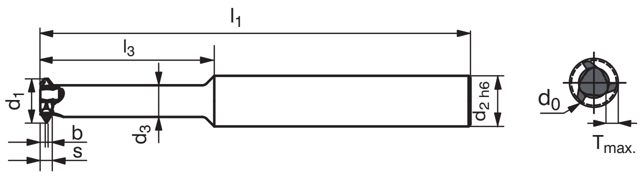
Thread milling cutters overview

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

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

MicroMill – Solid Carbide Circular Thread Milling Cutter – Partial profile





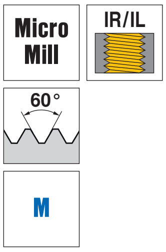
Solid carbide

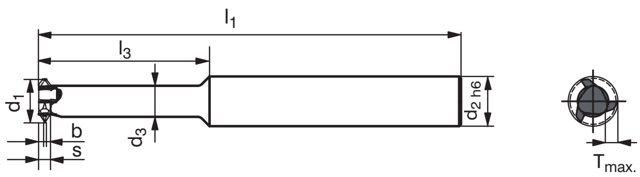
p	d_1	s	b	$T_{max.}$	l_3	l_1	d_3	$d_{2\ h6}$	Z	d_0	W1 Article no. 53 053 ... £	
	DC	W1	CW	PDPT	LU	OAL	DN	DCONMS	ZEFP	DAXN		
mm	mm	mm	mm	mm	mm	mm	mm	mm		mm		
0,5 - 1,5	5.8	2	0.06	0.91	15.2	58	3.5	6	3	6	58.73	010
0,5 - 1,5	7.8	2	0.06	0.91	25.4	68	5.5	8	3	8	77.77	110
1,0 - 2,0	7.8	2	0.12	1.19	25.4	68	5.0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

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

→ v_c/f_z Page 37

MicroMill – Solid Carbide Circular Thread Milling Cutter – Full profile





Solid carbide

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

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

→ v_c/f_z Page 37

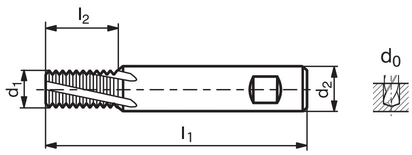
i When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

Thread milling cutter

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

SGF | IR/IL | ≤ 2xD | 60° | M

Ti 500



Solid carbide

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

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

60° | MF

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

1) DIN 6535 HA Shank / Without Through Coolant

55° | G

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

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

→ v_c/f_z Page 36

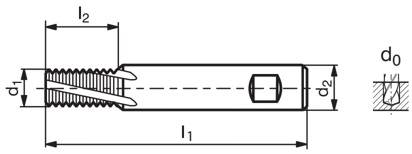
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

Thread milling cutter

- Profile corrected

SGF
IR/IL
≤ 2xD
55°
BSW

Ti 500



HB

Solid carbide

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

55°
BSF

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

60°
UNC

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

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

1) DIN 6535 HA Shank / Without Through Coolant

→ v_c/f_z Page 36

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

Thread milling cutter

- Profile corrected

SGF

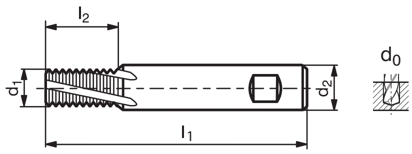
IR/IL

≤ 2xD

60°

UNF

Ti 500



d1 DC mm	Thread TDIN	p TP mm	l2 LU mm	d2 h6 DCONMS mm	l1 OAL mm	Z ZEFP	d0 DAXN mm	Solid carbide W8 £	Article no. 54 812 ...
4.8	UNF 1/4 - 28	0.907	13	6	55	3	5.50	97.12	**014** [1)]
6.0	UNF 5/16 - 24	1.058	18	6	60	3	6.90	100.76	**516**
8.0	UNF 3/8 - 24	1.058	21	8	70	3	8.50	121.03	**038**
8.0	UNF 7/16 - 20	1.270	21	8	70	3	9.90	121.03	**716**
9.9	UNF 1/2 - 20	1.270	26	10	75	4	11.50	119.96	**012**

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

1) Without Through Coolant

→ v_c/f_z Page 36

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

2

Thread milling cutter

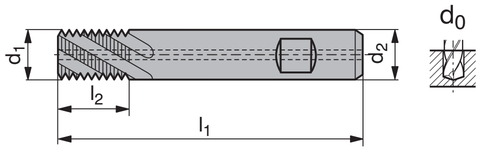
SGF | IR/IL

≤ 2xD

60°

M

Ti 500



HB

Solid carbide

d_1 DC mm	p TP mm	l_2 LU mm	$d_{2\ h6}$ DCONMS mm	l_1 OAL mm	Z ZEFP	d_0 mm	W8 £	Article no. 54 832 ...
8	0.50	12	8	70	3	10	316.49	008
8	0.75	12	8	70	3	11	316.49	080
10	1.00	16	10	75	4	14	320.21	100
10	1.50	16	10	75	4	14	320.21	101
12	1.00	20	12	85	4	16	390.95	120
12	1.50	20	12	85	4	16	390.95	121
12	2.00	20	12	85	4	18	390.95	122
16	1.00	25	16	90	5	22	528.70	160
16	1.50	25	16	90	5	22	484.02	161
16	2.00	25	16	90	5	22	536.14	162
16	3.00	25	16	90	5	24	543.58	164

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

→ v_c/f_z Page 36

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

Highlights

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

Circular milling cutters overview

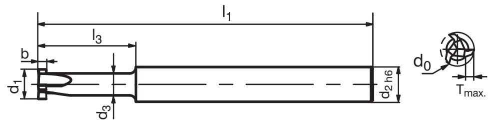
	Application	Special feature	Width	Diameter in mm Ø d_1	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Coating	Pages
			0,7 – 2,0	5,8 – 7,8	●	●	●	●	○	○	CWX 500	28
			2,0 – 3,0	5,8 – 7,8	●	●	●	●	○	○	CWX 500	28
		Cross-pitched	1,5 – 6,0	12 – 37	●	●	●	●	○	○	CWX 500	29
	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

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

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX 500



HA

Solid carbide
W1

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

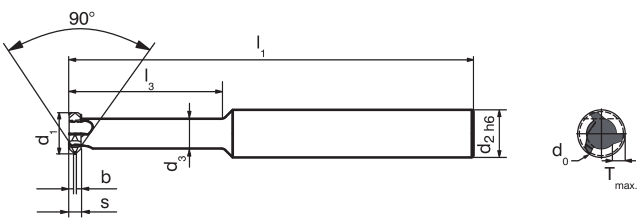
Material	CWX 500
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 37

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX 500



HA

Solid carbide
W1

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

Material	CWX 500
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

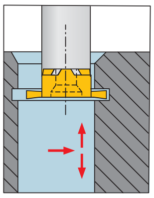
→ v_c/f_z Page 37

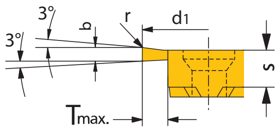
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

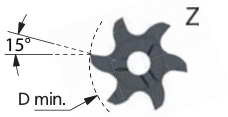
MiniMill – Milling insert for groove milling, cross-pitched

Mini Mill | ≥ Ø12 mm

CWX 500







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

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

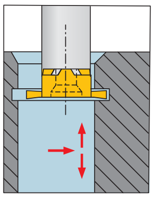
→ v_c/f_z Page 37

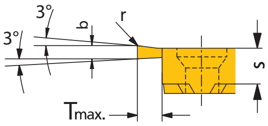
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

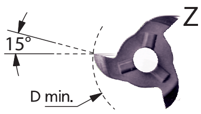
MiniMill – Milling insert for groove milling

Mini Mill | ≥ Ø10 mm

CWX 500







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

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

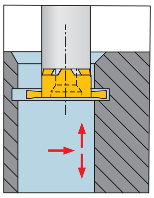
→ v_c/f_z Page 37

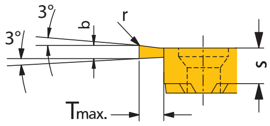
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

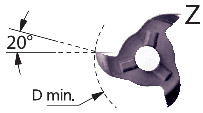
MiniMill – Milling insert for groove milling (Specialist for aluminium)

Mini Mill | ≥ Ø32 mm

CWX 500







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

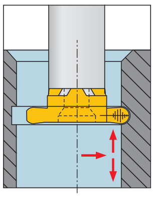
Material	
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

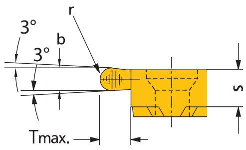
→ v_c/f_z Page 37

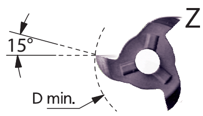
MiniMill – Milling insert for groove milling with full radius

Mini Mill | ≥ Ø12 mm

CWX 500







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

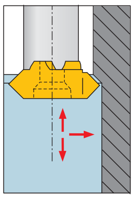
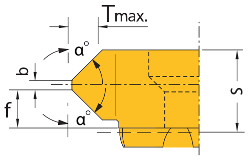
Material	
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

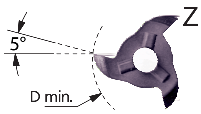
→ v_c/f_z Page 37

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

MiniMill – Milling insert for groove milling and chamfering

Mini Mill | ≥ Ø10 mm | CWX 500



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

Material	W2
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

1) Use clamping screw 73 082 006

→ v_c/f_z Page 37

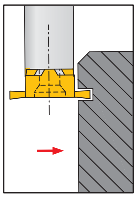
When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details on → **Page 72 + 73.**

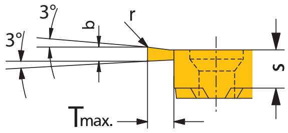
MiniMill – Milling insert for part-off

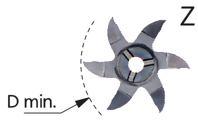
- $T_{max.}$ = 12,0 mm in combination with holder 53 003 624
- reduce feed rate by 50 %

Mini Mill | ≥ Ø37 mm

CWX 500







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

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

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

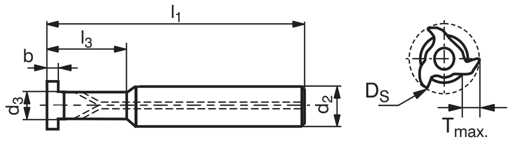
→ v_c/f_z Page 37

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

MiniMill – Circular milling cutter, extra short

- Steel Version

Mini Mill



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

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

Key D

Clamping screw

Clamping screw

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

Clamping screw 73 082 006 only for insert 53 009 394

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

Material examples referring to the WNT cutting data tables

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

2

Cutting data appoximate values

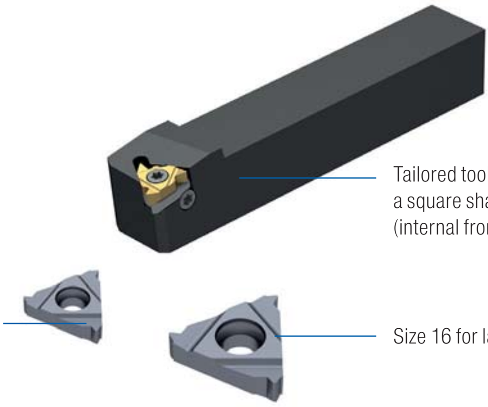
	SFG VHM Ti 500 54 832 ...			SFG VHM Ti 500 54 800 ..., 54 802 ..., 54 804 ..., 54 806 ..., 54 808 ..., 54 810 ..., 54 812 ...			
Index	v_c in m/min	< Ø 8 mm f_z	< Ø 8 mm f_z	v_c in m/min	Ø 2,4 + 3,15 mm f_z	Ø 4 mm f_z	Ø 4,8–16 mm f_z
1.1	**80–250**	0,04–0,07	0,05–0,15	**80–250**	0,03–0,04	0,03–0,06	0,05–0,15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

Cutting data appoximate values

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

Highlights

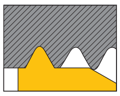
- Three-edged indexable inserts
  In sizes 11 and 16
- Mini internal thread from Ø 6 mm
  Cost-effective with small diameters
- External and internal threading holder
  Available with square shank from 8x8 mm
- CCN 20 universal grade
  One grade for all steel and stainless-steel applications
- The specialist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



Thread turning tools overview

Thread / Flank angle

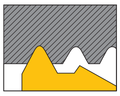
Full profile



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

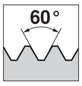
External				Internal			
M	MJ	BSW	UN	M	MJ	BSW	UN
39+40	43	45+46	49+50	41+42	44	47+48	51+52
UNC	UNF	UNEF		UNC	UNF	UNEF	
49+50	49+50	49+50		51+52	51+52	51+52	

Partial profile



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

External:



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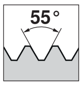
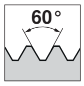
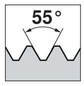


55

Internal:



54



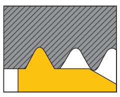
56

suitable holder


57


58+59

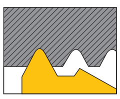
Full Profile Mini Size 06/08



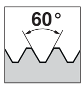
- Special inserts for low cutting speeds
- for diameters from 6mm to 8mm

Internal	
M	BSW
60+62	60

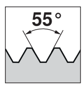
Partial Profile Mini Size 06/08



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



61+62



61+63

suitable holder

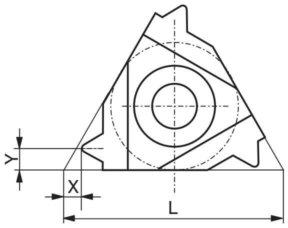

64

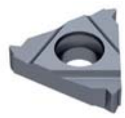
Right hand external thread turning insert

- Full profile

M | 60°

CCN 20 | CWK 20





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

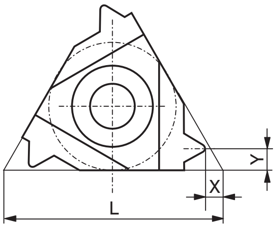
→ v_c Page 67

Left hand external thread turning insert

- Full profile

M | 60°

CCN 20 | CWK 20



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

Material	EL X3	EL Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

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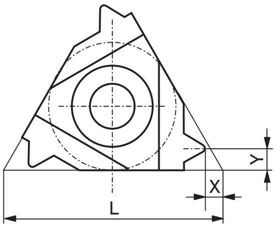
Right hand internal thread turning insert

- Full profile

M | 60°

CCN 20 | CWK 20



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

Material	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

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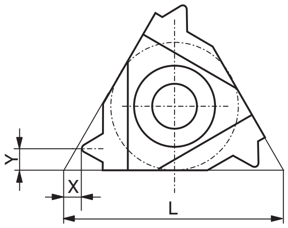
2

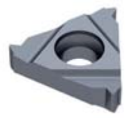
Left hand internal thread turning insert

- Full profile

M | 60°

CCN 20 | CWK 20





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

Material	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

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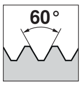
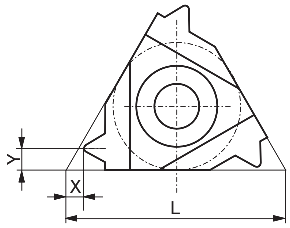
Right hand external thread turning insert

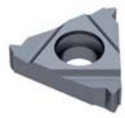
▪ Full profile

MJ



CCN 20 | CWK 20





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

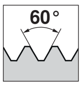
Material	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

→ v_c Page 67

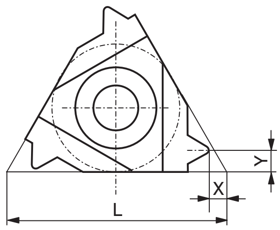
Left hand external thread turning insert

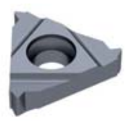
▪ Full profile

MJ



CCN 20 | CWK 20





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

Material	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

→ v_c Page 67

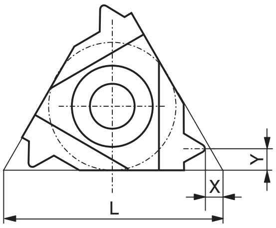
2

Right hand internal thread turning insert

- Full profile

MJ | 60°

CCN 20 | CWK 20



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

	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

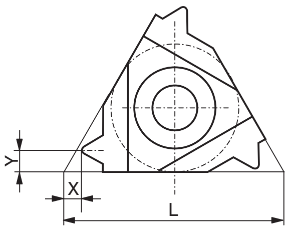
→ v_c Page 67

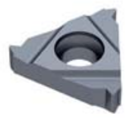
Left hand internal thread turning insert

- Full profile

MJ | 60°

CCN 20 | CWK 20





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

	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

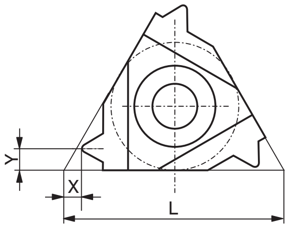
→ v_c Page 67

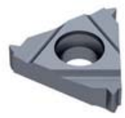
Right hand external thread turning insert

- Full profile

BSW 55°

CCN 20 CWK 20





2

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

Material	ER X3	ER Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

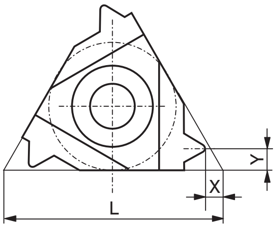
→ v_c Page 67

Left hand external thread turning insert

- Full profile

BSW 55°

CCN 20 CWK 20



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

Material	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

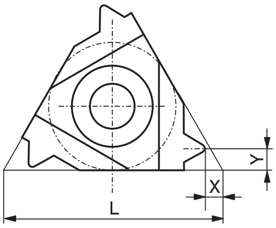
→ v_c Page 67

Right hand internal thread turning insert

- Full profile

BSW | 55°

CCN 20 | CWK 20



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

Material	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

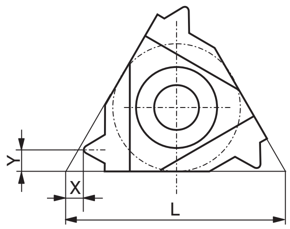
→ v_c Page 67

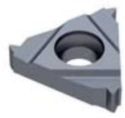
Left hand internal thread turning insert

- Full Profile

BSW 55°

CCN 20 CWK 20





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

Material	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

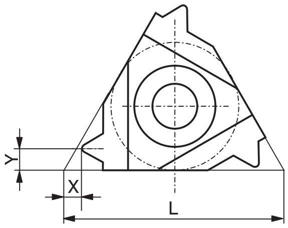
→ v_c Page 67

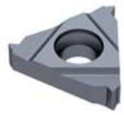
Right hand external thread turning insert

- Full profile

UN | UNC | UNF | UNEF | 60°

CCN 20 | CWK 20





2

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

Material	ER X3	ER Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

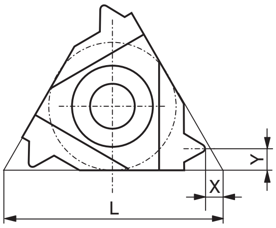
→ v_c Page 67

Left hand external thread turning insert

- Full profile

UN | UNC | UNF | UNEF | 60°

CCN 20 | CWK 20



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

	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

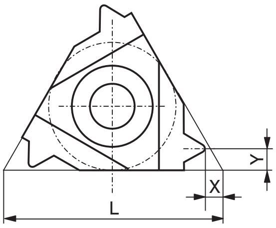
→ v_c Page 67

Right hand internal thread turning insert

▪ Full profile

UN | UNC | UNF | UNEF | 60°

CCN 20 | CWK 20



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

Material	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

→ v_c Page 67

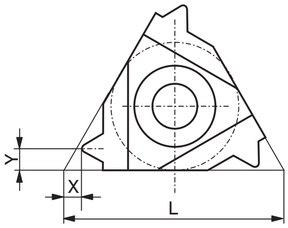
2

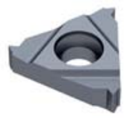
Left hand internal thread turning insert

- Full profile

UN | UNC | UNF | UNEF | 60°

CCN 20 | CWK 20





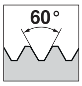
Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	IL X3 £	Article no. 71 270 ...	IL Y1 £	Article no. 71 270 ...
11 IL 72	72,0	11	0.8	0.3	22.15	**202**	16.20	**602**
11 IL 64	64,0	11	0.8	0.4	22.15	**204**	16.20	**604**
11 IL 56	56,0	11	0.7	0.4	22.15	**206**	16.20	**606**
11 IL 48	48,0	11	0.6	0.6	22.15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

Material	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

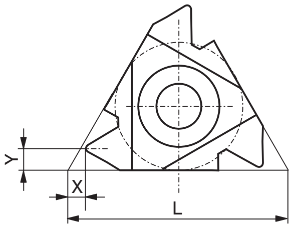
→ v_c Page 67

Right hand external thread turning insert

- Partial profile



CCN 20 | CWK 20



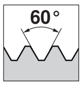
Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	ER X3 Article no. 71 206 ... £		ER Y1 Article no. 71 206 ... £	
16 ER A60	0,5 - 1,5	16	0.8	0.9	22.15	240	16.20	640
16 ER G60	1,75 - 3	16	1.2	1.7	22.15	242	16.20	642
16 ER AG60	0,5 - 3	16	1.2	1.7	22.15	244	16.20	644

	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

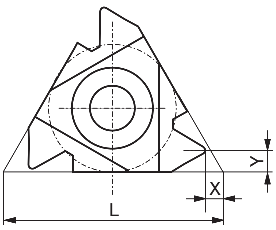
→ v_c Page 67

Left hand external thread turning insert

- Partial profile



CCN 20 | CWK 20



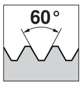
Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	EL X3 Article no. 71 208 ... £		EL Y1 Article no. 71 208 ... £	
16 EL A60	0,5 - 1,5	16	0.8	0.9	22.15	240	16.20	640
16 EL G60	1,75 - 3	16	1.2	1.7	22.15	242	16.20	642
16 EL AG60	0,5 - 3	16	1.2	1.7	22.15	244	16.20	644

	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

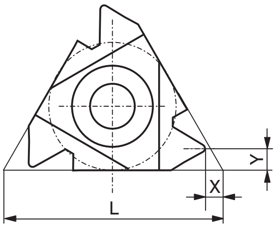
→ v_c Page 67

Right hand internal thread turning insert

- Partial profile



CCN 20 | CWK 20



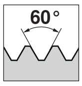
Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	IR X3 Article no. 71 210 ... £		IR Y1 Article no. 71 210 ... £	
11 IR A60	0,5 - 1,5	11	0.8	0.9	22.15	210	16.20	610
16 IR A60	0,5 - 1,5	16	0.8	0.9	22.15	240	16.20	640
16 IR AG60	0,5 - 3	16	1.2	1.7	22.15	244	16.20	644
16 IR G60	1,75 - 3	16	1.2	1.7	22.15	242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

	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

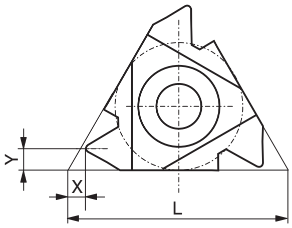
→ v_c Page 67

Left hand internal thread turning insert

- Partial profile



CCN 20 | CWK 20



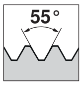
Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	IL X3 Article no. 71 212 ... £		IL Y1 Article no. 71 212 ... £	
11 IL A60	0,5 - 1,5	11	0.8	0.9	22.15	210	16.20	610
16 IL A60	0,5 - 1,5	16	0.8	0.9	22.15	240	16.20	640
16 IL G60	1,75 - 3	16	1.2	1.7	22.15	242	16.20	642
16 IL AG60	0,5 - 3	16	1.2	1.7	22.15	244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

	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

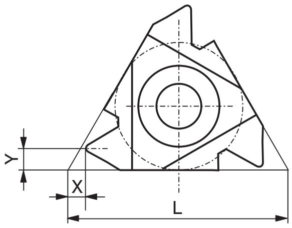
→ v_c Page 67

Right hand external thread turning insert

- Partial profile



CCN 20 | CWK 20



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

	CCN 20	CWK 20
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

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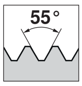
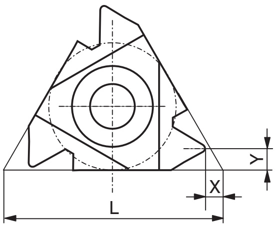
Left hand external thread turning insert

- Partial profile



CCN 20 | CWK 20



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

	CCN 20	CWK 20
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

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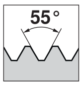
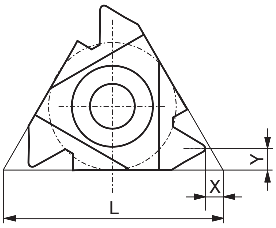
2

Right hand internal thread turning insert

- Partial profile



CCN 20 | CWK 20



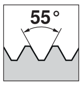
Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	IR X3 £	Article no. 71 204 ...	IR Y1 £	Article no. 71 204 ...
11 IR A55	48 - 16	11	0.8	0.9	22.15	210	16.20	610
16 IR A55	48 - 16	16	0.8	0.9	22.15	240	16.20	640
16 IR AG55	48 - 8	16	1.2	1.7	22.15	244	16.20	644
16 IR G55	14 - 8	16	1.2	1.7	22.15	242	16.20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

Material	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

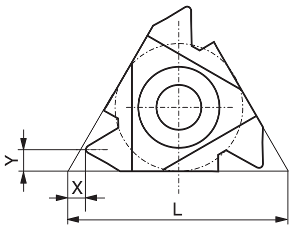
→ v_c Page 67

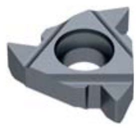
Left hand internal thread turning insert

- Partial profile



CCN 20 | CWK 20





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

Material	X3	Y1
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

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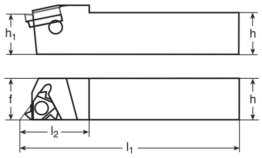
Standard External Thread Turning Holder

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



Illustrations show right-hand versions

Designation	h = h1 H mm	f WF mm	l1 OAL mm	l2 LH mm	Insert	Left-hand Y2 Article no. 71 281 ... £		Right-hand Y2 Article no. 71 280 ... £	
SE R/L 08 08 H11	8	11	100	16	11 ..	98.72	**908**	98.72	**908**
SE R/L 10 10 H11	10	11	100	18	11 ..	98.72	**910**	98.72	**910**
SE R/L 12 12 K11	12	12	125	20	11 ..	98.72	**912**	98.72	**912**
SE R/L 12 12 F16	12	16	80	22	16 ..	98.72	**012**	98.72	**012**
SE R/L 16 16 H16	16	16	100	25	16 ..	121.51	**016**	121.51	**016**
SE R/L 20 20 K16	20	20	125	30	16 ..	121.51	**020**	121.51	**020**
SE R/L 25 25 M16	25	25	150	30	16 ..	138.68	**025**	138.68	**025**
SE R/L 32 32 P16	32	32	170	30	16 ..	152.41	**032**	152.41	**032**

Shim

Screw-U

Key D

Clamping screw

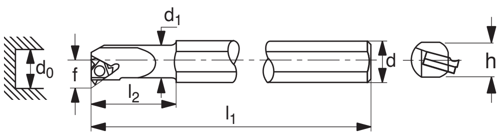
Spare parts for Article no.		Y2 Shim **Article no.** **71 950 ...** £		Y2 Screw-U **Article no.** **71 950 ...** £			Y7 Key D **Article no.** **80 950 ...** £		Y2 Clamping screw **Article no.** **71 950 ...** £	
71 280 908 / 71 281 908						T08	9.52	**110**	1.38	**230**
71 280 910 / 71 281 910						T08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

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

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

Standard Internal Thread Turning Holder

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



Illustrations show right-hand versions

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

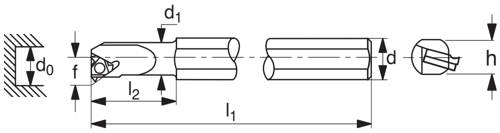
1) without shim

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

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

Standard Internal Thread Turning Holder with thro' coolant

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



Illustrations show right-hand versions

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

1) with shim seat
2) Carbide version


Shim


Screw-U


Key D


Clamping screw

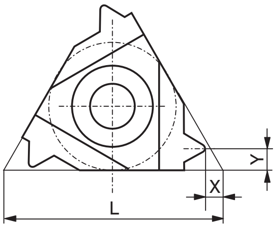
Spare parts for Article no.		Y2 Shim Article no. 71 950 ... £		Y2 Screw-U Article no. 71 950 ... £			Y7 Key D Article no. 80 950 ... £		Y2 Clamping screw Article no. 71 950 ... £	
71 282 510						T08	9.52	110	1.38	230
71 282 512						T08	9.52	110	1.38	230
71 282 310 / 71 283 310						T08	9.52	110	1.38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

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

Right hand internal thread turning insert – Mini size 06

- Full profile

M | 60°



Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	CWS 80 HSS IR Y1 £	Article no. 71 276 ...	CCN 1525 IR X3 £	Article no. 71 271 ...	CWN 30 IR Y1 £	Article no. 71 276 ...
06 IR 0,5	0,50	6	0.9	0.5	24.57	710	21.09	110	24.57	310
06 IR 0,75	0,75	6	0.8	0.5	24.57	712	21.09	112	24.57	312
06 IR 1,0	1,00	6	0.7	0.6	23.13	714	21.09	114	23.13	314
06 IR 1,25	1,25	6	0.6	0.6	24.57	716	21.09	116	24.57	316

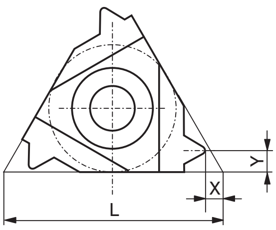
Material	CWS 80	CCN 1525	CWN 30
Steel	○	●	●
Stainless steel	●	●	●
Cast iron	○	●	○
Non ferrous metals	○	○	○
Heat resistant alloys			○

→ v_c Page 67

Right hand internal thread turning insert – Mini size 06

- Full profile

BSW | 55°



Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	CWS 80 HSS IR Y1 £	Article no. 71 278 ...	CWN 30 IR Y1 £	Article no. 71 278 ...
06 IR 26	26	6	0.6	0.6	24.57	716	24.57	316
06 IR 22	22	6	0.6	0.6	24.57	720	24.57	320
06 IR 20	20	6	0.6	0.6	24.57	722	24.57	322
06 IR 19	19	6	0.6	0.6	24.57	724	24.57	324
06 IR 18	18	6	0.6	0.6	24.57	726	24.57	326

Material	CWS 80	CWN 30
Steel	○	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys		○

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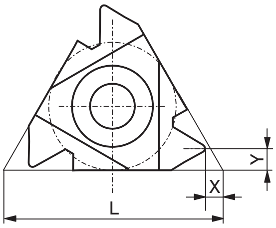
Right hand internal thread turning insert – Mini size 06

- Partial profile

60° | 60°



Designation	p TP mm	L INSL mm	X PDX mm	Y PDY mm	CWS 80 HSS IR Y1 Article no. 71 272 ... £		CCN 1525 IR X3 Article no. 71 274 ... £		CWN 30 IR Y1 Article no. 71 272 ... £	
06 IR A60	0,5 - 1,25	6	0.6	0.6	24.57	710	21.09	210	24.57	310

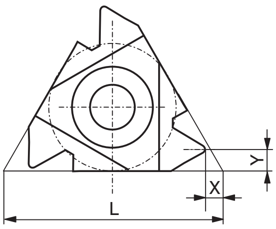
	CWS 80	CCN 1525	CWN 30
Steel	○	●	●
Stainless steel	●	●	●
Cast iron	○	●	○
Non ferrous metals	○	○	○
Heat resistant alloys			○

→ v_c Page 67

Right hand internal thread turning insert – Mini size 06

- Partial profile

55° | 55°



Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	CWS 80 HSS IR Y1 Article no. 71 274 ... £		CWN 30 IR Y1 Article no. 71 274 ... £	
06 IR A55	48 - 20	6	0.5	0.6	24.57	710	24.57	310

	CWS 80	CWN 30
Steel	○	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys		○

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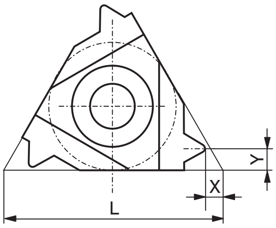
2

Right hand internal thread turning insert – Mini size 08

▪ Full profile

M | 60°

CWS 80 | CWN 30



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

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

1) Neutral version (N)

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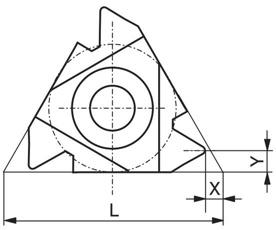
Right hand internal thread turning insert – Mini size 08

▪ Partial profile

60° | 60°

CWS 80 | CWN 30



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

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

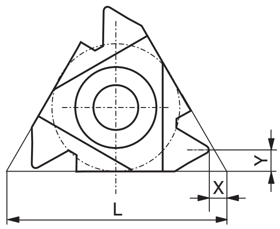
1) Neutral version (N)

→ v_c Page 67

Right hand internal thread turning insert – Mini size 08

- Partial profile

55° | 55°



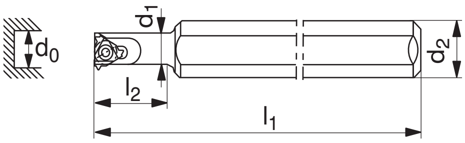
Designation	p TDIN 1/"	L INSL mm	X PDX mm	Y PDY mm	CWS 80 HSS IR Y1 £	Article no. 71 275 ...	CWN 30 IR Y1 £	Article no. 71 275 ...
08 IR A55	48 - 16	8	0.6	0.7	24.57	710	24.57	310
08 IN M55	14 - 11	8	0.9	4.0	29.41	772 [1)]	29.41	372 [1)]

	CWS 80	CWN 30
Steel	○	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys		○

1) Neutral version (N)

→ v_c Page 67

Right Hand Internal Thread Holder – Mini size 06

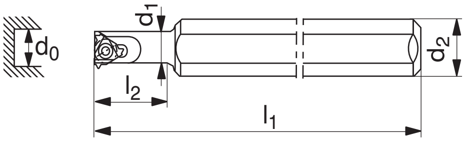


Designation	l_1 OAL mm	l_2 LDRED mm	d_2 DCONMS mm	d_1 BDRED mm	d_0 DAXN mm	Insert	Right-hand Y2 Article no. 71 294 ... £	
SI R 0005 H06	100	12	12	5.2	6	06 ..	176.34	**005**
SI R 0005 H06 C	100	25	6	5.2	6	06 ..	314.41	**105** [1]

1) Solid Carbide Shank with Thro' Coolant

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

Right Hand Internal Thread Holder – Mini size 08



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

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

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

Shims for Standard Threading Inserts


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

Material examples referring to the WNT cutting data tables

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

Cutting data appoximate values

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

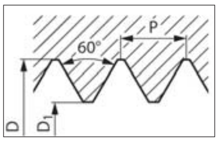
The cutting data depends extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced according to the application conditions.

Tapped hole pilot diameter

M

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

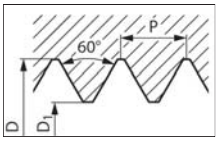
Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M1	0,25	0,729	0,785	0,75
M1,1	0,25	0,829	0,885	0,85
M1,2	0,25	0,929	0,985	0,95
M1,4	0,3	1,075	1,142	1,1
M1,6	0,35	1,221	1,321	1,25
M1,8	0,35	1,421	1,521	1,45
M2	0,4	1,567	1,679	1,6
M2,2	0,45	1,713	1,838	1,75
M2,5	0,45	2,013	2,138	2,05
M3	0,5	2,459	2,599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



MF

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

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



Tap Type Explanation

Stabil Through hole tap type Stabil

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

Salo-Rex Blind hole tap type Salo-Rex

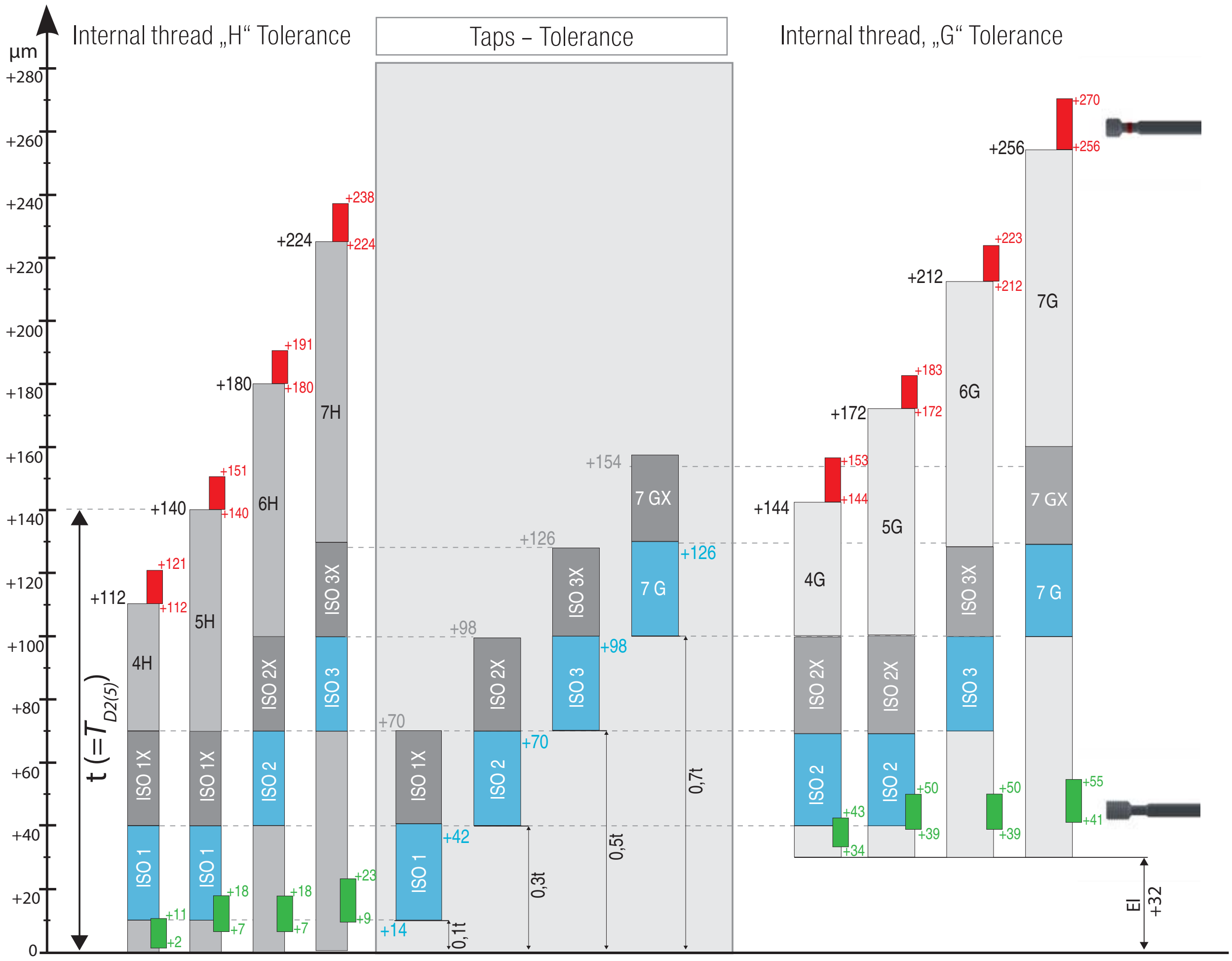
- For blind holes up to 3xD
- Lead Form C: 2-3 cutting leads, without spiral point
- Lead Form E: 1.5-2 cutting leads, without spiral point
- (35°, 42°, 45°, 50°) right hand helix
- Also suitable for syncronised machining, with Weldon flat, with extra long version and through coolant
- The high helix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

2

WNT Shank Types

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

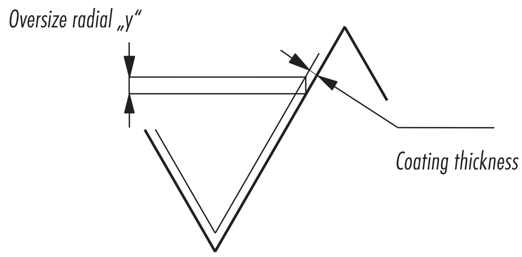
Thread tolerances and recommended manufacturing tolerances



Example of M10 in microns

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

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



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

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

Troubleshooting

Poor tool life

Cause

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

Remedy

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

Axial thread error

Cause

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

Remedy

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

Oversize thread

Cause

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

Remedy

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

Broken tool

Cause

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

Remedy

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

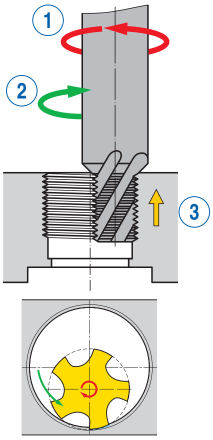
Milling Procedures

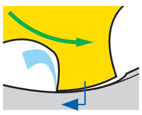
Climb milling

Characteristics:

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

Right hand thread





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

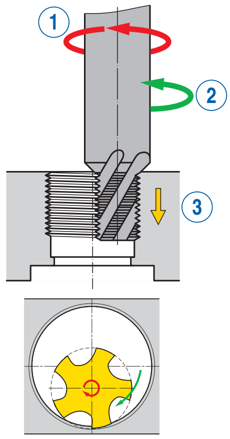
h = 0

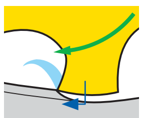
Conventional milling

Characteristics:

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

Right hand thread

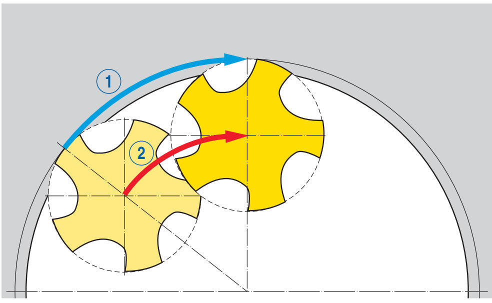




When conventional milling, the chip thickness at the end of cut is always at maximum (h=max)

h = max

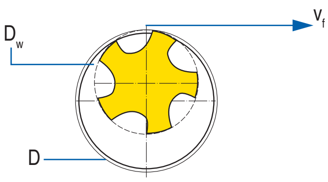
Feed rate calculation



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

Peripheral feedrate v_f

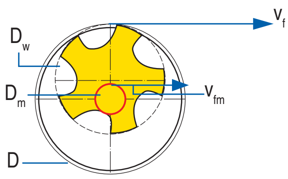
$v_f = n \cdot f_z \cdot z$ mm/min.



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

Centerline feedrate v_{fm}

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



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

Tips for the User

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

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

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

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

Numeric calculation of cutting data for thread milling

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

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

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

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

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

Milling - external contour

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

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

Milling - internal contour

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

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

Helical plunging

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

Ramping in the arc

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

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

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

2

Correction values for the internal thread milling

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

half the cutter Ø - 0.05 x pitch p

Example: M30x3
Cutter-Ø: 20 mm

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

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

Pitch angle

Important Information about Standard Shims

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

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

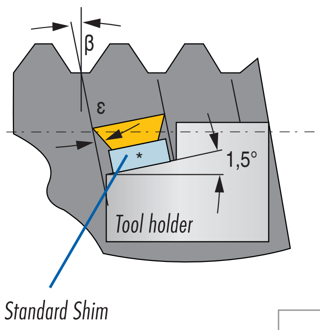
- the profile will be distorted.
- insufficient clearance angle.
- the tool life of the insert is greatly reduced.

Method 1: Calculation

Calculating the helix angle β:

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

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



Example calculation

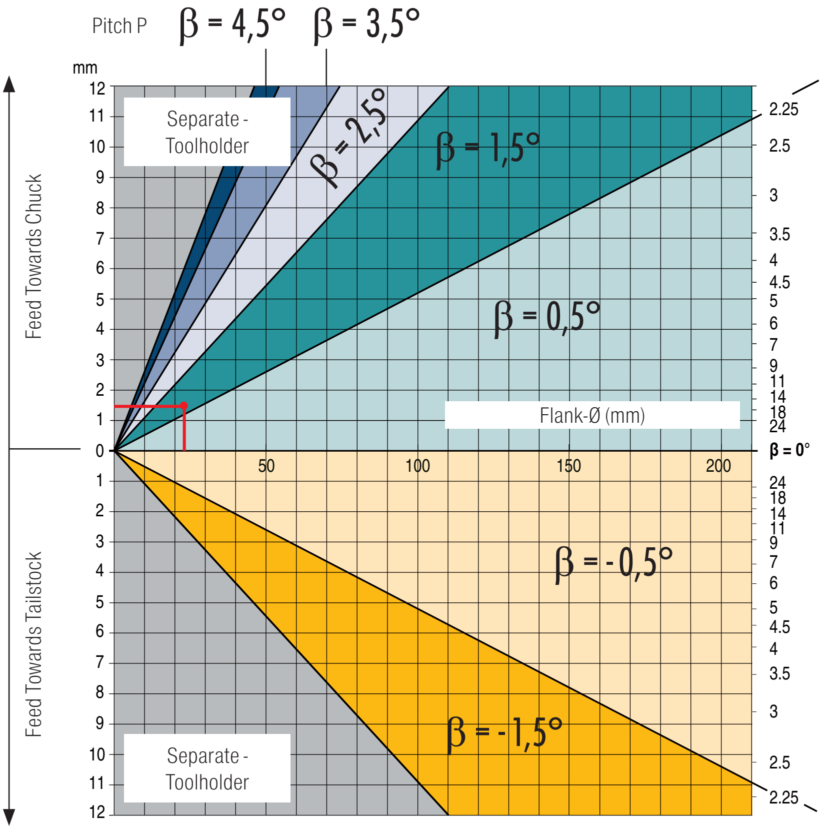
External thread M24 x 1.5
Feed towards chuck
D = Nominal Ø – M24 = 24 mm
p = Pitch – 1.5 mm

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

β = 1,25°

Method 2: Diagram

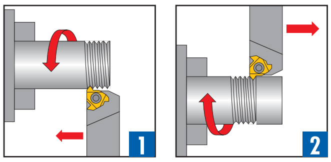
From the flank Ø in the diagram, a line is drawn vertically upwards until it intersects with the line of the pitch of the thread to be produced. In the color-coded region in which it is now, a horizontal line to the edge of the chart indicates the appropriate factor.



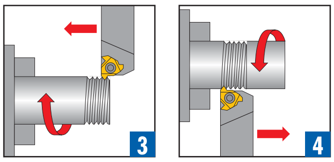
calculated pitch angle β value	Shim
0,0°–0,99°	0,5°
1,0°–1,99°	1,5°
2,0°–2,99°	2,5°
3,0°–3,99°	3,5°
4,0°–4,99°	4,5°
0,0°–(-0,99°)	-0,5°
-1,0°–(-1,99°)	-1,5°

Thread turning methods

External right-hand thread

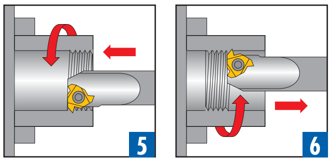


External left-hand thread

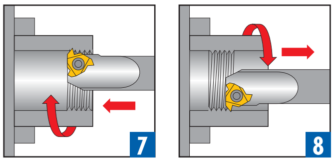


Applications 2, 4, 6 and 8 require negative insert seats.
These inserts can be found on → **Page 65.**

Internal right-hand thread

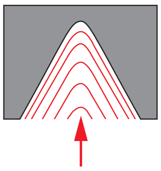


Internal left-hand thread



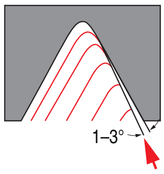
Thread infeed methods

Radial Infeed



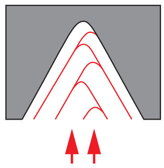
- for pitches less than 1.5 mm
- for short chipping materials
- for machining hardened materials
- simple and quick method

Flank infeed



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

Alternating infeed



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

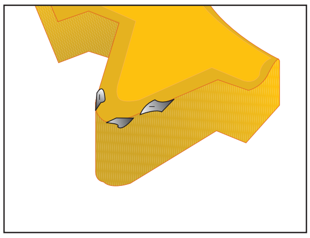
Recommended number of cuts and cutting depths

Standard Threading Inserts

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

Troubleshooting

Edge chipping



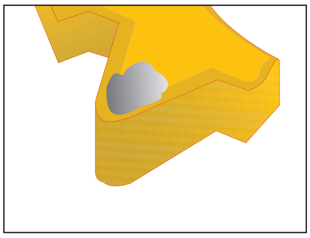
Cause

- Common in stainless materials
- Incorrect grade

Corrective measures

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

Cratering



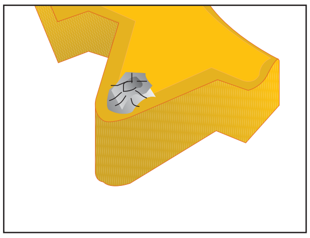
Cause

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

Remedy

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

Built-up edge



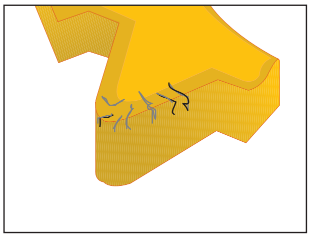
Cause

- Cutting speed too low
- Incorrect grade

Remedy

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

Thermal cracking



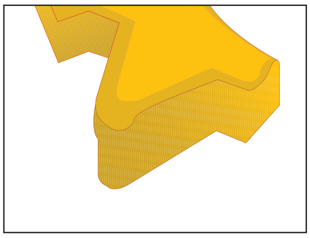
Cause

- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

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

Plastic deformation



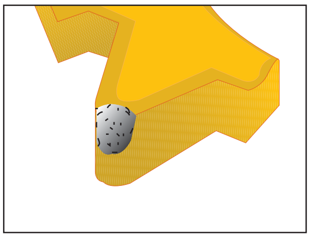
Cause

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

Remedy

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

Breakage



Cause

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

Remedy

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

WNT Designation Key

Inserts

16 | **E** | **R** | **AG 60** | (blank)

Insert size

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

Insert

E	External
I	Internal

Cutting design

R	Right-hand
L	Left-hand
N	neutral

Pitch

Full profile

mm	G/Z
0,35	72–4

Partial profile

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

Flank angle
55°
60°

Number of teeth

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

Example

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

Tool holder

SE | **R** | **1212** | **F** | **16** | (blank)

Tool holder

SE	External
SI	Internal

Cutting design

R	Right-hand
L	Left-hand

Shank cross-section

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

Overall length

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

Insert size

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

Properties

B	Diameter
C	with thro' coolant
U	with carbide shank

Example

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

Thread types

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

Tap Types

Tool type

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

Application range:

UNI	for universal application

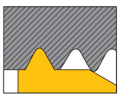
Circular and thread milling cutter types

Tool type

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

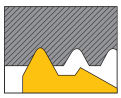
Profile Type Description

Full profile



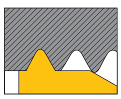
- Core diameter does not have to be machined to the finished core diameter
- A minimum infeed of 0.07 mm is required
- Insert can only be used for one pitch

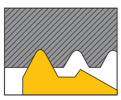
Partial profile



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

Mini Thread Turning Insert





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

Coatings and Grades

HSS taps

vap.	**Vaporised** ▪ Good lubricant carrier ▪ Oxide layer creates surface protection and prevents cold welding
TiCN	**Titanium Carbon Nitride coating**, ▪ high hardness ▪ high toughness ▪ high wear resistance ▪ for abrasive materials
vap. + nitr.	**Vapourised** + **nitrided**, Combination of increased surface hardness and lubricant carrier
TiN	**Titanium nitride coated**, ▪ high wear resistance ▪ good sliding properties ▪ ideal for universal use

Thread milling cutters

CWX 500	Universal grade that is distinguished by good toughness / hardness ratio.
Ti 500	▪ TiAIN based coating ▪ Universal application ▪ High temperature resistance ▪ Smooth and droplet-free surface

Circular milling cutters

CWX 500	Universal grade that is distinguished by good toughness / hardness ratio.

Thread turning

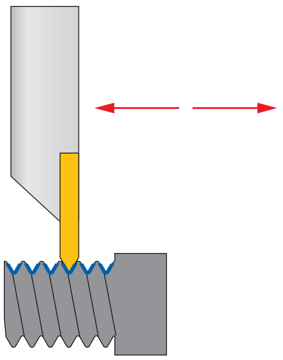
CCN 20	▪ TiALN coated ▪ for low cutting speeds
CCN 1525	▪ TiN coated ▪ for insert size 06mm and 08mm (Internal machining) ▪ for low cutting speeds
CWK 20	▪ Uncoated ▪ Particularly suitable for non-ferrous metals, aluminium alloys and cast iron
CWN 30	▪ TiN coated ▪ for insert size 06mm and 08mm (Internal machining) ▪ for low cutting speeds
CWS 80	▪ HSS ▪ TiN coated ▪ For insert size 06 mm and 08 mm (internal machining) ▪ Also for exotic materials ▪ For low cutting speeds

Overview Thread Turning Types

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

Thread turning for automatic lathes System 25 & 45

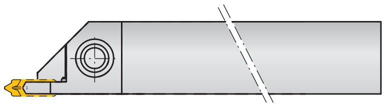
TiAIN coated carbide insert for external threading on automatic lathes.

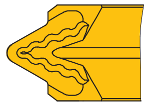


Carbide indexable inserts with a pitch of 0.25 mm–2.0 with appropriate tool holders can be found in → **Turning**.

TC Threading System

Mono and Modular Systems for Internal and External Thread Turning.

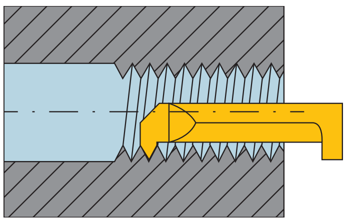




TC thread inserts with appropriate tool holders can be found in → **Grooving**.

UltraMini

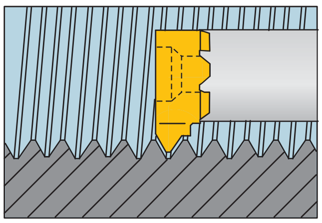
TiN and TiAIN coated carbide cutting inserts for internal threading from $D_{min.}$ Ø 2.4 mm.



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

MiniCut

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



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

Special manufacturing methods

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

Advantages of thread whirling

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

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

Technical Advice

Interested in tools for thread whirling?

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

Enquiry Form

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

Please have the following information to hand:

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