Vischer & Bolli

Counterboring, Countersinking, Core drilling
Boring, Deburring, Chamfering

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Catalog 1 / 08.2017 / 1000

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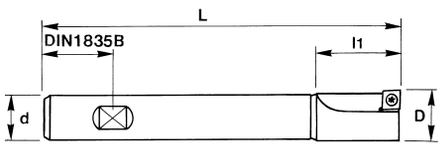
vb tools
Boring Tool

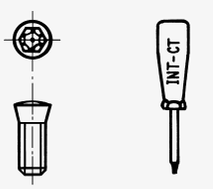
with steel shank
For boring pre-drilled and precast holes

49030

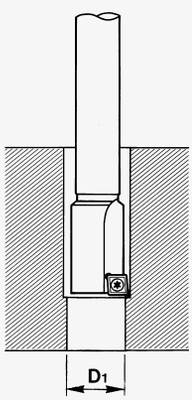


Tolerance of bore without adjustment with
excentric clamping collar 49035 (see page 12)
+ 0,05 / - 0,1 mm

D	Possible diameter with 49035	D1 min.	L	l1	Z	dh6
9,8	9,5 – 10,3	9,3	85	20	1	8
10,8	10,5 – 11,3	10,3	95	20	1	10
11,8	11,5 – 12,3	11,3	100	25	1	10
12,8	12,5 – 13,3	12,3	105	30	1	10
13,8	13,5 – 14,3	13,3	110	35	1	10
14,8	14,5 – 15,3	14,3	120	30	1	12
15,8	15,5 – 16,3	15,3	125	35	1	12
16,8	16,5 – 17,3	15,8	133	30	1	16
17,8	17,4 – 18,3	16,8	138	35	1	16
18,8	18,4 – 19,3	17,8	143	40	1	16
19,8	19,4 – 20,3	18,8	148	45	1	16
20,8	20,4 – 21,3	19,8	153	50	1	16
21,8	21,4 – 22,3	20,8	158	55	1	16
22,8	22,4 – 23,3	21	165	41	1	20
23,8	23,4 – 24,3	22	170	46	1	20
24,8	24,4 – 25,3	23	175	51	1	20
25,8	25,4 – 26,3	24	180	56	1	20
26,8	26,4 – 27,3	25	185	41	1	20
27,8	27,4 – 28,3	26	190	46	1	20
28,8	28,4 – 29,3	27	195	51	1	20
29,8	29,4 – 30,3	28	195	51	1	20
30,8	30,4 – 31,3	29	195	51	1	20
31,8	31,4 – 32,3	30	195	51	1	20



M2,5 x 4,5 T8



For inserts see page 33
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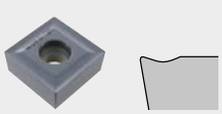
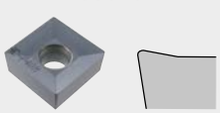
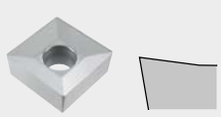
MPHT 060202.N12	Grades
	DX6
for steel + Inox	PMK92

MPHT 060202.N14	Grades
	DX6
for steel + Inox	PMK92

MPHX 060202.L16	Sorte
	Cermet
for long chipping materials	CT50
	CT53

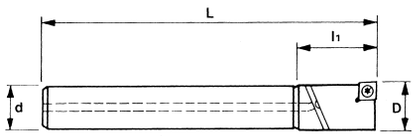
MPHT 060202.N13	Grades
	CH1
for light alloys	KM22

MPHW 060202.N15	Grades
	Cermet
Cast iron + short chipping materials	CT50
	CT53

vb tools
Boring Tool

with solid carbide shank, through coolant
For boring pre-drilled and precast holes

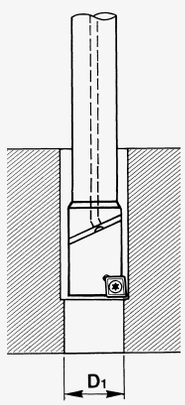
49031



Tolerance of bore without adjustment with
excentric clamping collar 49035 (see page 12)
+ 0,05 / - 0,1 mm

D	Possible diameter with 49035	D1 min.	L	l1	Z	dh6
6,8	6,5 – 7,3	6,3	105	15	1	6
7,8	7,5 – 8,3	7,3	105	15	1	6
8,8	8,7 – 9,3	8,3	105	15	1	6
9,8	9,5 – 10,3	9,3	105	20	1	8
10,8	10,5 – 11,3	10,3	105	20	1	8
11,8	11,5 – 12,3	11,3	125	20	1	10
12,8	12,5 – 13,3	12,3	125	20	1	10
13,8	13,5 – 14,3	13,3	125	20	1	10
14,8	14,5 – 15,3	14,3	140	20	1	12
15,8	15,5 – 16,3	15,3	140	20	1	12
16,8	16,5 – 17,3	15,8	150	30	1	12
16,8	16,5 – 17,3	15,8	150	30	1	12
17,8	17,4 – 18,3	16,8	160	40	1	16
19,8	19,4 – 20,3	18,8	180	40	1	16
20,8	20,4 – 21,3	19,8	180	40	1	16
21,8	21,4 – 22,3	20,8	180	40	1	16
22,8	22,4 – 23,3	21	195	40	1	20
23,8	23,4 – 24,3	22	195	40	1	20
24,8	24,4 – 25,3	23	210	40	1	20
25,8	25,4 – 26,3	24	210	40	1	20
26,8	26,4 – 27,3	25	225	40	1	20
27,8	27,4 – 28,3	26	225	40	1	20
28,8	28,4 – 29,3	27	225	40	1	20
29,8	29,4 – 30,3	28	225	40	1	20
30,8	30,4 – 31,3	29	225	40	1	20
31,8	31,4 – 32,3	30	225	40	1	20

CPGX . .	M2x3,3	T6
MPHT . . MPHW . . MPHX . .	M2,5x4,5	T8



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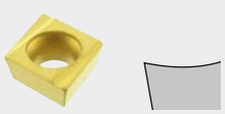
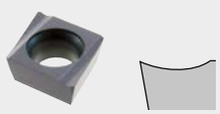
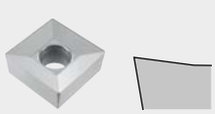
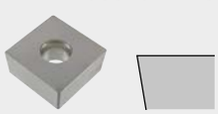
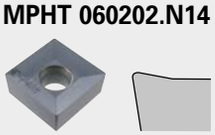
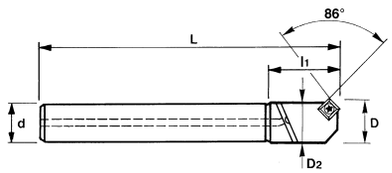
CPGX 04T102.L52	Grades	CPGX 04T102.L54	Grades	MPHT 060202.N13	Sorte	MPHW 060202.N15	Grades
			CH1		CH1		Cermet CT50
Cast iron+short chipping materi.	KM22	for light alloys		for light alloys	KM22	Cast iron+short chipping materi.	CT53

CPGX 04T102.L53	Grades	MPHT 060202.N12	Grades	MPHT 060202.N14	Sorte	MPHX 060202.L16	Grades
			DX6		DX6		Cermet CT50
for steel + Inox	PMK32	for steel + Inox	PMK92	for steel + Inox	PMK92	for long chipping materials	CT53

vb tools
Boring Tool

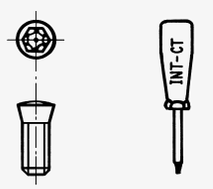
with solid carbide shank, through coolant
For boring and chamfering pre-drilled and precast holes

49032

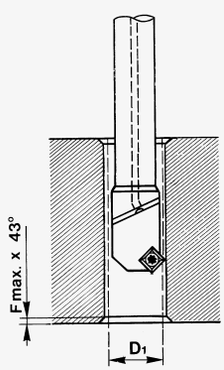


Tolerance of bore without adjustment with
excentric clamping collar 49035 (see page 12)
+ 0,05 / - 0,1 mm

D	Possible diameter with 49035	D1 min.	L	l1	Z	Fmax x43°	dh6
9,8	9,5 – 10,3	9,3	105	20	1	0,6	8
10,8	10,5 – 11,3	10,3	105	20	1	1,1	8
11,8	11,5 – 12,3	11,3	125	20	1	0,6	10
12,8	12,5 – 13,3	12,3	125	20	1	1,1	10
13,8	13,5 – 14,3	13,3	125	20	1	1,6	10
14,8	14,5 – 15,3	14,3	140	20	1	1,1	12
15,8	15,5 – 16,3	15,3	140	20	1	1,6	12
16,8	16,5 – 17,3	15,8	150	30	1	2,1	12
17,8	17,4 – 18,3	16,8	160	40	1	0,6	16
18,8	18,4 – 19,3	17,8	160	40	1	1,1	16
19,8	19,4 – 20,3	18,8	180	40	1	1,6	16
20,8	20,4 – 21,3	19,8	180	40	1	2,1	16
21,8	21,4 – 22,3	20,8	180	40	1	2,1	16
22,8	22,4 – 23,3	21	195	40	1	1,1	20
23,8	23,4 – 24,3	22	195	40	1	1,6	20
24,8	24,4 – 25,3	23	210	40	1	2,1	20
25,8	25,4 – 26,3	24	210	40	1	2,1	20
26,8	26,4 – 27,3	25	225	40	1	2,1	20
27,8	27,4 – 28,3	26	225	40	1	2,1	20
28,8	28,4 – 29,3	27	225	40	1	2,1	20
29,8	29,4 – 30,3	28	225	40	1	2,1	20
30,8	30,4 – 31,3	29	225	40	1	2,1	20
31,8	31,4 – 32,3	30	225	40	1	2,1	20



M2,5 x 4,5 T8



For inserts see page 33
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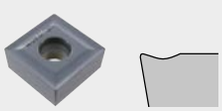
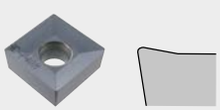
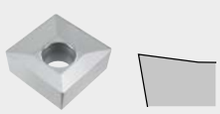
MPHT 060202.N12	Grades	MPHT 060202.N14	Grades	MPHX 060202.L16	Grades	MPHT 060202.N13	Grades
	DX6		DX6		Cermet CT50		CH1
for steel + Inox	PMK92	for steel + Inox	PMK92	for long chipping materials	CT53	for light alloys	KM22

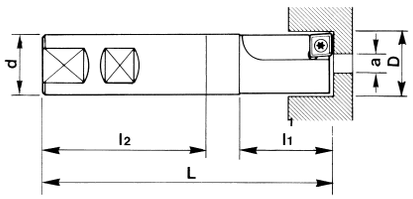
MPHW 060202.N15	Grades
	Cermet CT50
Cast iron + short chipping materials	CT53

vb tools

Counterbore «mono»

to produce counterbores for Cap screws, Hex Screwheads, Ejectors, spot facing, Gasket-seats etc..
straight shank with «Weldon» flats, to DIN 1835B

49037



D	a min	L	l1	l2	dh6			
8	4	80	23	45	12	MPHT 060202.N12 MPHT 060202.N13 MPHT 060202.N14 MPHW 060202.N15 MPHX 060202.L16 MPMT 060204.N12	M2,5 x 4,5	T8
9	4	80	23	45	12			
10	4	80	23	45	12			
11	4	80	23	45	12			
12	4	80	26	45	12			
13	5	80	26	45	12			
14	5	80	26	45	12			
15	5	80	26	45	12			
16	5	90	31	48	16			
17	6	90	31	48	16			
18	8	90	31	48	16			
19	8	90	31	48	16			
20	5	100	36	50	20	MCHT 09T304.N12 MCHT 09T304.N13 MCHT 09T304.N14 MCHW 09T304.N15 MCHX 09T304.L16 MCMT 09T308.N12	M4 x 7,5	T15
21	5	100	36	50	20			
22	6	100	36	50	20			
23	6	100	36	50	20			
24	8	100	36	50	20			
25	8	120	43	56	25			
26	10	120	43	56	25			

For inserts see page 33
Cutting datas see page 36-37

49087

Standard Sets with

1 off Torx key, T8 und T15

Counterbore CT-mono 49037

1 off Ø 10, 11, 13, 15, 18, 20, 24, 26, 30, 33 incl. screws

Inserts

10 off MPMT 060204.N12 PMK92
MCMT 09T0308.N12 PMK92

wooden storage block

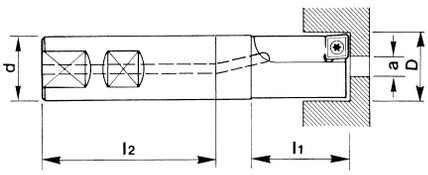
49087, PMK92

vb tools

Counterbore «mono»

with through coolantl
to produce counterbores for Cap screws, Hex Screwheads, Ejectors, spot facing, Gasket-seats etc.
straight shank with «Weldon» flats, to DIN 1835B

49038



D	a min	L	l1	l2	dh6			
10	4	80	23	45	12	MPHT 060202.N12 MPHT 060202.N13 MPHT 060202.N14 MPHW 060202.N15 MPHX 060202.L16 MPMT 060204.N12	M2,5 x 4,5	T8
11	4	80	23	45	12			
12	4	80	26	45	12			
13	5	80	26	45	12			
14	5	80	26	45	12			
15	5	80	26	45	12			
16	5	90	31	48	16			
17	6	90	31	48	16			
18	8	90	31	48	16			
19	8	90	31	48	16			
20	5	100	36	50	20	MCHT 09T304.N12 MCHT 09T304.N13 MCHT 09T304.N14 MCHW 09T304.N15 MCHX 09T304.L16 MCMT 09T308.N12	M4 x 7,5	T15
21	5	100	36	50	20			
22	6	100	36	50	20			
23	6	100	36	50	20			
24	8	100	36	50	20			
25	8	120	43	56	25			
26	10	120	43	56	25			
27	10	120	43	56	25			
28	12	120	43	56	25			
29	12	120	43	56	25			
30	14	120	43	56	25			
31	14	120	43	56	25			
32	16	120	43	56	25			
33	16	120	43	56	25			

For inserts see page 33
Cutting datas see page 36-37

49088

Standard Sets with

1 off Torx key, T8 und T15

Counterbore CT-mono 49038

1 off Ø 10, 11, 13, 15, 18, 20, 24, 26, 30, 33 incl. screws

Inserts

10 off MPMT 060204.N12 PMK92
MCMT 09T0308.N12 PMK92

wooden storage block

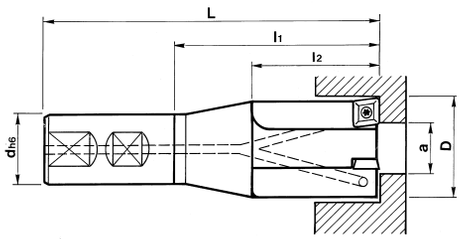
49088, PMK92

vb tools

Counterbore«multi»

with through coolantl
to produce counterbores for Cap screws, Hex Screwheads, Ejectors, spot facing, Gasket-seats etc.
straight shank with «Weldon» flats, to DIN 1835B

49039



D	a min	L	l1	l2	Z	dh6			MPHT 060202.N12	MCHT 09T304.N12	MBHT 120404.N12
									MPHT 060202.N13	MCHT 09T304.N13	MBHT 120404.N13
									MPHT 060202.N14	MCHT 09T304.N14	MBHT 120404.N14
									MPHW 060202.N15	MCHW 09T304.N15	MBHW 120404.N15
									MPHX 060202.L16	MCHX 09T304.L16	MBHX 120404.L16
									MPMT 060204.N12	MCMT 09T308.N12	MBMT 120408.N12
15	4	100	40	30	2	20			**• 2x**		
18	6	100	40	30	2	20	M2,5 x 4,5	T8	**• 2x**		
20	8	100	40	30	2	20			**• 2x**		
22	10	100	40	30	2	20			**• 2x**		
24	6	136	68	50	2	25				**• 2x**	
26	8	136	68	50	2	25				**• 2x**	
28	10	136	68	50	2	25				**• 2x**	
30	12	136	66	50	3	32	M4 x 7,5	T15		**• 3x**	
33	15	136	66	50	3	32				**• 3x**	
36	18	136	66	50	2	32				**• 3x**	
40	16	136	66	50	3	32					**• 3x**
43	19	136	66	50	3	32					**• 3x**
48	24	146	81	60	3	32	M4 x 9,5	T15			**• 3x**
53	29	146	81	60	3	32					**• 3x**
57	33	146	81	60	3	32					**• 3x**

For inserts see page 33
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Counterbores «multi»

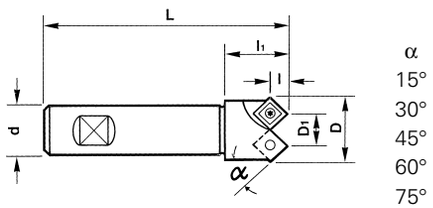
for counterbores from 15 to 57 mm are a development based on the popular «mono»- counterbores using the same inserts.
The increased number of teeth and the through coolant ensure high performance and excellent finish as well as security of operation.

vb tools

Chamfer and Face Milling Tool

for chamfering, countersinking, facing etc.
straight shank with «Weldon» flats, to DIN 1835B

49100



D	α	D1	L	l	l1	Z	d			MPHT 060202.N12	MCHT 09T304.N12	MBHT 120404.N12
										MPHT 060202.N13	MCHT 09T304.N13	MBHT 120404.N13
										MPHT 060202.N14	MCHT 09T304.N14	MBHT 120404.N14
										MPHW 060202.N15	MCHW 09T304.N15	MBHW 120404.N15
										MPMT 060204.N12	MCMT 09T308.N12	MBMT 120408.N12
19	15°	16	90	6	19	2	16	M2,5 x 4,5	T8	**• 2x**		
40	15°	34	120	10	36	2	25	M4 x 9,5	T15			
19	30°	13	90	5,5	18	2	16	M2,5 x 4,5	T8	**• 2x**		**• 2x**
40	30°	28	120	10,5	38	2	25	M4 x 9,5	T15			**• 2x**
13	45°	6	80	4	16	1	10	M2,5 x 4,5	T8	**• 1x**		
19	45°	11	90	4	18	2	16	M2,5 x 4,5	T8	**• 2x**		
26	45°	15	100	6	26	2	20	M4 x 7,5	T15		**• 2x**	
40	45°	25	120	8	38	2	25	M4 x 9,5	T15			**• 2x**
32	60°	17,5	100	4	30	2	20	M4 x 7,5	T15		**• 2x**	
32	75°	15,5	100	2	30	2	20	M4 x 7,5	T15		**• 2x**	

For inserts see page 33
Cutting datas see page 36-37

49101

Standard Sets with

1 off Torx key, T8 und T15

Chamfer and Face Milling Tool incl. screws

1 off **49100 15°** D19 mm und D40 mm
49100 30° D19 mm und D40 mm
49100 45° D13 mm, D19 mm, D26 mm und D40 mm

Inserts

10 off MPMT 060204.N12 PMK92
MCMT 09T308.N12 PMK92
MBMT 120408.N12 PMK92

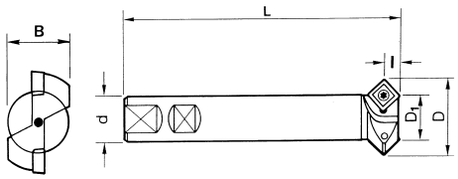
on wooden storage

49101, PMK92

2 Edge Chamfer Tool 2 x 45°

For chamfering internally and externally, top and bottom of bores, profiles, faces etc.
straight shank with «Weldon» flats, to DIN 1835B

49190



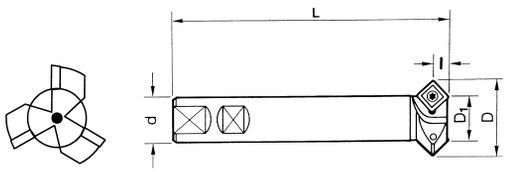
D	a min	L	l	Z	dh6	B			
22	16	120	5	2	16	16			SDHT 09T3AG.N17
30	20	120	5	2	20	20	M3,5 x 9,5	T15	SDHW 09T3AG.N18
40	30	150	5	2	25	25			SDLT 09T3AG.N19

For inserts see page 33
Cutting datas see page 36-37

2 Edge Chamfer Tool 3 x 45°

For chamfering internally and externally, top and bottom of bores, profiles, faces etc.
straight shank with «Weldon» flats, to DIN 1835B

49193



D	a min	L	l	Z	dh6			
30	20	180	5	3	20			SDHT 09T3AG.N17
40	30	210	5	3	25	M3,5 x 9,5	T15	SDHW 09T3AG.N18
								SDLT 09T3AG.N19

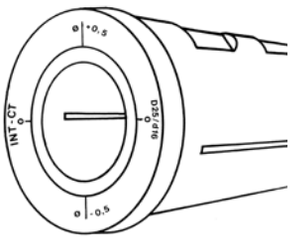
For inserts see page 33
Cutting datas see page 36-37

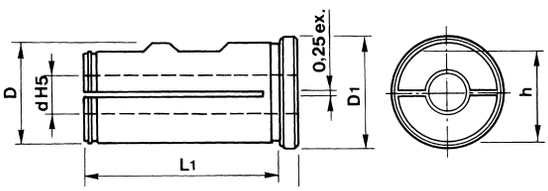
vb tools

Excentric Clamping Collars

with screw flats to DIN 1835B

49035





d 6–12 mm one screw flate
d 16–25 mm two screw flats

D	d	L	L1	D1	h_{h13}	Code		
25	6	61	56	29	23	**49035**	**D25**	**6 mm**
25	8	61	56	29	23	**49035**	**D25**	**8 mm**
25	10	61	56	29	23	**49035**	**D25**	**10 mm**
25	12	61	56	29	23	**49035**	**D25**	**12 mm**
25	16	61	56	29	23	**49035**	**D25**	**16 mm**
32	6	65	60	36	30	**49035**	**D32**	**6 mm**
32	8	65	60	36	30	**49035**	**D32**	**8 mm**
32	10	65	60	36	30	**49035**	**D32**	**10 mm**
32	12	65	60	36	30	**49035**	**D32**	**12 mm**
32	16	65	60	36	30	**49035**	**D32**	**16 mm**
32	20	65	60	36	30	**49035**	**D32**	**20 mm**
32	25	65	60	36	30	**49035**	**D32**	**25 mm**

single point tools can be adjusted to the exact cutting diameter within + 0,5 mm to - 0,5 mm to the nominal tool size.

i.e: Boring tool
Ord. No. **49030**, **49031** and **49032**

Counterbore «mono»
Ord. No. **49037** and **49038**

49035 A
standard set with 1 collar each
49035 D25 Ø 8/10/12/16 mm

49035 B
standard set with 1 collar each
49035 D32 Ø 8/10/12/16/20 mm

49035A
49035B

vb SWISS centro 76

SWISS MADE

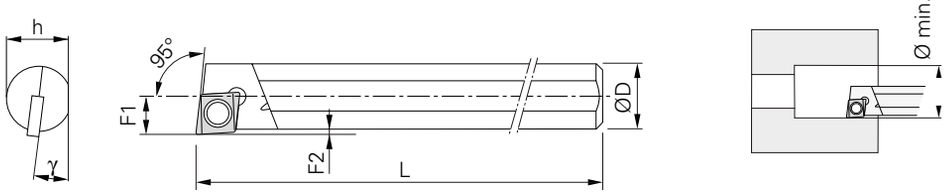
Center vice for 5-axis machining of raw parts

vb tools

Boring Bars in carbide

with through coolant

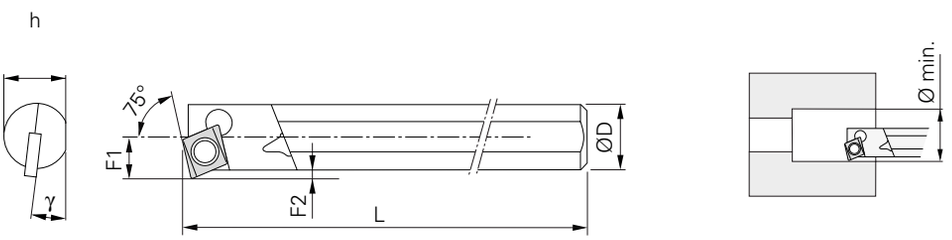
SCLP 95° / SCLC 95°



Type		Ø D	L	F1	F2	γ	h	Ø min.	CPGX CCMX CCMT		
E06J	**SCLP R/L04**	6	110	3,5	0,5	13°	5,5	7	CPGX 04T1 ...	FTNA0203	T6F
E08K	**SCLP R/L04**	8	125	4,5	0,5	7°	7,5	9	CPGX 04T1 ...	FTNA0203	T6F
E10M	**SCLC R/L06**	10	150	5,5	0,5	10°	9,5	11	CCMX / CCMT 0602 ...	FTKA02555	T7F
E12M	**SCLC R/L06**	12	150	6,5	0,5	10°	11,5	13	CCMX / CCMT 0602 ...	FTKA02565	T7F
E16R	**SCLC R/L09**	16	200	9	1	10°	15,5	18	CCMX / CCMT 09T3 ...	FTGA03508	T15F
E20S	**SCLC R/L09 ***	20	250	11	1	7°	19,5	22	CCMX / CCMT 09T3 ...	M4x7.5	T15F

For inserts see page 34-35

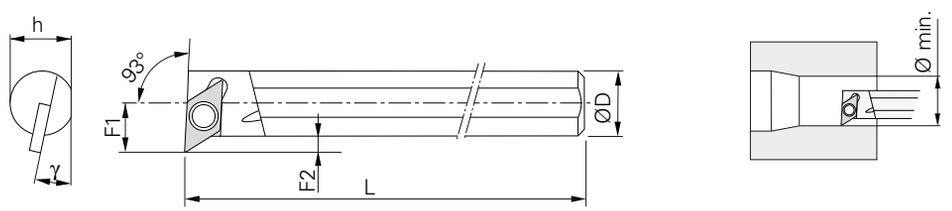
SCKP 75° / SCKC 75°



Type		Ø D	L	F1	F2	γ	h	Ø min.	CPGX CCMX CCMT		
E08K	**SCKP R/L04 ***	8	125	4,5	0,5	7°	7,5	9	CPGX 04T1 ...	M2x3.3	T6F
E10M	**SCKC R/L06**	10	150	5,5	0,5	7°	9,5	11	CCMX / CCMT 0602 ...	M2.5X4.5	T8F
E12M	**SCKC R/L06**	12	150	6,5	0,5	7°	11,5	13	CCMX / CCMT 0602 ...	M2.5X4.5	T8F

For inserts see page 34-35

SDUC 93°



Type		Ø D	L	F1	F2	γ	h	Ø min.	DCGT DCMT		
E08K	**SDUC R/L07**	8	125	7	3	15°	7,5	13	DCGT / DCMT 0702 ...	FTKA02565	T7F
E10M	**SDUC R/L07**	10	150	8,5	3,5	13°	9,5	14,5	DCGT / DCMT 0702 ...	FTKA02565	T7F
E12M	**SDUC R/L07**	12	150	9	3	10°	11	16	DCGT / DCMT 0702 ...	FTKA02565	T7F
E16R	**SDUC R/L07**	16	200	11	3	10°	15,5	20	DCGT / DCMT 0702 ...	FTKA02565	T7F

For inserts see page 34-35

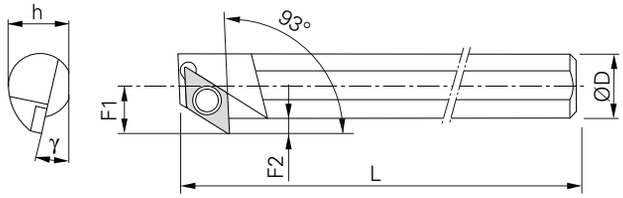
*** discontinued as long as stock lasts**

vb tools

Boring Bars in carbide

with through coolant

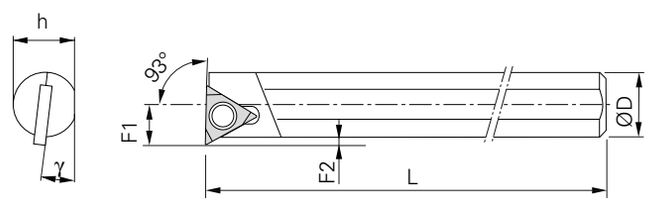
SDUC 93° X



Type		Ø D	L	F1	F2	γ	h	Ø min.	DCGT DCMT		
E08K	**SDUC R/L07X**	8	125	7	3	15°	7,5	15	DCGT / DCMT 0702 ...	M2.5x4.5	T8F
E10M	**SDUC R/L07X**	10	150	8,5	3,5	13°	9,5	17	DCGT / DCMT 0702 ...	M2.5x4.5	T8F
E12M	**SDUC R/L07X**	12	150	9	3	10°	11	19	DCGT / DCMT 0702 ...	M2.5x4.5	T8F
E16R	**SDUC R/L07X ***	16	200	11	3	10°	15,5	23	DCGT / DCMT 0702 ...	M2.5x4.5	T8F

For inserts see page 34-35

STUP 93° / STUC 93°



Type		Ø D	L	F1	F2	γ	h	Ø min.	TPGX TCGX TCMT		
E06J	**STUP R/L07**	6	110	3,8	0.8	5°	5,5	7,2	TPGX 07T1 ...	FTNA02033	T6F
E08K	**STUP R/L07**	8	125	4,6	0,6	7°	7,5	9,2	TPGX 07T1 ...	FTNA0204	T6F
E10M	**STUC R/L11**	10	150	5,5	0,5	7°	9,5	11,2	TCGX / TCMT 1102 ...	FTKA02565	T7F
E12M	**STUC R/L11**	12	150	6,5	0,5	7°	11,5	13,2	TCGX / TCMT 1102 ...	FTKA02565	T7F
E16R	**STUC R/L11**	16	200	8,5	0,5	7°	15,5	17,2	TCGX / TCMT 1102 ...	FTKA02565	T7F

For inserts see page 34-35

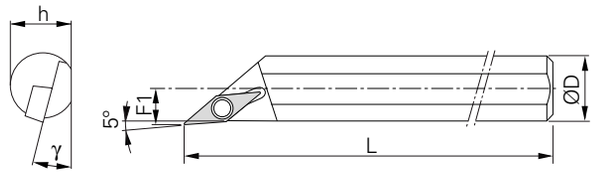
*** discontinued as long as stock lasts**

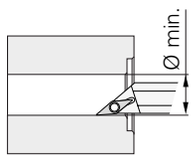
vb tools

Boring Bars in carbide

with through coolant

SVOC 5°

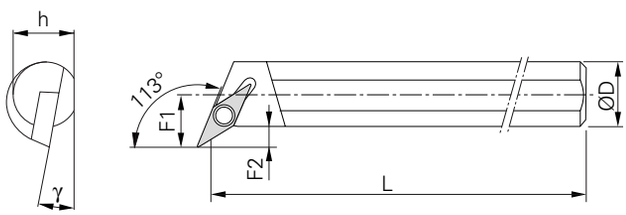


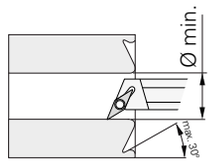


Type	Ø D	L	F1	γ	h	Ø min.			
E08K SVOC R/L07	8	125	4,5	15°	7,5	9	VCGT 0702 ...	FTNA0204	T6F
E10M SVOC R/L07	10	150	5,5	10°	9,5	11	VCGT 0702 ...	FTNA0204	T6F
E12M SVOC R/L07	12	150	6,5	8°	11,5	13	VCGT 0702 ...	FTNA0204	T6F

For inserts see page 34-35

SVXC 113°

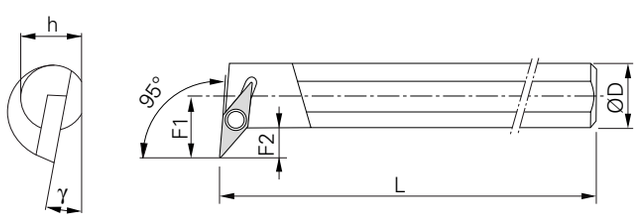


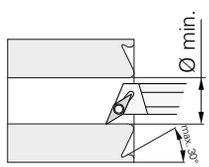


Type	Ø D	L	F1	F2	γ	h	Ø min.			
E08K SVXC R/L07	8	125	7	3	10°	7,5	11,5	VCGT 0702 ...	FTNA0204	T6F
E10M SVXC R/L07	10	150	8	3	8°	9,5	13,5	VCGT 0702 ...	FTNA0204	T6F
E12M SVXC R/L07	12	150	9	3	6°	11,5	15,5	VCGT 0702 ...	FTNA0204	T6F

For inserts see page 34-35

SVLC 95°





Type	Ø D	L	F1	F2	γ	h	Ø min.			
E10M SVLC R/L07	10	150	9,5	4,5	8°	9,5	15	VCGT 0702 ...	M2x4.5	T6F
E12M SVLC R/L07	12	150	10,5	4,5	6°	11,5	17	VCGT 0702 ...	M2x4.5	T6F

For inserts see page 34-35

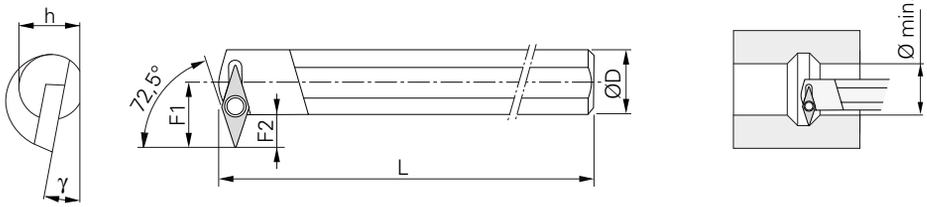
*** discontinued as long as stock lasts**

vb tools

Boring Bars in carbide

with through coolant

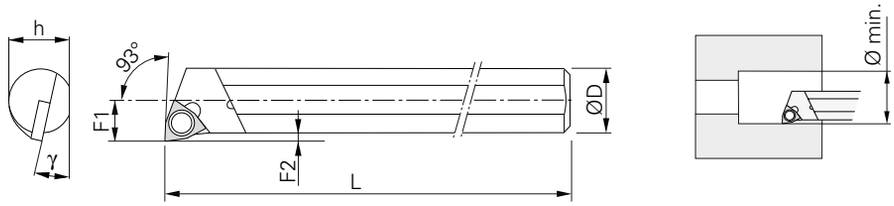
SVVC 72,5°



Type		Ø D	L	F1	F2	γ	h	Ø min.			
E08K	**SVVC R/L07**	8	125	9	5	10°	7,5	13,5	VCGT 0702 ...	M2x4.5	T6F
E12M	**SVVC R/L07**	12	150	11	5	6°	11,5	17,5	VCGT 0702 ...	M2x4.5	T6F

For inserts see page 34-35

SWUC 93° 30‘



Type		Ø D	L	F1	F2	γ	h	Ø min.			
E06J	**SWUC R/L02**	6	110	3,9	0,9	17°	5,5	7,8	WCGX 0201 ...	FTNA0203	**T6F**
E08K	**SWUC R/L02**	8	125	4,9	0,9	12°	7,5	9,8	WCGX 0201 ...	FTNA0203	T6F
E10M	**SWUC R/L02 ***	10	150	5,9	0,9	12°	9,5	11,8	WCGX 0201 ...	FTNA0203	T6F

For inserts see page 34-35

*** discontinued as long as stock lasts**

vb tools

Quick change collets for turret lathes

- **Perfect coolant supply**
- **Optionally directly on the tool shank or through coolant hole**
- **Very short tool change times without mounting any copper tubes**
- **Holder with clamping surface**

vb tools
Quick change collets for turret lathes

Fig. 1

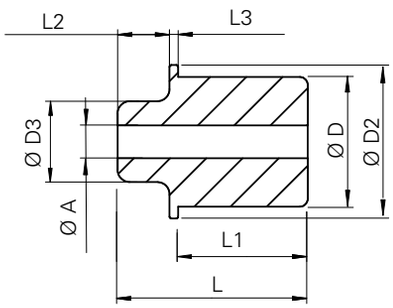
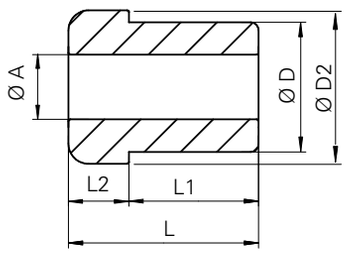


Fig. 2

with locking screw for through coolant



WZA 25

Type.	Ø A	Ø D	L	L1	L2	L3	Ø D2	Ø D3	Fig.
WZA.025 4mm	4								
WZA.025 5mm	5								
WZA.025 6mm	6	25	47	32	12,5	2,5	29,5	20	1
WZA.025 7mm	7								
WZA.025 8mm	8								
WZA.025 10mm	10								
WZA.025 12mm	12								
WZA.025 16mm	16	25	47	32	15	–	31.5	–	2
WZA.025 18mm*	18								
WZA.025 20mm*	20								

WZA 32

Type.	Ø A	Ø D	L	L1	L2	L3	Ø D2	Ø D3	Fig.
WZA.032 3mm	3								
WZA.032 4mm	4								
WZA.032 5mm	5								
WZA.032 6mm	6	32	47	32	12,5	2,5	39	20	1
WZA.032 7mm	7								
WZA.032 8mm	8								
WZA.032 10mm	10								
WZA.032 12mm	12								
WZA.032 14mm	14								
WZA.032 16mm	16	32	47	32	15	–	39	–	2
WZA.032 18mm	18								
WZA.032 20mm	20								
WZA.032 25mm*	25								

WZA 40

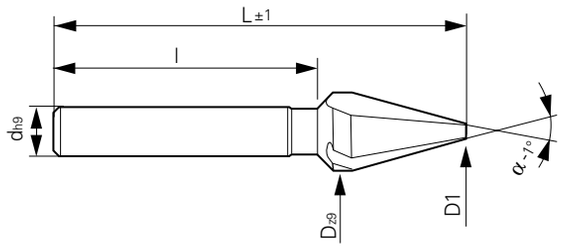
Type.	Ø A	Ø D	L	L1	L2	L3	Ø D2	Ø D3	Fig.
WZA.040 8mm	8								
WZA.040 10mm	10	40	70	32	17	3	49	30	1
WZA.040 12mm	12								
WZA.040 16mm	16								
WZA.040 18mm	18								
WZA.040 20mm	20	40	70	50	20	–	49	–	2
WZA.040 25mm	25								
WZA.040 32mm	32								

*** without through coolant**

Countersinks 30°

straight shank
HSS-Co5

19030.0 / 19030.1



19030.0
bright

D	α	d	D1	l	L
6,3	30°	5	2	42	50
12,4	30°	8	3	52	65
16,5	30°	10	4	59	76
25,0	30°	10	6	62	90

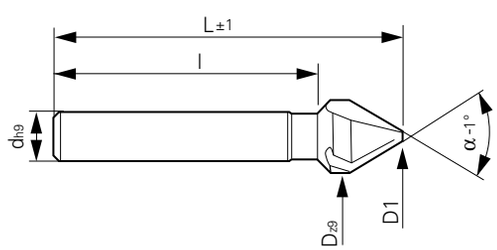
19030.1
TiN

D	α	d	D1	l	L
6,3	30°	5	2	42	50
12,4	30°	8	3	52	65
16,5	30°	10	4	59	76
25,0	30°	10	6	62	90

Countersinks 60°

straight shank
HSS-Co5

19060.0 / 19060.1



19060.0
bright

D	α	d	D1	l	L
6,3	60°	5	1,5	49	47
8,3	60°	6	2	42	52
10,4	60°	6	2,5	40	53
12,4	60°	6	3	46	60
16,5	60°	10	4	47	65
20,5	60°	10	4	46	69
25,0	60°	10	4	46	75

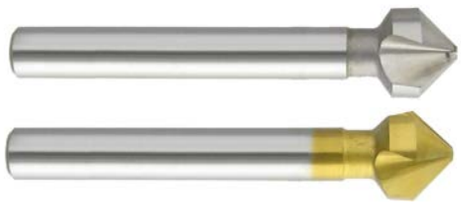
19060.1
TiN

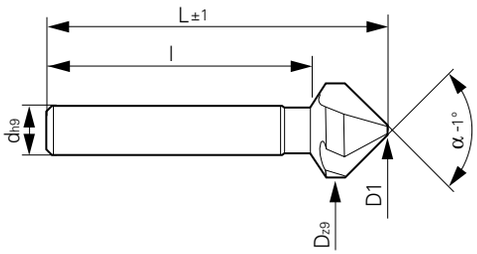
D	α	d	D1	l	L
6,3	60°	5	1,5	49	47
8,3	60°	6	2	42	52
10,4	60°	6	2,5	40	53
12,4	60°	6	3	46	60
16,5	60°	10	4	47	65
20,5	60°	10	4	46	69
25,0	60°	10	4	46	75

Countersinks 90°

straight shank
HSS-Co5

19090.0 / 19090.1





19090.0
bright

D	α	d	D1	l	L
4,0	90°	4	1,2	33	40
4,3	90°	4	1,3	33	40
5,0	90°	4	1,5	34	40
5,3	90°	4	1,5	34	40
6,0	90°	5	1,5	38	45
6,3	90°	5	1,5	38	45
7,0	90°	6	1,8	43	50
7,3	90°	6	1,8	43	50
8,0	90°	6	2	42	50
8,3	90°	6	2	42	50
9,4	90°	6	2,2	41	50
10,0	90°	6	2,5	41	50
10,4	90°	6	2,5	40	50
11,5	90°	8	2,5	46	56
12,4	90°	8*	2,8	46	56
13,4	90°	8	2,8	44	56
14,4	90°	8	2,9	44	56
15,0	90°	10	3,2	34	60
16,5	90°	10*	3,2	41	60
19,0	90°	10	3,5	46	63
20,5	90°	10*	3,5	46	63
23,0	90°	10	3,8	46	67
25,0	90°	10*	3,8	46	67
26,0	90°	10	3,8	46	67
28,0	90°	12	4	47	71
30,0	90°	12	4,2	47	71
31,0	90°	12*	4,2	47	71
34,0	90°	16	4,5	82	107
37,0	90°	16*	4,5	84	111

19090.1
TiN

D	α	d	D1	l	L
5,3	90°	4	1,5	34	40
6,3	90°	5	1,5	38	45
7,3	90°	6	1,8	43	50
8,3	90°	6	2	42	50
10,4	90°	6	2,5	40	50
12,4	90°	8*	2,8	46	56
15,0	90°	10	3,2	34	60
16,5	90°	10*	3,2	41	60
20,5	90°	10*	3,5	46	63
25,0	90°	10*	3,8	46	67
31,0	90°	12*	4,2	47	71

*shank with 3 flats

Countersinks

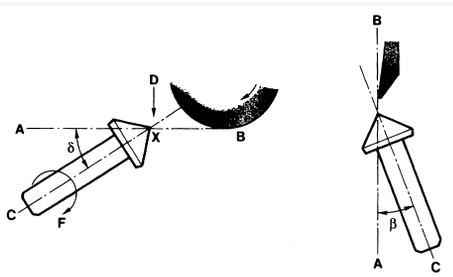
standard sets in plastic box

19890.0 / 19890.1

Ordering number	1 off Countersinks
19890.01 bright	Ø 6,3 / 8,3 / 10,4 / 12,4 / 16,5 / 20,5 / 25,0
19890.11 TiN	

Regrinding instructions

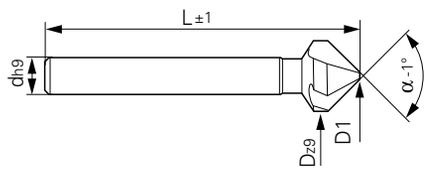
The grinding wheel has to move in the axis A–B. Put wheel into grinding position from direction D to point X. To grind cutting edge turn countersink clockwise F towards wheel. Do not feed wheel into the cutting edge!
The angles δ and β have to be set according to the existing cutting edge.



Countersinks 90° long

straight shank
HSS-Co5

19092.0



19092.0
bright

D	α	d	D1	L
6,3	90°	6	1,3	84
8,3	90°	8	1,8	85
10,4	90°	10*	2,2	87
12,4	90°	10*	2,5	108

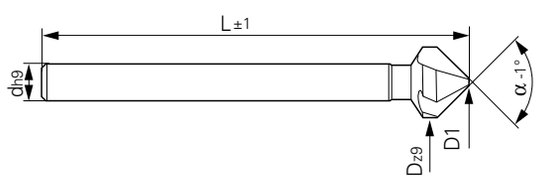
D	α	d	D1	L
16,5	90°	12*	2,8	112
20,5	90°	12*	3	115
25,0	90°	12	3,2	118

*shank with 3 flats

Countersinks 90° extra lang

straight shank
HSS-Co5

19095.0



19095.0
bright

D	α	d	D1	L
6,3	90°	6	1,3	154
8,3	90°	8	1,8	155
10,4	90°	10*	2,2	157
12,4	90°	10*	2,5	158

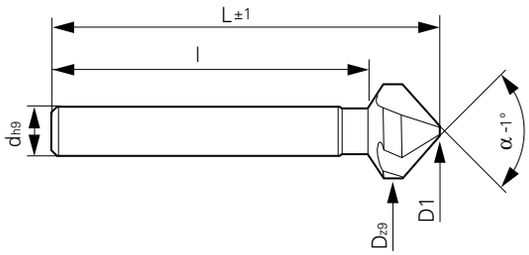
D	α	d	D1	L
15,0	90°	10	2,8	159
16,5	90°	10	2,8	161
20,5	90°	10	3	164
25,0	90°	10	3,2	168

*shank with 3 flats

Countersinks 100°

straight shank
HSS-Co5

19100.0 / 19100.1



19100.0
bright

D	α	d	D1	l	L
6,3	100°	5	1,5	33	44
8,3	100°	6	2	42	49
9,4	100°	6	2,2	41	49
10,4	100°	6	2,5	41	49
12,4	100°	8	2,8	46	56
13,4	100°	8	2,8	45	56
16,5	100°	10*	3,2	47	59
20,5	100°	10	3,5	46	62
25,0	100°	10	3,8	46	65

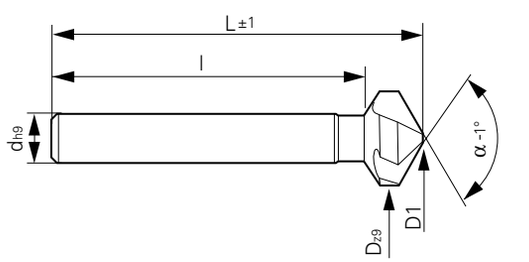
19100.1
TiN

D	α	d	D1	l	L
6,3	100°	5	1,5	33	44
8,3	100°	6	2	42	49
9,4	100°	6	2,2	41	49
10,4	100°	6	2,5	41	49
12,4	100°	8	2,8	46	56
13,4	100°	8	2,8	45	56
16,5	100°	10*	3,2	47	59
20,5	100°	10	3,5	46	62
25,0	100°	10	3,8	46	65

Countersinks 120°

straight shank
HSS-Co5

19120.0 / 19120.1



19120.0
bright

D	α	d	D1	l	L
6,3	120°	5	1,5	38	44
8,3	120°	6	2	42	48
10,4	120°	6	2,5	41	48
12,4	120°	8	2,5	46	54
16,5	120°	10	2,8	47	57
20,5	120°	10	3,5	46	59
25,0	120°	10	3,8	46	62

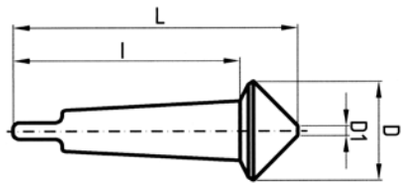
19120.1
TiN

D	α	d	D1	l	L
6,3	120°	5	1,5	38	44
8,3	120°	6	2	42	48
10,4	120°	6	2,5	41	48
12,4	120°	8	2,5	46	54
16,5	120°	10	2,8	47	57
20,5	120°	10	3,5	46	59
25,0	120°	10	3,8	46	62

Countersinks 90°

Morse Taper shank
HSS-Co5

19290.0 / 19290.1



19290.0
bright

D	α	MK/CM MT/CM	D1	l	L
25	90°	2	3,5	95	105
28	90°	2	3,5	108	131
30	90°	2	3,5	108	131
31	90°	2	3,5	107	131
34	90°	2	4,5	107	133
37	90°	2	4,5	118	145
45	90°	2	4,5	115	149
50	90°	2	5	115	153
53	90°	2	5	114	155
63	90°	2	10	120	167

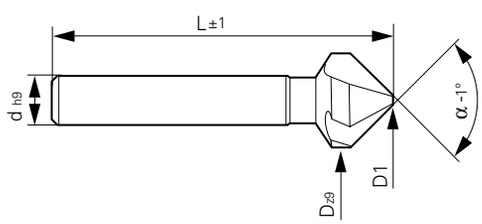
19290.1
TiN

D	α	MK/CM MT/CM	D1	l	L
25	90°	2	3,5	95	105
28	90°	2	3,5	108	131
30	90°	2	3,5	108	131
31	90°	2	3,5	107	131
34	90°	2	4,5	107	133
37	90°	2	4,5	118	145
45	90°	2	4,5	115	149
50	90°	2	5	115	153
53	90°	2	5	114	155
63	90°	2	10	120	167

Countersinks 90°

straight shank
solid carbide

19490.0 / 19490.3



19490.0
bright

D	α	d	D1	L
6,3	90°	5	1,3	45
8,3	90°	6	1,8	50
10,4	90°	6	2,2	50
12,4	90°	8*	2,5	56
16,5	90°	10*	2,8	60
20,5	90°	10*	3	63

19490.3
TiAlN coated

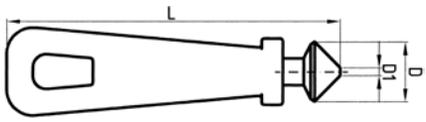
D	α	d	D1	L
6,3	90°	5	1,3	45
8,3	90°	6	1,8	50
10,4	90°	6	2,2	50
12,4	90°	8*	2,5	56
16,5	90°	10*	2,8	60
20,5	90°	10*	3	63

*shank with 3 flats

Countersinks 90°

Hand Deburring Tool
HSS-Co5

19790.0



19790.0
bright

D	α	D1	L	D	α	D1	L
12,4	90°	2,8	130	**20,5**	90°	3,5	135
16,5	90°	3,2	130	**25,0**	90°	3,8	150

Countersinks
Cutting data

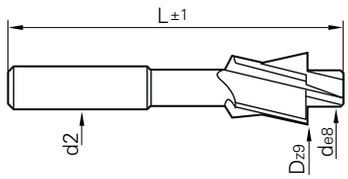
	Vc m/min.	
HSS-Co5, blank		
Steels		
≤60 kg/mm²	8–12	
60 – 100 kg/mm²	5–10	
≥ 100 kg/mm²	– 5	
stainless	– 6	
grey cast iron		– 10
Aluminium	– 35	
Brass	– 15	

HSS-Co5, coated:
ca. 2–4-× above speeds

Piloted countersinks 180°

straight shank
HSS-E

1160.0 / 1160.1



1160.0
bright

D x d	Schraube	L	d2
2,2 x 1,1	M1	45	D
2,5 x 1,3	M1,2	45	D
2,8 x 1,5	M1,4	45	D
3,2 x 1,5	M1,5	45	D
3,3 x 1,7	M1,6	56	D
4,3 x 2,2	M2	56	D
5,0 x 2,7	M2,5	56	D
5,5 x 2,8	M2,6	71	D
6,0 x 3,2	M3	71	D
6,5 x 3,7	M3,5	71	D
8,0 x 4,3	M4	71	D
10,0 x 5,3	M5	80	D
11,0 x 6,4	M6	80	D
15,0 x 8,4	M8	100	12,5
18 x 10,5	M10	100	12,5
20 x 13	M12	100	12,5
24 x 15	M14	120	12,5
26 x 17	M16	130	12,5

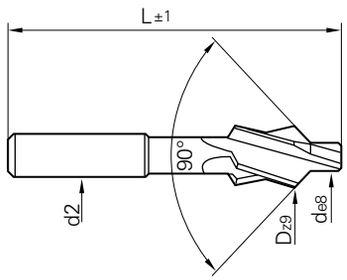
1160.1
TiN

D x d	Schraube	L	d2
2,2 x 1,1	M1	45	D
2,5 x 1,3	M1,2	45	D
2,8 x 1,5	M1,4	45	D
3,2 x 1,5	M1,5	45	D
3,3 x 1,7	M1,6	56	D
4,3 x 2,2	M2	56	D
5,0 x 2,7	M2,5	56	D
5,5 x 2,8	M2,6	71	D
6,0 x 3,2	M3	71	D
6,5 x 3,7	M3,5	71	D
8,0 x 4,3	M4	71	D
10,0 x 5,3	M5	80	D
11,0 x 6,4	M6	80	D
15,0 x 8,4	M8	100	12,5
18 x 10,5	M10	100	12,5
20 x 13	M12	100	12,5
24 x 15	M14	120	12,5
26 x 17	M16	130	12,5

Piloted countersinks 90°

straight shank
HSS-E

1161.0 / 1161.1



1161.0
bright

D x d	Schraube	L	d2
2,0 x 1,1	M1	45	D
2,5 x 1,3	M1,2	45	D
2,8 x 1,5	M1,4	45	D
3,3 x 1,7	M1,6	56	D
4,3 x 2,2	M2	56	D
5,0 x 2,7	M2,5	56	D
6,0 x 3,2	M3	71	D
7,0 x 3,7	M3,5	71	D
8,0 x 4,3	M4	71	D
10,0 x 5,3	M5	80	D
11,5 x 6,4	M6	80	D
15,0 x 8,4	M8	100	12,5
19,0 x 10,5	M10	100	12,5

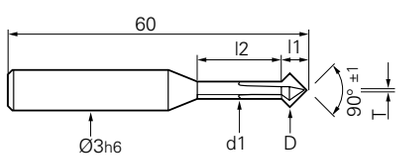
1161.1
TiN

D x d	Schraube	L	d2
2,0 x 1,1	M1	45	D
2,5 x 1,3	M1,2	45	D
2,8 x 1,5	M1,4	45	D
3,3 x 1,7	M1,6	56	D
4,3 x 2,2	M2	56	D
5,0 x 2,7	M2,5	56	D
6,0 x 3,2	M3	71	D
7,0 x 3,7	M3,5	71	D
8,0 x 4,3	M4	71	D
10,0 x 5,3	M5	80	D
11,5 x 6,4	M6	80	D
15,0 x 8,4	M8	100	12,5
19,0 x 10,5	M10	100	12,5

Front and back chamfering mini 90°

straight shank
solid carbide

4797.0 / 4797.4



4797.0
bright

D	α	d	D1	l	L
1,0	90°	0,7	0,30	0,50	5
1,5	90°	1,1	0,45	0,73	6
1,8	90°	1,5	0,60	0,75	8
2,0	90°	1,5	0,60	0,95	8
2,8	90°	2,1	0,90	1,30	10
3,0	90°	2,1	0,90	1,50	10

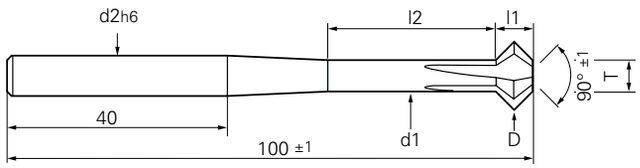
4797.4
Hard'X coated

D	α	d	D1	l	L
1,0	90°	0,7	0,30	0,50	5
1,5	90°	1,1	0,45	0,73	6
1,8	90°	1,5	0,60	0,75	8
2,0	90°	1,5	0,60	0,95	8
2,8	90°	2,1	0,90	1,30	10
3,0	90°	2,1	0,90	1,50	10

Front and back chamfering 90°

straight shank
solid carbide

4798.0 / 4798.4



4798.0
bright

D	α	d1	T	d2	l1	l2
2,8	90°	2,2	1,2	6	1,10	10
3,0	90°	2,2	1,2	6	1,30	10
3,8	90°	2,9	1,6	6	1,55	12
4,0	90°	2,9	1,6	6	1,75	12
4,8	90°	3,4	2	6	2,10	15
5,0	90°	3,4	2	6	2,30	15
5,8	90°	3,8	2,4	6	2,70	18
6,0	90°	3,8	2,4	6	2,90	18
7,8	90°	4,9	4,9	6	2,80	34
8,0	90°	4,9	4,9	6	3,10	34
9,8	90°	5,9	5,9	6	3,80	34
10,0	90°	5,9	5,9	6	4,10	34
11,8	90°	5,9	5,9	6	5,80	34
12,0	90°	5,9	5,9	6	6,10	34
15,8	90°	7,9	7,9	10	7,80	34
16,0	90°	7,9	7,9	10	8,10	34

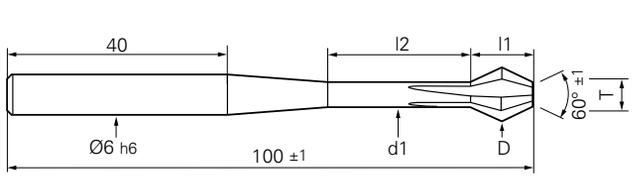
4798.4
Hard'X coated

D	α	d1	T	d2	l1	l2
2,8	90°	2,2	1,2	6	1,10	10
3,0	90°	2,2	1,2	6	1,30	10
3,8	90°	2,9	1,6	6	1,55	12
4,0	90°	2,9	1,6	6	1,75	12
4,8	90°	3,4	2	6	2,10	15
5,0	90°	3,4	2	6	2,30	15
5,8	90°	3,8	2,4	6	2,70	18
6,0	90°	3,8	2,4	6	2,90	18
7,8	90°	4,9	4,9	6	2,80	34
8,0	90°	4,9	4,9	6	3,10	34
9,8	90°	5,9	5,9	6	3,80	34
10,0	90°	5,9	5,9	6	4,10	34
11,8	90°	5,9	5,9	6	5,80	34
12,0	90°	5,9	5,9	6	6,10	34
15,8	90°	7,9	7,9	10	7,80	34
16,0	90°	7,9	7,9	10	8,10	34

Front and back chamfering 60°

straight shank
solid carbide

4799.0 / 4799.4



4799.0
bright

D	α	d1	T	l1	l2
5,0	60°	3,4	3,4	2,8	15
8,0	60°	4,9	4,9	5,4	34
12,0	60°	5,9	5,9	10,6	34

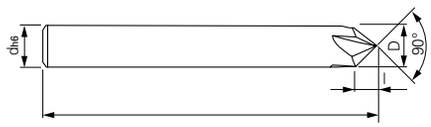
4799.4
Hard'X coated

D	α	d1	T	l1	l2
5,0	60°	3,4	3,4	2,8	15
8,0	60°	4,9	4,9	5,4	34
12,0	60°	5,9	5,9	10,6	34

Chamfer mill 90°

straight shank
solid carbide

4795.3



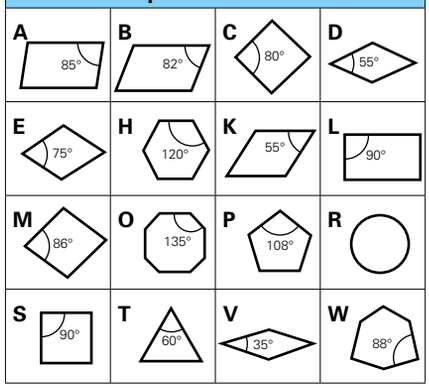
4795.3
ALTiN coated

D	L	l	d	Z
3	51	1,4	3	4
4	51	1,8	4	4
6	64	2,8	6	4
8	64	3,8	8	4

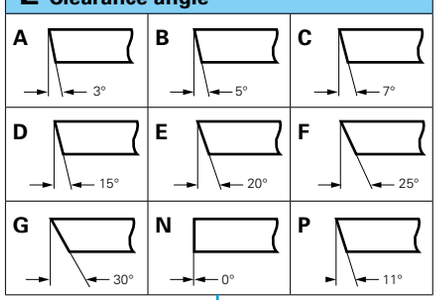
D	L	l	d	Z
10	73	4,8	10	6
12	84	5,8	12	6
16	93	7.8	16	6

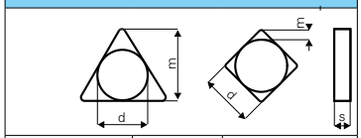
vb tools
ISO reference codes for inserts

1 Insert shape



2 Clearance angle



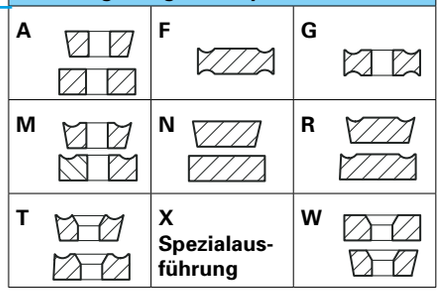


Sm	s	d
0,025	0,005	0,025
0,025	0,013	0,025
0,025	0,025	0,025
0,025	0,005	0,013
0,13	0,025	0,025
0,025	0,013	0,013
0,025	0,005	0,05–0,15*
0,025	0,013	0,05–0,15*
0,025	0,025	0,05–0,15*
0,08–0,20*	0,13	0,05–0,15*
0,13–0,38*	0,13	0,08–0,25*

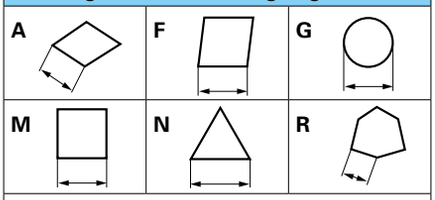
Inserts Tolerances +/–

d	Class M		Class U	
mm	m	d	m	d
6,35	0,08	0,05	0,13	0,08
9,52	0,08	0,05	0,13	0,08
12,70	0,13	0,08	0,20	0,13
15,88	0,15	0,10	0,27	0,18
19,05	0,15	0,10	0,27	0,18

4 Fixing and geometry



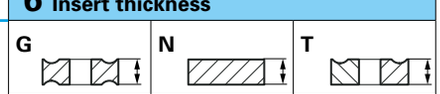
5 Length of main cutting edge



Examples:
04=4,760 mm
06=6,350 mm
07=7,0 mm
08=7,940 mm
09=9,525 mm
11=11,0 mm
12=12,7 mm
15=15,5 mm
16=16,5 mm
22=22,0 mm
etc.

1	2	3	4	5	6	7	8	9
S M	D P	L H	T X	09 06	T3 02	AG 04	N R	19 16

6 Insert thickness



Examples:
T1=1,98 mm
02=2,38 mm
03=3,18 mm
T3=3,97 mm
04=4,76 mm
06=6,35 mm

7 Corner radii

Radii

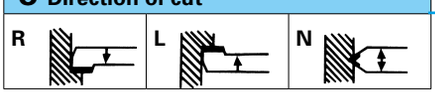
Examples
00=r 0
02=r 0,2 mm
04=r 0,4 mm
08=r 0,8 mm
12=r 1,2 mm
16=r 1,6 mm
20=r 2,0 mm

Chamfers
first letter =
∢ between chamfer and cutting edge

second letter =
∢ clearance at the chamfer

A=45° F=85° C= 7° F=25°
D=60° P=90° D=15° G=30°
E=75° E=20°

8 Direction of cut



9 Chip breaker

Manufacturer specific

8+9 Turning

N 50		N 56	
N 51		N 58	
L/R/N 52			
L/R 53			
L/R/N 54			
N 55			

8+9 Milling

R 10		R 16	
R 11		N 17	
N 12		N/R 18	
N 13		N/R 19	
N 14		N 20	
N 15			

Inserts

Chip breakers and cutting edge conditioning

Boring

Chip-Breaker No.		Roughing	1/2 Roughing	1/2 Finishing	Finishing	Steel < 800 N/mm²	Steel > 800 N/mm²	Stainless/Titanium	Ni-Alloys	Cast Iron	Aluminium
N 40			●	●	●	●	●	●			
N 50					●	●	●	●			
N 51			●	●		●	●				
L/R/N 52				●	●				●	●	
L/R 53				●	●	●	●	●			
L/R/N 54				●	●					●	
N 55			●	●		●	●	●			
N 56			●	●				●	●		
N 58		●				●	●			●	

Milling, counterbohring, bohring

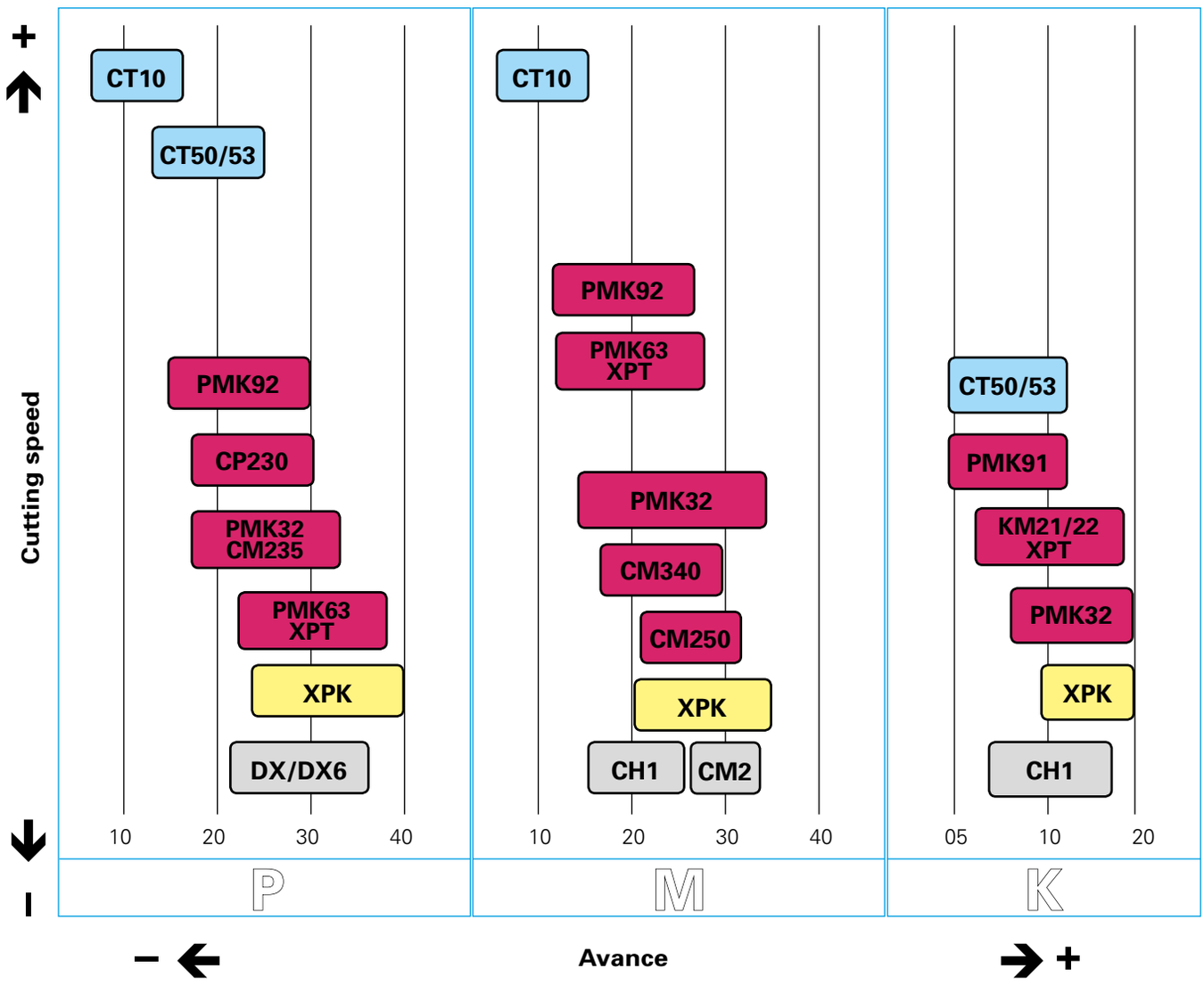
Chip-Breaker No.		Milling	Counterboring	Boring	Steel < 800 N/mm²	Steel > 800 N/mm²	Stainless/Titanium	Ni-Alloys	Cast Iron	Aluminium
R 10		●			●	●	○		●	
R 11		●					○			●
N 12		●	●	●	●	●	○	○	●	
N 13		●	●	●			○			●
N 14		●	●	●	●	●	●		○	
N 15		●	○	○	●	●			●	
L 16			●	●	●	○	●			
N 17		●	●				○			●
R/N 18		●			●	●	●		●	
R/N 19		●	●		●	●	○			
N 20		●						○	○	●

● excellent
○ good

vb tools

Inserts

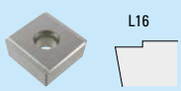
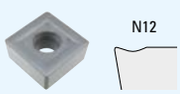
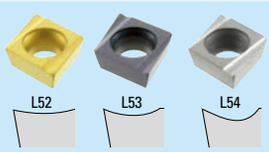
Carbide and Cermet Grades



Grade	Carbide	Ceramic	CERMET	TiAlN	TiN	TiCN	$Al_2 0_3$	Steel <800	Steel >800	Inox Titan	Ni-Co Alloys	Cast Iron	Aluminium
DX	●							●					
DX6	●							●					
CM2	●									●	●		
CH1	●											●	●
XPK	●				●			○	●	●	●	○	
XPT	●			●	●			●	●	●	●	○	
CM250	●			●						●	●		
PMK63	●				●		●	●	●	●			
PMK32	●			●				●	●	●	○	○	
CP230	●				●		●	●	●				
CM340	●				●		●		●	●	○		
KM21	●						●			○		●	
KM22	●			●						●	○	●	
PMK92	●			●				●	●	○		○	
CT50			●					●	●			●	
CT53			●	●				●	●			●	
CT10			●					●	●	○		○	

vb tools
Inserts

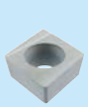
- (P) Steels
- (M) Stainless Steels
- (K) Cast Iron
- (N) Light alloys
- (S) Superalloys
- (H) Materials hardened

		Carbure								Cermet			
		Steel (P)		Aluminium (N)		Cast Iron (K)		Stainless Steels (M)		Cast Iron (K)		Steel (P)	
Type	**Chip-Breaker**	**DX6**	**PMK92**	**CH1 blanc**	**KM21**	**CH1 blanc**	**KM22**	**DX6**	**PMK92**	**CT50**	**CT53**	**CT50**	**CT53**
MPHT 060202.N12 **MCHT 09T304.N12** **MBHT 120404.N12**	 N12	○ ○ ○	○ ○ ○	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –
MPHT 060202.N13 **MCHT 09T304.N13** **MBHT 120404.N13**	 N13	– – –	– – –	○ ○ ○	○ ○ ○	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –
MPHT 060202.N14 **MCHT 09T304.N14** **MBHT 120404.N14**	 N14	– – –	– – –	– – –	– – –	– – –	– – –	○ ○ ○	○ ○ ○	– – –	– – –	– – –	– – –
MBHW 060202.N15 **MCHW 09T304.N15** **MPHW 060202.N15**	 N15	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○
MBHX 060202.L16 **MCHX 060202.L16** **MPHX 060202.L16**	 L16	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	○ ○ ○	○ ○ ○	– – –	– – –
MBMT 120408.N12 **MPMT 060204.N12** **MCMT 09T308.N12**	 N12	○ ○ ○	○ ○ ○	– – –	– – –	○ ○ ○	○ ○ ○	– – –	– – –	– – –	– – –	– – –	– – –
CPGX 04T102.L52 **CPGX 04T102.L53** **CPGX 04T102.L54**	 L52 L53 L54	– –	– –	– – ○	– – –	– – –	 – –	– – –	– – –	– – –	– – –	– – –	– – –
SDHT 09T3AG.N17	 N17	–	–	○	○	–	–	–	–	–	–	–	–
SDHW 09T3AG.N18	 N18	○ XPK	–	–	–	–	–	○ XPK-S	–	–	–	–	–
SDLT 09T3AG.N19	 N19	○ PMK63	–	–	–	–	–	–	–	–	–	–	–

"R" bars use "L" inserts
"L" bars use "R" inserts

vb tools
Inserts

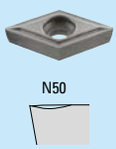
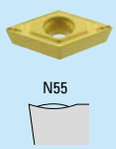
- Steels
- Stainless Steels
- Cast Iron
- Light alloys
- Superalloys
- Materials hardened

Type	Chip-Breaker	Carbure						Cermet
		Steel (P)	Aluminium (N)	Cast Iron (K)	Cast Iron (K)	Stainless Steels (M)	Steel (P)	Steel (P)
		PMK32	CH1 blank	CH1 blank	KM22	CM340	CP230	CT10 blank
CPGX 04T102.L52	 L/R52	–	–	–	○	–	–	–
CPGX 04T102.L53		○	–	–	–	–	–	–
CPGX 04T102.L54		–	○	–	–	–	–	–
CPGX 04T102.R52		–	–	–	○	–	–	–
CPGX 04T102.R53		○	–	–	–	–	–	–
CPGX 04T102.R54		–	○	–	–	–	–	–
CCMT 060202.N50	 N50	–	–	–	–	○	○	–
CCMT 060202.N51		○	–	–	–	–	–	–
		○	○	○	○	○	○	○
CCMT 060204.N55		–	–	–	–	○	○	–
CCMT 060204.N50		–	–	–	–	–	–	○
CCMT 060204.N51		○	–	–	–	–	–	–
CCMX 060202.L52	 L/R52	–	–	○	–	–	–	–
CCMX 060202.L53		○	–	–	–	–	–	–
CCMX 060202.L54		–	○	–	–	–	–	–
CCMX 060202.R52		–	○	○	–	–	–	–
CCMX 060202.R53		○	–	–	–	–	–	–
CCMX 060202.R54		–	○	–	–	–	–	–
		○	○	○	○	○	○	○
CCMX 060204.L52		–	–	○	–	–	–	–
CCMX 060204.L53		○	–	–	–	–	–	–
CCMX 060204.L54		–	○	–	–	–	–	–
CCMX 060204.R53		○	–	–	–	–	–	–
CCMX 060204.R54		–	○	–	–	–	–	–
CCMT 09T304.N50	 N50	–	–	–	–	○	○	–
CCMT 09T304.N55		–	–	–	–	–	○	–
CCMT 09T304.N51		○	○	–	–	–	–	–
		○	○	○	○	○	○	○
CCMT 09T308.N55		–	–	–	–	○	○	–
CCMT 09T308.N51		○	○	–	–	–	–	–
CCMX 09T304.L52	 L/R52	–	–	○	–	–	–	–
CCMX 09T304.L53		○	–	–	–	–	–	–
CCMX 09T304.L54		–	○	–	–	–	–	–
CCMX 09T304.R52		–	–	○	–	–	–	–
CCMX 09T304.R53		○	–	–	–	–	–	–
CCMX 09T304.R54		–	○	–	–	–	–	–
		○	○	○	○	○	○	○
CCMX 09T308.L54		–	○	–	–	–	–	–
CCMX 09T308.R54		–	○	–	–	–	–	–

"R" bars use "L" inserts
"L" bars use "R" inserts

vb tools
Inserts

- (P) Steels
- (M) Stainless Steels
- (K) Cast Iron
- (N) Light alloys
- (S) Superalloys
- (H) Materials hardened

		Carbure						Cermet
		Steel (P)	Aluminium (N)	Cast Iron (K)	Cast Iron (K)	Stainless Steels (M)	Steel (P)	Steel (P)
Type	**Chip-Breaker**	**PMK32**	**CH1 blank**	**CH1 blank**	**KM22**	**CM340**	**CP230**	**CT10 blank**
DCGT 070202.N50	 N50  N54  N55	–	–	–	–	–	–	○
DCGT 070202.N54		–	○	–	○	–	–	–
DCGT 070204.N54		–	○	–	○	–	–	–
		○	○	○	○	○	○	○
DCMT 070202.N50		–	–	–	–	○	○	–
DCMT 070204.N55		–	–	–	–	○	○	–
DCMT 070204.N50		–	–	–	–	–	○	–
DCMT 070208.N55		–	–	–	–	○	○	–
TPGX 07T102.L52	 L/R52  L/R53  L/R54	○	–	–	–	–	–	–
TPGX 07T102.L53		○	–	–	–	–	–	–
TPGX 07T102.L54		–	○	–	–	–	–	–
TPGX 07T102.L52		○	–	–	–	–	–	–
TPGX 07T102.R53		○	–	–	–	–	–	–
TPGX 07T102.R54		–	○	–	–	–	–	–
		○	○	○	○	○	○	○
TPGX 07T104.L52		○	–	–	–	–	–	–
TPGX 07T104.L53		○	–	–	–	–	–	–
TPGX 07T104.L54		–	○	–	–	–	–	–
TPGX 07T104.L52		○	–	–	–	–	–	–
TPGX 07T104.R53		○	–	–	–	–	–	–
TPGX 07T104.R54		–	○	–	–	–	–	–
TCGX 110204.L53	 L/R53  L/R54	○	–	–	–	–	–	–
TCGX 110204.L54		–	○	–	–	–	–	–
TCGX 110204.R53		○	–	–	–	–	–	–
TCGX 110204.R54		–	○	–	–	–	–	–
		○	○	○	○	○	○	○
TCGX 110208.L53		○	○	–	–	–	–	–
TCGX 110208.L54		–	○	–	–	–	–	–
TCGX 110208.R53	 N50  N55	○	–	–	–	–	–	–
TCGX 110208.R54		–	○	–	–	–	–	–
		○	○	○	○	○	○	○
TCMT 110204 N55		–	–	–	–	○	○	–
TCMT 110204.N50		–	–	–	–	–	–	○
VCGT 070202.N50	 N50  N54	–	–	–	–	○	–	–
VCGT 070202.N54		–	○	–	–	–	–	–
WCGX 020102.L53	 L/R53	–	–	–	–	–	–	○
WCGX 020102.R53		–	–	–	–	–	–	○

"R" bars use "L" inserts
"L" bars use "R" inserts

vb tools

Inserts

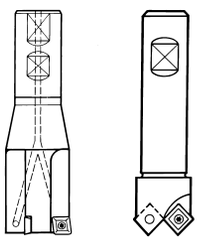
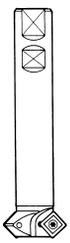
Recommendations for 49030, 49031, 49032

49030 49031 49032	Projection 7 x d Carbide shank f_z ~ 0,1	3 x d Carbide shank f_z ~ 0,1	6 x d Steel shank f_z ~ 0,1	3 x d Steel shank f_z ~ 0,1	Indexable inserts	Grades
Working Material	**Vc m/min.**	**Vc m/min.**	**Vc m/min.**	**Vc m/min.**		
Free Cutting Steels General Purpose Steels Case hardening Steels unalloyed, C < 0,2%	100 - 140	200 - 300	50 - 60	150 - 250	 Cast iron+short chipping materials	Cermet CH1 KM22
Free Cutting Steels General Purpose Steels Tempering Steels alloyed, C < 0,45%	100 - 140	200 - 300	50 - 60	150 - 250	**CPGX 04T102.L53**  for steel + Inox	DX PMK32
Tempering Steels Tool Steels alloyed, C < 0,8%	100 - 140	150 - 250	50 - 60	150 - 200	**CPGX 04T102.L54**  for light alloys	CH1
Highly Alloyed Steels Tool Steels for Cold / Hot Forming C > 0,8%	100 - 140	150 - 250	50 - 60	150 - 200	**MPHT 060202.N12**  for steel + Inox	DX6 PMK92
Stainless Steels, martensitic Stainless Castings	100 - 140	150 - 250	50 - 60	150 - 200		
Stainless Steels, austenitic	100 - 140	150 - 250	50 - 60	150 - 200	**MPHT 060202.N13**  for light alloys	CH1 KM22
High Temperature Alloys on Ni + Co Basis	40 - 90	40 - 90	40 - 60	40 - 90	**MPHT 060202.N14**  for steel + Inox	DX6 PMK92
Titanium Alloys	40 - 90	40 - 90	40 - 60	40 - 90		
Grey Cast Iron	100 - 140	150 - 280	50 - 60	150 - 200	**MPHW 060202.N15**  Cast iron+short chipping materials	Cermet CT50 CT53
Malleable and Nodular Castings	100 - 140	150 - 280	50 - 60	150 - 200		
Aluminium	100 - 140	150 - 280	50 - 60	150 - 200	**MPHX 060202.L16**  for long chipping materials	Cermet CT50 CT53
Cooper / Brass Bronze	100 - 140	150 - 280	50 - 60	150 - 200		

vb tools
Inserts

Recommendations

For cutting speeds Vc m/min. and feeds per tooth fz mm for Milling-, Boring- and Chamfering Tools with indexable carbide and Cermet Inserts

Tool:			
Type.:	49037 49038 49039	49100	49190 49193
Inserts	MPHT MPHW MPHX MPMT*	MCHT MCHW MCHX MCMT*	MBHT MBHW MBHX MBMT*	SDHW SDLT SDLW SDHT
Dimensions	060202 060204*	09T304 09T308*	120404 120408*	09T3 . . .
f_z:	0,03–0,1 0,03–0,12*	0,05–0,15 0,05–0,25*	0,05–0,15 0,05–0,25*	0,03–0,3

Working Material	**Sorte**	**DX6**	**PMK92**	**CH1**	**KM22**	**CT50 CT53**	**DX6**	**PMK93 PMK91**	**CH1**	**XPK KM21**	**CT50**
		Vc m/min.	Vc m/min.	Vc m/min.	Vc m/min.	Vc m/min.	Vc m/min.	Vc m/min.	Vc m/min.	Vc m/min.	Vc m/min.
Free Cutting Steel General Purpose Steels Case hardening Steels unalloyed, C < 0,2%	HB 150–200 < 600 mm^2	100–150	180–350	–	–	300–500	130–170	200–450	–	–	300–500
Free Cutting Steel General Purpose Steels Tempering Steels unalloyed, C < 0,45%	HB 175–225 < 800 mm^2	90–140	160–300	–	–	250–400	120–160	200–350	–	–	250–400
Tempering Steels Tool Steels alloyed, C < 0,8%	HB 200–300 < 1000 mm^2	80–130	140–220	–	–	200–350	110–160	180–250	–	–	200–350
"Highly Alloyed Steels Tool Steels for Cold / Hot Forming C > 0,8%"	HB 200–300 < 1000 mm^2	50–100	90–150	–	–	180–250	70–150	90–180	–	–	180–250
Stainless Steels, austenitic	HB 140–190 < 700 mm^2	–	–	100–180	150–300	150–300	–	–	100–180	150–300	150–300
Stainless Steels, martensitic Stainless Castings	HB 175–245 < 1000 mm^2	70–120	90–180	–	–	150–240	70–150	100–200	–	–	150–240
High Temperature Alloys on Ni + Cr Basis	HB 200–400 < 1200 mm^2	–	–	15–60	15–70	15–70	–	–	15–60	15–70	15–70
Titanium Alloys	HB 215–500 < 1000 mm^2	–	–	40–60	40–70	–	–	–	40–60	40–70	15–70
Grey Cast Iron	HB < 200	–	180–300	160–200	180–300	250–400	–	–	160–200	200–350	250–400
Malleable and Nodular Castings	HB > 200	–	170–280	150–190	170–280	250–400	–	–	150–190	200–300	250–400
Aluminum	HB < 160	–	–	300–1000	300–1000	–	–	–	300–1000	–	300–1000
Copper / Brass Bronze	HB < 120	–	–	180–200	180–270	–	–	–	190–240	200–280	200–300

vb tools
Inserts
Cutting datas

Caution: General safety regulations and directions of machine manufacturers must be observed at any time!

Material		Nr.	Tensile strength Rm (N/mm2)	Hardness HB	CPGX 04...	CCMT 060202		CCMT 060204			CCMT 09T304			CCMT 09T308		CCMX 060202	CCMX 060204	CCMX 09T304	CCMX 09T308	Carbide bright	Carbide coated				Cermet bright
						N50	N51	N50	N51	N55	N50	N51	N55	N51	N55					CH1	PMK32	KM22	CM340	CP230	CT10
					f (mm/U) *)																Vc (m/min)				
Low Carbon Steel	P	1.0035 1.0038 1.0401 1.0050	- 500	- 160	0.03 0.10	0.10 0.20	0.05 0.10	0.03 0.15	0.08 0.15	0.10 0.20	0.10 0.20	0.08 0.15	0.15 0.35	0.15 0.30	0.20 0.40	0.03 0.10	0.05 0.15	0.05 0.20			200-400			130-360	120-330
Alloy Steel	P	1.0501 1.1141 1.5732 1.7225	500 - 700	140 - 200	0.03 0.10	0.10 0.20	0.05 0.10	0.03 0.15	0.08 0.15	0.10 0.20	0.10 0.20	0.08 0.15	0.15 0.35	0.15 0.30	0.20 0.40	0.03 0.10	0.05 0.15	0.05 0.20			140-330			120-270	110-270
Tool Steel	P	1.1221 1.3505 1.7225 1.5141	900 - 1'100	170 - 275	0.03 0.10	0.10 0.20	0.05 0.10	0.03 0.15	0.08 0.15	0.10 0.20	0.10 0.20	0.08 0.15	0.15 0.35	0.15 0.30	0.20 0.40	0.03 0.10	0.05 0.15	0.05 0.20			120-260			110-240	100-210
Alloy Tool Steel	P	1.1191 1.7225 1.2080 1.7220	700 - 900	250 - 325	0.03 0.10	0.10 0.20	0.05 0.10	0.03 0.15	0.08 0.15	0.10 0.20	0.10 0.20	0.08 0.15	0.15 0.35	0.15 0.30	0.20 0.40	0.03 0.10	0.05 0.15	0.05 0.20			130-300			120-280	110-250
Alloy Cast Steel	P	1.6582 1.8159 1.2367 1.7361	1'100 - 1'500 800 - 1'000	325 - 450 250 - 390	0.03 0.10	0.10 0.20	0.05 0.10	0.03 0.15	0.08 0.15	0.10 0.20	0.10 0.20	0.08 0.15	0.15 0.35	0.15 0.30	0.20 0.40	0.03 0.10	0.05 0.15	0.05 0.20			120-240			100-220	90-200
Stainless Steel	M	1.4006 1.4057 1.4034 1.4005	- 800	- 250		0.10 0.20	0.05 0.10	0.03 0.15	0.08 0.15	0.10 0.20	0.10 0.20	0.08 0.15	0.15 0.35	0.15 0.30	0.20 0.40						140-240		120-220		110-200
Stainless Steel - Austenitic, Martensitic	M	1.4300 1.4301 1.4435 1.4573	500 - 1100	200 - 325		0.10 0.20	0.05 0.10	0.03 0.15	0.08 0.15	0.10 0.20	0.10 0.20	0.08 0.15	0.15 0.35	0.15 0.30	0.20 0.40						110-200		100-180		90-150
Grey Cast Iron	K	0.6010 0.6015 0.6020	- 250	- 200	0.03 0.10											0.03 0.10	0.05 0.15	0.05 0.20							
Cast Iron Malleable	K	0.6025 0.8135 0.8140 0.7050	250 - 350	200 - 250	0.03 0.10											0.03 0.10	0.05 0.15	0.05 0.20							
Copper Alloys	N	2.0331 2.0401 2.1030 2.0920	450 - 650	120 - 180	0.03 0.10						0.10 0.20	0.08 0.15	0.15 0.35	0.15 0.30	0.20 0.40	0.03 0.10	0.05 0.15	0.05 0.20	0.08 0.40						
Aluminium Alloys	N	3.2582.05 3.3541.01 3.2315 3.0205	250 - 350	200 - 300	0.03 0.10						0.10 0.20	0.08 0.15	0.15 0.35	0.15 0.30	0.20 0.40	0.03 0.10	0.05 0.15	0.05 0.20	0.08 0.40	200-500					

***) in function of stability of tool & workpiece**


DCGT 0702..		DCMT 702..		Carbide				Cermet	TPGX 07T..	TCGX 110204	TCGX 110208	TCMT 11204		Carbide				Cermet	VCGT 70202		WCGX 020102	Carbide			Cermet
				bright	coated			bright						bright	coated			bright				bright	coated		bright
N50	N54	N50	N55	CH1	KM22	CM340	CP230	CT10				N50	N55	CH1	PMK32	CM340	CP230	CT10	N50	N54		CH1	CM340	CP230	CT10
f (mm/U) *)				Vc (m/min)					f (mm/U) *)					Vc (m/min)					f (mm/U) *)			Vc (m/min)			
0.10 0.25	0.25 0.40	0.10 0.25	0.25 0.40				130-360	120-330	0.05 0.15	0.05 0.15	0.08 0.30	0.03 0.15	0.25 0.40		200-400		130-360	120-330	0.05 0.50		0.02 0.10				120-330
0.10 0.25	0.25 0.40	0.10 0.25	0.25 0.40				130-360	120-330	0.05 0.15	0.05 0.15	0.08 0.30	0.03 0.15	0.25 0.40		140-330		120-270	110-270			0.02 0.10				110-270
0.10 0.25	0.25 0.40	0.10 0.25	0.25 0.40				130-360	120-330	0.05 0.15	0.05 0.15	0.08 0.30	0.03 0.15	0.25 0.40		120-260		110-240	100-210			0.02 0.10				100-210
0.10 0.25	0.25 0.40	0.10 0.25	0.25 0.40				130-360	120-330	0.05 0.15	0.05 0.15	0.08 0.30	0.03 0.15	0.25 0.40		130-300		120-280	110-250			0.02 0.10				110-250
0.10 0.25	0.25 0.40	0.10 0.25	0.25 0.40				130-360	120-330	0.05 0.15	0.05 0.15	0.08 0.30	0.03 0.15	0.25 0.40		120-240		100-220	90-200			0.02 0.10				90-200
0.10 0.25	0.25 0.40	0.10 0.25	0.25 0.40			120-220			0.05 0.15	0.05 0.15	0.08 0.30	0.03 0.15	0.25 0.40		140-240	120-220		110-200		0.03 0.50			120-220		
0.10 0.25	0.25 0.40	0.10 0.25	0.25 0.40			100-180			0.05 0.15	0.05 0.15	0.08 0.30	0.03 0.15	0.25 0.40		110-200	100-180		90-150		0.03 0.50			100-180		
0.015 0.06	0.30 0.50			200-500					0.05 0.15	0.05 0.15	0.08 0.30	0.03 0.15	0.25 0.40	200-500						0.03 0.50		200-500			

***) in function of stability of tool & workpiece**

vb tools

Counterboring, Countersinking, Core drilling, Boring, Deburring, Chamfering

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