DEPO GMCD

BASIC

2018 | DEPO BASIC | **Profi program**

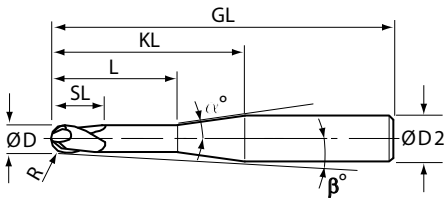
Tools

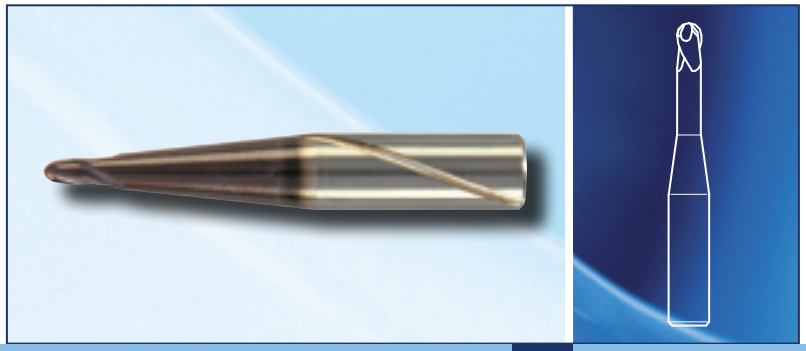
Solid carbide

Indexable inserts

TOOLS

CARBIDE INSERTS





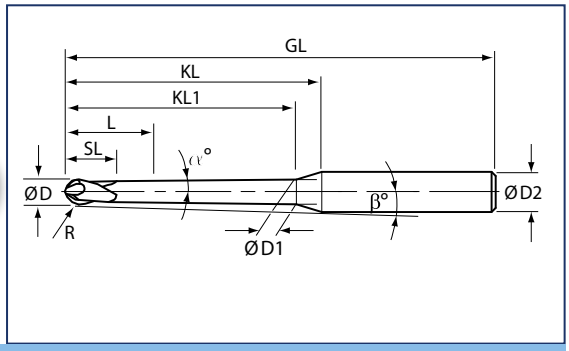
Scope 55 with AlTiN coating

- Fine-grain carbide with a hard material coating (TiAlN) for machining steel and cast materials up to 52 HRC
- Spiral cut with helix angle λ=30°
- External cooling channels for coolant supply
- Shank diameter manufactured according to DIN 6535 - HA for shrink-fitting

Usage guide values can be found on page 8

PG 410

Order no.	Ø D	R	Ø D2	SL	L	α°	KL	β°	GL	Z
BW 1/05-3	1,0	0,5	3	1,0	5,0	-	20	3,0°	40	2
BW 1/08-3	1,0	0,5	3	1,0	8,0	-	20	3,0°	40	2
BW 1,5/08-3	1,5	0,75	3	1,5	8,0	-	20	2,3°	40	2
BW 1,5/12-3	1,5	0,75	3	1,5	12,0	-	20	2,3°	40	2
BW 1,5/20-3	1,5	0,75	3	1,5	20,0	-	-	2,3°	40	2
BW 2/08-3	2,0	1,0	3	2,0	8,0	-	20	1,5°	40	2
BW 2/15-3	2,0	1,0	3	2,0	15,0	-	20	1,5°	40	2
BW 2/20-3	2,0	1,0	3	2,0	20,0	-	-	1,5°	40	2
BW 3/20-3	3,0	1,5	3	3,0	20,0	-	-	-	40	2
BW 1/01-6	1,0	0,5	6	1,5	1,5	7,3°	20	7,3°	40	2
BW 1,5/02-6	1,5	0,75	6	2,0	2,0	6,7°	20	6,7°	40	2
BW 2/02-6	2,0	1,0	6	2,0	2,0	6,0°	20	6,0°	40	2
BW 2/15-6	2,0	1,0	6	2,0	15,0	-	20	6,0°	40	2
BW 2/20-6	2,0	1,0	6	2,0	20,0	-	-	6,0°	40	2
BW 3/03-6	3,0	1,5	6	3,0	3,0	4,7°	20	4,7°	40	2
BW 3/20-6	3,0	1,5	6	3,0	20,0	-	-	4,7°	40	2
BW 4/20-6	4,0	2,0	6	4,0	20,0	-	-	3,2°	40	2
BW 5/20-6	5,0	2,5	6	5,0	20,0	-	-	1,7°	40	2
BW 6/20-6	6,0	3,0	6	6,5	20,0	-	-	-	40	2



Scope 55 with AlTiN coating

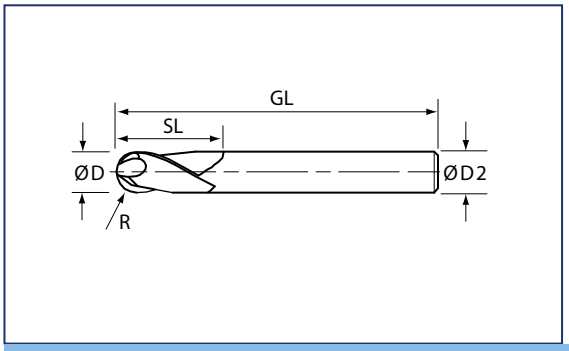
- Fine-grain carbide with a hard material coating for machining steel and cast materials up to 52 HRC
- Spiral cut with helix angle λ=30°
- Shank manufactured according to DIN 6535 - HA for shrink fitting or for use in collet chucks

PG 19

Usage guide values can be found on page 8

Order no.	Ø D	R	Ø D2	SL	L	KL1	Ø D1	α°	KL	β°	GL	Z
B 20187/01	1	0,5	6	1,5	1,5	30	1,9	1,0°	32,0	4,5°	75	2
B 20187/02	1	0,5	6	1,5	1,5	30	2,9	2,0°	31,5	4,5°	75	2
B 21587/02	1,5	0,75	6	2,3	2,3	30	3,3	2,0°	31,3	4,1°	75	2
B 20287/03	2	1,0	6	3,0	8,0	-	-	-	20,0	5,7°	57	2
B 20287/05	2	1,0	6	3,0	8,0	-	-	-	40,0	3,0°	80	2
B 20287/06	2	1,0	6	3,0	8,0	40	3,4	1,3°	41,3	2,8°	80	2
B 20387/12	3	1,5	6	3,5	10,0	-	-	-	20,0	4,3°	57	2
B 20387/15	3	1,5	6	3,5	12,0	-	-	-	40,0	2,1°	80	2
B 20387/16	3	1,5	6	3,5	12,0	45	4,6	1,4°	45,7	1,9°	80	2
B 20487/22	4	2,0	6	4,0	12,0	-	-	-	20,0	2,9°	57	2
B 20487/25	4	2,0	6	4,0	20,0	-	-	-	40,0	1,4°	80	2
B 20487/26	4	2,0	6	4,0	20,0	-	-	-	60,0	1,0°	100	2
B 20587/35	5	2,5	6	5,0	25,0	-	-	-	40,0	0,8°	80	2
B 20687/42	6	3,0	6	6,0	20,0	-	-	-	20,2	-	57	2
B 20687/44	6	3,0	6	6,0	40,0	-	-	-	40,2	-	80	2
B 20687/45	6	3,0	8	6,0	25,0	60	-	-	60,0	1,0°	100	2
B 20887/52	8	4,0	8	7,0	25,0	-	-	-	25,2	-	63	2
B 20887/54	8	4,0	8	7,0	60,0	-	-	-	60,2	-	100	2
B 20887/55	8	4,0	10	7,0	30,0	-	-	-	75,0	0,8°	120	2
B 20887/56*	8	4,0	10	7,0	20,0	-	-	-	105	0,5°	150	2
B 21087/62	10	5,0	10	8,0	30,0	-	-	-	30,2	-	72	2
B 21087/63	10	5,0	10	8,0	60,0	-	-	-	60,2	-	100	2
B 21087/64*	10	5,0	10	8,0	75,0	-	-	-	75,2	-	120	2
B 21287/70	12	6,0	12	10,0	35,0	-	-	-	35,2	-	83	2
B 21287/71*	12	6,0	12	10,0	60,0	-	-	-	60,2	-	100	2
B 21287/74	12	6,0	16	10,0	35,0	-	-	-	100	1,2°	150	2

**While stocks last.*



Scope 55 with AlTiN coating

- Fine-grain carbide with a hard material coating (TiAlN) for machining steel and cast materials up to 52 HRC
- Spiral cut with helix angle λ=30°
- Shank manufactured according to DIN 6535 - HA for shrink fitting or for use in collet chucks
- Cylindrical design with extra-long cutting edges

PG 19

Usage guide values can be found on page 8

Order no.	Ø D	R	Ø D2	SL	GL	Z
BZ 20487/20	4	2	4	8	80	2
BZ 20687/40	6	3	6	12	57	2
BZ 20887/50*	8	4	8	16	63	2
BZ 21087/60*	10	5	10	20	100	2
BZ 21287/80*	12	6	12	24	83	2

**While stocks last.*

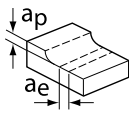
Notes:

Cutting parameters for DEPO solid carbide tools

The specified values are guideline values for DEPO machines. They relate to an effective length (KL or L) of 5xD and may need to be coordinated with the machine/workpiece clamping system and extreme protruding lengths.

Spherical tools - universal

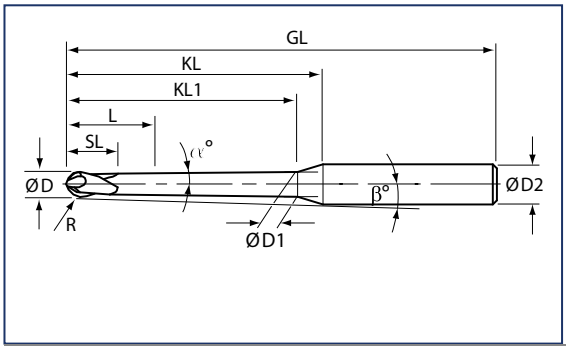
The specified cutting speed v_C relates to the nominal diameter Ø D, and decreases as a function of a_P! Reduce v_C in the event of pivoted machining operations!



BW

B, BZ

Material	v_C [m/min]	a_P [mm]	a_E [mm]	Feed rate per tooth fz [mm]													
				Ø 0.4	Ø 0.6	Ø 0.8	Ø 1	Ø 1.5	Ø 2	Ø 2.5	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12
Construction steel																	
unalloyed ≤ 500 N/mm²	500 - 550	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
unalloyed > 500 N/mm²	350 - 400	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
alloyed	300 - 350	0.05 - 0.08 x D	0.03 - 0.05 x D	0.006	0.008	0.011	0.013	0.015	0.04	0.04	0.06	0.08	0.1	0.12	0.12	0.15	0.18
Case-hardened steel																	
≤ 150 HB	480 - 530	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
150 -200 HB	440 - 490	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
> 200 HB	320 - 370	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
Nitriding steel																	
≤ 1000 N/mm²	350 - 400	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
> 1000 N/mm²	270 - 320	0.05 - 0.08 x D	0.03 - 0.05 x D	0.006	0.008	0.011	0.013	0.015	0.04	0.04	0.06	0.08	0.1	0.12	0.12	0.15	0.18
Heat-treated steel																	
unalloyed ≤ 800 N/mm²	440 - 490	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
unalloyed 800 - 1000 N/mm²	340 - 390	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
alloyed ≤ 800 N/mm²	270 - 320	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
alloyed 800 - 1000 N/mm²	260 - 310	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
alloyed 1000 - 1300 N/mm²	240 - 290	0.05 - 0.08 x D	0.03 - 0.05 x D	0.006	0.008	0.011	0.013	0.015	0.03	0.035	0.04	0.05	0.07	0.1	0.12	0.15	0.18
alloyed 1300 - 1600 N/mm²	200 - 250	0.03 - 0.05 x D	0.02 - 0.04 x D	0.005	0.007	0.009	0.011	0.013	0.02	0.02	0.025	0.035	0.05	0.06	0.07	0.08	0.09
Stainless steel																	
sulphurated ≤ 850 N/mm²	120 - 160	0.05 - 0.08 x D	0.03 - 0.05 x D	0.006	0.008	0.011	0.013	0.015	0.04	0.04	0.06	0.08	0.1	0.12	0.12	0.15	0.16
austenitic ≤ 850 N/mm²	100 - 140	0.05 - 0.08 x D	0.03 - 0.05 x D	0.006	0.008	0.011	0.013	0.015	0.04	0.04	0.06	0.08	0.1	0.12	0.12	0.15	0.16
ferritic ≤ 850 N/mm²	100 - 140	0.05 - 0.08 x D	0.03 - 0.05 x D	0.006	0.008	0.011	0.013	0.015	0.04	0.04	0.06	0.08	0.1	0.12	0.12	0.15	0.16
martensitic ≤ 850 N/mm²	80 - 120	0.05 - 0.08 x D	0.03 - 0.05 x D	0.006	0.008	0.011	0.013	0.015	0.04	0.04	0.06	0.08	0.1	0.12	0.12	0.15	0.16
Cast steel																	
unalloyed	350 - 400	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
low-alloyed	250 - 300	0.03 - 0.05 x D	0.02 - 0.04 x D	0.006	0.008	0.011	0.013	0.015	0.04	0.04	0.06	0.08	0.1	0.12	0.12	0.15	0.18
high-alloyed	180 - 220	0.03 - 0.05 x D	0.02 - 0.04 x D	0.005	0.007	0.009	0.011	0.013	0.02	0.02	0.025	0.035	0.05	0.06	0.07	0.08	0.09
Cast iron GG																	
unalloyed ≤ 180 HB	500 - 550	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
unalloyed > 180 HB	350 - 400	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
alloyed	300 - 350	0.05 - 0.08 x D	0.03 - 0.05 x D	0.006	0.008	0.011	0.013	0.015	0.04	0.04	0.06	0.08	0.1	0.12	0.12	0.15	0.18
high-alloyed	250 - 300	0.05 - 0.08 x D	0.03 - 0.05 x D	0.006	0.008	0.011	0.013	0.015	0.04	0.04	0.06	0.08	0.1	0.12	0.12	0.15	0.18
Spheroidal graphite iron GGG																	
unalloyed ≤ 180 HB	500 - 550	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
unalloyed > 180 HB	350 - 400	0.05 - 0.08 x D	0.03 - 0.05 x D	0.006	0.008	0.011	0.013	0.015	0.04	0.04	0.06	0.08	0.1	0.12	0.12	0.15	0.18
alloyed	300 - 350	0.05 - 0.08 x D	0.03 - 0.05 x D	0.006	0.008	0.011	0.013	0.015	0.04	0.04	0.06	0.08	0.1	0.12	0.12	0.15	0.18
Annealed cast iron GTW, GTS																	
≤ 180 HB	500 - 550	0.05 - 0.08 x D	0.03 - 0.05 x D	0.008	0.01	0.012	0.015	0.018	0.05	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.25
> 180 HB	350 - 400	0.05 - 0.08 x D	0.03 - 0.05 x D	0.006	0.008	0.011	0.013	0.015	0.04	0.04	0.06	0.08	0.1	0.12	0.12	0.15	0.18



Scope 85 with AlTiN coating

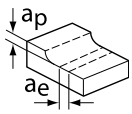
- Ultra fine grain carbide with a special geometry and hard material coating for machining hardened steel that exhibits an HRC rating of 52 - 62
- Spiral cut with helix angle λ=35°
- Shank manufactured according to DIN 6535 - HA for shrink fitting or for use in collet chucks

PG 14

Order no.	Ø D	R	Ø D2	SL	L	KL1	Ø D1	α°	KL	β°	GL	Z
B 20387/11 H	3	1,5	6	3	16	-	-	-	20,0	4,3°	57	2
B 20487/21 H	4	2,0	6	4	16	-	-	-	20,0	2,9°	57	2
B 20487/23 H	4	2,0	6	4	4	40	5,3	1,0°	40,4	1,4°	80	2
B 20587/31 H	5	2,5	6	5	20	20		-	20,6	1,4°	57	2
B 20587/33 H*	5	2,5	8	5	5	48	6,7	1,0°	48,6	1,8°	90	2
B 20687/41 H	6	3,0	6	6	20	-	-	-	20,2	-	57	2
B 20687/43 H	6	3,0	8	6	6	-	-	1,0°	60,0	1,0°	100	2
B 20887/51 H	8	4,0	8	7	25	-	-	-	25,2	-	63	2
B 21087/61 H	10	5,0	10	8	30	-	-	-	30,2	-	72	2
B 21087/62 H	10	5,0	10	8	50	-	-	-	50,2	-	100	2
B 21287/71 H	12	6,0	12	10	35	-	-	-	35,2	-	83	2

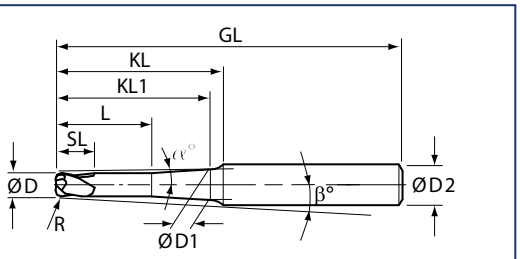
Spherical tools - hard machining

The specified cutting speed v_C relates to the nominal diameter ØD, and decreases as a function of a_p! Reduce v_C in the event of pivoted machining operations!



B../H

Material	vc [m/min]	ap [mm]	ae [mm]	Feed rate per tooth fz [mm]							
				Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 16
Hardened steel											
≤ 55 HRC	200 - 220	0.03 - 0.05 x D	0.02 - 0.04 x D	0.035	0.04	0.05	0.06	0.07	0.09	0.12	0.15
55 - 58 HRC	180 - 200	0.03 - 0.05 x D	0.02 - 0.04 x D	0.035	0.04	0.05	0.06	0.07	0.09	0.12	0.15
58 - 60 HRC	160 - 180	0.02 - 0.03 x D	0.02 - 0.03 x D	0.035	0.04	0.05	0.06	0.07	0.09	0.12	0.15
60 - 62 HRC	130 - 150	0.02 - 0.03 x D	0.02 - 0.03 x D	0.035	0.04	0.05	0.06	0.07	0.09	0.12	0.15
62 - 64 HRC	110 - 130	0.01 - 0.02 x D	0.01 - 0.02 x D	0.035	0.04	0.05	0.06	0.07	0.09	0.12	0.15



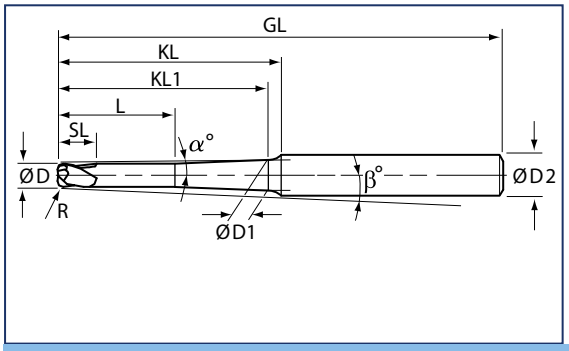
Scope 55 with AlTiN coating

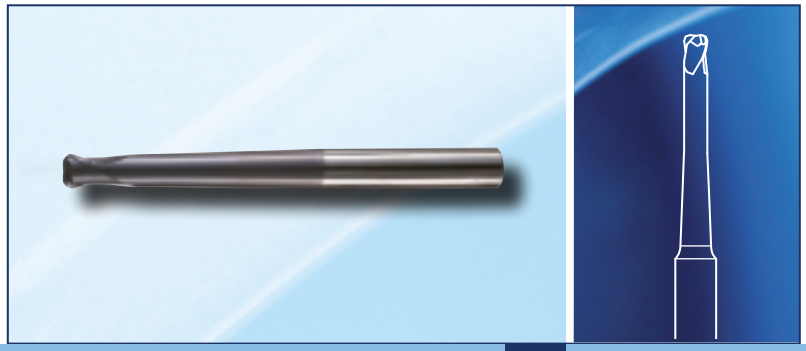
- Fine-grain carbide with a hard material coating (TiAlN) for machining steel and cast materials up to 52 HRC
- Spiral cut with helix angle λ=30°
- External cooling channels for coolant supply, shank Ø 6
- Shank diameter manufactured according to DIN 6535 - HA for shrink-fitting

Usage guide values can be found on page 14

PG 405

Order no.	Ø D	R	Ø D2	SL	L	KL1	Ø D1	α°	KL	β°	GL	Z
TW 2 05/15-6	2,0	0,5	6	2,0	15,0	-	-	-	20	5,9°	40	2
TW 2 05/20-6	2,0	0,5	6	2,0	20,0	-	-	-	-	5,9°	40	2
TW 3 05/20-6	3,0	0,5	6	3,0	20,0	-	-	-	-	4,4°	40	2
TW 3005/03-6	3,0	0,5	6	3,0	3,0	20	-	4,4°	-	4,4°	40	2
TW 4 10/20-6	4,0	1,0	6	4 ,0	20,0	-	-	-	-	3,0°	40	2
TW 5 10/20-6	5,0	1,0	6	5,0	20,0	-	-	-	-	1,5°	40	2
TW 6 10/20-6	6 ,0	1,0	6	6,5	20,0	-	-	-	-	-	40	2
TW 2 05/08-3	2,0	0,5	3	2,0	8,0	-	-	-	20	1,5°	40	2
TW 2 05/15-3	2,0	0,5	3	2,0	15,0	-	-	-	20	1,5°	40	2
TW 2 05/20-3	2,0	0,5	3	2,0	20,0	-	-	-	-	1,5°	40	2
TW 3 05/20-3	3,0	0,5	3	3,0	20,0	-	-	-	-	-	40	2





Scope 55 with AlTiN coating

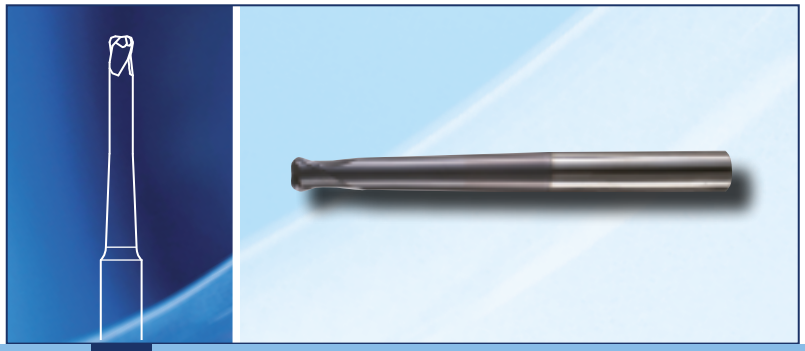
- Fine-grain carbide with a hard material coating (TiAlN) for machining steel and cast materials up to 52 HRC
- Spiral cut with helix angle λ=30°
- Shank manufactured according to DIN 6535 - HA for shrink fitting or for use in collet chucks

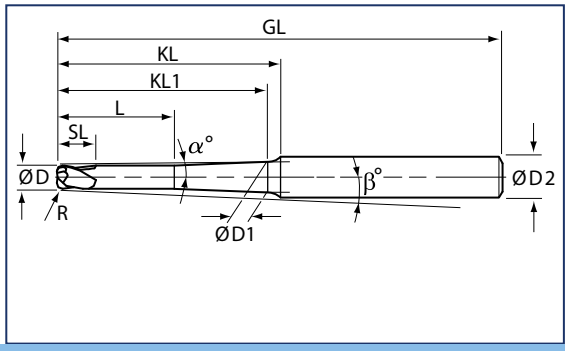
PG 19

Usage guide values can be found on page 14

Order no.	Ø D	R	Ø D2	SL	L	KL1	Ø D1	α°	KL	β°	GL	Z
T 20287/03	2	0,5	6	3	8	-	-	-	20	5,8°	57	2
T 20287/05	2	0,5	6	3	8	-	-	-	40	2,9°	80	2
T 20287/06	2	0,5	6	3	8	40	3,4	1,3°	41,3	2,8°	80	2
T 20287/07	2	0,5	6	2,5	2,5	-	-	2,0°	60	2,0°	100	2
T 20387/12	3	0,5	6	3,5	10	-	-	4,4°	20	4,4°	57	2
T 20387/15	3	0,5	6	3,5	12	-	-	-	40	2,2°	80	2
T 20387/16	3	0,5	6	3,5	12	41	4,6	1,4°	45,7	1,9°	80	2
T 20387/18*	3	0,5	12	3	3	-	-	3,1°	85	3,1°	150	2
T 20487/22	4	1,0	6	4	12	-	-	-	20	2,9°	57	2
T 20487/25	4	1,0	6	4	20	-	-	-	40	1,5°	80	2
T 20487/26	4	0,5	6	4	20	-	-	-	60	1,0°	100	2
T 20487/28*	4	0,5	16	5	5	-	-	3,0°	115	3,0°	170	2
T 20687/41	6	1,0	6	6	20	-	-	-	-	-	57	2
T 20687/42	6	2,0	6	6	20	-	-	-	-	-	57	2
T 20687/44	6	2,0	6	6	40	-	-	-	-	-	80	2
T 20687/45	6	2,0	8	6	25	-	-	-	60	1,0°	100	2
T 20687/46	6	1,0	8	6	25	-	-	-	80	0,8°	120	2
T 20687/47*	6	0,5	16	7	7	-	-	2,1°	140	2,1°	200	2
T 20687/48*	6	0,5	16	7	7	-	-	3,1°	95	3,1°	200	2
T 20887/51	8	1,0	8	7	25	-	-	-	-	-	63	2
T 20887/52	8	2,0	8	7	25	-	-	-	-	-	63	2
T 20887/54	8	2,0	8	7	60	-	-	-	-	-	100	2
T 20887/55	8	2,0	10	7	30	-	-	-	75	0,8°	120	2
T 21087/62	10	3,0	10	8	30	-	-	-	-	-	72	2
T 21087/63	10	3,0	10	8	60	-	-	-	-	-	100	2
T 21087/64	10	3,0	10	8	75	-	-	-	-	-	120	2
T 21087/65	10	3	12	8	30	-	-	0,9°	70	0,9°	120	2

**While stocks last.*





Scope 55 with AlTiN coating

- Fine-grain carbide with a hard material coating (TiAlN) for machining steel and cast materials up to 52 HRC
- Spiral cut with helix angle λ=30°
- Shank manufactured according to DIN 6535 - HA for shrink fitting or for use in collet chucks

Usage guide values can be found on page 14

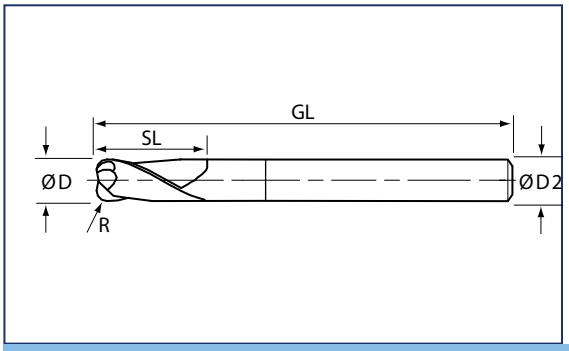
PG 19

Order no.	Ø D	R	Ø D2	SL	L	KL1	Ø D1	α°	KL	β°	GL	Z
T 21287/70	12	4	12	10	35	-	-	-	-	-	83	2
T 21287/71*	12	4	12	10	60	-	-	-	-	-	100	2
T 21287/72	12	4	12	10	70	-	-	-	-	-	120	2
T 31287/71*	12	5	12	18	28	-	-	-	-	-	83	3

**While stocks last.*

Notes:

DEPO Solid carbide toroidal cutter | *cylindrical with extra-long cutting edges | up to 52 HRC*



Scope 55 with AlTiN coating

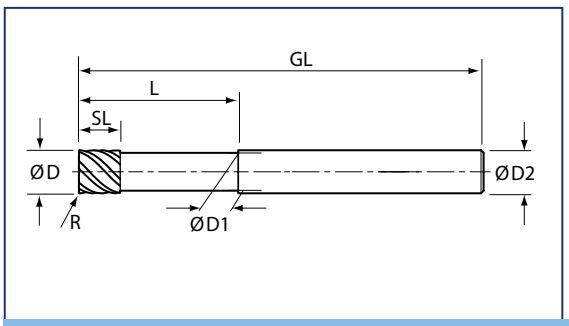
- Fine-grain carbide with a hard material coating (TiAlN) for machining steel and cast materials up to 52 HRC
- Spiral cut with helix angle λ=30°
- Shank manufactured according to DIN 6535 - HA for shrink fitting or for use in collet chucks
- Cylindrical design with extra-long cutting edges

PG 19

Usage guide values can be found on page 14

Order no.	Ø D	R	Ø D2	SL	GL	Z
TZ 20487/20	4	0,5	4	8	80	2
TZ 20687/40	6	1,0	6	12	100	2
TZ 20887/50	8	1,0	8	16	100	2
TZ 21087/60	10	1,0	10	20	100	2
TZ 21287/80	12	1,5	12	24	120	2

DEPO Solid carbide toroidal cutter | *multi-edged up to 52 HRC*



Scope 55 with AlTiN coating

- Fine-grain carbide with a hard material coating (TiAlN) for machining steel and cast materials up to 52 HRC
- Spiral cut with helix angle λ=30°
- Shank manufactured according to DIN 6535 - HA for shrink fitting or for use in collet chucks
- Multi-edged tool, specially designed for finishing

PG 419

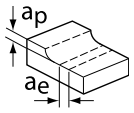
Usage guide values can be found on page 16

Order no.	Ø D	R	Ø D2	SL	L	Ø D1	GL	Z
T 40487/21	4	0,5	6	4	20	3,8	57	4
T 40687/41	6	0,5	6	6	20	5,5	57	4
T 60887/51	8	0,5	8	8	25	7,3	63	6

Cutting parameters for DEPO solid carbide tools

The specified values are guideline values for DEPO machines. They relate to an effective length (KL or L) of 5xD and may need to be coordinated with the machine/workpiece clamping system and extreme protruding lengths.

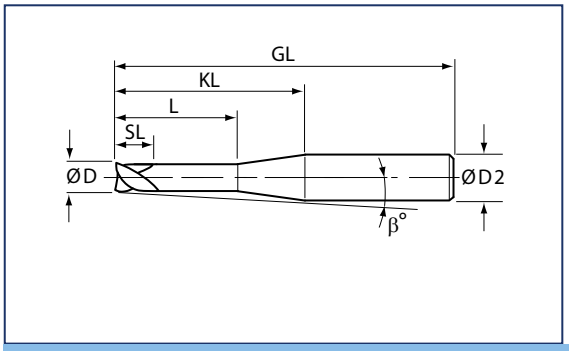
Toroidal tools - universal




TW


T, TZ

Material	vc [m/min]	ap [mm]	ae [mm]	Feed rate per tooth fz [mm]													
				Ø 0.4	Ø 0.6	Ø 0.8	Ø 1	Ø 1.2	Ø 1.5	Ø 2	Ø 2.5	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12
Construction steel																		
unalloyed ≤ 500 N/mm²	400 - 450	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
unalloyed > 500 N/mm²	300 - 350	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
alloyed	200 - 250	0.05 - 0.08 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
Case-hardened steel																		
≤ 150 HB	370 - 420	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
150 -200 HB	350 - 400	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
> 200 HB	250 - 300	0.05 - 0.08 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
Nitriding steel																		
≤ 1000 N/mm²	300 - 350	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
> 1000 N/mm²	200 - 250	0.05 - 0.08 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
Heat-treated steel																		
unalloyed ≤ 800 N/mm²	350 - 400	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
unalloyed 800 - 1000 N/mm²	270 - 320	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
alloyed ≤ 800 N/mm²	220 - 270	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
alloyed 800 - 1000 N/mm²	250 - 300	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
alloyed 1000 - 1300 N/mm²	200 - 250	0.05 - 0.08 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
alloyed 1300 - 1600 N/mm²	170 - 220	0.03 - 0.05 x D	0.02 - 0.04 x D	0.003	0.004	0.006	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.045	0.05	0.07	0.09
Stainless steel																		
sulphurated ≤ 850 N/mm²	80 - 130	0.03 - 0.05 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
austenitic ≤ 850 N/mm²	70 - 120	0.03 - 0.05 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
ferritic ≤ 850 N/mm²	70 - 120	0.03 - 0.05 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
martensitic ≤ 850 N/mm²	60 - 100	0.03 - 0.05 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
Cast steel																		
unalloyed	300 - 350	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
low-alloyed	200 - 250	0.03 - 0.05 x D	0.02 - 0.04 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
high-alloyed	100 - 150	0.03 - 0.05 x D	0.02 - 0.04 x D	0.003	0.004	0.006	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.045	0.05	0.07	0.09
Cast iron GG																		
unalloyed ≤ 180 HB	400 - 450	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
unalloyed > 180 HB	350 - 400	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
alloyed	300 - 350	0.05 - 0.08 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
high-alloyed	200 - 250	0.05 - 0.08 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
Spheroidal graphite iron GGG																		
unalloyed ≤ 180 HB	400 - 450	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
unalloyed > 180 HB	350 - 400	0.05 - 0.08 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
alloyed	270 - 320	0.05 - 0.08 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12
Annealed cast iron GTW, GTS																		
≤ 180 HB	400 - 450	0.05 - 0.08 x D	0.03 - 0.05 x D	0.005	0.007	0.01	0.012	0.014	0.018	0.024	0.03	0.035	0.04	0.05	0.06	0.08	0.12	0.15
> 180 HB	350 - 400	0.05 - 0.08 x D	0.03 - 0.05 x D	0.004	0.005	0.008	0.01	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.06	0.1	0.12



Scope 55 with AlTiN coating

- Fine-grain carbide with a hard material coating (TiAlN) for machining steel and cast materials up to 52 HRC
- Spiral cut with helix angle λ=30°
- Chamfered with F < 0.1
- External cooling channels for coolant supply
- Shank diameter manufactured according to DIN 6535 - HA for shrink-fitting

Usage guide values can be found on page 16

PG 400

Order no.	Ø D	Ø D2	SL	L	KL	β°	GL	Z
E 1/05-3	1,0	3	1,0	5	20	2,9°	40	2
E 1/10-3	1,0	3	1,0	10	20	2,9°	40	2
E 1,5/08-3	1,5	3	1,5	8	20	2,1°	40	2
E 1,5/15-3	1,5	3	1,5	15	20	2,1°	40	2
E 2/08-3	2,0	3	2,0	8	20	1,4°	40	2
E 2/15-3	2,0	3	2,0	15	20	1,4°	40	2
E 2/20-3*	2,0	3	2,0	20	-	1,4°	40	2
E 2/20-6	2,0	6	2,0	20	-	5,7°	40	2
E 3/20-6	3,0	6	3,0	20	-	4,3°	40	2
E 4/20-6	4,0	6	4,0	20	-	2,9°	40	2
E 5/20-6	5,0	6	5,0	20	-	1,4°	40	2
E 6/20-6	6,0	6	6,5	20	-	-	40	2

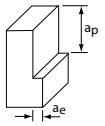
**While stocks last.*

Notes:

Cutting parameters for DEPO solid carbide tools

The specified values are guideline values for DEPO machines and may need to be coordinated with the machine/workpiece clamping system, as well as extreme protruding lengths.

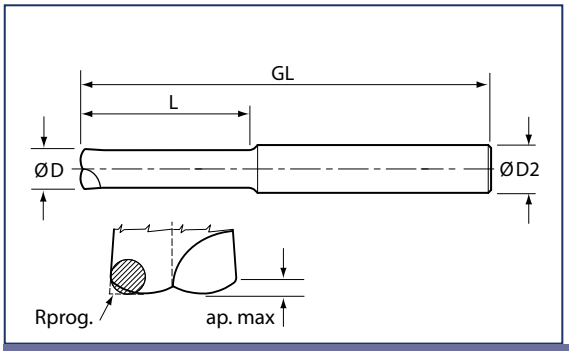
Shoulder milling cutters



E

T..87

Material	v_c [m/min]	a_p [mm]	a_e [mm]	Feed rate per tooth fz [mm]								
				Ø 1	Ø 1.5	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10
Construction steel												
unalloyed ≤ 500 N/mm²	170 - 210	0.2 - 0.5 x D	0.02 - 0.05 x D	0.007	0.01	0.013	0.016	0.02	0.025	0.035	0.04	0.05
unalloyed > 500 N/mm²	160 - 190	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
alloyed	120 - 150	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
Case-hardened steel												
≤ 150 HB	190 - 230	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
150 -200 HB	150 - 180	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
> 200 HB	110 - 140	0.2 - 0.5 x D	0.02 - 0.05 x D	0.004	0.005	0.007	0.01	0.012	0.02	0.023	0.025	0.03
Nitriding steel												
≤ 1000 N/mm²	170 - 210	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
> 1000 N/mm²	150 - 180	0.2 - 0.5 x D	0.02 - 0.05 x D	0.004	0.005	0.007	0.01	0.012	0.02	0.023	0.025	0.03
Heat-treated steel												
unalloyed ≤ 800 N/mm²	150 - 180	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
unalloyed 800 - 1000 N/mm²	120 - 150	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
alloyed ≤ 800 N/mm²	170 - 200	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
alloyed 800 - 1000 N/mm²	150 - 190	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
Tool steel												
unalloyed	170 - 200	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
...for cold working												
low-alloyed up to 1000 N/mm²	150 - 190	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
high-alloy annealed up to 1000 N/mm²	150 - 190	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
...for hot working												
low-alloyed up to 1200 N/mm²	120 - 150	0.2 - 0.5 x D	0.02 - 0.05 x D	0.004	0.005	0.007	0.01	0.012	0.02	0.023	0.025	0.03
high-alloy annealed up to 1000 N/mm²	150 - 190	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
Stainless steel												
sulphurated ≤ 850 N/mm²	90 - 110	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
austenitic ≤ 850 N/mm²	80 - 100	0.2 - 0.5 x D	0.02 - 0.05 x D	0.004	0.005	0.007	0.01	0.012	0.02	0.023	0.025	0.03
ferritic ≤ 850 N/mm²	80 - 100	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
martensitic ≤ 850 N/mm²	70 - 90	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
Cast iron GG												
unalloyed ≤ 180 HB	250 - 280	0.2 - 0.5 x D	0.02 - 0.05 x D	0.007	0.01	0.013	0.016	0.02	0.025	0.035	0.04	0.05
unalloyed > 180 HB	200 - 230	0.2 - 0.5 x D	0.02 - 0.05 x D	0.007	0.01	0.013	0.016	0.02	0.025	0.035	0.04	0.05
alloyed	150 - 180	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
high-alloyed	120 - 150	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
Spheroidal graphite iron GGG												
unalloyed ≤ 180 HB	180 - 220	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
unalloyed > 180 HB	160 - 190	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
alloyed	120 - 150	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
Annealed cast iron GTW, GTS												
≤ 180 HB	180 - 220	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04
> 180 HB	160 - 190	0.2 - 0.5 x D	0.02 - 0.05 x D	0.005	0.007	0.01	0.013	0.015	0.022	0.028	0.03	0.04



Scope 65 with AlTiN coating

- Fine-grain carbide with a hard material coating (TiAlN) for the high-speed machining of steel with very high feed rates
- Shank manufactured according to DIN 6535-HA
- Particularly suitable for rough machining in deep cavities

Usage guide values can be found on page 18

PG 440

Order no.	Ø D	R prog.	Ø D2	L	GL	ap. max	Z
P 20487/31	4	0,4	6	20	57	0,1	2
P 20687/41	6	0,6	6	20	57	0,3	2
P 20887/51	8	0,8	8	20	64	0,35	2
P 21087/61	10	1,0	10	30	72	0,4	2
P 21287/71	12	1,2	12	35	83	0,7	2

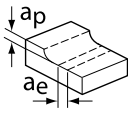
Notes:

Cutting parameters for DEPO solid carbide tools

The specified values are guideline values for DEPO machines. They relate to an effective length (KL or L) of 5xD and may need to be coordinated with the machine/workpiece clamping system and extreme protruding lengths.

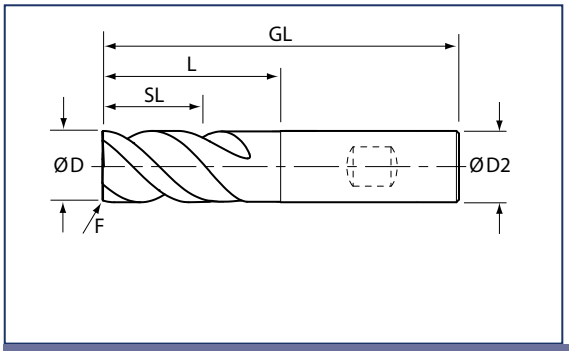
Polygonal tools - for high feed rates

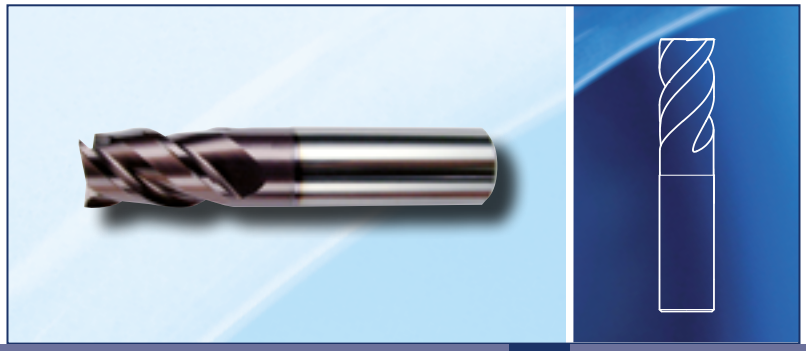
Note the specified maximum cutting depth ap max as a function of the tool diameter! Guide value: ap= 0.8 x apmax



P...

Material	vc [m/min]	ae [mm]	Feed rate per tooth fz [mm]					
			Ø 4	Ø 6	Ø 8	Ø 10	Ø 12	Ø 16
Construction steel								
unalloyed ≤ 500 N/mm²	370 - 420	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
unalloyed > 500 N/mm²	300 - 350	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
alloyed	200 - 250	0.4 - 0.6 x D	0.2	0.3	0.4	0.5	0.6	1
Case-hardened steel								
≤ 150 HB	370 - 420	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
150 -200 HB	350 - 400	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
> 200 HB	250 - 300	0.4 - 0.6 x D	0.2	0.3	0.4	0.5	0.6	1
Nitriding steel								
≤ 1000 N/mm²	300 - 350	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
> 1000 N/mm²	200 - 250	0.3 - 0.5 x D	0.2	0.3	0.4	0.5	0.6	1
Heat-treated steel								
unalloyed ≤ 800 N/mm²	350 - 400	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
unalloyed 800 - 1000 N/mm²	270 - 320	0.3 - 0.5 x D	0.2	0.3	0.4	0.5	0.6	1
alloyed ≤ 800 N/mm²	220 - 270	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
alloyed 800 - 1000 N/mm²	250 - 300	0.3 - 0.5 x D	0.2	0.3	0.4	0.5	0.6	1
Tool steel								
unalloyed	300 - 350	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
...for cold working								
low-alloyed up to 1000 N/mm²	250 - 300	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
low-alloyed up to 1200 N/mm²	200 - 250	0.3 - 0.5 x D	0.2	0.3	0.4	0.5	0.6	1
high-alloy annealed up to 1000 N/mm²	200 - 250	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
...for hot working								
low-alloyed up to 1200 N/mm²	200 - 250	0.4 - 0.6 x D	0.2	0.3	0.4	0.5	0.6	1
high-alloy annealed up to 1000 N/mm²	200 - 250	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
Hardened tool steel								
≤ 56 HRC	70 - 120	0.2 - 0.4 x D	0.2	0.3	0.4	0.5	0.6	1
Cast steel								
unalloyed	300 - 350	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
low-alloyed	200 - 250	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
high-alloyed	100 - 150	0.3 - 0.5 x D	0.2	0.3	0.4	0.5	0.6	1
Cast iron GG								
unalloyed ≤ 180 HB	400 - 450	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
unalloyed > 180 HB	350 - 400	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
alloyed	300 - 350	0.4 - 0.6 x D	0.2	0.3	0.4	0.5	0.6	1
Spheroidal graphite iron GGG								
unalloyed ≤ 180 HB	400 - 450	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
unalloyed > 180 HB	350 - 400	0.4 - 0.6 x D	0.2	0.3	0.4	0.5	0.6	1
alloyed	270 - 320	0.4 - 0.6 x D	0.2	0.3	0.4	0.5	0.6	1
Annealed cast iron GTW, GTS								
≤ 180 HB	400 - 450	0.4 - 0.6 x D	0.25	0.4	0.5	0.6	0.8	1.2
> 180 HB	350 - 400	0.4 - 0.6 x D	0.2	0.3	0.4	0.5	0.6	1





Scope 65 with AlTiN coating

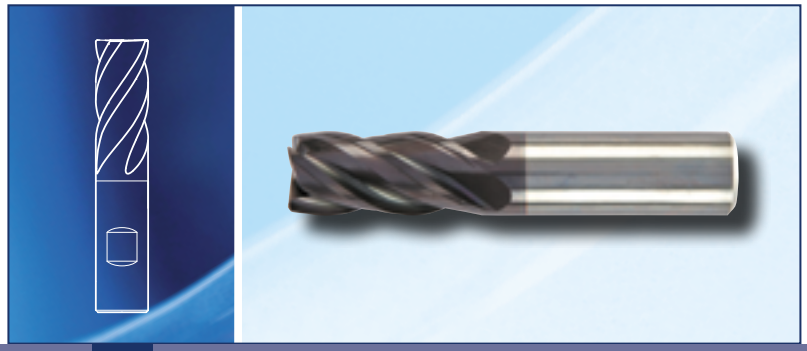
- Ultra fine grain carbide with a hard material coating (TiAlN) for machining steel and cast materials up to 50 HRC
- Spiral cut with helix angle λ = 45°
- Shank manufactured according to DIN 6535 - HA, from Ø D2 = 12 mm according to DIN 6535 -HB (Weldon)
- For medium machining and finishing, one cutting edge over the centre

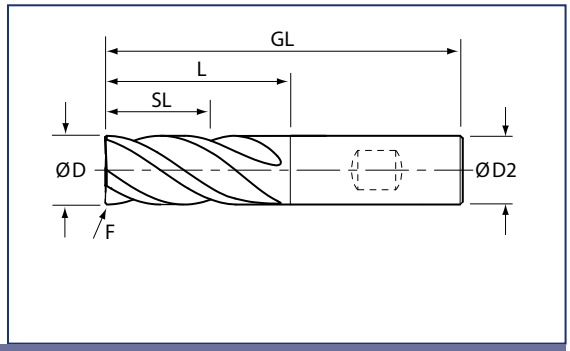
Usage guide values can be found on page 22

PG 418

Order no.	Ø D	Ø D2	F	L	GL	SL	Z
N 30410	4	6	0,12 x 45°	16	57	11	3
N 30615	6	6	0,12 x 45°	25	60	15	3
N 30836	8	8	0,12 x 45°	30	63	20	3
N 31040	10	10	0,15 x 45°	35	72	25	3
N 31240	12	12	0,18 x 45°	36	83	26	3
N 31645	16	16	0,2 x 45°	50	100	40	3
N 32050	20	20	0,3 x 45°	60	115	50	3

Notes:





Scope 65 with AlTiN coating

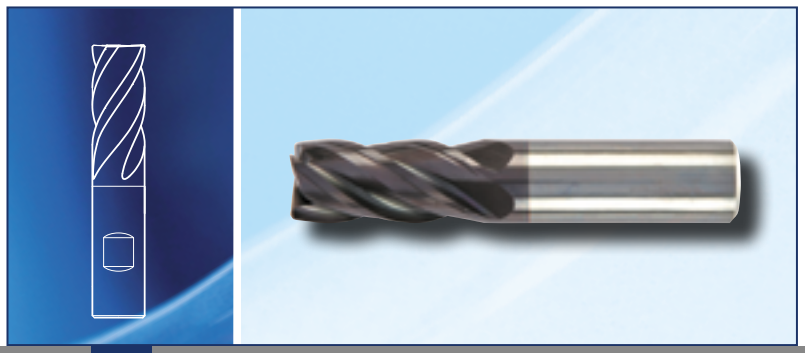
- Ultra fine grain carbide with a hard material coating (TiAlN) for machining steel and cast materials up to 50 HRC
- Helical toothed with unevenly divided helix angle λ = 35°/38°
- Shank manufactured according to DIN 6535 - HA, from Ø D2 = 12 mm according to DIN 6535 -HB (Weldon)
- Low-vibration operation through uneven distribution for a high surface quality

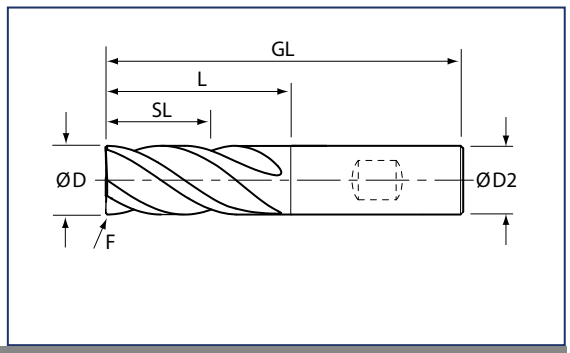
PG 418

Usage guide values can be found on page 23

Order no.	Ø D	Ø D2	F	SL	L	GL	Z
N 40613	6	6	0,15 x 45°	13	18	57	4
N 40819	8	8	0,15 x 45°	21	25	63	4
N 41022	10	10	0,2 x 45°	22	30	72	4
N 41226	12	12	0,2 x 45°	26	36	83	4
N 41632	16	16	0,35 x 45°	36	42	92	4
N 42038	20	20	0,45 x 45°	41	52	104	4
N 42065	20	20	0,45 x 45°	65	95	150	4

DEPO | Solid carbide groove milling cutter | *for hard machining up to 63 HRC*





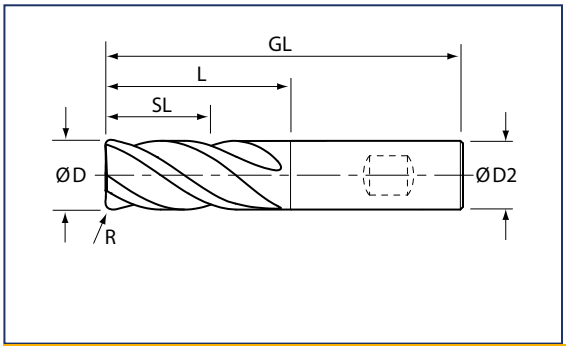
Scope 85 with TiAlxN coating

- Ultra fine grain carbide with a special hard material coating for machining hardened steel up to 63 HRC
- Helical toothed with unevenly divided helix angle λ = 42°/45°
- Shank manufactured according to DIN 6535 - HA, from Ø D2 = 12 mm according to DIN 6535 -HB (Weldon)
- Low-vibration operation through uneven distribution for a high surface quality

PG 418

Usage guide values can be found on page 23

Order no.	Ø D	Ø D2	F	SL	L	GL	Z
N 40819 H	8	8	0,15 x 45°	19	27	63	4
N 41022 H	10	10	0,2 x 45°	22	32	72	4
N 41226 H	12	12	0,2 x 45°	26	38	83	4
N 41632 H	16	16	0,35 x 45°	32	44	92	4



Scope 45 with AlTiN coating

- Fine grain carbide with a hard material coating for machining high-tensile steel and titanium
- Helical toothed with unevenly divided helix angle λ = 35°/38°
- Shank manufactured according to DIN 6535 - HA, from Ø D2 = 12 mm according to DIN 6535 -HB (Weldon)
- Low-vibration operation through uneven distribution for a high surface quality

Usage guide values can be found on page 22

PG 417

Order no.	Ø D	R	Ø D2	SL	L	GL	Z
NT 40410 - R05	4	0,5	6	11	17	57	4
NT 40410 - R1	4	1,0	6	11	17	57	4
NT 40613 - R05	6	0,5	6	13	19	57	4
NT 40613 - R1	6	1,0	6	13	19	57	4
NT 40819 - R05	8	0,5	8	21	25	63	4
NT 40819 - R1	8	1,0	8	21	25	63	4
NT 41022 - R05	10	0,5	10	22	30	72	4
NT 41022 - R1	10	1,0	10	22	30	72	4
NT 41022 - R2	10	2,0	10	22	30	72	4
NT 41226 - R1	12	1,0	12	26	36	83	4
NT 41226 - R2	12	2,0	12	26	36	83	4

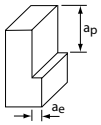
Notes:

Cutting parameters for DEPO solid carbide tools

The specified values are guideline values for DEPO machines and may need to be coordinated with the machine/workpiece clamping system, as well as extreme protruding lengths.

Groove milling cutters

The cutting speed v_C is to be reduced by 25 - 30 % for full groove ae= 1 x D!



N3.., N4..

NT 4..

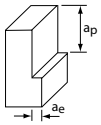
Material	vc [m/min]	ap [mm]	ae [mm]	Feed rate per tooth fz [mm]					
				Ø 6	Ø 8	Ø 10	Ø 12	Ø 16	Ø 20
Construction steel									
unalloyed ≤ 500 N/mm2	210 - 260	0.5 - 1 x D	0.1 - 0.3 x D	0.04	0.05	0.065	0.08	0.095	0.11
unalloyed > 500 N/mm2	190 - 230	0.5 - 1 x D	0.1 - 0.3 x D	0.035	0.045	0.06	0.07	0.09	0.1
alloyed	150 - 200	0.5 - 1 x D	0.1 - 0.3 x D	0.03	0.04	0.055	0.065	0.08	0.095
Case-hardened steel									
≤ 150 HB	240 - 290	0.5 - 1 x D	0.1 - 0.3 x D	0.04	0.05	0.065	0.08	0.095	0.11
150 -200 HB	180 - 230	0.5 - 1 x D	0.1 - 0.3 x D	0.035	0.045	0.06	0.07	0.09	0.1
> 200 HB	140 - 170	0.5 - 1 x D	0.1 - 0.3 x D	0.03	0.04	0.055	0.065	0.08	0.095
Nitriding steel									
≤ 1000 N/mm2	210 - 250	0.5 - 1 x D	0.1 - 0.3 x D	0.035	0.045	0.06	0.07	0.09	0.1
> 1000 N/mm2	190 - 230	0.5 - 1 x D	0.1 - 0.3 x D	0.03	0.04	0.055	0.065	0.08	0.095
Heat-treated steel									
unalloyed ≤ 800 N/mm2	210 - 250	0.5 - 1 x D	0.1 - 0.3 x D	0.035	0.045	0.06	0.07	0.09	0.1
unalloyed 800 - 1000 N/mm2	160 - 190	0.5 - 1 x D	0.1 - 0.3 x D	0.03	0.04	0.055	0.065	0.08	0.095
alloyed ≤ 800 N/mm2	210 - 250	0.5 - 1 x D	0.1 - 0.3 x D	0.035	0.045	0.06	0.07	0.09	0.1
alloyed 800 - 1000 N/mm2	180 - 230	0.5 - 1 x D	0.1 - 0.3 x D	0.03	0.04	0.055	0.065	0.08	0.095
alloyed 1000 - 1300 N/mm2	160 - 190	0.5 - 1 x D	0.1 - 0.3 x D	0.025	0.035	0.05	0.06	0.07	0.09
Tool steel									
unalloyed	190 - 230	0.5 - 1 x D	0.1 - 0.3 x D	0.035	0.045	0.06	0.07	0.09	0.1
...for cold working									
low-alloyed up to 1000 N/mm2	160 - 190	0.5 - 1 x D	0.1 - 0.3 x D	0.03	0.04	0.055	0.065	0.08	0.095
low-alloyed up to 1200 N/mm2	120 - 150	0.5 - 1 x D	0.1 - 0.3 x D	0.025	0.035	0.05	0.06	0.07	0.09
high-alloy annealed up to 1000 N/mm2	140 - 170	0.5 - 1 x D	0.1 - 0.3 x D	0.03	0.04	0.055	0.065	0.08	0.095
high-alloy tempered up to 1300 N/mm2	100 - 140	0.5 - 1 x D	0.1 - 0.3 x D	0.025	0.035	0.05	0.06	0.07	0.09
...for hot working									
low-alloyed up to 1200 N/mm2	120 - 150	0.5 - 1 x D	0.1 - 0.3 x D	0.03	0.04	0.055	0.065	0.08	0.095
high-alloy annealed up to 1000 N/mm2	160 - 190	0.5 - 1 x D	0.1 - 0.3 x D	0.03	0.04	0.055	0.065	0.08	0.095
high-alloy tempered up to 1300 N/mm2	100 - 140	0.5 - 1 x D	0.1 - 0.3 x D	0.025	0.035	0.05	0.06	0.07	0.09
Stainless steel									
sulphurated ≤ 850 N/mm2	120 - 150	0.5 - 1 x D	0.1 - 0.3 x D	0.03	0.04	0.055	0.065	0.08	0.095
austenitic ≤ 850 N/mm2	100 - 120	0.5 - 1 x D	0.1 - 0.3 x D	0.025	0.035	0.05	0.06	0.07	0.09
ferritic ≤ 850 N/mm2	100 - 120	0.5 - 1 x D	0.1 - 0.3 x D	0.025	0.035	0.05	0.06	0.07	0.09
martensitic ≤ 850 N/mm2	90 - 110	0.5 - 1 x D	0.1 - 0.3 x D	0.03	0.04	0.055	0.065	0.08	0.095
Cast steel									
unalloyed	160 - 190	0.5 - 1 x D	0.1 - 0.3 x D	0.04	0.05	0.065	0.08	0.095	0.11
low-alloyed	120 - 150	0.5 - 1 x D	0.1 - 0.3 x D	0.04	0.05	0.065	0.08	0.095	0.11
high-alloyed	100 - 130	0.5 - 1 x D	0.1 - 0.3 x D	0.035	0.045	0.06	0.07	0.09	0.1

Cutting parameters for DEPO solid carbide tools

The specified values are guideline values for DEPO machines and may need to be coordinated with the machine/workpiece clamping system. as well as extreme protruding lengths.

Groove milling cutters

The cutting speed v_C is to be reduced by 25 - 30 % for full groove ae= 1 x D!



N3.., N4..

Material	vc [m/min]	ap [mm]	ae [mm]	Feed rate per tooth fz [mm]					
				Ø 6	Ø 8	Ø 10	Ø 12	Ø 16	Ø 20
Cast iron GG									
unalloyed ≤ 180 HB	270 - 310	0.5 - 1 x D	0.1 - 0.3 x D	0.04	0.05	0.065	0.08	0.095	0.11
alloyed	220 - 250	0.5 - 1 x D	0.1 - 0.3 x D	0.035	0.045	0.06	0.07	0.09	0.1
high-alloyed	180 - 220	0.5 - 1 x D	0.1 - 0.3 x D	0.025	0.035	0.05	0.06	0.07	0.09
Spheroidal graphite iron GGG									
unalloyed ≤ 180 HB	250 - 290	0.5 - 1 x D	0.1 - 0.3 x D	0.04	0.05	0.065	0.08	0.095	0.11
unalloyed > 180 HB	230 - 270	0.5 - 1 x D	0.1 - 0.3 x D	0.035	0.045	0.06	0.07	0.09	0.1
alloyed	190 - 240	0.5 - 1 x D	0.1 - 0.3 x D	0.035	0.045	0.06	0.07	0.09	0.1
Annealed cast iron GTW, GTS									
≤ 180 HB	270 - 310	0.5 - 1 x D	0.1 - 0.3 x D	0.04	0.05	0.065	0.08	0.095	0.11
> 180 HB	250 - 300	0.5 - 1 x D	0.1 - 0.3 x D	0.035	0.045	0.06	0.07	0.09	0.1
Titanium and titanium alloys									
≤ 850 N/mm2	100 - 130	0.5 - 1 x D	0.1 - 0.3 x D	0.03	0.04	0.055	0.065	0.08	0.095
850 - 1200 N/mm2	90 - 110	0.5 - 1 x D	0.1 - 0.3 x D	0.025	0.035	0.05	0.06	0.07	0.09

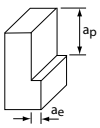
The values of fz are to be reduced by 30 - 40% for cutting depths a_p = 1.5 - 2 x D!

Cutting parameters for DEPO solid carbide tools

The specified values are guideline values for DEPO machines and may need to be coordinated with the machine/workpiece clamping system, as well as extreme protruding lengths.

Groove milling cutter - hard milling

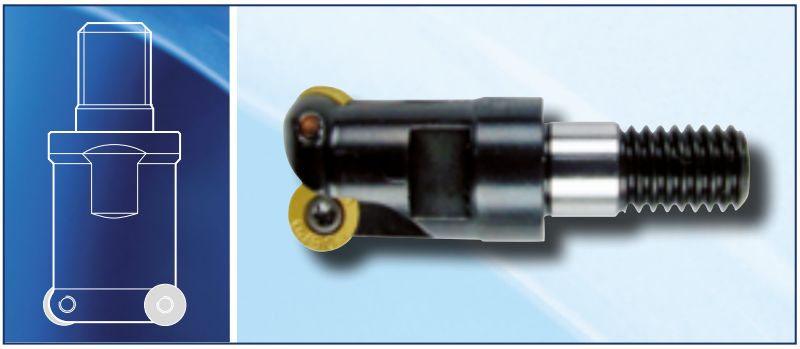
Production of slots with the trochoidal milling method

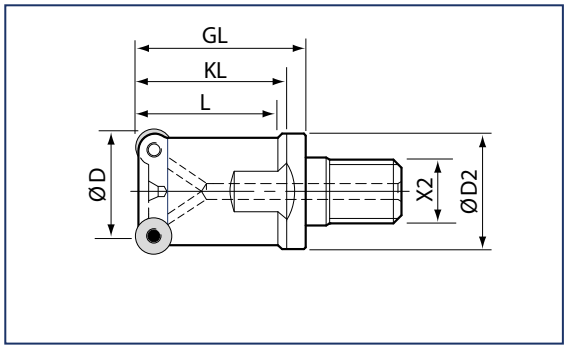


N4..-H

Material	vc [m/min]	ap [mm]	ae [mm]	Feed rate per tooth fz [mm]			
				Ø 8	Ø 10	Ø 12	Ø 16
Hardened steel							
≤ 55 HRC	60 - 65	0.1 - 1 x D	0.01 - 0.03 x D	0.04	0.045	0.05	0.06
55 - 58 HRC	55 - 60	0.1 - 1 x D	0.01 - 0.03 x D	0.035	0.04	0.045	0.055
58 - 60 HRC	45 - 50	0.1 - 1 x D	0.01 - 0.03 x D	0.03	0.035	0.04	0.05
60 - 63 HRC	40 - 45	0.1 - 1 x D	0.01 - 0.03 x D	0.025	0.03	0.035	0.04

The values of fz are to be reduced by 30 - 40% for cutting depths a_p = 1.5 - 2 x D!





- Screw-in milling cutter for round inserts; suitable for HSK holding fixtures, SK holding fixtures and solid carbide extensions
- All DEPO screw-in milling cutters are designed with holes for an internal coolant supply
- Highly accurate, hard machined insert seats ensure precise insert positioning as well as optimum radial and axial running accuracy
- Mating faces ensure accurate radial and axial positioning

Suitable carbide inserts can be found on pages 46 - 48

When assembling make sure the locating faces and mating faces are clean!

Usage guide values can be found on page 45–46

PG 11

Order no.	D	R	Ø D2	L	GL	X2	Z	Carbide inserts	Clamping screw
21220/6	12	3,5	9,8	18	18	M6	2	0107	2552
K 21220/8 [1)]	12	3,5	12,8	15	23	M8	2	0107	2552
21320/8*	13	3,5	12,8	23	23	M8	2	0107	2552
21520/8	15	3,5	12,8	23	23	M8	2	0207	2550
31520/8	15	3,5	12,8	23	23	M8	3	0207	2550
21620/10	16	3,5	15,4	23	23	M10	2	0207	2550
22020/10	20	5,0	17,8	30	30	M10	2	0210	3550
32020/10	20	3,5	17,8	30	30	M10	3	0207	2550
42020/10	20	3,5	17,8	30	30	M10	4	0207	2550
22420/12	24	6,0	20,8	35	35	M12	2	0312	3550
22520/12	25	5,0	20,8	35	35	M12	2	0210	3550
32520/12	25	5,0	20,8	35	35	M12	3	0210	3550
52520/12	25	3,5	20,8	35	35	M12	5	0207	2550
43020/16	30	5,0	28,8	43	43	M16	4	0210	3550
53020/16	30	3,5	28,8	43	43	M16	5	0207	2550
23220/16	32	8,0	28,8	43	43	M16	2	0416	4550
33520/16	35	6,0	28,8	43	43	M16	3	0312	3550
43520/16	35	5,0	28,8	43	43	M16	4	0210	3550
43521/16	35	6,0	28,8	43	43	M16	4	0312	3550
53520/16	35	5,0	28,8	43	43	M16	5	0210	3550
63520/16	35	3,5	28,8	43	43	M16	6	0207	2550
54220/16	42	5,0	28,8	43	43	M16	5	0210	3550
44220/16	42	6,0	28,8	43	43	M16	4	0312	3550
54221/16	42	6,0	28,8	43	43	M16	5	0312	3550

***** While stocks last.

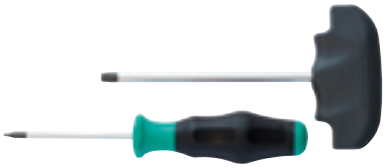
* K 21220/8 = effective cone angle β = 1.7; KL=17

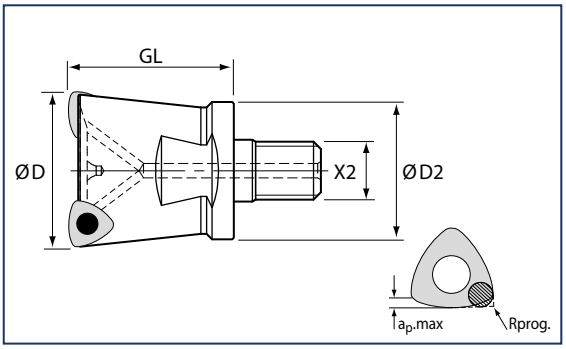
Replacement part:

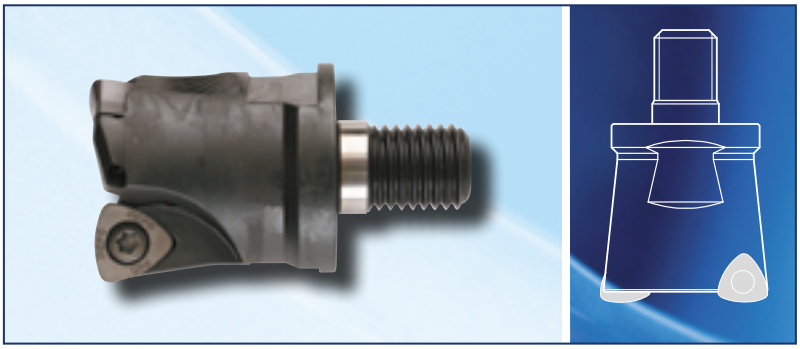
PG 159

Screwdriver

for screw	2552	2550	3550	4550
Order no.	**0750**	**0750**	**1550**	**2050**







- Screw-in milling cutter for polygonal inserts; suitable for HSK holding fixtures, SK holding fixtures and solid carbide extensions
- All DEPO screw-in milling cutters are designed with holes for an internal coolant supply
- Tools are especially suited for roughing in deep cavities with high feed rates
- Mating faces ensure accurate radial and axial positioning

Do not use above the maximum cutting depth -ap. max -! **When assembling make sure the locating faces and mating faces are clean!**

Suitable carbide inserts can be found on page 45

Usage guide values can be found on page 45–46

PG 15000

Order no.	Ø D	Ø D2	GL	X2	Rprog.	ap. max	Z	Carbide inserts	Clamping screw
32050/10	20	17,8	30	M10	1,5	0,8	3	X 02061	2560
32550/12	25	23,0	30	M12	1,5	0,8	3	X 02061	2560
43550/16	35	28,8	35	M16	1,5	0,8	4	X 02061	2560
X 54250/16 [1)]	42	38,0	43	M16+	1,5	0,8	5	X02061	2560
23550 / 16	35	28,8	43	M16	2	1,5	2	07162	4050
24250 / 16*	42	28,8	43	M16	2	1,5	2	07162	4050
34250 / 16	42	28,8	43	M16	2	1,5	3	07162	4050
X 34250 / 16 [1)]	42	38,0	43	M16+	2	1,5	3	07162	4050

**While stocks last.*

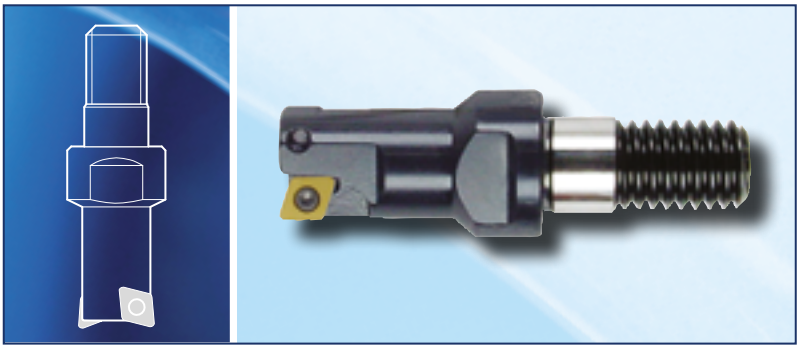
Replacement part:

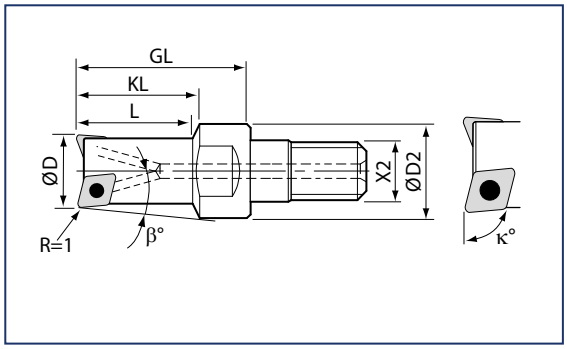
[1)] *M16 + with longer threaded design for holding fixtures with compatible Ø D2 mating dimension.*

PG 159

Screwdriver

for screw	2560	4050
Order no.	**0850**	**1550**





- Screw-in milling cutter for rhombical inserts; suitable for HSK holding fixtures, SK holding fixtures and solid carbide extensions
- All DEPO screw-in milling cutters are designed with holes for an internal coolant supply
- Mating faces ensure accurate radial and axial positioning
- Especially suitable for finishing, contour milling and boring

Suitable carbide inserts can be found on pages 42 - 43

When assembling make sure the locating faces and mating faces are clean!

Usage guide values can be found on page 45–46

PG 12

Order no.	Ø D	Ø D2	L	KL	GL	X2	β°	K°	Z	Carbide inserts	Clamping screw
21091/6	10	9,8	18	18	18	M6	-	100°	2	01041	1850
K 21091/8*	10	12,8	15	16	23	M8	5,4°	100°	2	01041	1850
21291/6	12	9,8	18	18	18	M6	-	100°	2	01041	1850
K 21291/8*	12	12,8	15	16	23	M8	1,6°	100°	2	01041	1850
31591/8	15	12,8	23	23	23	M8	-	100°	3	01041	1850
21090/6	10	9,8	18	18	18	M6	-	90°	2	01041	1850
K 21090/8*	10	12,8	15	16	23	M8	5,4°	90°	2	01041	1850
L 21090/8*	10	12,8	20	26	33	M8	3,2°	90°	2	01041	1850
21290/6	12	9,8	18	18	18	M6	-	90°	2	01041	1850
K 21290/8*	12	12,8	15	16	23	M8	1,6°	90°	2	01041	1850
M 21290/8*	12	12,8	20	21	28	M8	1,2°	90°	2	01041	1850
L 21290/8*	12	12,8	20	26	33	M8	1,0°	90°	2	01041	1850

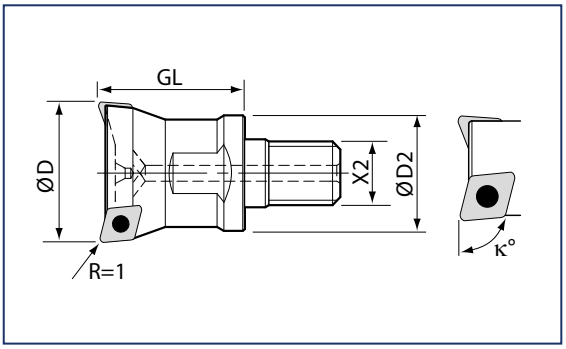
**While stocks last.*

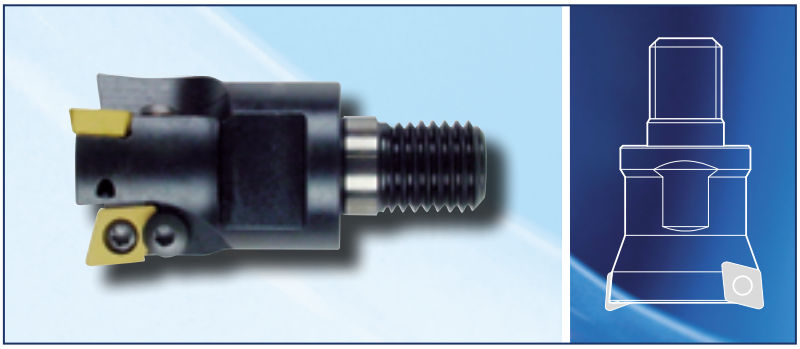
Replacement part:

PG 159

Screwdriver

for screw	1850
Order no.	**0650**





- Screw-in milling cutter for rhombical inserts; suitable for HSK holding fixtures, SK holding fixtures and solid carbide extensions
- All DEPO screw-in milling cutters are designed with holes for an internal coolant supply
- Mating faces ensure accurate radial and axial positioning
- Especially suitable for finishing, contour milling and boring

Suitable carbide inserts can be found on pages 42 - 43

When assembling make sure the locating faces and mating faces are clean!

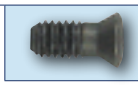
Usage guide values can be found on page 45–46

PG 12

Order no.	Ø D	Ø D2	GL	X2	K°	Z	Carbide inserts	Clamping screw	Clamping screw
21691/8	16	12,8	23	M 8	95°	2	02061	2550	-
21691/10	16	15,4	23	M10	95°	2	02061	2550	-
32091/10	20	17,8	30	M10	95°	3	02061	2550	-
22591/12	25	20,8	35	M12	95°	2	03101	3550	3551
32591/12	25	20,8	35	M12	95°	3	02061	2550	-
33591/16	35	28,8	43	M16	95°	3	03101	3550	3551
53591/16	35	28,8	43	M16	95°	5	02061	2550	-
44291/16	42	28,8	43	M16	95°	4	03101	3550	3551
64291/16	42	28,8	43	M16	95°	6	02061	2550	-
64291/16+ [1]	42	38,0	43	M16	95°	6	02061	2550	-
21590/8	15	12,8	23	M 8	90°	2	02061	2550	-
32090/10	20	17,8	30	M10	90°	3	02061	2550	-
22590/12	25	20,8	35	M12	90°	2	03101	3550	3551
32590/12	25	20,8	35	M12	90°	3	02061	2550	-
33590/16	35	28,8	43	M16	90°	3	03101	3550	3551

[1] *M16 + with longer threaded design for holding fixtures with compatible Ø D2 mating dimension.*

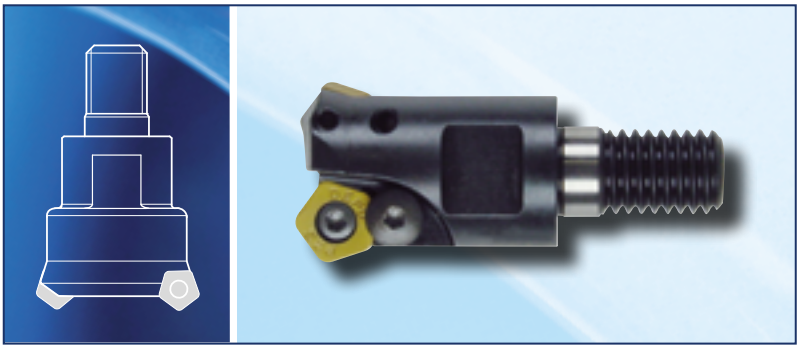
Replacement part:

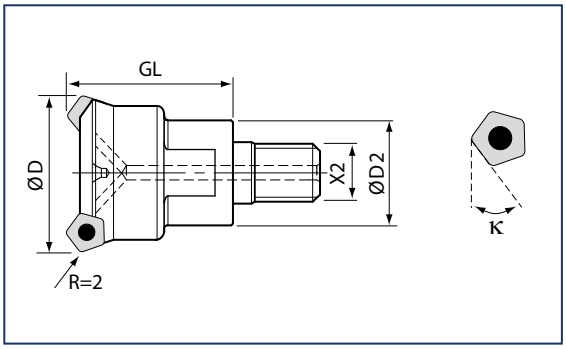


PG 159

Screwdriver

for screw	2550	3550	3551
Order no.	**0750**	**1550**	**1550**





- Screw-in milling cutter for pentagonal insert; suitable for HSK holding fixtures, SK holding fixtures and solid carbide extensions
- All DEPO screw-in milling cutters are designed with holes for an internal coolant supply
- Mating faces ensure accurate radial and axial positioning
- Used for light roughing work to achieve high machining volumes
- Rprog. specifies the radius to be programmed

Suitable carbide inserts can be found on page 44

When assembling make sure the locating faces and mating faces are clean!

Usage guide values can be found on page 45–46

PG 24

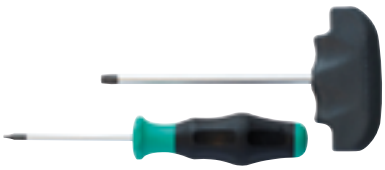
Order no.	Ø D	Ø D2	X2	Rprog.	K°	GL	Z	Carbide inserts	Clamping screw	Clamping screw
22537/12*	25	20,8	M12	4	36°	37	2	03052	3050	3555
33537/16*	35	28,8	M16	4	36°	43	3	03052	3050	3555
44237/16*	42	28,8	M16	4	36°	43	4	03052	3050	3555

**While stocks last.*

Replacement part:

PG 159

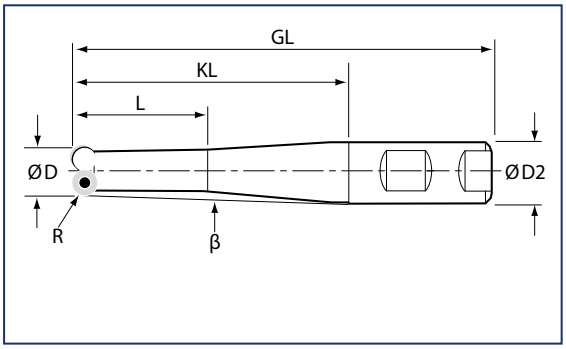
Screwdriver		
for screw	3050	3555
Order no.	**D1050**	**D1050**

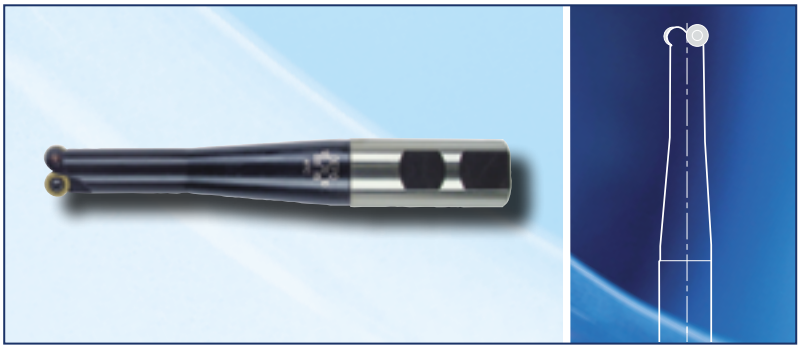


Tightening torques for screw-in milling cutters

M4,5	M6	M7	M8	M10	M12	M16
3,2 Nm	10 Nm	10 Nm	10 Nm	20 Nm	20 Nm	25 Nm

- Clean the locating faces and mating faces, screw in the tool by hand and use a torque wrench to tighten it in accordance with the above-mentioned tightening torques.





- End milling cutters for round indexable inserts; fit SK and HSK Weldon tool holders
- Shaft according to DIN 1835-B
- Highly accurate, hard machined insert seats ensure precise insert positioning as well as optimum radial and axial running accuracy
- Without internal supply of cooling agent

Suitable carbide inserts can be found on pages 46 - 48

Usage guide values can be found on page 45–46

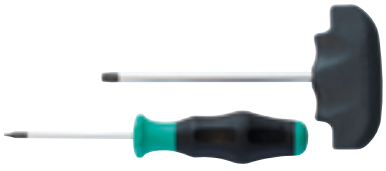
PG 10

Order no.	Ø D	R	Ø D2	L	KL	GL	β	Z	Carbide inserts	Clamping screw
401210	12	3,5	16	20	40	90	3,2°	2	0107	2552
601210	12	3,5	16	20	60	110	2,1°	2	0107	2552
801210	12	3,5	16	20	80	130	1,5°	2	0107	2552
401510	15	3,5	16	40	40	90	0,8°	2	0207	2550
601510	15	3,5	16	40	60	110	0,5°	2	0207	2550
801510	15	3,5	20	40	80	130	1,9°	2	0207	2550
402010	20	5,0	20	40	40	90	-	2	0210	3550
602010	20	5,0	20	40	60	110	-	2	0210	3550
802010	20	5,0	25	40	80	137	1,9°	2	0210	3550

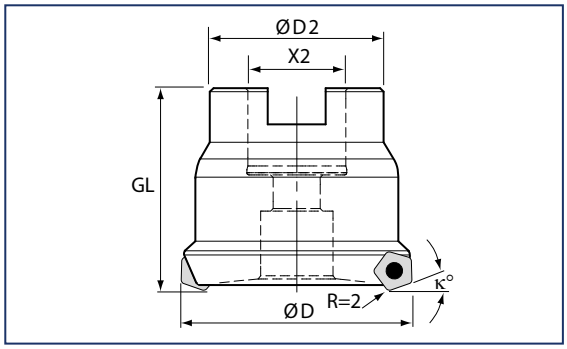
Replace-ment part:

PG 159

Screwdriver			
for screw	2552	2550	3550
Order no.	**0750**	**0750**	**1550**



DEPO | Shell-type milling cutter | *for pentagonal carbide inserts / 0405*



- Shell-type milling cutter for pentagonal inserts with holding fixture according to DIN 8030
- With internal coolant supply to the cutting edge or centrally on request
- Rprog. specifies the radius to be programmed
- Used for light roughing work to achieve high machining volumes
- The wiper edge can be used at an attack angle of κ=66° to achieve a higher surface quality

Suitable carbide inserts can be found on page 44

Usage guide values can be found on page 45–46

PG 25

Order no.	Ø D	Ø D2	GL	X2	Rprog.	κ°	Z	Carbide inserts	Clamping screw
6636	66	48	55	AF27 M12	2	66°	5	0405	4550
8036	80	60	55	AF27 M12	2	66°	6	0405	4550
12536	125	90	55	AF40 M20	2	66°	8	0405	4550
16036*	160	120	55	AF40 M20	2	66°	10	0405	4550
6637	66	48	55	AF27 M12	7	36°	5	0405	4550
8037	80	60	55	AF27 M12	7	36°	6	0405	4550
10037	100	70	55	AF32 M16	7	36°	7	0405	4550
12537	125	90	55	AF40 M20	7	36°	8	0405	4550
16037	160	120	55	AF40 M20	7	36°	10	0405	4550

Replacement part: 

DEPO | Shell-type milling cutter | *for pentagonal carbide inserts | 03052*

- Shell-type milling cutter for pentagonal inserts with holding fixture according to DIN 8030
- With internal coolant supply to the cutting edge or centrally on request
- Rprog. specifies the radius to be programmed
- Used for light roughing work to achieve high machining volumes up to ap=3 mm

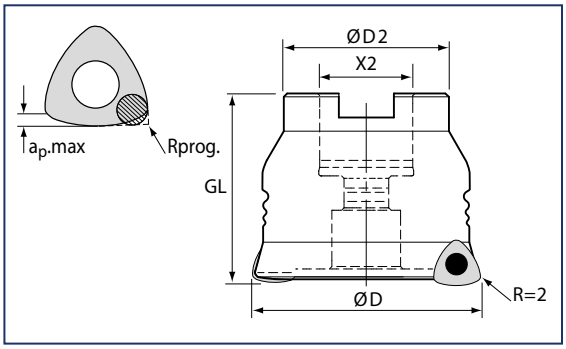
Suitable carbide inserts can be found on page 44

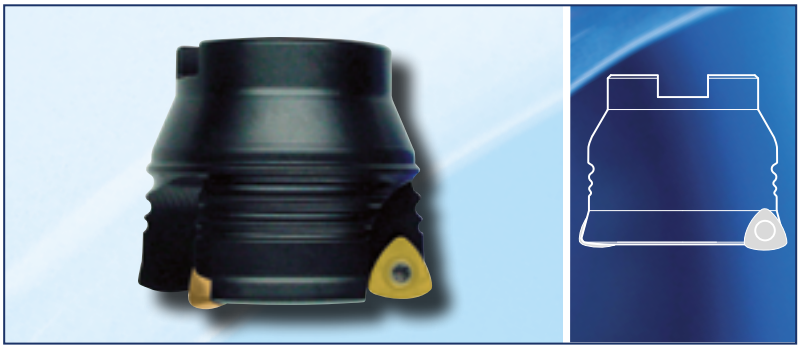
PG 25

Order no.	Ø D	Ø D2	GL	X2	Rprog.	κ°	Z	Carbide inserts	Clamping screw	Clamping screw
55237	52	40	50	AF22 M10	4	36°	5	03052	3050	3555
66637	66	48	50	AF27 M12	4	36°	6	03052	3050	3555
78037*	80	60	50	AF27 M12	4	36°	7	03052	3050	3555
810037*	100	70	55	AF32 M16	4	36°	8	03052	3050	3555
912537*	125	90	55	AF40 M20	4	36°	9	03052	3050	3555
1116037*	160	120	55	AF40 M20	4	36°	11	03052	3050	3555

**While stocks last.*

Replacement part:  





- Shell-type milling cutter for polygonal inserts with holding fixture according to DIN 8030
- With internal coolant supply to the cutting edge or centrally on request
- Tools are especially suited for roughing in deep cavities with high feed rates

Suitable carbide inserts can be found on page 45

Do not use above the maximum cutting depth -ap. max -!

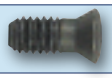
Usage guide values can be found on page 45–46

PG 23

Order no.	Ø D	Ø D2	GL	X2	Rprog.	ap. max	Z	Carbide inserts	Clamping screw
35250*	52	40	50	AF22 M10	2	1,5	3	07162	4050
45250	52	40	50	AF22 M10	2	1,5	4	07162	4050
36650*	66	48	55	AF27 M12	2	1,5	3	07162	4050
56650	66	48	55	AF27 M12	2	1,5	5	07162	4050
38050*	80	60	55	AF27 M12	2	1,5	3	07162	4050
58050	80	60	55	AF27 M12	2	1,5	5	07162	4050

**While stocks last.*

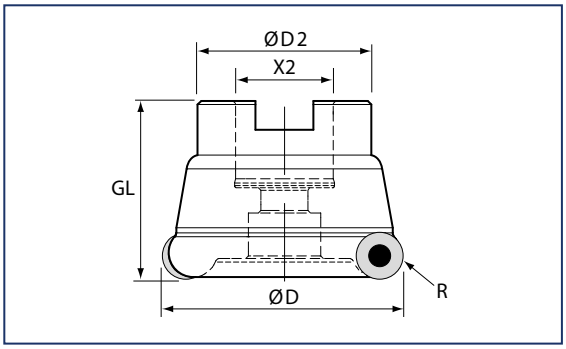
Replacement part:



PG 159

Screwdriver

for screw	4050
Order no.	**1550**



- Shell-type milling cutter for round inserts with holding fixture according to DIN 8030
- On request: Internal coolant supply to the cutting edge or centrally, axially positive support tools
- Highly accurate, hard machined insert seats ensure precise insert positioning as well as optimum radial and axial running accuracy

Suitable carbide inserts be found on page 46 - 48

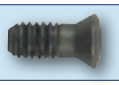
Usage guide values can be found on page 45–46

PG 20

Order no.	Ø D	Ø D2	R	GL	X2	Z	Carbide inserts	Clamping screw	Clamping screw	Clamping screw
45230	52	40	8	50	AF 22 M 10	4	0416	4550	-	1050
55231	52	40	6	50	AF 22 M 10	5	0312	3550	3551	-
65232	52	40	5	50	AF 22 M 10	6	0210	3550	-	-
56630	66	48	8	50	AF 27 M 12	5	0416	4550	-	1050
66631	66	48	6	50	AF 27 M 12	6	0312	3550	3551	-
76632*	66	48	5	50	AF 27 M 12	7	0210	3550	-	-
58030*	80	60	8	50	AF 27 M 12	5	0416	4550	-	1050
68030	80	60	8	50	AF 27 M 12	6	0416	4550	-	1050
78031	80	60	6	50	AF 27 M 12	7	0312	3550	3551	-
710030*	100	70	8	55	AF 32 M 16	7	0416	4550	-	1050
812530	125	90	8	55	AF 40 M 20	8	0416	4550	-	1050
916030	160	120	8	55	AF 40 M 20	9	0416	4550	-	1050

**While stocks last.*

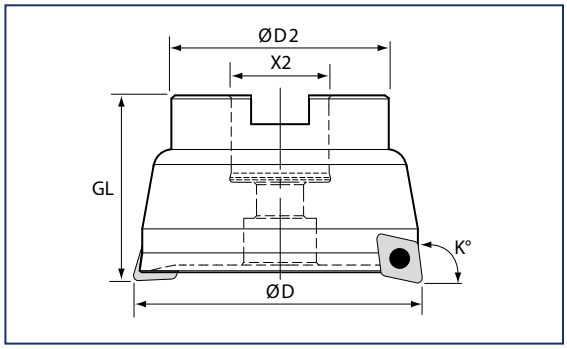
Replacement part:



PG 159

Screwdriver

for screw	3550	4550
Order no.	**1550**	**2050**



- Shell-type milling cutter for rhombical inserts with holding fixture according to DIN 8030
- With internal coolant supply to the cutting edge or centrally on request
- Highly accurate, hard machined insert seats ensure precise insert positioning as well as optimum radial and axial running accuracy

Suitable carbide inserts can be found on page 45

Usage guide values can be found on page 45–46

PG 22

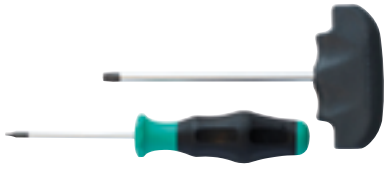
Order no.	Ø D	Ø D2	GL	X2	K°	Z	Carbide inserts	Clamping screw	Clamping screw
55290	52	40	50	AF22 M10	90°	5	03101	3550	3551
35291*	52	40	50	AF22 M10	95°	3	03101	3550	3551
55291	52	40	50	AF22 M10	95°	5	03101	3550	3551
66691	66	48	50	AF27 M12	95°	6	03101	3550	3551
78091	80	60	50	AF27 M12	95°	7	03101	3550	3551
Replacement part:									

**While stocks last.*

PG 159

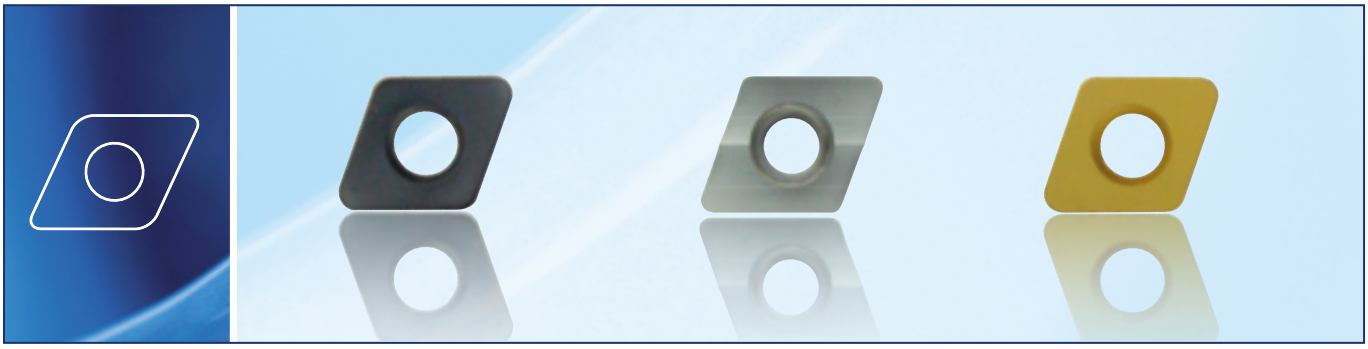
Screwdriver

for screw	3550	3551
Order no.	**1550**	**1550**



DEPO

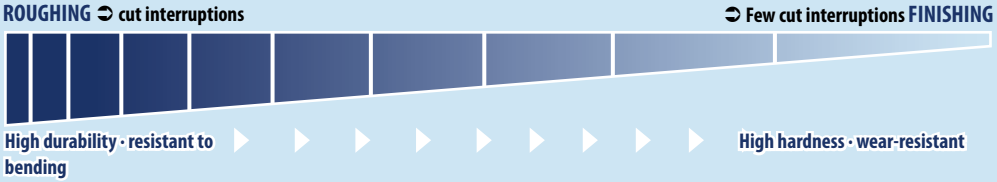
Indexable inserts



- Rhombical indexable inserts, suitable for DEPO screw-in and attachable tools
- For face milling, contour milling and shoulder milling
- Finishing to medium machining parameters

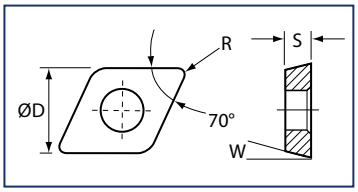
Suitable support tools can be found on pages 26- 27

Usage guide values can be found on page 45–46



PG 95 | PG 90-92 | PG 90-92 | PG 90-92 | PG 90-92

Indexable insert, rhombical; peripheral ground.

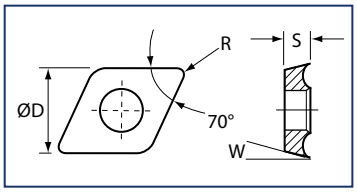


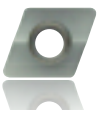
				M40	P40	P25	K10	K03
Coating				NTV	DC2	DC2	DC2	DC2
Scope				4-63	4-65	3-65	2-65	1-85
Ø D	S	R	W					
4	1,59	1	15°	-	0104184	-	0104186	0104187
6,5	2,38	1	15°	0206185 V*	0206184	0206185	0206186	0206187
10	3,97	1	15°	0310185 V	0310184	0310185	0310186	0310187

* *While stocks last.*

PG 99

Indexable insert, rhombical; peripheral ground. For machining aluminium, non-ferrous metal and plastic. High positive cutting angle.

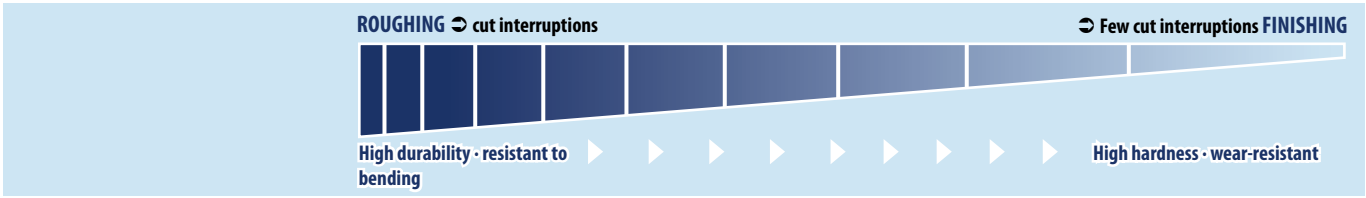


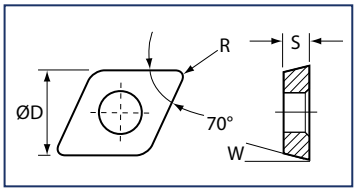


								N	
Coating								ALU	
Scope								2-25	
Ø D	S	R	W	Order no.					
6,5	2,38	1	15°	-	-	-	-	0206186/H	-
10	3,97	1	15°	-	-	-	-	0310186/H	-

- Rhombical indexable inserts, suitable for DEPO screw-in and attachable milling tools
- Special coating (diamond) and special cutting material (CBN) for maximum wear-resistance when machining the specified materials
- Diamond coating is also suitable for machining ceramics and carbide green bodies
- Ultra-hard cutting materials (CBN) require stable operating conditions - with few cut interruptions and synchronous milling

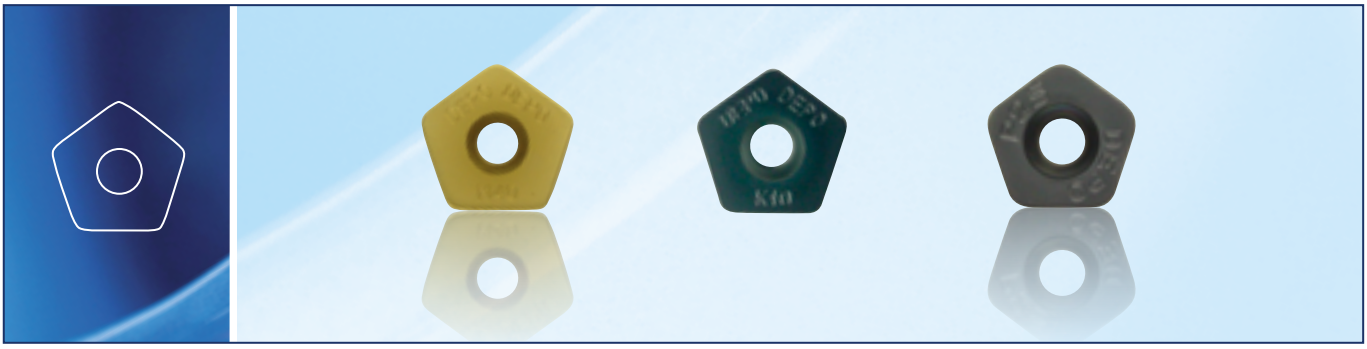
Observe or enquire about the special operating conditions of these special cutting materials!
Suitable support tools can be found on pages 26-27



				PG 115	PG 120	PG 120
Indexable insert, rhombical; peripheral ground. Special coatings, special cutting materials.						
				Diamond	CBN	CBN
						
Coating				DIA		
Machining of				Graphite	Cast iron	Hardened steel
Scope				2-15	1-58	1-88

Ø D	S	R	W						
				Order no.					
4	1,59	1	15°	-	-	-	**0104199**	-	-
6,5	2,38	1	15°	-	-	-	**0206199**	**0206195***	-
6,5	2,38	2	15°	-	-	-	-	**0206295***	**0206296***
10	3,97	1	15°	-	-	-	-	-	-

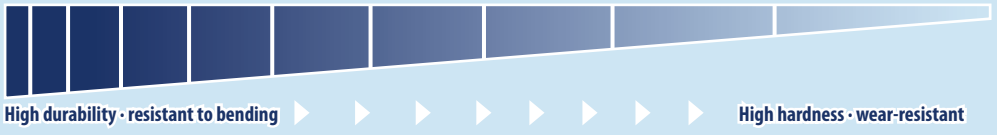
* *While stocks last.*



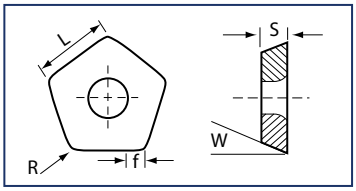
- Pentagonal indexable inserts; suitable for DEPO screw-in and attachable tools
- Roughing indexable inserts for achieving high machining volumes
- With a wiper edge at an attack angle of $\kappa = 66°$ (system 36) for a high surface quality (only ground version)

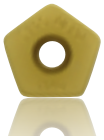
Suitable support tools can be found on pages 28 and 30

Usage guide values can be found on page 45-46



Pentagonal indexable insert; peripheral ground. With wiper edge in system 36 / $\kappa = 66°$



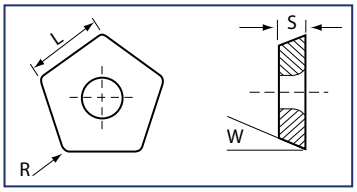
	M40	P40	P25	K10
				
Coating	NTV	DC2	DC2	DC2
Scope	4-63	4-65	3-65	2-65

L	S	R	W	f	Order no.			
					PG 86	PG 85	PG 85	PG 85
12	4,76	2	15°	1,5	**040585V***	**040584**	**040585**	**040586**

Pentagonal indexable insert, periphery precision sintered; without wiper edge.

L	S	R	W	f	Order no.			
						PG 116	PG 116	PG 116
12	4,76	2	15°	-	-	**040584S**	**040585S**	**040586S***

Pentagonal indexable insert, small, periphery precision sintered; without wiper edge.



	P40	P25	K10
			
Coating	DC2	DC2	DC2
Scope	4-65	3-65	2-65

L	S	R	W	Order no.			
					PG 84	PG 84	PG 84
7	3,97	2	15°	-	**03052 84**	**0305285**	**0305286***

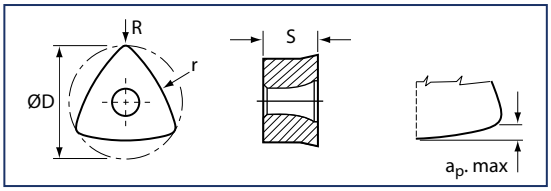
* *While stocks last.*

- Polygonal indexable inserts; suitable for screw-in and attachable tools
- Suitable for rough machining in deep cavities with high feed rates

Observe the maximum cutting depth ap.max!
Suitable support tools can be found on pages 25 and 31

Usage guide values can be found on page 45-46

Polygonal indexable inserts, periphery precision sintered.

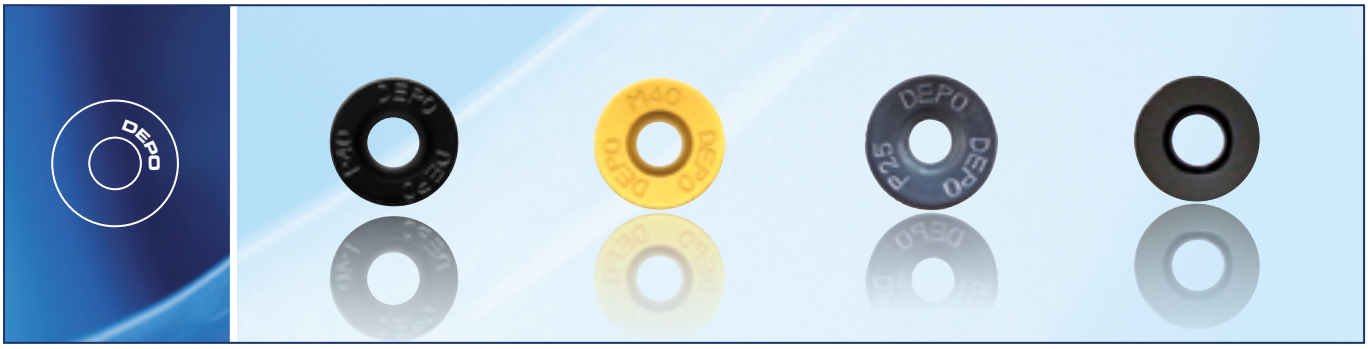


						M40	P40	P25	K10
									
Coating						NT7	DC2	DC2	DC2
Scope						4-64	4-65	3-65	2-65
Ø D	S	W	R	r	ap. max.	Order no.			
						PG 93	PG 89	PG 89	
16	7	15	2	16	1,5	0716284 NT-M40	0716284	0716285	-
Polygonal indexable inserts, peripheral ground									
								PG 790	PG 790
9	2,78	11	0,8	12	0,8	-	-	X0206132	X0206122

Tightening torques for TORX carbide insert clamping screws in Nm

1850 (M 1,8)	X2050 (M 2)	2550 (M 2,5)	3050 (M3)	3550 (M3,5)	4050 (M4)	4550 (M4,5)
T6	T7	T7	T10	T15	T15	T20
0,4 Nm	0,6 Nm	1,3 Nm	2,3 Nm	3,5 Nm	5,2 Nm	8,5 Nm

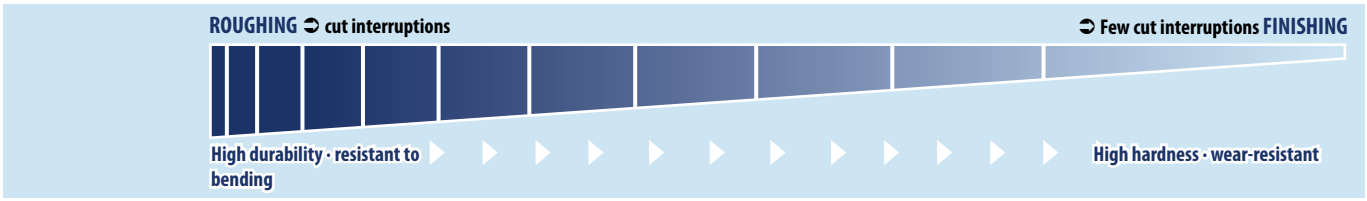
D3050 (M 3)	D3051 (M 3)	D3550 (M 3,5)	D4050 (M 4)	D4051 (M4)	D5052 (M5)
T8	T8	T10	T15	T15	T15
2,3 Nm	2,3 Nm	3,5 Nm	5,2 Nm	5,2 Nm	10,2 Nm



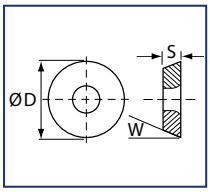
- Round indexable inserts, suitable for DEPO screw-in and attachable milling tools
- Specially coordinated carbide coating combinations with an ISO classification for purposeful selection according to the workpiece material and the roughing/finishing operation
- Maximum thermal and mechanical stability provided by hard material coatings
- High indexable insert changeover accuracy when finishing with peripheral ground indexable inserts

Suitable support tools can be found on pages 24, 29 and 32

Usage guide values can be found on page 45-46

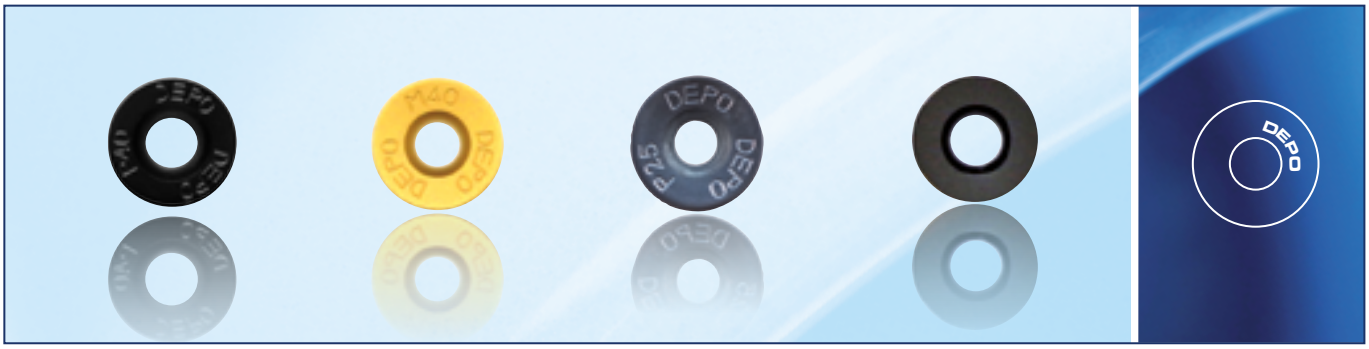


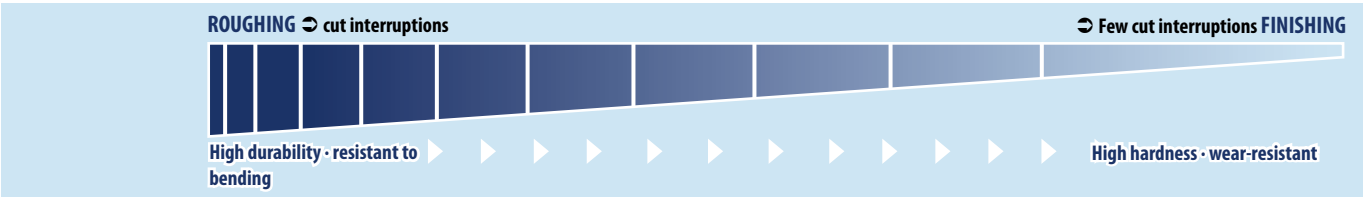
Round indexable insert, peripheral ground.



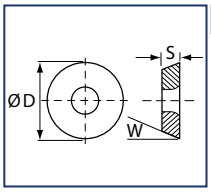
			M40	M40	P40	P25	K10	K05	K03
Coating			NTV	NT7	DC2	DC2	DC2	DC2	DC2
Scope			4-63	4-64	4-65	3-65	2-65	1-65	1-85
Ø D	S	W	Order no.						
					PG 71	PG 71	PG 71		PG 71
7	1,99	15°	-	-	-	010785*	010786*	-	010787
					PG 72	PG 72	PG 72	PG 72	PG 72
7	2,38	15°	-	-	020784	020785	020786	020788-14	020787
			PG 80	PG 81	PG 73	PG 73	PG 73	PG 73	PG 73
10	3,18	15°	021085 V	021084 NT*	021084	021085	021086	021088-14	021087
			PG 80	PG 81	PG74	PG 74	PG 74	PG 74	PG 74
12	3,97	15°	-	031284 KNT*	031284 K	031285 K	031286 K	031288 K-14	031287 K
			PG 80	PG 81	PG 76	PG 76	PG 76	PG 76	PG 76
16	4,76	15°	041685 V	041684 NT*	041684	041685	041686	-	041687*

* *While stocks last.*



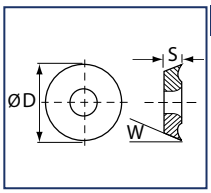


Round indexable insert, periphery precision sintered.



	M40	M40	P40	P25	K10		
Coating	NTV	NT7	DC2	DC2	DC2		
Scope	4-63	4-64	4-65	3-65	2-65		
ØD	S	W	Order no.						
			PG 83	PG 83	PG 83	PG 83	PG 83		
10	3,18	15°	021085SV*	021084SNT*	021084S	021085S	021086S	-	-
			PG 83	PG 83	PG 75	PG 75	PG 75		
12	3,97	15°	031285SKV	031284SKNT*	031284SK	031285SK	031286SK	-	-
					PG 77	PG 77	PG 77		
16	4,76	15°	-	-	041684S	041685S	041686S	-	-

Round indexable insert, peripheral ground. For machining aluminium, non-ferrous metal and plastic. High positive cutting angle.

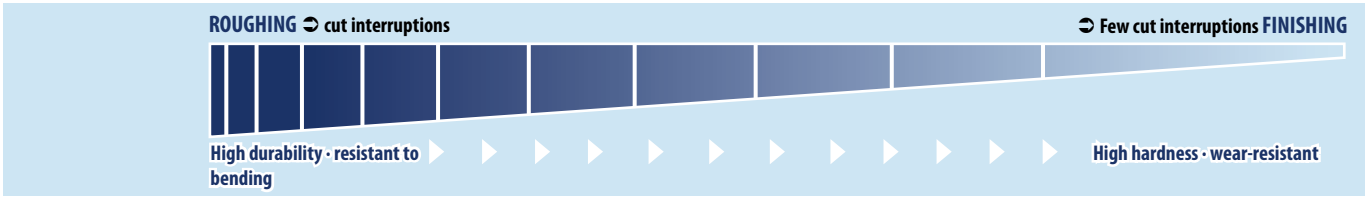


							N		
Coating							ALU		
Scope							2-25		
ØD	S	W	Order no.						
							PG 79		
7	2,38	15°	-	-	-	-	-	020786/H*	-	-
10	3,18	15°	-	-	-	-	-	021086/H	-	-
12	3,97	15°	-	-	-	-	-	031286K/H	-	-
16	4,76	15°	-	-	-	-	-	041686/H*	-	-

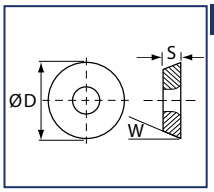
* *While stocks last.*

- Round indexable inserts, suitable for DEPO screw-in and attachable milling tools
- Special coating (diamond) and special cutting material (CBN) for maximum wear-resistance when machining the specified materials
- Diamond coating is also suitable for machining ceramics and carbide green bodies
- Ultra-hard cutting materials (CBN) require stable operating conditions - with few cut interruptions and synchronous milling

Observe or enquire about the special operating conditions of these special cutting materials!



Round indexable insert; special coatings, special cutting materials.



								Diamond	CBN
									
Coating:								DIA	-
Machining of								Graphite	Hardened steel
Scope								2-15	1-88
ØD	S	W	Order no.						
								PG 115	PG 110
7	2,38	15°	-	-	-	-	-	020799*	020796
10	3,18	15°	-	-	-	-	-	-	021096
12	3,97	15°	-	-	-	-	-	031299K*	031296K

* *While stocks last.*

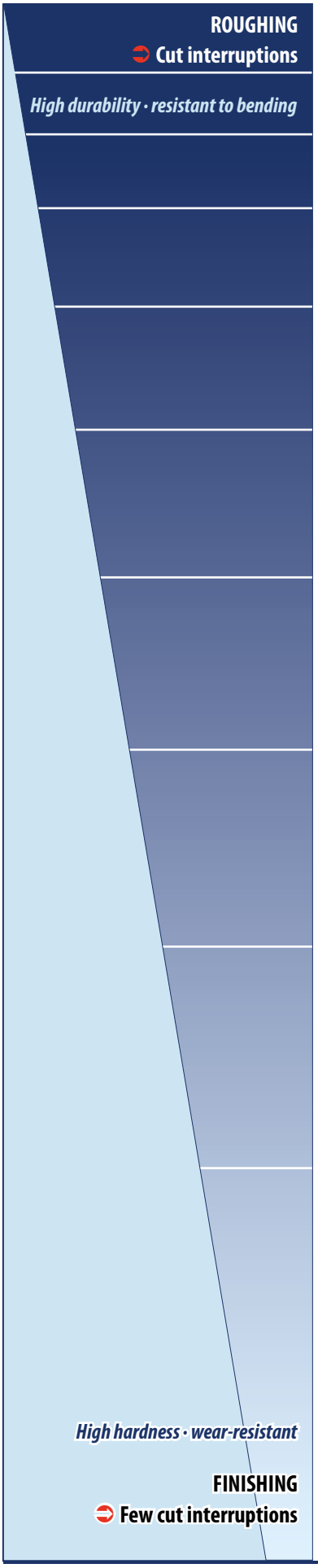
Quality	ISO	Scope	Material group P Tool construction, stainless qualitysteel	M Acid and rust resistant Steel up to 1200 mm²	M Acid and rust resistant steel >1200mm²	K Grey cast iron	H Hardened steel	N Aluminium Non-ferrous metals	N Graphite
M40 NTV	HC-M40			■					
M40 NT7	HC-M40		■						
P40 DC2	HC-P40		■						
P25 DC2	HC-P25		■						
K10 DC2	HC-K10		□			□	■		
K10 ALU	HC-K10							■	
K05 DC2	HC-K05						■		
K03 DC2	HC-K03						■		
CBN (...95)	BH-K10					■			
CBN (...96)	BL-H10						■		
Diamond (...99)	HC-K10								■

Scope: 01 05 10 15 20 25 30 35 40 45

Main focus of application

Total range according to ISO 513

■ Main application □ Further application



M40 NTV MT-CVD coated multi-range quality for rough machining high chromium steel, stainless steel and acid-resistant steel up to 1200 N/mm² strength at medium cutting speeds.

M40 NT7 MT-CVD coated milling quality; particularly suitable for machining welding materials up to a strength of 1900 N/mm².

P40 DC2 PVD-coated high-strength milling quality for rough machining tool steel and die steel, as well as ordinary steel, quality steel and high-grade steel under unstable conditions and/or with frequent cut interruptions.

P25 DC2 PVD coated milling quality for medium-machining to roughing of low-alloy and high-alloy tool steel, ordinary steel, quality steel and high-grade steel. This quality is particularly suitable for dry-machining at higher cutting speeds under stable conditions and with few cut interruptions; it is characterised by a balance of toughness and wear resistance.

K10 DC2 PVD-coated milling quality for medium-machining and finishing of high-strength tool steel and die steel, as well as ordinary steel, quality steel and high-grade steel under stable conditions. This quality is predominantly suitable for dry-machining and machine-finishing stainless steel and acid-resistant steel.

K10 ALU PVD coated quality for machining aluminium, non-ferrous metals and plastics at maximum speeds. An extremely smooth, low-friction and wear-resistant coating with a low affinity for Al-materials; applied to the cutting agent with a positive cutting geometry.

K05 DC2 PVD coated super-fine grain carbide for finishing tool steel and hardened steel up to approx. 60 HRC.

K03 DC2 PVD coated super-fine grain carbide with high hardness and wear resistance for finishing hardened steel up to 62 HRC.

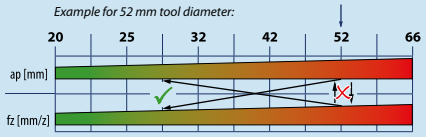
CBN (...95) CBN (cubic boron nitride) coated cutting agent with maximum wear resistance for machining cast iron with high cutting speeds under stable conditions.

CBN (...96) CBN (cubic boron nitride) coated cutting agent with maximum wear resistance for machining hardened steel up to 65 HRC.

Diamond (...99) Carbide with highly abrasion-resistant diamond coating for machining graphite.

Guideline values for cutting depths ap and feed rate per tooth fz

(The specified values are guideline values for DEPO machines and may need to be coordinated with the machine/workpiece clamping system).



(Red/red pairing of $a_p \rightarrow f_z$ and $f_z \rightarrow a_p$ are to be avoided)

DEPO Standard			Tool diameter 8 / 12 / 16 / 20 / 25 / 32 / 42 / 52 / 66 / 80<
	0405..	ap [mm]	0405..S Roughing: 1.5 – 3 – 6
		fz [mm/Z]	0.3 – 1 – 1.2
			Finishing: Use of wiper edge at κ=66°, ap=1.5; fz=0.3
	03052..	ap [mm]	Roughing: 1 – 2 – 3.5
		fz [mm/Z]	0.25 – 0,4 – 0.8
	07162..	ap [mm]	Roughing: Observe ap. max! 0.3 – 1.2
		fz [mm/Z]	0.4 – 3.5
	X02061..	ap [mm]	Roughing: 0.3 – 0.8 Observe ap. max!
		fz [mm/Z]	0.3 – 2.5
	0107..	ap [mm]	Roughing: 0.2 – 0.5
		fz [mm/Z]	0.2 – 0.5
			Finishing: fz=0.1 - 0.4
	0207..	ap [mm]	Roughing: 0.2 – 0.6 – 0.8
		fz [mm/Z]	0.2 – 0.6 – 0.8
			Finishing: fz=0.1 - 0.4
	0210..	ap [mm]	0210..S Roughing: 0.2 – 0.8 – 1
		fz [mm/Z]	0.2 – 0.8 – 1
			0210.. Finishing: fz=0.1 - 0.4
	0312..	ap [mm]	0312..S Roughing: 0.2 – 1 – 2
		fz [mm/Z]	0.3 – 0.8 – 1
			0312.. Finishing: fz=0.1 - 0.5
	0416..	ap [mm]	0416..S Roughing: 0.2 – 3 – 5
		fz [mm/Z]	0.2 – 0.8 – 1.2
			0416.. Finishing: fz=0.1 - 0.4
	01041..	ap [mm]	Roughing: 0.1 – 0.5
		fz [mm/Z]	0.1 – 0.4
			Finishing: fz=0.1 - 0.2
	02061..	ap [mm]	Roughing: 0 – 0.8 – 1.5
		fz [mm/Z]	0.2 – 0.4 – 0.8
			Finishing: fz=0.1 - 0.4
	03101..	ap [mm]	Roughing: 0 – 0.8 – 1.5
		fz [mm/Z]	0.2 – 0.6 – 0.8
			Finishing: fz=0.1 - 0.4

Guideline values for cutting speed v_c [m/min] for DEPO indexable inserts

(The specified values are guideline values for DEPO machines and may need to be coordinated with the machine/workpiece clamping system).

Scope			4-63	4-64	4-65	3-65	2-65	1-65	1-85	2-25	1-88	
Quality			M40	M40	P40	P25	K10	K05	K03	K10	CBN	
Coating			NTV	NT7	DC2	DC2	DC2	DC2	DC2	ALU		Diamond
	Material	Example	Cutting speed Vc [m/min]									
	Construction steel, unalloyed tool steel	1.1730			220 -240	250 -270	260 -280					
							280 -300	280 -300	300 -320			
		1.1545			210 -230	240 -260	250 -270					
							280 -300	280 -300	300 -320			
	Heat-treatable form steel	1.2311			200 -220	230 -250	240 -260					
							250 -270	250 -270	270 -290			
		1.2312			210 -230	240 -260	250 -270					
							260 -280	260 -280	280 -300			
		1.2738			160 -180	180 -200	200 -220					
							220 -240		240 -260			
	Through-hardened tool steel	1.2343			160 -180	180 -200	200 -220					
							220 -240		240 -260			
		1.2344			160 -180	180 -200	200 -220					
							220 -240		240 -260			
		1.2367			160 -180	180 -200	200 -220					
							220 -240		240 -260			
		1.2080			140 -160	160 -180	180 -200					
							220 -220	200 -220	220 -240			
		1.2379		180 -200	160 -180	180 -200	200 -220					
							220 -240	230 -250	240 -260			
		1.2767			160 -180	180 -200	220 -240					
							220 -240		240 -260			
	Stellite welding material			50 -70								
				50 -70								
	Corrosion resistant steel	1.2083	120 -140				140 -160					
							150 -180					
		1.2316	120 -140									
							150 -180					
		1.4541	100 -120				130 -180					
							150 -180					
		1.4301	100 -120				130 -150					
							150 -180					
		1.4401	100 -120				130 -150					
							150 -180					
	Cast iron GG alloyed	0.6025					250 -300					
							270 -320				1200 -1500	
	Spheroidal graphite iron GGG alloyed	0.7070					160 -200					
							170 -220					
	Hardened steel	45-52 HRC					140 -160	150 -170				
							160 -180	170 -190	190 -200		500 -700	
		53-58 HRC					120 -140	130 -150				
							140 -160	150 -170	150 -170		500 -700	
		59-63 HRC					50 -80	60 -90				
							60 -90	70 -100	70 -100		600 -800	
	Aluminium alloy long-chipping	3.3535								400 -600		
										500 -700		
	Aluminium alloy short-chipping	3.2581								200 -300		
										250 -350		
	Copper copper alloys	2.0060								300 -500		
										350 -550		
		2.0401								200 -300		
										250 -350		
	Plastic	PUR								400 -600		
										400 -600		
	Graphite											700 -800
												800 -1000

Roughing / Finishing

DEPO-cutting materials designation system

It has never before been so easy to find the right cutting material for processing a workpiece, or to find a suitable solid carbide tool. With the new number and colour-coded designation system by DEPO, not only will you find the right tool for the workpiece material very quickly, but also the strength class stamped in the surface of the cutting inserts allows you to make an immediate assessment of the cutting material in terms of its suitability for roughing or finishing.

A 2-digit numerical code at the end of every article description provides information regarding which material group the tool should be used with. In addition, there is a colour code in the catalogue or on the packaging, very much along the lines of the colour codes in DIN ISO 513. This numerical code is applied to each cutting article with a permanent label.

The colour coding of the application of cutting materials in this catalogue has been designed along the lines of the new Xpert cutting material classification system.

Number group	Use
80-89	*Hard machining*
60-69	*Die and mould steels, high-tensile tool steels, high-tensile and abrasive cast materials*
50-59	*Mild steels, unalloyed tool steels, free-cutting steels, low-strength cast materials*
40-49	*Stainless and acid resistant steels, duplex steels, nickel-based alloys, titanium and titanium alloys*
20-29	*Aluminium, non-ferrous metals, brasses, bronzes, plastics*
10-19	*Graphite, green ceramic compacts, glassfibre reinforced plastics*

In the case of indexable inserts, a number is introduced that provides information on the toughness of the cutting material and allows it to be classified into machining processes, roughing - finishing.

4 ▸ *Roughing, heavy interruptions of cut – tough types*

3 ▸ *Roughing – medium processing*

2 ▸ *Medium processing – finishing*

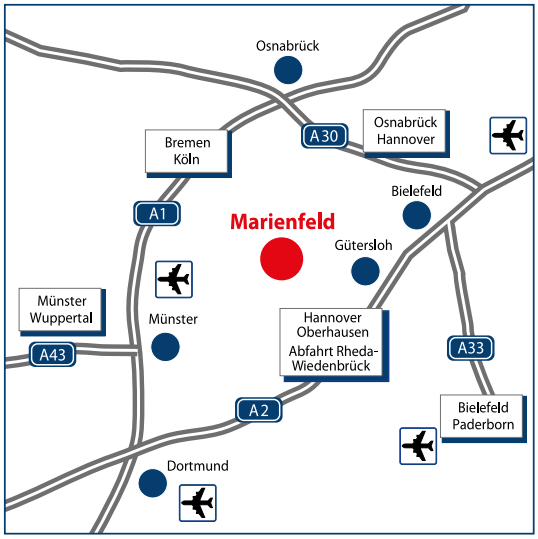
1 ▸ *Finishing, hardly any interruptions to cut – hard types*

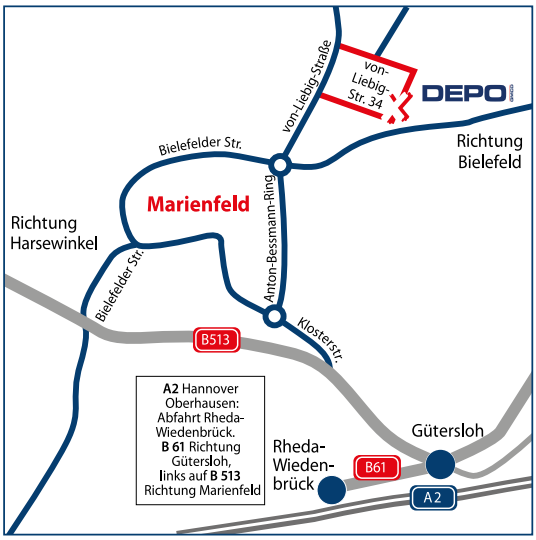
Example: Scope **4-65**

4 → Toughness class roughing

65 → Die and mould steels

How to find us...





Heinz Deitert founded **DEPO** in 1989 with the objective of realising a more efficient milling technology.

He utilised his extensive experience in the industry to create a complete tool system. The subsequent development of optimal cutting strategies with coordinated tools enables shorter machine run times and ensures a significant increase in productivity in numerous production processes.

The widespread acceptance of the **DEPO tooling system** enabled the company to establish itself remarkably quickly in the market. Decisive factors here were the level of innovation, flexibility and reliability that DEPO customers particularly appreciate.

The requirement of offering a "complete package for the toolmaking, moulding and diesinking industry" resulted in the foundation of DEPO Werkzeugmaschinentechnik in 1996.

We have been developing our **Xpert-line** "Made in Germany" **machining centres** since 2009.

The development and sale of machine tools and components in conjunction with our milling technology offers all users a high degree of efficiency.

The **DEPO CAM** programming software and milling and strategy training courses complement the holistic corporate concept.

Service is very important for DEPO. Around 70 employees ensure consistent development, competent advice and planning from the outset, a timely and high quality overall performance and an optimal service.

Make an appointment and come and visit us in our Technology Centre. We would be happy to provide you with information and advice.

Our staff here are standing by with the latest generation of machining centres, software and our entire tool programme to present you with the latest strategies and products. Come and experience our expertise for yourself.

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07/2018 Katalog Werkzeuge, Vollhartmetall, Wendeschneidplatten, 4. Auflage