



FAHRZEUGE



AEROSPACE



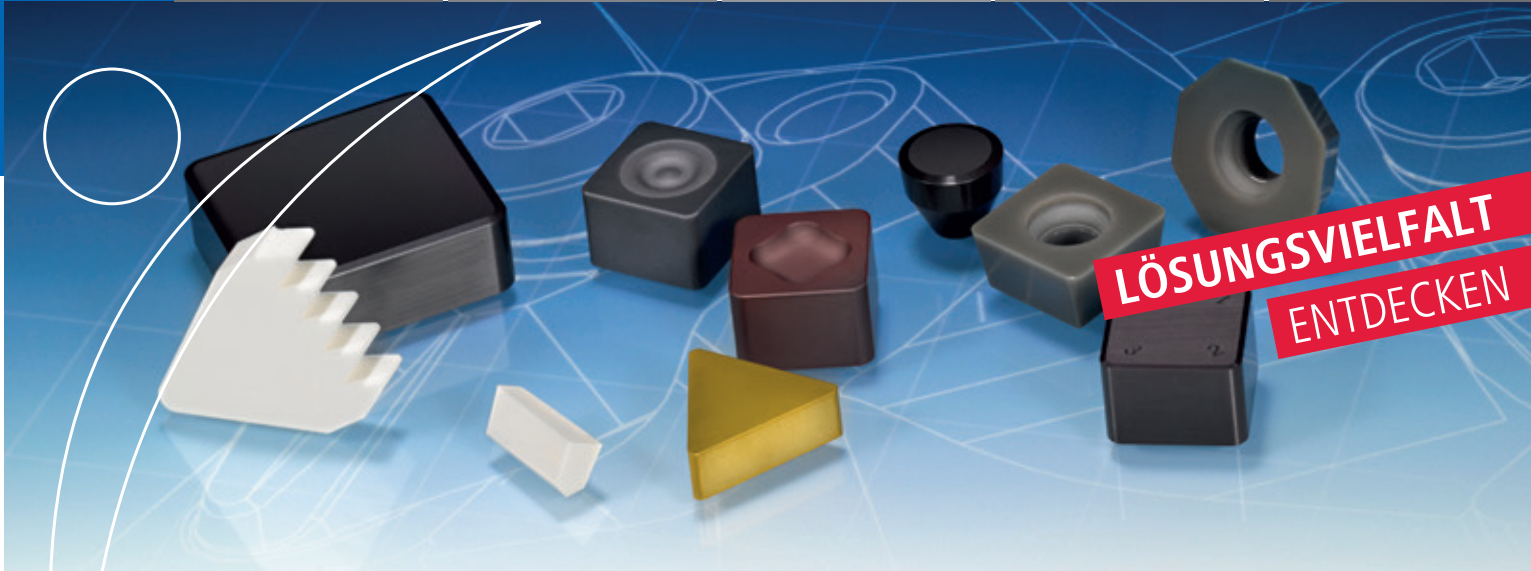
GETRIEBE + LAGER



MASCHINENBAU



WINDENERGIE



KERAMIKSCHNEIDPLATTEN

zum Drehen, Stechen und Fräsen



Schnittdatenempfehlung Fräsen Gusseisen mit Lamellengraphit GJL (GG)

STOFF-NR.	HÄRTE (HB)	D	EU	F	GB	S	E	I	USA	J
		DIN	EN	AFNOR	B.S.	SS	UNE	UNI	AISI/SAE	JIS
0.6015	190	GG-15	GJL-150	Ft 15 D	Grade 150	0115-00	FG 15	G 15	No 25 B	FC 150
0.6020	210	GG-20	GJL-200	Ft 20 D	Grade 220	0120-00		G 20	No 30 B	FC 200
0.6025	240	GG-25	GJL-250	Ft 25 D	Grade 260	0125-00	FG 25	G 25	No 35 B	FC 250
0.6030	260	GG-30	GJL-300	Ft 30 D	Grade 300	0130-00	FG 30	G 30	No 45 B	FC 300
0.6035	280	GG-35	GJL-350	Ft 35 D	Grade 350	0135-00	FG 35	G 35	No 50 B	FC 350

Schnittgeschwindigkeit und Vorschub

HÄRTE (HB)	SCHNITTGESCHWINDIGKEIT V_c (m/min)		VORSCHUB f_z (mm/z)			SORTE
	RICHTWERT	GESAMTBEREICH	RICHTWERT	GESAMTBEREICH		
				$K_r = 45^\circ$	$K_r = 75^\circ$	

$\sqrt[12.5]{}$ Schruppfräsen · $a_p < 5$ mm

190 - 210	1500	800 - 2000	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 808
	1600	800 - 2000	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 858 C
220 - 240	1200	500 - 1500	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 808
	1200	500 - 1500	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 858 C
250 - 280	800	300 - 1200	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 808
	800	300 - 1200	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 858 C

$\sqrt[6.3]{}$ Schruppfräsen · $a_p < 2$ mm

190 - 210	1500	800 - 2000	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 500
	1500	800 - 2000	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 854 C
	1500	800 - 2000	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 858 C
220 - 240	1200	500 - 1500	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 500
	1200	500 - 1500	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 854 C
	1200	500 - 1500	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 858 C
250 - 280	800	300 - 1200	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 500
	800	300 - 1200	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 854 C
	800	300 - 1200	0.16	0.12 - 0.30	0.10 - 0.20	0.08 - 0.20	SL 858 C

$\sqrt[3.2]{}$ Schlichtfräsen · $a_p = 0,5 - 1,0$ mm

190 - 210	1500	800 - 2000	0.12	0.10 - 0.20	0.10 - 0.15	0.08 - 0.15	SL 854 C
220 - 240	1200	500 - 1500	0.12	0.10 - 0.20	0.10 - 0.15	0.08 - 0.15	SL 854 C
250 - 280	800	300 - 1200	0.12	0.10 - 0.20	0.10 - 0.15	0.08 - 0.15	SL 854 C

$\sqrt[0.8]{}$ Feinfräsen · $a_p = 0,1 - 0,5$ mm

190 - 210	700	200 - 900	0.10	0.08 - 0.20	0.08 - 0.25	0.05 - 0.12	SH 2
220 - 240	500	200 - 700	0.10	0.08 - 0.20	0.08 - 0.25	0.05 - 0.12	SH 2
250 - 280	400	200 - 500	0.10	0.08 - 0.20	0.08 - 0.25	0.05 - 0.12	SH 2

Schnittdarempfehlungen Fräsen Gusseisen mit Kugelgraphit GJS (GGG)

STOFF-NR.	Rm (N/mm ²)	D	EU	F	GB	S	E	I	USA	J
		DIN	EN	AFNOR	B.S.	SS	UNE	UNI	AISI/SAE	JIS
0.7040	400	GGG-40	GJS-400-15	FGS 400-12	SNG 420/12	0717-02	FGE 38-17	GS 370-17	60-40-18	FCD 400
0.7050	500	GGG-50	GJS-500-7	FGS 500-7	SNG 500/7	0727-02	FGE 50-7	GS 500-7	65-45-12	FCD 500
0.7060	600	GGG-60	GJS-600-3	FGS 600-3	SNG 600/3	0732-03	FGE 60-2	GS 600-2	80-55-06	FCD 600
0.7070	700	GGG-70	GJS-700-2	FGS 700-2	SNG 700/2	0737-01	FGE 70-2	GS 700-2	100-70-03	FCD 700

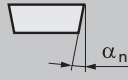
Schnittgeschwindigkeit und Vorschub

ZUGFESTIGKEIT Rm (N/mm ²)	SCHNITTGESCHWINDIGKEIT v _c (m/min)		VORSCHUB f _z (mm/z)			SORTE	
	RICHTWERT	GESAMTBEREICH	RICHTWERT	GESAMTBEREICH			
				K _r = 45°	K _r = 75°		K _r = 88°
12.5/√ Schruppfräsen · ap < 5 mm							
400 - 500	800	600 - 1000	0.16	0.15 - 0.30	0.12 - 0.25	0.08 - 0.20	SL 808
	800	600 - 1000	0.16	0.15 - 0.30	0.12 - 0.25	0.08 - 0.20	SL 858 C
500 - 700	700	500 - 800	0.16	0.15 - 0.30	0.12 - 0.25	0.08 - 0.20	SL 808
	700	500 - 800	0.16	0.15 - 0.30	0.12 - 0.25	0.08 - 0.20	SL 858 C
6.3/√ Schruppfräsen · ap < 2 mm							
400 - 500	800	600 - 1000	0.16	0.15 - 0.30	0.12 - 0.25	0.08 - 0.20	SL 854 C
	800	600 - 1000	0.16	0.15 - 0.30	0.12 - 0.25	0.08 - 0.20	SL 858 C
400 - 700	700	500 - 800	0.16	0.15 - 0.30	0.12 - 0.25	0.08 - 0.20	SL 854 C
	700	500 - 800	0.16	0.15 - 0.30	0.12 - 0.25	0.08 - 0.20	SL 858 C
3.2/√ Schlichtfräsen · ap < 0,5 - 1,0 mm							
400 - 500	800	600 - 1000	0.16	0.10 - 0.20	0.10 - 0.15	0.08 - 0.15	SL 854 C
500 - 700	700	600 - 1000	0.16	0.10 - 0.20	0.10 - 0.15	0.08 - 0.15	SL 854 C

Bezeichnungssystem für Schneidplatten zum Fräsen nach ISO 1832

R		
S	90°	
T	60°	
H	120°	
O	135°	

Plattenform



N	0°
A	3°
B	5°
C	7°
P	11°
D	15°
E	20°
F	25°
G	30°
O	Freiwinkel, der besondere Angaben erfordert.

Normal-Freiwinkel α_n

Inkreis					
d mm	H 120°	O 135°	RC, RN	S 90°	T 60°
3.97					06
5.56					09
6.35					11
9.52			09	09	16
12.70			12	12	22
13.50		05		13	
15.88	09		15	15	27
16.20	10				
16.50		06			
19.05			19	19	33
25.40			25	25	44

Plattengröße

S

N

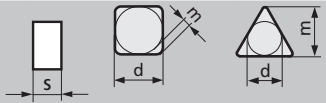
C

N

12

04

Toleranzen



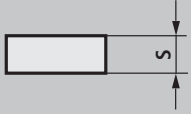
* Zulässige Abweichung für Plattenform, abhängig von der Plattengröße

	S = ± mm	d = ± mm	m = ± mm	Inkreis	Toleranzklasse			
				d mm	J, K, L, M	U	M, N	U
					d = ± mm		m = ± mm	
A	0,025	0,025	0,005					
C	0,025	0,025	0,013					
E	0,025	0,025	0,025					
F	0,025	0,013	0,005	3,97				
G	0,130	0,025	0,025	5,56	0,05	0,08	0,08	0,13
H	0,025	0,013	0,013	6,35				
J	0,025	0,05-0,13*	0,005	9,52				
K	0,025	0,05-0,13*	0,013	12,70	0,08	0,13	0,13	0,2
L	0,025	0,05-0,13*	0,025	15,88				
M	0,130	0,05-0,13*	0,08-0,18*	19,05	0,1	0,18	0,15	0,27
U	0,130	0,08-0,25*	0,13-0,38*	25,40	0,13	0,25	0,18	0,38

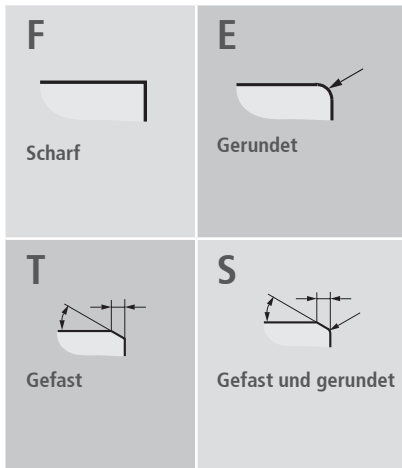
Plattentyp

N	
A	
W	
Q	
X	Sonderausführung

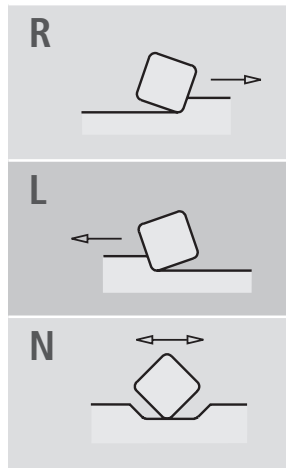
Plattendicke



01	1,59
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
09	9,52
12	12,70



Schneidenausführung



Schneidrichtung

Einstellwinkel K_r	Breite der ZZ-Fase
43 = 43°	125 = 1,25 mm
47 = 47°	150 = 1,50 mm
75 = 75°	240 = 2,40 mm
88 = 88°	

Bezeichnungsschlüssel für ZZ-Geometrien


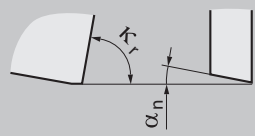
AN

T

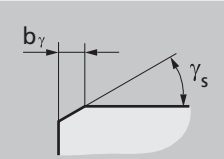
N

01020 - 88Z240

Eckenradius

Platten mit Eckenradius		Platten mit Planschneide			
					
00	RN, RC	Einstellwinkel der Hauptschneide K_r	Freiwinkel α_n	N	0°
M0	RB				
02	0,2				
04	0,4				
08	0,8	A	45°	C	7°
12	1,2	D	60°	P	11°
16	1,6	E	75°	D	15°
24	2,4	F	85°	E	20°
32	3,2	P	90°	F	25°
40	4,0	Z	andere Winkel	F	25°








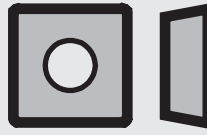



Fasenausführung

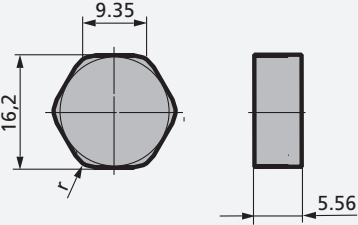
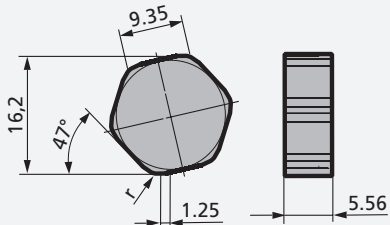
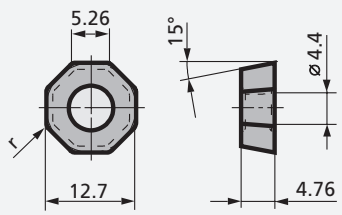
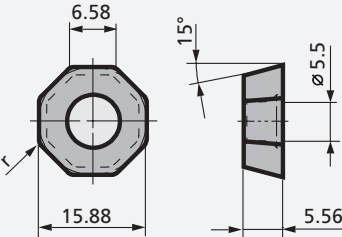
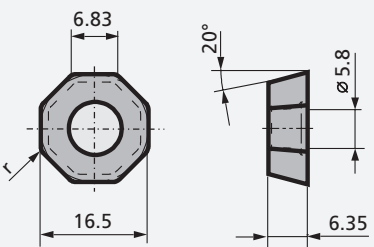


Breite der Fase b_γ in 1/100 mm und Winkel γ_s ohne Gradzeichen

z.B.
 $0,10 \times 20^\circ = 01020$
 $0,05 \times 20^\circ = 00520$

Inhaltsverzeichnis Keramikscheidplatten zum Fräsen

HNGX	ODHW, OEHX, OPHX	ONHQ	OPHN
			
Seite 83	Seite 83-84	Seite 84	Seite 84
RNGN	SNCN, SNFN, SNGN, SNHX	SDCN, SECN, SOCN, SPCN, SPGN, SPHN, SPKN	SDHW, SEHW
			
Seite 85	Seite 86-88	Seite 85-90	Seite 85
SPHX	TNCN	TPCN	
			
Seite 89	Seite 91	Seite 91	

SCHNEIDPLATTE	ISO	SORTE	SPK-BEST. NR.
HNGX 10 05 .. T 	HNGX 10 05 12 T01020	SL 500	36.60.123.20.0
		SL 808	17.60.123.20.1
	HNGX 10 05 16 T01020	SL 500	36.60.124.20.0
		SL 808	17.60.124.20.1
HNGX 10 05 16 T - 47Z125 	HNGX 10 05 16 T01020 - 47Z125	SL 500	36.60.120.20.0
	HNGX 10 05 16 T03020 - 47Z125	SL 808	17.60.120.23.1
ODHW 05 04 .. T 	ODHW 05 04 08 T 01020	SL 500	36.76.001.20.0
	ODHW 05 04 12 T 01020	SL 500	36.76.002.20.0
ODHW 06 05 .. T 	ODHW 06 05 16 T 01020	SL 500	36.76.003.20.0
OEHX 06 06 .. T 	OEHX 06 06 16 T 01020	SL 808	17.76.016.20.1

Keramikschnidplatten zum Fräsen

SCHNEIDPLATTE	ISO	SORTE	SPK-BEST. NR.
<p>ONHQ 06 06 .. T</p>	ONHQ 06 06 16 T 01020	SL 808	17.76.017.20.1
<p>OPHN 05 04 .. T</p>	OPHN 05 04 12 T 01020	SL 500	36.72.001.20.0
<p>OPHX 06 06 .. T</p>	OPHX 06 06 16 T 01020	SL 808	17.76.014.20.1
<p>OPHX 06 06 08 T - 43Z150</p>	OPHX 06 06 08 T 01020 - 43Z150	SL 808	17.76.015.20.1



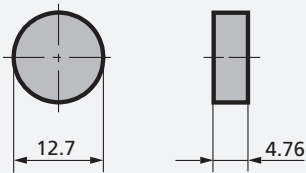
SCHNEIDPLATTE	ISO	SORTE	SPK-BEST. NR.
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RNGN 12 04 00 T 03015

RNGN 12 04 00 T 03015

SH 2

36.40.027.35.7



SDCN 12 04 .. T - 20

SDCN 12 04 08 T - 20

SL 500

36.12.340.20.0

SL 808

17.12.340.20.1

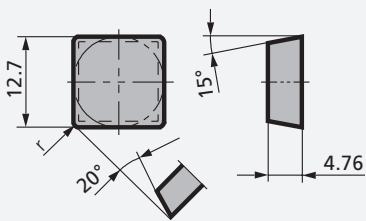
SDCN 12 04 12 T - 20

SL 500

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SL 808

17.12.341.20.1

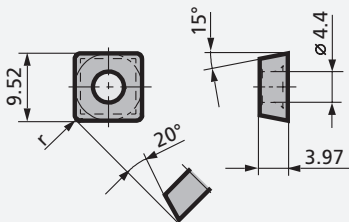


SDHW 09 T3 .. T

SDHW 09 T3 12 T 01020

SL 500

36.16.505.20.0

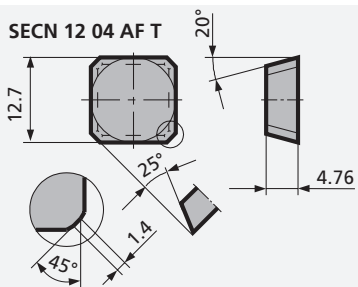


SECN 12 04 AF T

SECN 12 04 AF T 01020

SL 500

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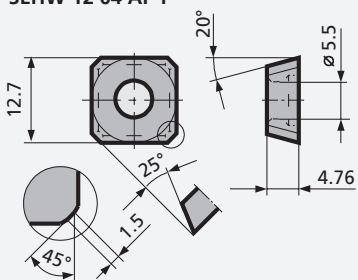


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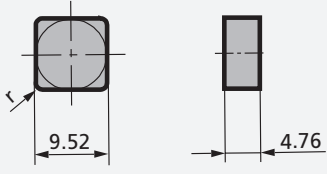
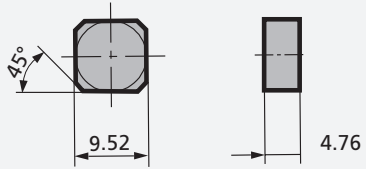
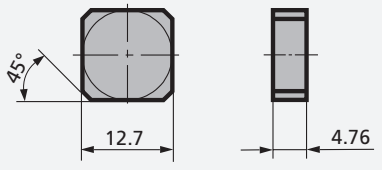
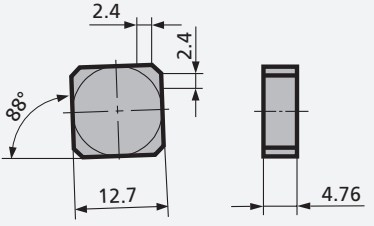
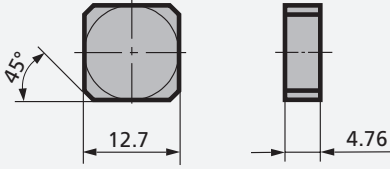
SEHW 12 04 AF T 01020

SL 500

36.16.519.20.0



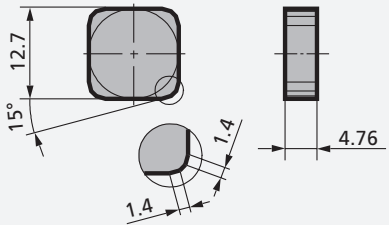
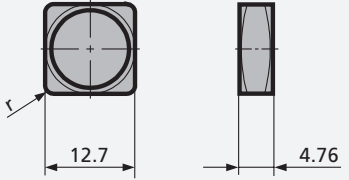
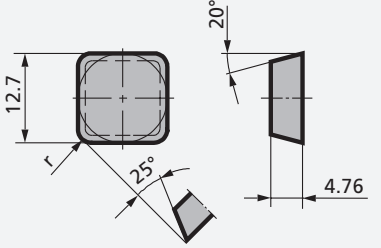
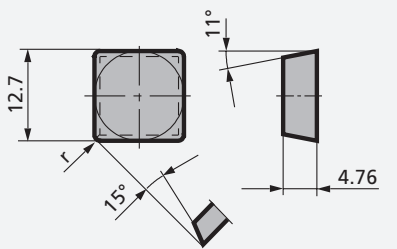
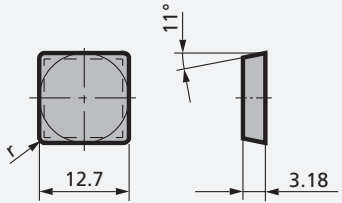
Keramikschnidplatten zum Fräsen

SCHNEIDPLATTE	ISO	SORTE	SPK-BEST. NR.
SNCN 09 04 .. T 	SNCN 09 04 04 T 00520	SL 808	17.10.454.03.1
SNCN 09 04 ZN T 	SNCN 09 04 ZN T 00520	SL 500	36.10.445.03.0
		SL 808	17.10.445.03.1
		SL 854 C	17.10.445.03.9
SNCN 12 04 ZN T 	SNCN 12 04 ZN T 00520	SL 500	36.10.409.03.0
		SL 808	17.10.409.03.1
		SL 854 C	17.10.409.03.9
SNCN 12 04 ZN T - 88Z240 	SNCN 12 04 ZN T 01020 - 88Z240	SL 500	36.10.493.20.0
		SL 808	17.10.493.20.1
SNFN 12 04 AN T 	SNFN 12 04 AN T 03015	SH 2	36.10.223.35.7

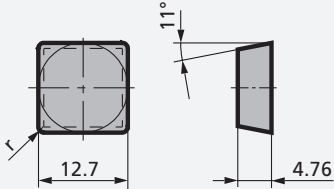
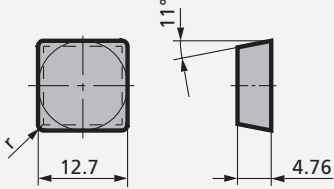
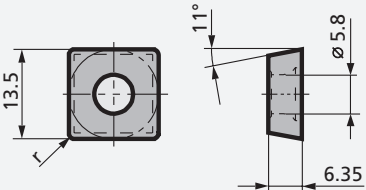
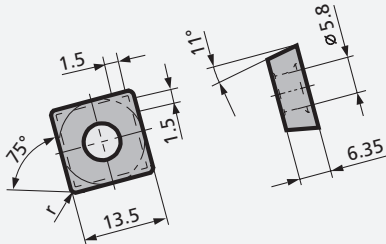
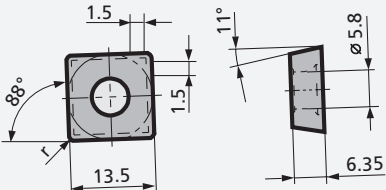


SCHNEIDPLATTE	ISO	SORTE	SPK-BEST. NR.
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	SNGN 09 04 12 T 03015	SH 2	36.10.050.35.7
SNGN 09 04 04 T - 88Z150 	SNGN 09 04 04 T 01020 - 88Z150	SL 808	17.10.490.20.1
SNGN 12 04 .. T 	SNGN 12 04 08 T 01020	SL 500	36.10.009.20.0
		SL 808	17.10.009.20.1
		SL 854 C	17.10.009.20.9
	SNGN 12 04 12 T 01020	SL 500	36.10.058.20.0
		SL 808	17.10.058.20.1
		SL 854 C	17.10.058.20.9
		SL 858 C	21.10.058.20.1
SNGN 12 04 12 T 03015	SH 2	36.10.058.35.7	
SNGN 12 04 08 T - 88Z240 	SNGN 12 04 08 T 01020 - 88Z240	SL 500	36.10.503.20.0
		SL 808	17.10.503.20.1
SNGN 12 04 AN T 	SNGN 12 04 AN T 01020	SL 500	36.10.232.20.0
		SL 808	17.10.232.20.1

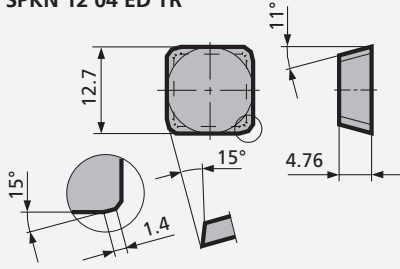
Keramikschnidplatten zum Fräsen

SCHNEIDPLATTE	ISO	SORTE	SPK-BEST. NR.
SNGN 12 04 EN T 	SNGN 12 04 EN T 01020	SL 500	36.10.261.20.0
SNHX 12 04 .. T 125 	SNHX 12 04 12 T 125	SH 2	36.10.266.99.7
SOCN 12 04 .. T - 25 	SOCN 12 04 16 T - 25 SL 500 SL 808	SL 500 SL 808	36.12.314.20.0 17.12.314.20.1
SPCN 12 04 .. T - 15 	SPCN 12 04 16 T - 15 SL 500 SL 808	SL 500 SL 808	36.12.325.20.0 17.12.325.20.1
SPGN 12 03 .. T 	SPGN 12 03 12 T 02020	SL 500	36.12.155.20.0



SCHNEIDPLATTE	ISO	SORTE	SPK-BEST. NR.
SPGN 12 04 .. T 	SPGN 12 04 12 T 02020	SL 500	36.12.163.20.0
		SL 808	17.12.163.20.1
SPHN 12 04 .. T 	SPHN 12 04 16 T 01020	SL 500	36.12.869.20.0
SPHX 13 06 .. T 	SPHX 13 06 12 T 01020	SL 808	17.16.535.20.1
SPHX 13 06 12 T - 75Z150 	SPHX 13 06 12 T 01020 - 75Z150	SL 808	17.16.537.20.1
SPHX 13 06 12 T - 88Z150 	SPHX 13 06 12 T 01020 - 88Z150	SL 808	17.16.536.20.1

Keramikschnidplatten zum Fräsen

SCHNEIDPLATTE	ISO	SORTE	SPK-BEST. NR.
SPKN 12 04 ED TR 	SPKN 12 04 ED TR 01020	SL 500	36.12.246.20.0



SCHNEIDPLATTE	ISO	SORTE	SPK-BEST. NR.
TNCN 16 04 .. T 	TNCN 16 04 04 T 01020	SL 808	17.30.190.20.1
		SL 854 C	17.30.190.20.9
	TNCN 16 04 08 T 01020	SL 808	17.30.191.20.1
		SL 854 C	17.30.191.20.9
	TNCN 16 04 12 T 01020	SL 808	17.30.192.20.1
		SL 854 C	17.30.192.20.9
TNCN 16 04 PC T 	TNCN 16 04 PC T 01020	SL 808	17.30.209.20.1
TNCN 22 04 AN T 	TNCN 22 04 AN T 01020	SL 500	36.30.100.20.0
		SL 854 C	17.30.100.20.9
TPCN 16 03 PD TN 	TPCN 16 03 PD TN 01020	SL 500	36.32.182.20.0