



SIGMATIZ PCBN CUTTING TOOLS MILLING



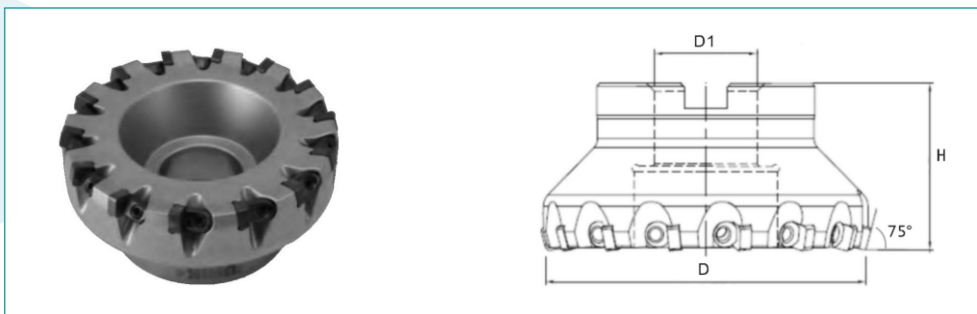
Compared with carbide inserts and ceramic inserts, SIGMATIZ PCBN inserts have outstanding advantages milling cast iron and hardened steel as below:

- ▶ Longer tool life
- ▶ Higher production efficiency
- ▶ Better cost efficiency

SIGMATIZ PCBN CUTTING TOOLS

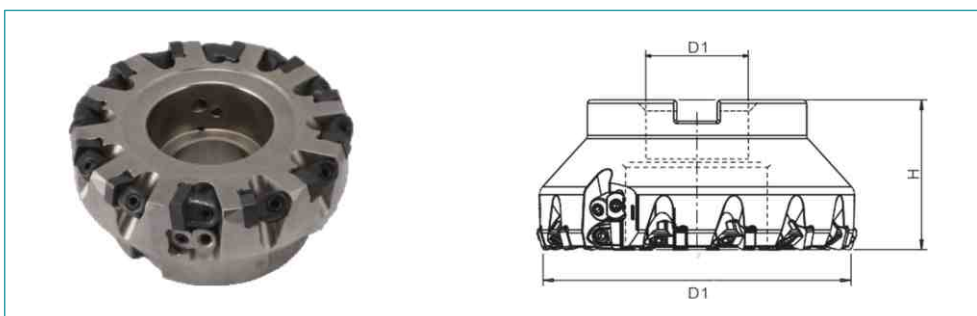
Face Milling Cutter Series

Rough Milling



SPECIFICATION	NO. OF POCKETS	DIMENSION			INSERT	SPARE PARTS		
		D	D1	H		Wedge	Screw	Wrench
SFW75 SN12.063 Z07 CBN	7	63	22	40	SNEN1204	SME01-1	SME02-2	SME03-3
SFW75 SN12.080 Z09 CBN	9	80	27	50				
SFW75 SN12.100 Z12 CBN	12	100	32	50				
SFW75 SN12.125 Z14 CBN	14	125	40	63				
SFW75 SN12.160 Z18 CBN	18	160	40	63				
SFW75 SN12.200 Z24 CBN	24	200	60	63				
SFW75 SN12.250 Z30 CBN	30	250	60	63				
SFW75 SN12.315 Z36 CBN	36	315	60	70				

Finish Milling



SPECIFICATION	NO. OF INSERTS	NO. OF WIPERS	DIMENSION			INSERT TYPE	SPARE PARTS		
			D	D1	H		Wedge	Screw	Wrench
SFW75 SN09.063 Z07 CBN	6	1	63	22	40	SNEN0904 + SNEN1204 ZZ	SME01-1	SME02-2	SME03-3
SFW75 SN09.080 Z09 CBN	8	1	80	27	50				
SFW75 SN09.100 Z12 CBN	10	2	100	32	50				
SFW75 SN09.125 Z14 CBN	12	2	125	40	63				
SFW75 SN09.160 Z18 CBN	15	3	160	40	63				
SFW75 SN09.200 Z24 CBN	20	4	200	60	63				
SFW75 SN09.250 Z30 CBN	25	5	250	60	63				
SFW75 SN09.315 Z36 CBN	30	6	315	60	70				

SIGMATIZ PCBN CUTTING TOOLS

High CNC grinding precision, better professional design of milling cutting edge, more strict supper finishing cutting edge contribute to superior performance of SIGMATIZ PCBN milling inserts.

Milling Insert

DESCRIPTION	DIMENSION (mm)				GRADE		
	ISO	L	Ø I.C	S	R	SBN6500	SBN7025
SNEN0903ENS	9	9.525	3.18	0.8			●
SNEN0903ENS	9	9.525	4.76	0.8			●
SNEN1204ENS	12	12.7	4.76	1.2			●
SNEN1207ENS	12	12.7	7.94	1.2			●
SNEN1207I2	12	12.7	7.97	1.2			●
SNEN19T6ENS	19	19.05	6.8	1.6		●	●



Wiper Insert

DESCRIPTION	DIMENSION (mm)				GRADE		
	ISO	L	Ø I.C	S	R	SBN6500	
SNEX1203ZZ	12	12.7	3.18	1.2		●	
SNEX1204ZZ	12	12.7	4.76	1.2		●	

Milling Insert

DESCRIPTION	DIMENSION (mm)				GRADE		
	ISO	L	Ø I.C	S	R	SBN6500	
RNEN090300	9	9.525	3.18	0		●	
RNEN090400	9	9.525	4.76	0		●	
RNEN120400	12	12.76	4.76	0		●	
RNEN120700	12	12.76	7.94	0		●	

Customised edge prep is available on request.

SIGMATIZ PCBN CUTTING TOOLS

High CNC grinding precision, better professional design of milling cutting edge, more strict supper finishing cutting edge contribute to SIGMATIZ PCBN milling insert with better performance

Milling Insert

DESCRIPTION	DIMENSION (mm)				GRADE	
	L	Ø I.C	S	R	SBN6500	
SCEN090412	9	9.525	4.76	1.2		
SCEN10412	12	12.7	4.76	1.2		●
SCEN150712	15	15.875	7.94	1.2	●	

Milling Insert

DESCRIPTION	DIMENSION (mm)			GRADE	
	L	Ø I.C	S	SBN6500	
OPHN0504ZZH-A57	12.7	4.76	4.76	●	
OPHX0504ZZH-A57	12.7	4.76	4.76	●	

Customised edge prep is available on request.

RECOMMENDED CUTTING PARAMETERS FOR SIGMATIZ PCBN INSERT

CONVENTIONAL CUTTING PARAMETER OF SIGMATIZ PCBN TURNING INSERT

WORKPIECE	MATERIAL	HARDNESS	CUTTING SPEED VC(M/MIN)	CUTTING DEPTH Ap (mm)	FEED RATE F (MM/R)	Recommended style
Gear	20CrMnTi	58-65HRC	100-320	0.1-0.5	0.05-0.2	SBK
Bearing	Gcr15	55-65HRC	100-220	0.1-0.5	0.05-0.2	SBK/SBS/SBN
Large Gear	40CrM0	310-360HB	40-120	0.5-5.0	0.2-1.0	SBN
	18CrNiMo	58-62HRC	60-120	0.3-1	0.1-0.3	SBN
Slewing Bearing	42CrMo	55-62HRC	80-220	0.2-2.0	0.1-0.5	SBN
Brake Disc	HTS 250	220-260HB	500-1200	0.2-0.5	0.1-0.4	SBN/SBS
			400-1200	0.5-3	0.1-0.4	SBN/SBS
350-1200			0.2-0.5	0.1-0.4	SBN/SBS	
280-1200			0.5-3	0.1-0.4	SBN/SBS	
Compressor Bearing			500-1200	0.3-2.5	0.2-0.4	SBN/SBS
Cylinder Liner	Boron Copper Cast Iron	180-260HB	500-800	0.1-0.3	0.1-0.2	SBN/SBS/SBK
		180-260HB	150-500	0.3-1.0	0.1-0.3	SBN/SBS/SBK
Roll	High Nickel Chromium	78HSD	30-50	1.0-8.0	0.5-1.5	SBN
	High Chromium Iron	75HSD	30-45	1.0-10.0		SBN
	High Chromium Steel	88HSD	20-60	1.0-10.0		SBN
	High Speed Steel	70HSD	30-60	0.3-3.0		SBN
	High Carbon Semi-steel	67HSD	45-80	1.0-10.0		SBN
	Chilled Cast Iron		40-60	1.0-10.0		SBN
Slurry Pump	Wear Resistance White Cast Iron	50-60HRC	50-100	0.5-4	0.2-0.5	SBN
Rolling Motor Wall	High Manganese Steel	300-500HB	80-200	0.5-8	0.2-0.5	SBN

MATERIAL	HARDNESS	Tool Cutting Edge Angle (kr)	Cutting speed Vc (m/min)	CUTTING DEPTH Ap (mm)	FEED RATE F (MM/R)	COOLANT
Gray Cast Iron	200HB	75°	500 - 2000	0.50 - 5.0	0.1 - 0.2	Dry Cut
Gray Cast Iron	55HRC	75°	150 - 300	0.5 - 2.0	0.05 - 0.2	Dry Cut
Hardened Steel	60HRC	75°	80 - 200	0.2 - 0.5	0.05 0.1	Dry Cut

Note

Note:-The specific cutting parameters should be adjusted according to following factors : rigidity and power of machine tool, inserts size and thickness, workpiece material, hardness, shape, machining allowance and insert durability etc.

Possible factors for tool life of PCBN inserts to machining gray cast iron -

- ▶ The casting blank should be properly dealt with aging tretatment, and general natural aging time should exceed 10 days
- ▶ Ferrite content in casting blank should $\leq 10\%$
- ▶ Sulphur content should $\geq 0.05\%$

Above factor may possibly reduce tool life in multiple times



PUNE

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