



INSERTS



TECHNOLOGY



APPLICATION

ToolingBox Solid CBN Tools

ToolingBox[®]
THE INDUSTRIAL SOLUTION EXPERTS

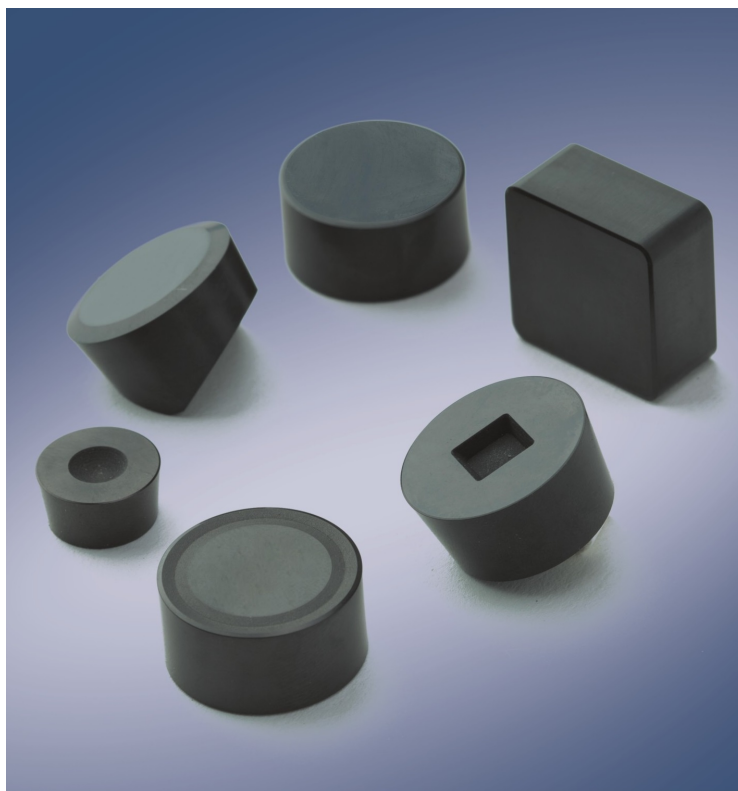
Company Introduction

Toolingbox (Beijing) Industrial Technology Co.,Ltd is a Chinese professional manufacturer and importer&exporter for customized tools. We specialized in supplying solid carbides, PCD and CBN tools, related machinery and raw materials to metalworking ,metal materials industries worldwide.

Based in Beijing, At ToolingBox, we work and live with the ISO 9001 quality management system ,raw materials of tools were chose from Chinese Local, USA, Euro and Japan, each step of the tools manufacturing process is carefully planned and controlled by our professional engineers, each item is inspected prior to dispatch. The result being that our clients have benefited from our quality products and exceptional services. Due to our strict adherence to the quality management system, and also through the hard work of all our dedicated employees, our company can offered all kind of tools products with high quality and has been growing steadily increasingly distributed all over the world.

At the same time, ToolingBox is committed to bring the world's most advanced industrial technologies to domestic customers, and always focusing on tooling technology, materials and their related equipments.

ToolingBox, Professional makes value!



CBN Materials Introduction

CBN(Polycrystalline Cubic boron nitride) is a new type of super hard cutting tool material after artificial diamond. Its hardness with HV3000-50000 is the second in the world , and only less than diamond. This material has high resistance with good fracture toughness, wear resistance, heat resistance and good chemical stability .It can be machined for the workpiece with hardness of HRC60 or more, very suitable for high-speed machining of casting iron. It is widely used in cutting and grinding process now.

ToolingBox Solid CBN grade

Grade	CBN Content(Vol%)	Particle size (um)	Application
TB100	88-94	8-12	high speed machining for normal gray cast iron,such as engine cylinder and cover
TB200	50-70	2-4	Hard steel after heat treatment, such as hardened steel,bearing steel and die steel etc.
TB300	90-95	30-40	Wear resistant alloy cast iron with high speed,such as brake disc and brake drums and so on
TB400	85-90	20-30	Alloy cast iron and alloy cast steel,such as roller,slurry pump and mine machinery etc.
TB500	85-90	1-3	High-temperature alloy,such as aero engine ect.

Designation system for indexable inserts ISO 1832

可转位刀片代码系统 ISO1832

V	35°
D	55°
E	75°
C	80°
M	86°
K	55°
B	82°
A	85°
R	
S	90°
T	60°
W	80°
L	
P	108°
H	120°
O	135°

Insert style
刀片形状

N	0°
A	3°
B	5°
C	7°
P	11°
D	15°
E	20°
F	25°
G	30°
O	

Clearance angle requiring special definition.

Insert normal clearance
刀片名义后角

Inscribed circle									Inscribed circle	
d mm	RC, RN S	O 135°	T 60°	C 80°	E 75°	D 55°	V 35°	W 80°	d mm	RB (Typ MO)
3,97			06						6,0	06
5,56			09						7,0	07
6,35			11	06		07			8,0	08
9,52	09		16	09		11	16	06	9,0	09
10,00						12			10,0	10
12,70	12	05	22	12	13	15	22	08	12,0	12
15,88	15	06	27	16					16,0	16
19,05	19		33						20,0	20
25,40	25		44						25,0	25

Insert size
刀片尺寸

C

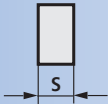
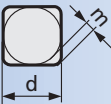
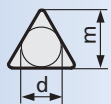
N

G

A

12

Tolerances
公差

  			* Allowable deviation for insert shape, depends on insert size 根据刀片尺寸的允许偏差值					
	s ± mm	d ± mm	m ± mm	Inscribed circle 内切圆	Tolerance class 公差等级			
A	0,025	0,025	0,005	d mm	m ± mm		d ± mm	
C	0,025	0,025	0,013					
E	0,025	0,025	0,025		M	U	J, K, L, M	U
F	0,025	0,013	0,005		3,97	0,08	0,13	0,05
G	0,130	0,025	0,025	5,56				
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	0,13	0,20	0,08	0,13
L	0,025	0,05-0,13*	0,025	15,88	0,15	0,27	0,10	0,18
M	0,130	0,05-0,13*	0,08-0,18*	19,05				
U	0,130	0,08-0,25*	0,13-0,38*	25,40	0,18	0,38	0,13	0,25

Insert type
刀片形式

N		T	
R		Q	
F		U	
A		B	
M		H	
G		C	
W		J	
X	Special type 特殊形式		

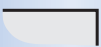
Designation system for indexable inserts ISO 1832

可转位刀片代码系统 ISO1832



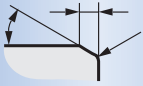
00	RN, RC
M0	RB
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
24	2,4
32	3,2
40	4,0
ZZ	Special type

Corner radius
刀尖圆角



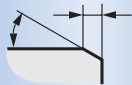
F

Sharp



S

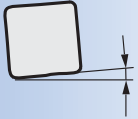
Chamfered and rounded



T

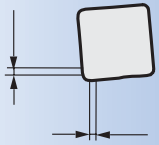
Chamfered

Cutting edge type
刃口形式



Entering angle

z.B. · eg. · exemple
85 = 85°
95 = 95°



Width of zz-chamfer

z.B. · eg. · exemple
025 = 0,25 mm
050 = 0,50 mm

Code of ZZ geometry
修光刃代码

04

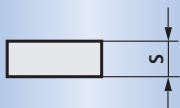
08

T

- 2 L

XXX25

Insert thickness
刀片厚度



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

Execution variants
CBN形式

2		CBN one-side tipped, 2 corners CBN单面焊尖, 2刃
3		CBN one-side tipped, 3 corners CBN单面焊尖, 3刃
4		CBN one-side tipped, 4 corners CBN单面焊尖, 4刃
F		CBN one-sided full face laminated CBN单面整层
S		CBN solid 整体CBN

Length of the CBN element
CBN长度



S	≥ 0,8 mm
L	≥ 2,0 mm

ToolingBox Solid CBN Inserts List



SOLID CBN Inserts

Solid CBN List - ISO grade



INSERT	ISO	GRADE
CNGN12 04 .. 	CNGN 12 04 04 T-S	
	CNGN 12 04 04 S-S	
	CNGN 12 04 04 S-S	
	CNGN 12 04 04 S-S	
	CNGN 12 04 08 T-S	All grades are available
	CNGN 12 04 08 S-S	
	CNGN 12 04 08 S-S	
	CNGN 12 04 08 S-S	
	CNGN 12 04 12 T-S	
	CNGN 12 04 12 S-S	
	CNGN 12 04 12 S-S	
	CNGN 12 04 12 S-S	

INSERT	ISO	GRADE
CNGA12 04 .. 	CNGA 12 04 04 T-S	
	CNGA 12 04 04 S-S	
	CNGA 12 04 04 S-S	
	CNGA 12 04 04 S-S	
	CNGA 12 04 08 T-S	All grades are available
	CNGA 12 04 08 S-S	
	CNGA 12 04 08 S-S	
	CNGA 12 04 08 S-S	
	CNGA 12 04 12 T-S	
	CNGA 12 04 12 S-S	
	CNGA 12 04 12 S-S	
	CNGA 12 04 12 S-S	

Chamfer geometries

T-chamfer:

for continuous cuts

❖ 44 for smooth cuts

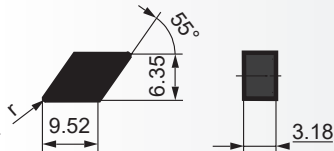
S-chamfer: with rounding

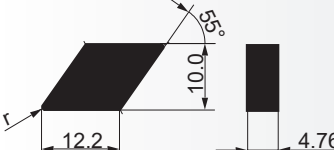
⚙ 46 for lightly interrupted cuts

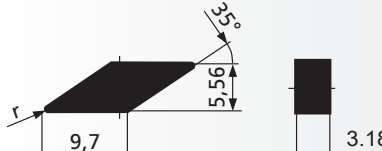
⚙ 47 for heavily interrupted cuts



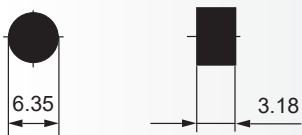
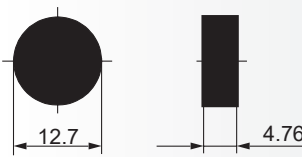


INSERT	ISO	GRADE
DNGN(A) 09 03 .. 	DNGN 09 03 04 S-S	
	DNGN 09 03 04 S-S	
	DNGN 09 03 04 S-S	
	DNGN 09 03 08 S-S	All grades are available
	DNGN 09 03 08 S-S	
	DNGN 09 03 08 S-S	
	DNGN 09 03 08 S-S	
	DNGN 09 03 12 S-S	
	DNGN 09 03 12 S-S	
	DNGN 09 03 12 S-S	
	DNGN 09 03 12 S-S	

DNGN(A) 12 04 .. 	DNGN 12 04 04 T-S	
	DNGN 12 04 04 S-S	
	DNGN 12 04 04 S-S	
	DNGN 12 04 04 S-S	
	DNGN 12 04 08 T-S	All grades are available
	DNGN 12 04 08 S-S	
	DNGN 12 04 08 S-S	
	DNGN 12 04 08 S-S	
	DNGN 12 04 12 T-S	
	DNGN 12 04 12 S-S	
	DNGN 12 04 12 S-S	
	DNGN 12 04 12 S-S	

INSERT	ISO	GRADE
VNGN(A) 09 03 .. S-S 	VNGN 09 03 04 S-S	
	VNGA 09 03 04 S-S	
	VNGN 09 03 08 S-S	All grades are available
	VNGA 09 03 08 S-S	
	VNGN 09 04 12 S-S	
	VNGA 09 04 12 S-S	



INSERT	ISO	GRADE
RNGN(A) 06 03 00 .. 	RNGN 06 03 00 T-S	
	RNGN 06 03 00 S-S	
	RNGA 06 03 00 S-S	All grades are available
	RNGA 06 03 00 S-S	
RNGN(A) 09 04 00 .. 	RNGN 09 04 00 T-S	
	RNGN 09 04 00 S-S	
		All grades are available
	RNGA 09 04 00 S-S	
	RNGA 09 04 00 S-S	
RNGN(A) 12 04 00 .. 	RNGN 12 04 00 T-S	
	RNGN 12 04 00 S-S	
	RNGA 12 04 00 S-S	
	RNGA 12 04 00 S-S	

i Chamfer geometries

T-chamfer:

for continuous cuts

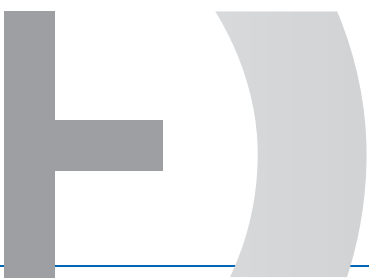
❖ 44 for smooth cuts

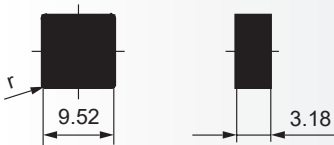
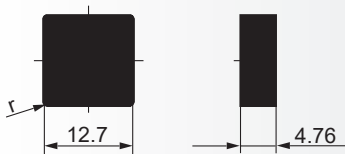
S-chamfer: with rounding

⚙ 46 for lightly interrupted cuts

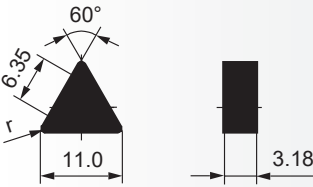
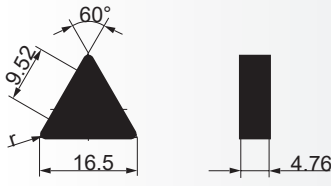
⚙ 47 for heavily interrupted cuts





INSERT	ISO	GRADE
SNGN(A) 09 03 .. 	SNGN 09 03 08 T-S	
	SNGN 09 03 08 S-S	
	SNGA 09 03 08 T-S	
	SNGA 09 03 08 S-S	
	SNGN 09 03 12 T-S	All grades are available
	SNGN 09 03 12 S-S	
	SNGA 09 03 12 T-S	
	SNGA 09 03 12 S-S	
	SNGN 09 03 16 T-S	
	SNGN 09 03 16 S-S	
	SNGA 09 03 16 T-S	
	SNGA 09 03 16 S-S	
SNGN(A) 12 04 .. 	SNGN 12 04 08 T-S	
	SNGN 12 04 08 S-S	
	SNGA 12 04 08 S-S	
	SNGA 12 04 08 S-S	All grades are available
	SNGN 12 04 12 T-S	
	SNGN 12 04 12 S-S	
	SNGA 12 04 12 S-S	
	SNGA 12 04 12 S-S	



INSERT	ISO	GRADE
TNGN(A) 11 03 .. 	TNGN 11 03 04 T-S	
	TNGN 11 03 04 S-S	
	TNGA 11 03 04 T-S	
	TNGA 11 03 04 S-S	
	TNGN 11 03 08 T-S	
	TNGN 11 03 08 S-S	
	TNGA 11 03 08 T-S	
	TNGA 11 03 08 S-S	All grades are available
	TNGN 11 03 12 T-S	
	TNGN 11 03 12 S-S	
	TNGA 11 03 12 T-S	
	TNGA 11 03 12 S-S	
TNGN(A) 16 04 .. 	TNGN 16 04 04 T-S	
	TNGN 16 04 04 S-S	
	TNGA 16 04 04 T-S	
	TNGA 16 04 04 S-S	
	TNGN 16 04 08 T-S	
	TNGN 16 04 08 S-S	
	TNGA 16 04 08 S-S	All grades are available
	TNGA 16 04 08 S-S	
	TNGN 16 04 12 T-S	
	TNGN 16 04 12 S-S	
	TNGA 16 04 12 T-S	
	TNGA 16 04 12 S-S	

i

Chamfer geometries

T-chamfer:
for continuous cuts

❖ 44 for smooth cuts

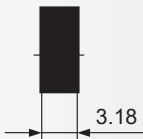
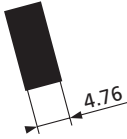
S-chamfer: with rounding

⚙ 46 for lightly interrupted cuts

⚙ 47 for heavily interrupted cuts






INSERT	ISO	GRADE
WNGN(A) 06 03 ..  	WNGN 06 03 04 S-S	
	WNGA 06 03 04 S-S	
	WNGN 06 03 08 S-S	
	WNGA 06 03 08 S-S	
		All grades are available
	WNGN 06 03 12 S-S	
	WNGA 06 03 12 S-S	
	WNGN 06 03 16 S-S	
	WNGA 06 03 16 S-S	
WNGN(A) 08 04 ..  	WNGN 08 04 08 S-S	
	WNGA 08 04 08 S-S	
		All grades are available
	WNGN 08 04 12 S-S	
	WNGA 08 04 12 S-S	

Case story for Milling :

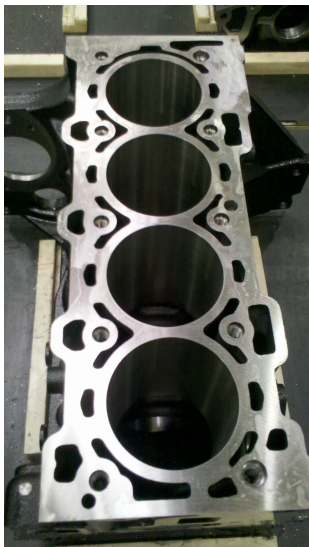
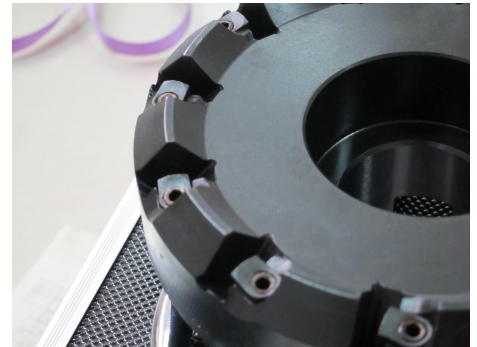
TOOL LIFE QUANTITY INCREASED UP TO 215%

Roughing Milling OF Engine Block



Revolution for Milling Cast iron material!!

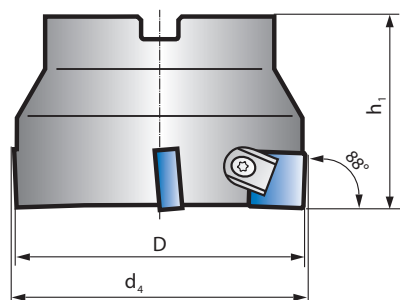
Vc up to 1000m/min;
Fz up to 0.5
Ap max to 4mm



Roughing milling of a Engine Block Made of GG300

Cutting	Competitor	Cutting Tools
Material: Milling	Tungsten Carbide	Solid CBN TB300
Cutter: Insert:	D = 80 mm, z = 8	RMC 080-08SN1288 SNGN120412
Cutting Speed	300 m/min	1000 m/min
vc: Feed per	0,10 mm/z	0,20 mm/z
Tooth fz: Cutting	0,50 mm	2 mm
Depth ap:		65 mm
Width of Engagement ae:	65 mm	
Machining Time:	0,44 min	0,20 min
Tool Life:	100 %	215 %

Face Milling Cutters RMC ... 88



Axial rake angle γ_a	-6°
Radial rake angle γ_r depending on $\emptyset$	-6° bis -9°
Mounting dimension according to DIN 8030	
For thin-walled and unstable parts	

i Recommended application

☒ GJL (GG) ☒ GJS (GGG)

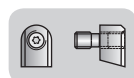
WORKPIECE
 thin-walled ☒ unstable ☒ stable ☒

$f_z = 0,40 \text{ mm/tooth}$

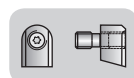
12.5/ ☒ 6.3/ ☒ 0.5/ ☒

Type	Dimensions				
	D	Teeth t	d4	h1	n _{max} (min ⁻¹)
RMC 040-04SN1288	40	4	41	40	23000
RMC 050-05SN1288	50	5	51	40	18000
RMC 063-06SN1288	63	6	64	40	13000
RMC 080-08SN1288	80	8	81	50	10000
RMC 100-10SN1288	100	10	101	50	8000
RMC 125-12SN1288	125	12	126	63	8000
RMC 160-15SN1288	160	15	161	63	6000

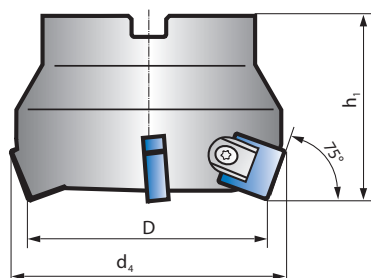
D = 40 - 50 mm



D = 63 - 125 mm



Face Milling Cutters RMC ... 75



Axial rake angle γ_a	-6°
Radial rake angle γ_r , depending on $\emptyset$	-6° bis -9°
Mounting dimension according to DIN 8030	
For thin-walled and unstable parts	

Recommended application

☒ GJL (GG) ☒ GJS (GGG)

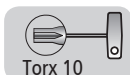
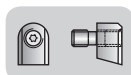
WORKPIECE
thin-walled **X** unstable **X** stable **✓**

$f_z = 0,40$ mm/tooth

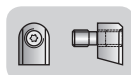
12.5/ • 6.3/

Type	Dimensions				
	D	Teeth t	d4	h1	n _{max} (min ⁻¹)
RMC 040-04SN1275	40	4	41	40	23000
RMC 050-05SN1275	50	5	51	40	18000
RMC 063-06SN1275	63	6	64	40	13000
RMC 080-08SN1275	80	8	81	50	10000
RMC 100-10SN1275	100	10	101	50	8000
RMC 125-12SN1275	125	12	126	63	8000
RMC 160-15SN1275	160	15	161	63	6000

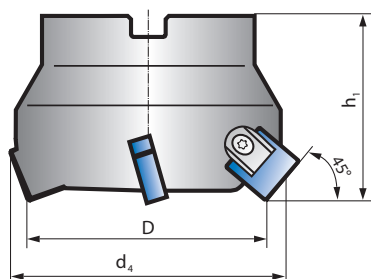
D = 50 mm



D = 63 - 125 mm



Face Milling Cutters RMC ... 45



Axial rake angle γ_a	-6°
Radial rake angle γ_r depending on $\emptyset$	-6° bis -9°
Mounting dimension according to DIN 8030	
For thin-walled and unstable parts	

i Recommended application

☐ GJL (GG) ☐ GJS (GGG)

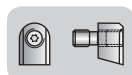
WORKPIECE
thin-walled ☒ unstable ☒ stable ☒

$f_z = 0,30$ mm/tooth

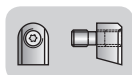
12.5/ ∇ • 6.3/ ∇ • 3.2/ ∇

Type	Dimensions				
	D	Teeth t	d4	h1	nmax(min ⁻¹)
RMC 040-04SN1245	40	4	41	40	23000
RMC 050-05SN1245	50	5	51	40	18000
RMC 063-06SN1245	63	6	64	40	13000
RMC 080-08SN1245	80	8	81	50	10000
RMC 100-10SN1245	100	10	101	50	8000
RMC 125-12SN1245	125	12	126	63	8000
RMC 160-15SN1245	160	15	161	63	6000

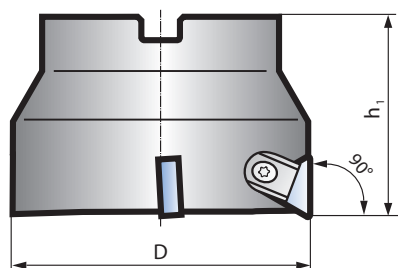
D = 50 mm



D = 63 - 125 mm



Square Shoulder Milling Cutter RMC ... 90



Axial rake angle γ_a	-6°
Radial rake angle γ_r depending on $\emptyset$	-6° bis -9°
Mounting dimension according to DIN 8030	
For thin-walled and unstable parts	

i Recommended application

■ GJL (GG)
■ GJS (GGG)

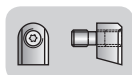
WORKPIECE
thin-walled ✓ unstable ✓ stable ✓

$f_z = 0,30$ mm/tooth

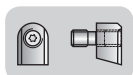
12.5/ • 6.3/

Type	Dimensions				
	D	Teeth t	d4	h1	nmax(min ⁻¹)
RMC 040-04TN1690	40	4	41	40	23000
RMC 050-05TN1690	50	5	51	40	18000
RMC 063-06TN1690	63	6	64	40	13000
RMC 080-08TN1690	80	8	81	50	10000
RMC 100-10TN1690	100	10	101	50	8000
RMC 125-12TN1690	125	12	126	63	8000
RMC 160-15TN1690	160	15	161	63	6000

D = 50 mm

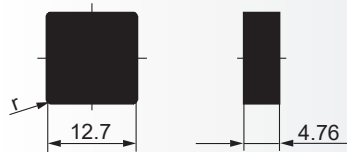


D = 63 - 160mm



Inserts for RMC ... Milling Cutters

SNGN 12 04 ..

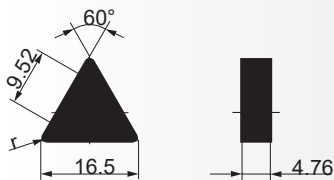


SNGN 12 04 08 T-S
SNGX 12 04 08 S-S

All grades are available

SNGN 12 04 12 T-S
SNGN 12 04 12 S-S

TNGN 16 04 ..



TNGN 16 04 04 T-S
TNGN 16 04 04 S-S

All grades are available

TNGN 16 04 08 T-S
TNGN 16 04 08 S-S

TNGN 16 04 12 T-S
TNGN 16 04 12 S-S



Case story for Turning:

Processing: Roughing processing

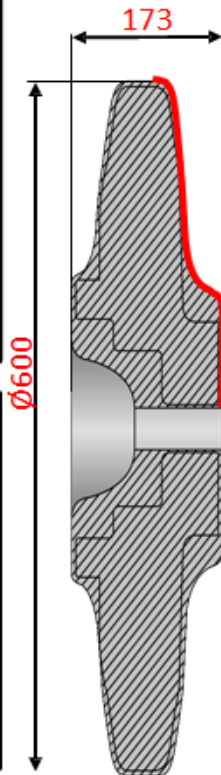
Material: Inconel 718



Before



After



**TOOL LIFE QUANTITY
INCREASED UP TO 200%!!**

	ToolingBox	Competitor 1	Competitor 2
Insert	RNMN 190700T	RNGN 190700T	RNGN 190700T
Material of the insert	TB500	SX5	KY2000
Vc(m/min)	300	156	156
F(mm/rev)	0.24	0.20	0.20
Ap(mm)	5	5	5
Tool life (pcs)	13	6	7

CASE STORY FOR TURNING SUPER HARD MATERIALS AND HARD ALLOYS

Material:

Rellite HRC 60...87

External roughing

RNMN09400 S-S TB200

Cutting data:

$V = 30 - 40 \text{ m/min}$

$F = 0.3 \text{ mm/rev}$

$A_p = 0.1 - 0.2 \text{ mm}$



- Replacement of the primary grinding with turning
- Reducing of the machining time up to 47% less

Material - A49 cast iron chromium

Pump Impeller



External Machining

RNMN120400 T-S TB400

Tool holder CRSNR3232P12

Cutting data :

$V = 100 \text{ m/min}$

$F = 0.2 \text{ mm/rev}$

$A_p = 4.0 \text{ mm}$



Turbines, press forms



External machining

SNMN120416 S20020 TB400

Tool holder – CRSNR3232P12

RNMN120400 S20020 TB400

Tool holder – CRSNR3232P12

Cutting data:

$V = 100 - 180 \text{ m/min}$

$F = 0.2 - 0.6 \text{ mm/rev}$

$A_p = 4.0 - 5.0 \text{ mm}$

Cutting data recommendations grey cast iron 灰铁加工推荐切削参数

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

(HB) Hardness 硬度	v_c (m/min) Cutting speed 切削速度		a_p (mm) Depth of cut 切深	f Feed 进给	(mm) (mm)	Grade 牌号
	Rec. value 推荐值	Total range 全部范围		Rec. value 推荐值	Total range 全部范围	
25 ▽ • Roughing • 粗加工						
140 – 280	1000	600 - 1400	2,0 - 5,0	0,40	0,35 - 0,60	TB 100
	1000	600 - 1400	2,0 - 5,0	0,40	0,35 - 0,60	TB 300
12.5 ▽ • Semi-roughing • 半精加工						
140 – 280	1000	600 - 1400	1,5 - 2,5	0,25	0,20 - 0,35	TB 100
	1000	600 - 1400	1,5 - 2,5	0,25	0,20 - 0,35	TB 300
	1000	600 - 1400	1,5 - 2,5	0,25	0,20 - 0,35	TB 400
6.3 ▽ • Finishing • 精加工						
140 – 280	1200	800 - 1500	0,5 - 1,5	0,25	0,15 - 0,30	TB 100
	1200	800 - 1500	0,5 - 1,5	0,25	0,15 - 0,30	TB 300
	1200	800 - 1500	0,5 - 1,5	0,25	0,15 - 0,30	TB 400
	1200	800 - 1500	0,5 - 1,5	0,25	0,15 - 0,30	TB 500
0.8 ▽ • Fine finishing • 超精加工						
140 – 280	1200	800 - 1800	0,2 - 1,0	0,15	0,10 - 0,20	TB 400
	1200	800 - 800	0,2 - 1,0	0,15	0,10 - 0,20	TB 500



Cutting data recommendations chilled cast iron
冷硬铸铁推荐切削参数

Hardness 肖氏硬度 Shore C	v _c (m/min) Cutting speed 切削速度		a _p (mm) Depth of cut 切深	f (mm) Feed 进给		Grade 牌号
	Rec. value 推荐值	Total range 全部范围		Richtwert Rec. value 推荐值	Gesamtbereich Total range 全部范围	
12.5 /  • Semi-roughing • 半精加工						
66 - 86	100	60 - 200	1,0 - 2,5	0,22	0,15 - 0,35	TB 100
	100	60 - 200	1,0 - 2,5	0,22	0,15 - 0,35	TB 300
	100	60 - 200	1,0 - 2,5	0,22	0,15 - 0,35	TB 400
6.3 /  • Finishing • 精加工						
66 - 86	120	80 - 220	0,1 - 1,0	0,20	0,10 - 0,30	TB 100
	120	80 - 220	0,1 - 1,0	0,20	0,10 - 0,30	TB 300
	120	80 - 220	0,1 - 1,0	0,20	0,10 - 0,30	TB 400

Cutting data recommendations hardened steel
硬钢推荐切削参数



(HRC) Hardness 硬度(HRC)	v _c (m/min) Cutting speed 切削速度		a _p (mm) Depth of cut 切深	f (mm) Feed 进给		Grade 牌号
	Rec. value 推荐值	Total range 全部范围		Rec. value 推荐值	Total range 全部范围	
0.8/▽ • Fine finishing in continuous cutting • 精加工连续切削						
50 - 64	180	140 - 250	0,1 - 0,5	0,10	0,05 - 0,2	TB 200
	200	140 - 250	0,1 - 0,5	0,10	0,05 - 0,2	TB 210
	220	140 - 250	0,1 - 0,5	0,10	0,05 - 0,2	TB 220
6.3/▽ • Finishing in lightly intermittent cutting • 精加工轻度断续切削						
50 - 64	160	140 - 200	0,1 - 0,5	0,20	0,05 - 0,2	TB 200
	180	140 - 200	0,1 - 0,5	0,20	0,05 - 0,2	TB 210
	170	140 - 200	0,1 - 0,5	0,20	0,05 - 0,2	TB 220
	180	140 - 200	0,1 - 0,5	0,20	0,05 - 0,2	TB 230
6.3/▽ • Finishing in medium intermittent cutting • 精加工中度断续切削						
50 - 64	160	120 - 170	0,1 - 0,5	0,15	0,05 - 0,2	TB 210
	180	120 - 170	0,1 - 0,5	0,15	0,05 - 0,2	TB 220
	170	120 - 170	0,1 - 0,5	0,15	0,05 - 0,2	TB 230
6.3/▽ • Finishing in heavily intermittent cutting • 精加工严重断续切削						
50 - 64	120	100 - 150	0,1 - 0,5	0,12	0,05 - 0,2	TB 230
	100	100 - 150	0,1 - 0,5	0,12	0,05 - 0,2	TB 240
	100	100 - 150	0,1 - 0,5	0,12	0,05 - 0,2	TB 250



www.toolingbox.com

ToolingBox[®]
THE INDUSTRIAL SOLUTION EXPERTS

Rm2505, Unit 2, Building 7,
No.7 Chaoyang Road, Chaoyang
District, Beijing, 100024
P.R of China

Phone: +86 10 5290 2905
Fax: +86 10 6572 3756
toolingbox@126.com
www.toolingbox.com