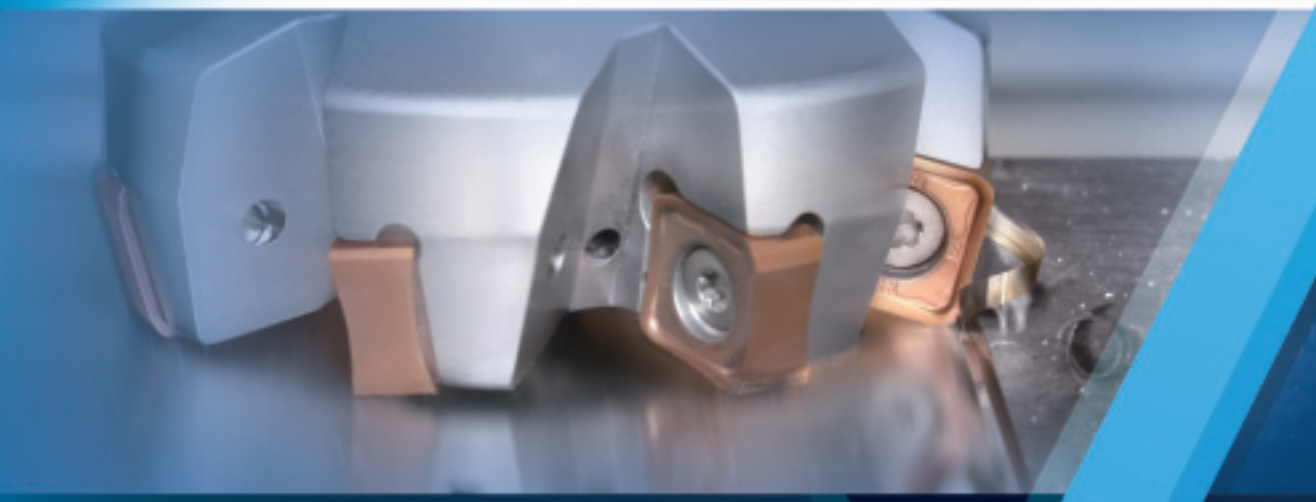
ZCC·CT

FMA17 FME17 FMP17

New Generation High Efficiency and High Precision Milling Cutters



ZHUZHOU CEMENTED CARBIDE CUTTING TOOLS CO., LTD.

FM*17series

- Cutter body available in coarse pitch, close pitch and either hand;
- Paired with the insert's large rake angle and curved geometry, the double negative structure of the cutter body leads to smooth cut and chip evacuation;
- Ground inserts with wiper produce superior surface quality;
- A wide selection of chipbreakers available to meet various high efficiency cutting demands of ISO P, M, K, S workpiece materials.

Finishing cutter with micro-adjustable wiper inserts, applicable for machining conditions demanding high quality machined surface.

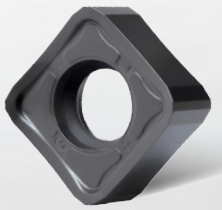
-W4 Wiper inserts

FMP17 Kr:88°

- Highly-functional milling cutter, the top choice tool to avoid interference between cutter body, work-piece and tool holder in machining.

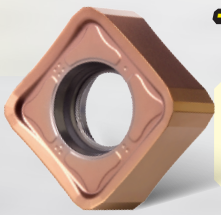
a_{pmax}=0.413 inch

-GL Light cutting chipbreaker



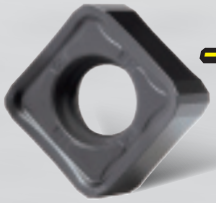
- Excellent cutting edge sharpness, suitable for light to medium cutting;
- Smooth cut with high surface brightness alleviates the edge burring.

-GM Medium cutting chipbreaker



- The chipbreaker has great cutting edge sharpness and strength, ideal for medium cutting and universal purpose.

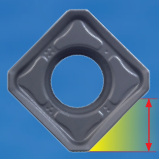
-GH Heavy-duty cutting chipbreaker



- Strong cutting edge with excellent impact resistance, ideal for roughing and bad machining condition.

FMA17 Kr:45°

- Innovative cutting force balance design results in high stability and anti-vibration performance.



apmax=0.265 inch

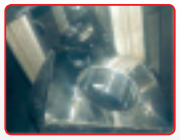
FME17 Kr:75°

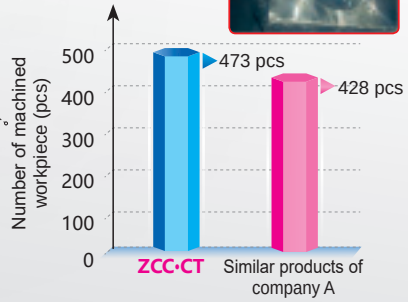
- Coarse-pitch cutter body, easily adaptable to low machine power and poor working condition.
- Close-pitch cutter body, ideal for stable and high efficiency cutting condition with high machine power.

apmax=0.315 inch

FME17 Application case

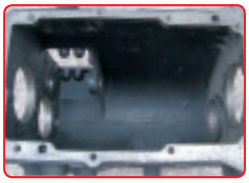
Machining workpiece: automobile steering knuckle
Workpiece materials：40cr(HRC25-40)
Machining part：Upper end face
Tool：FME17-5.00"-B1.50"-SN12-10
Insert：SNGX1205ENN-GM/YB9320
Cutting parameters：Vc=836 SFPM,fz=0.003 IPT,
ap=0.197inch,ae=2.952inch
Cooling mode: external coolant supply

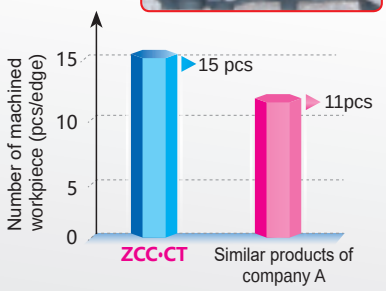




FMA17 Application case

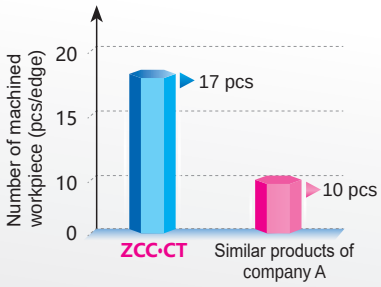
Machining workpiece: gearbox housing
Workpiece materials：HT250(HB220)
Tool：FMA17-6.00"-B2.00"-SN12-12
Insert：SNGX1205ANN-GM/YBD152
Cutting parameters：Vc=525 SFPM,fz=0.006 IPT,
ap=0.079inch, ae=3.937inch
Cooling mode: external coolant supply





FMP17 Application case

Processing workpiece: truck axle housing
Workpiece materials：QT600(HB250)
Tool：FMP17-4.00"-A1.25"-SN12-08C
Insert：SNGX1205PNN-GM/YB9320
Cutting parameters：Vc=875 SFPM,fz=0.007 IPT,
ap=0.059inch,ae=3.543inch
Cooling mode: external coolant supply

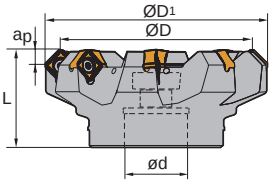


Face milling Chamfer machining

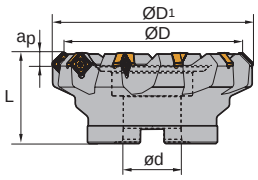
FMA17 P M K S

Kr:45°

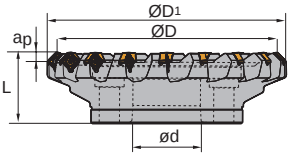
A type coupling



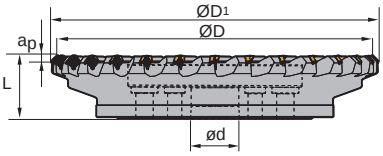
B type coupling



C type coupling



D type coupling



Tool specification

Specification		Basic dimension(in)					Number of Inserts	Coupling method
		ØD	ØD1	ød	L	apmax		
FMA17 Coarse-pitch	**-2.00"-A0.75"-SN12-04C**	2.00	2.559	0.75	1.50"	0.256	4	A
	-2.50"-A0.75"-SN12-06C	2.50	3.071	0.75	1.50"	0.256	6	A
	-3.00"-A1.00"-SN12-07C	3.00	3.740	1.00	2.00"	0.256	7	A
	-4.00"-A1.25"-SN12-08C	4.00	4.528	1.25	2.00"	0.256	8	A
	-5.00"-B1.50"-SN12-10	5.00	5.512	1.50	2.50"	0.256	10	B
	-6.00"-B2.00"-SN12-12	6.00	6.890	2.00	2.50"	0.256	12	B
	-8.00"-C2.50"-SN12-18	8.00	8.465	2.50	2.50"	0.256	18	C
	-10.00"-C2.50"-SN12-20	10.00	10.433	2.50	2.50"	0.256	20	C
	-12.00"-D2.50"-SN12-22	12.00	12.992	2.50	3.00"	0.256	22	D
Close-pitch	**-2.00"-A0.75"-SN12-06C**	2.00	2.599	0.75	1.50"	0.256	6	A
	-2.50"-A0.75"-SN12-08C	2.50	3.070	0.75	1.50"	0.256	8	A
	-3.00"-A1.00"-SN12-09C	3.00	3.740	1.00	2.00"	0.256	9	A
	-4.00"-A1.25"-SN12-12C	4.00	4.528	1.25	2.00"	0.256	12	A
	-5.00"-B1.50"-SN12-16	5.00	5.512	1.50	2.50"	0.256	16	B
	-6.00"-B2.00"-SN12-18	6.00	6.890	2.00	2.50"	0.256	18	B
	-8.00"-C2.50"-SN12-24	8.00	8.465	2.50	2.50"	0.256	24	C

Inserts specification | L-left handed (make-to-order)

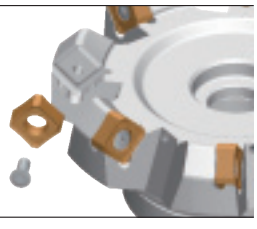
Tool diameter

FMA17- 2.00"- A0.75"- SN12- 04 L C

Tool specification | Tool interface | Number of Inserts | Internal coolant

Spare parts

Tool diameter ØD	Inserts	Clamping screw	Wrench
Ø2.00"-Ø2.50"	SNGX1205ANN-GL/GM/GH SNMX1205ANN-GM SNMX120512 -GL/GM/GH	IRM4×10	WT15IP
Ø3.00"-Ø5.00"			WT15IS
Ø6.00"-Ø12.00"			WT15IT

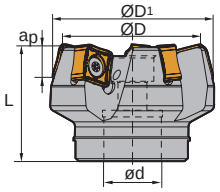


Face milling

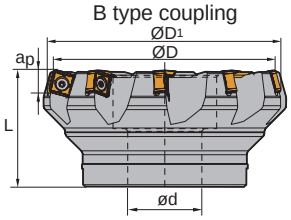
FME17 P M K S

Kr:75°

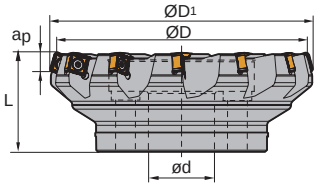
A type coupling



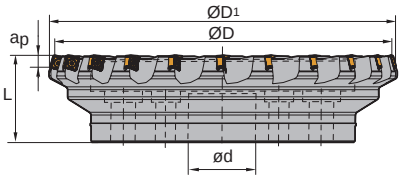
B type coupling



C type coupling



D type coupling



Tool specification

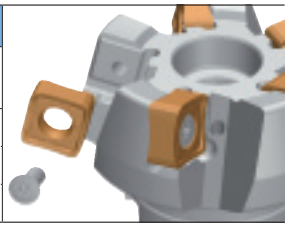
Specification		Basic dimension(in)					Number of Inserts	Coupling method
		ØD	ØD1	ød	L	apmax		
FME17 Coarse-pitch	**-2.00"-A0.75"-SN12-04C**	2.00	2.362	0.75	1.50"	0.315	4	A
	-2.50"-A0.75"-SN12-05C	2.50	2.874	0.75	1.50"	0.315	5	A
	-3.00"-A1.00"-SN12-06C	3.00	3.543	1.00	2.00"	0.315	6	A
	-4.00"-A1.25"-SN12-08C	4.00	3.937	1.25	2.00"	0.315	8	A
	-5.00"-B1.50"-SN12-10	5.00	5.351	1.50	2.50"	0.315	10	B
	-6.00"-B2.00"-SN12-12	6.00	6.693	2.00	2.50"	0.315	12	B
	-8.00"-C2.50"-SN12-14	8.00	8.268	2.50	2.50"	0.315	14	C
	-10.00"-C2.50"-SN12-18	10.00	10.236	2.50	2.50"	0.315	18	C
	-12.00"-D2.50"-SN12-22	12.00	12.795	2.50	3.00"	0.315	22	D
Close-pitch	**-2.00"-A0.75"-SN12-05C**	2.00	2.362	0.75	1.50"	0.315	5	A
	-2.50"-A0.75"-SN12-07C	2.50	2.874	0.75	1.50"	0.315	7	A
	-3.00"-A1.00"-SN12-09C	3.00	3.543	1.00	2.00"	0.315	9	A
	-4.00"-A1.25"-SN12-11C	4.00	4.331	1.25	2.00"	0.315	11	A
	-5.00"-B1.50"-SN12-14	5.00	5.315	1.50	2.50"	0.315	14	B
	-6.00"-B2.00"-SN12-18	6.00	6.693	2.00	2.50"	0.315	18	B
	-8.00"-C2.50"-SN12-22	8.00	8.268	2.50	2.50"	0.315	22	C

Tool diameter | Inserts specification | L-left handed (make-to-order)

FME17- 2.00"- A0.75"- SN12- 04 L C

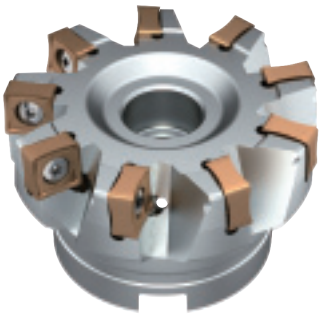
Tool specification | Tool interface | Number of Inserts | Internal coolant

Spare parts

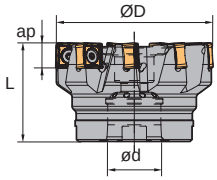
Tool diameter ØD	Inserts	Clamping screw	Wrench	
				
Ø2.00"-Ø2.50"	SNGX1205ENN-GL/GM/GH SNMX120512-GL/GM/GH	IRM4×10	WT15IP	
Ø3.00"-Ø5.00"			WT15IS	
Ø6.00"-Ø12.00"			WT15IT	

FMP17 P M K S

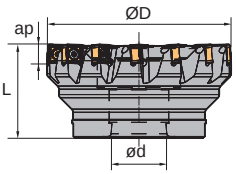
Kr:88°



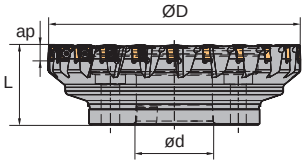
A type coupling



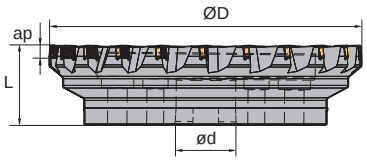
B type coupling



C type coupling

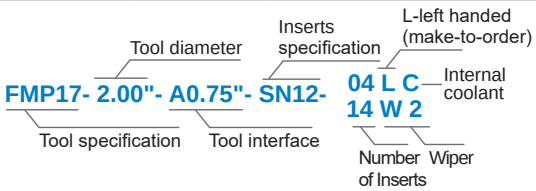


D type coupling



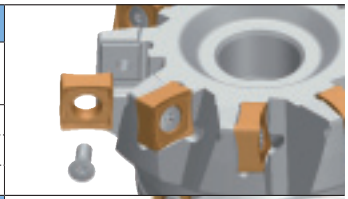
Tool specification

Specification		Basic dimension(in)				Number of Inserts	Coupling method
		ØD	ød	L	$a_p$max		
FMP17 Coarse-pitch	**-2.00"-A0.75"-SN12-04C**	2.00	0.75	1.50"	0.413	4	A
	-2.50"-A0.75"-SN12-05C	2.50	0.75	1.50"	0.413	5	A
	-3.00"-A1.00"-SN12-07C	3.00	1.00	2.00"	0.413	7	A
	-4.00"-A1.25"-SN12-08C	4.00	1.25	2.00"	0.413	8	A
	-5.00"-B1.50"-SN12-10	5.00	1.50	2.50"	0.413	10	B
	-6.00"-B2.00"-SN12-12	6.00	2.00	2.50"	0.413	12	B
	-8.00"-C2.50"-SN12-14	8.00	2.50	2.50"	0.413	14	C
	-10.00"-C2.50"-SN12-18	10.00	2.50	2.50"	0.413	18	C
	-12.00"-D2.50"-SN12-22	12.00	2.50	3.00"	0.413	22	D
Close-pitch	**-2.00"-A0.75"-SN12-05C**	2.00	0.75	1.50"	0.413	5	A
	-2.50"-A0.75-SN12-07C	2.50	0.75	1.50"	0.413	7	A
	-3.00"-A1.00"-SN12-09C	3.00	1.00	2.00"	0.413	9	A
	-4.00"-A1.25"-SN12-11C	4.00	1.25	2.00"	0.413	11	A
	-5.00"-B1.50"-SN12-14	5.00	1.50	2.50"	0.413	14	B
	-6.00"-B2.00"-SN12-18	6.00	2.00	2.50"	0.413	18	B
	-8.00"-C2.50"-SN12-22	8.00	2.50	2.50"	0.413	22	C
	-5.00"-B1.50"-SN12-14W2	5.00	1.50	2.50"	0.413	12+2	B
	-6.00"-C1.50"-SN12-18W3	6.00	1.50	2.50"	0.413	15+3	C
	-8.00"-C2.50"-SN12-24W4	8.00	2.50	2.50"	0.413	20+4	C

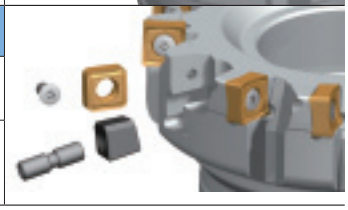


Spare parts

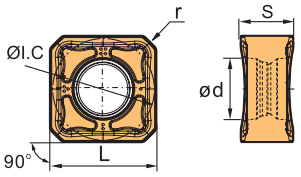
Tool diameter ØD	Inserts	Clamping screw	Wrench
			
Ø2.00"-Ø2.50"	SNGX□□PNN-GH/GL/GM SNMX□□□-GH/GL/GM	IRM4×10	WT15IP
Ø3.00"-Ø5.00"			WT15IS
Ø6.00"-Ø12.00"			WT15IT



Tool diameter ØD	Inserts	Inserts screw	Screw	Adjustment mode	Wrench
					
Ø5.00"-Ø8.00"	SNGX□□PNN-GH/GL/GM SNMX□□□-GH/GL/GM SNCU120420-W4	IRM4×10	DM6X20A	ADJ-M6X1.0A	WT15IT



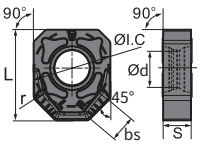
FMA17 inserts

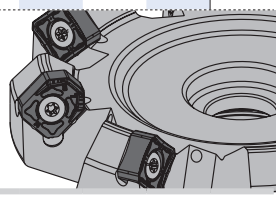


Good working condition 😊 General working condition 😐 Poor working conditions

Workpiece material	YBC302	YBM253	YBD152	YBD252	YBG105	YBG205H	YB9320	YBS203	YBS303	YD201
P Steel	😐	☹			😐	😊	😐			
M Stainless steel	😐	☹				😐	😐			
K Cast iron			😐	☹	😊					☹
N Non-ferrous metal										☹
S Heat resistant alloy, Ti alloy						😐	😐	😐	☹	

Inserts shape	Specification	Basic dimension(in) L	ØI.C	S	ød	r	a_{pmax}	YBC302	YBM253	YBD152	YBD252	YBG105	YBG205H	YB9320	YBS203	YBS303	YD201
	SNGX1205ANN-GL	0.500	0.500	0.256	0.232	0.031	0.256		●	●			○	★			
	SNMX120512-GL	0.500	0.500	0.256	0.232	0.047	0.256		●	●			○	★			
	SNGX1205ANN-GM	0.500	0.500	0.256	0.232	0.031	0.256		●	●			○	★		●	
	SNMX1205ANN-GM	0.500	0.500	0.256	0.232	0.031	0.256		●	●			○	★		●	
	SNMX120512-GM	0.500	0.500	0.256	0.232	0.047	0.256		●	●			○	★		●	
	SNGX1205ANN-GH	0.500	0.500	0.256	0.232	0.031	0.256		●	●			○	★			
	SNMX120512-GH	0.500	0.500	0.256	0.232	0.047	0.256		●	●			○	★			
	SNGX1205ANN-LH	0.500	0.500	0.256	0.232	0.032	0.256										●
	SNGX1205ANN-W	0.591	0.500	0.189	0.232	0.047	0.256					●					



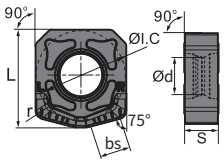


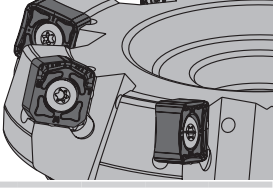
● Same insert for both RH and LH cutters.

★Recommended grade ●Optional grade ○Make-to-order

FME17 inserts

Inserts shape	Specification	Basic dimension(in) L	ØI.C	S	ød	r	a_{pmax}	YBC302	YBM253	YBD152	YBD252	YBG105	YBG205H	YB9320	YBS203	YBS303	YD201
	SNGX1205ENN-GL	0.500	0.500	0.256	0.232	0.031	0.315		●	●			○	★			
	SNMX120512-GL	0.500	0.500	0.256	0.232	0.047	0.315		●	●			○	★			
	SNGX1205ENN-GM	0.500	0.500	0.256	0.232	0.031	0.315		●	●			○	★		●	
	SNMX120512-GM	0.500	0.500	0.256	0.232	0.047	0.315		●	●			○	★		●	
	SNGX1205ENN-GH	0.500	0.500	0.256	0.232	0.031	0.315		●	●			○	★			
	SNMX120512-GH	0.500	0.500	0.256	0.232	0.047	0.315		●	●			○	★			
	SNGX1205ENN-W	0.539	0.500	0.189	0.232	0.047	0.315					●					

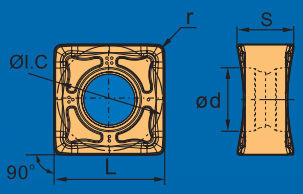


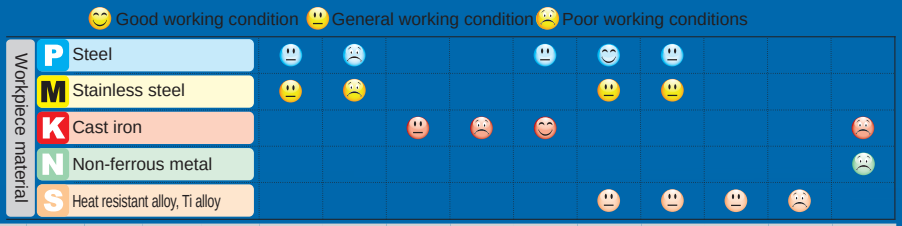


● Same insert for both RH and LH cutters.

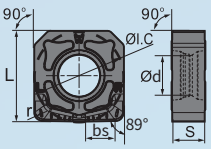
★Recommended grade ●Optional grade ○Make-to-order

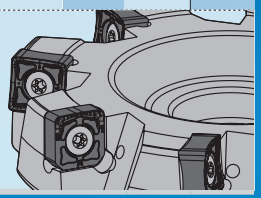
FMP17 inserts





Inserts shape	Specification	Basic dimension(in)						CVD coating				PVD coating					cemented carbide
		L	ØI.C	S	ød	r	apmax	YBC302	YBM253	YBD152	YBD252	YBG105	YBG205H	YB9320	YBS203	YBS303	YD201
	SNGX1205PNN-GL	0.500	0.500	0.256	0.232	0.031	0.413		●	●			○	★			
	SNMX120512-GL	0.500	0.500	0.256	0.232	0.047	0.413		●	●			○	★			
	SNGX1205PNN-GM	0.500	0.500	0.256	0.232	0.031	0.413		●	●			○	★		●	
	SNMX120512-GM	0.500	0.500	0.256	0.232	0.047	0.413		●	●			○	★		●	
	SNGX1205PNN-GH	0.500	0.500	0.256	0.232	0.031	0.413		●	●			○	★			
	SNMX120512-GH	0.500	0.500	0.256	0.232	0.047	0.413		●	●			○	★			
	SNCU120420-W4	0.500	0.500	0.256	0.232	0.080	0.413					●					
	SNGX1205PNN-W	0.506	0.500	0.189	0.232	0.047	0.413					●					





● Same insert for both RH and LH cutters.

★Recommended grade ●Optional grade ○Make-to-order

Recommended cutting parameters

Workpiece materials		Hardness HB	Inserts grade	Cutting parameters			
				Vc（SFPM）	GL	GM	GH
					fz (IPT)	fz (IPT)	fz (IPT)
P	Low carbon steel, mild steel	≤180	YBM253、YB9320 YBG205H	880(720-1150)	0.006(0.004-0.012)	0.008(0.004-0.016)	0.012(0.008-0.02)
P	High carbon steel, alloy steel	180-280	YBM253、YB9320 YBG205H	850(720-1050)	0.006(0.004-0.012)	0.008(0.004-0.016)	0.012(0.008-0.02)
P	Alloy tool steel	280-350	YBM253、YB9320 YBG205H	780(590-980)	0.006(0.004-0.012)	0.008(0.004-0.016)	0.012(0.008-0.02)
M	Stainless steel	≤270	YBM253、YB9320 YBG205H	520(360-885)	0.004(0.003-0.008)	0.006(0.004-0.012)	0.008(0.004-0.012)
K	Cast iron, ductile iron, high nickel cast iron	180-250	YBD152	880(500-980)	0.008(0.003-0.008)	0.012(0.004-0.016)	0.016(0.008-0.02)
S	Difficult-to-cut materials	≤400	YBS303 YBG205H	320(200-400)	--	0.006(0.004-0.01)	--
N	Aluminium alloy	--	YD201	1000-	-LH		
					0.010(0.004-0.016)		

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