



FMA11 Series Face Milling Tools



**ZHUZHOU CEMENTED CARBIDE
CUTTING TOOLS CO., LTD.**

Kr:45°

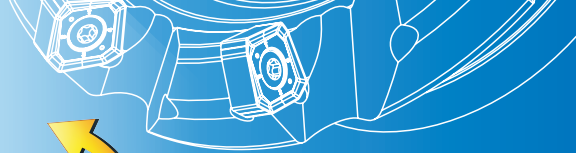
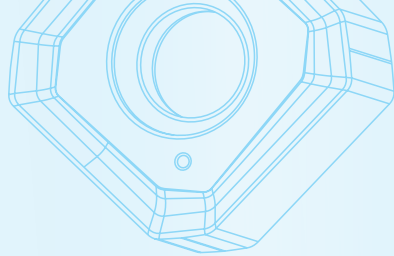
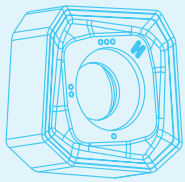


● Double negative structure, excellent impact resistance.

● Optimized design of pitch and chip pocket, for unobstructed chip flow and higher cutting efficiency.

● Cutter body with PVD coating for superior corrosion and heat resistance resulting in longer service life.

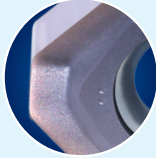
FMA11 Series
*High performance & high economy
face milling tools*



All-round upgrading



Comprehensive upgrading of -GM geometry, good chip breaking performance, large rake angle, reduced cutting force.

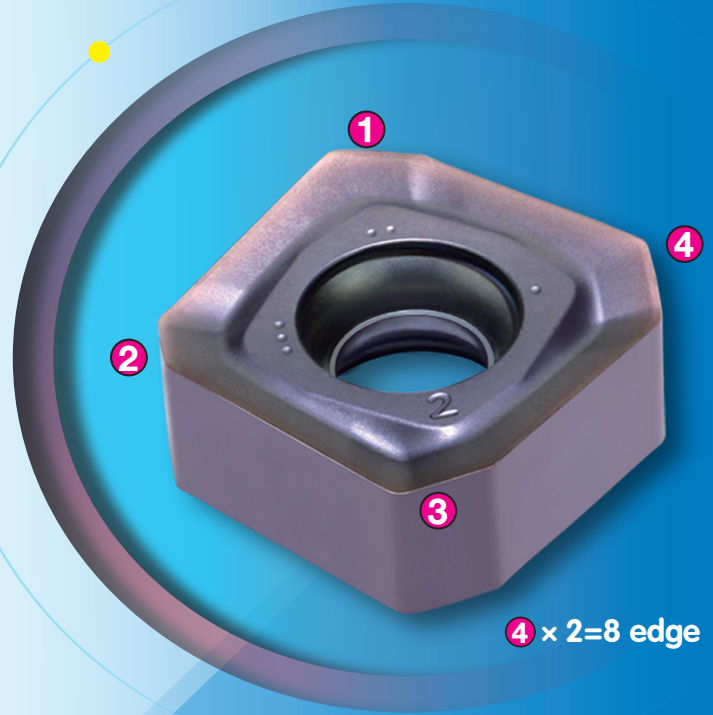
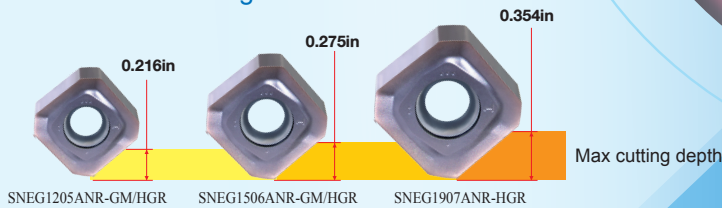


New -HGR geometry, high edge strength, excellent breakage resistance.



Insert with wiper, smoother surface roughness.

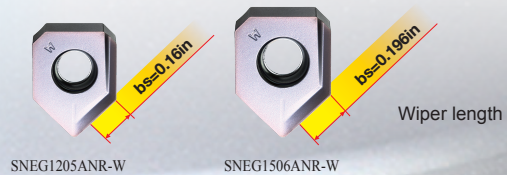
Complete range of insert specifications and geometries, for different cutting depths and different machining demands.



-W special geometry for wiper inserts, large arc design, improved workpiece quality.

Extra long wiper, moresuited to semi-finishing and finishing with large diameter cutters.

W wiper inserts for improved surface finish while reducing finish cut times.



FMA11 series tools machining cases

Workpiece material: NAK80


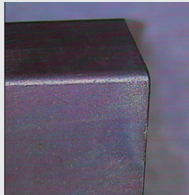
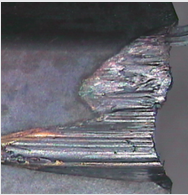

Operation: face milling

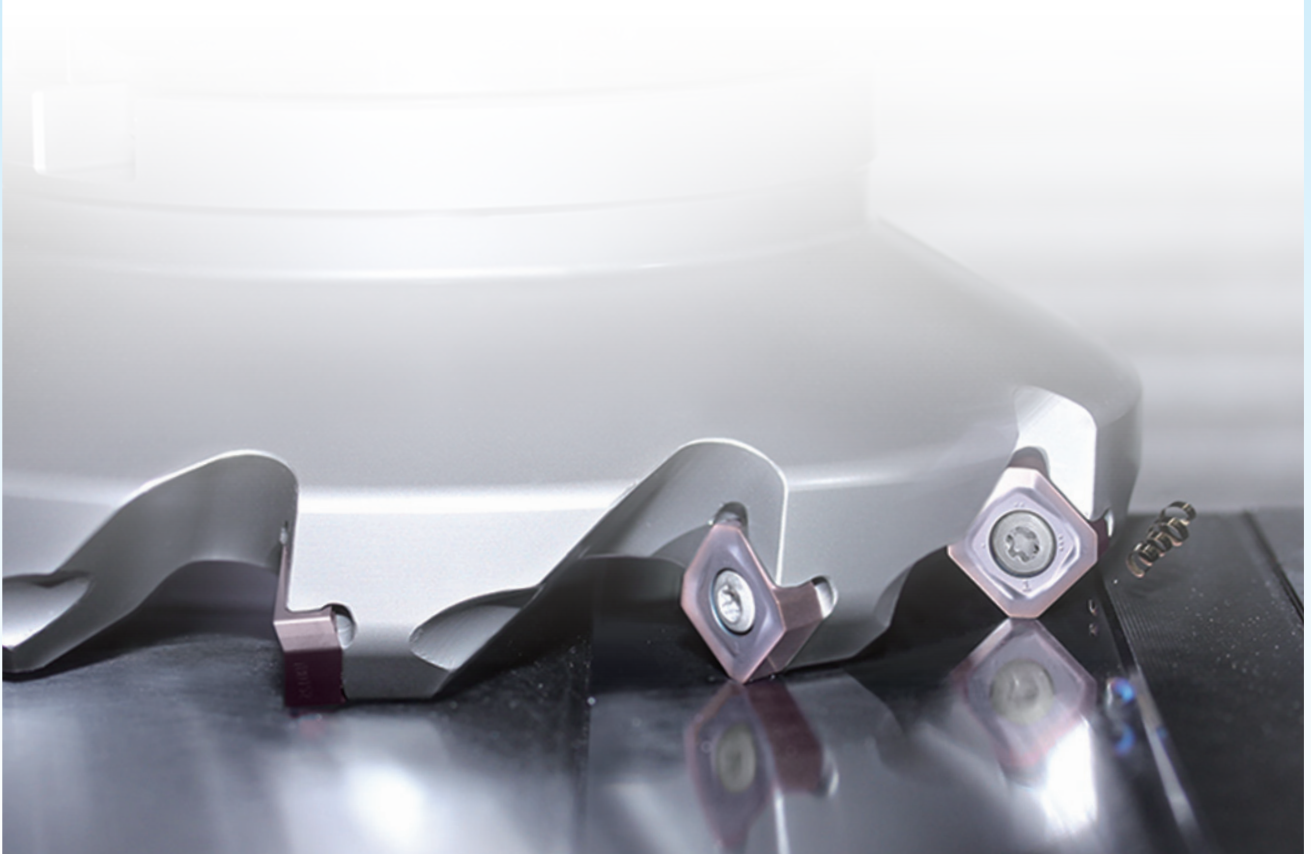
Tool: FMA11-5.00"-B1.50"-SN12-08

Insert: SNEG1205ANR-HGR/YBG205

Cutting parameters: $V_c=650$ SFPM, $f_z=0.008$ in/z, $A_p=0.08$ in, $A_e=2.0$ in

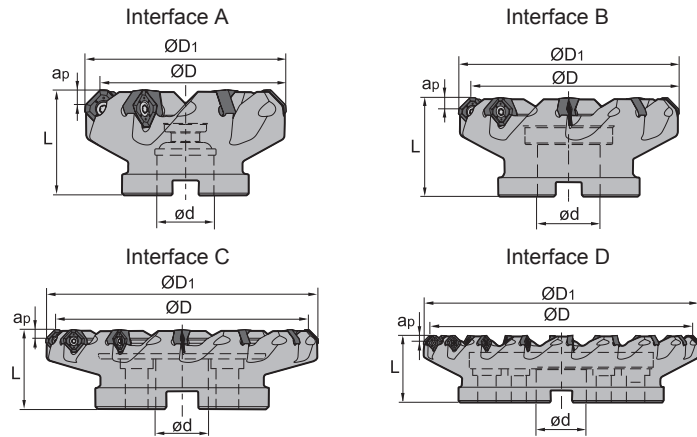
Tool life comparison

	Products of company A	-HGR/YBG205
Test Group 1		
Tool life	22 minutes Breakage	35 minutes, wear 0.0008in
Test Group 2		
Tool life	27 minutes Breakage	35 minutes, wear 0.0004in



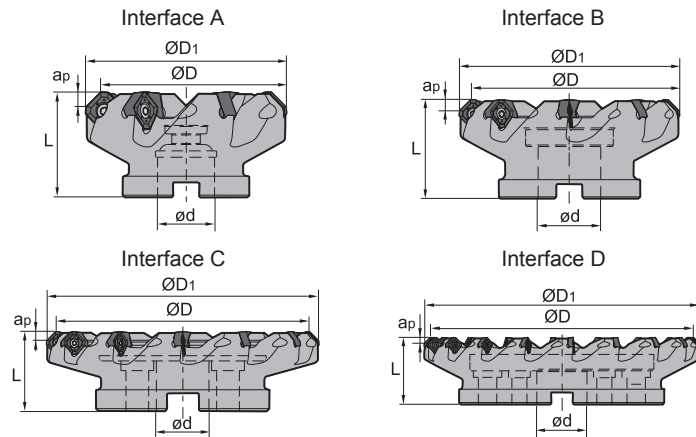


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	Specification Stock	Basic dimensions(inch)					Z	Interface form
		ØD	ØD ₁	Ød	L	a _{pmax}		
FMA11 (Coarse pitch)	-2.00"-A0.75"-SN12-04C	2.000	2.453	0.750	1.750	0.216	4	A
	-2.50"-A0.75"-SN12-05C	2.500	2.953	0.750	1.750	0.216	5	A
	-3.00"-A1.00"-SN12-06C	3.000	3.453	1.000	2.000	0.216	6	A
	-4.00"-B1.50"-SN12-07	4.000	4.453	1.500	2.500	0.216	7	B
	-5.00"-B1.50"-SN12-08	5.000	5.453	1.500	2.500	0.216	8	B
	-6.00"-B2.00"-SN12-10	6.000	6.453	2.000	2.500	0.216	10	B
	-2.00"-A0.75"-SN15-04C	2.000	2.602	0.750	1.750	0.275	4	A
	-2.50"-A0.75"-SN15-05C	2.500	3.102	0.750	1.750	0.275	5	A
	-3.00"-A1.00"-SN15-06C	3.000	3.602	1.000	2.000	0.275	6	A
	-4.00"-B1.50"-SN15-07	4.000	4.602	1.500	2.500	0.275	7	B
	-5.00"-B1.50"-SN15-08	5.000	5.602	1.500	2.500	0.275	8	B
	-6.00"-B2.00"-SN15-10	6.000	6.602	2.000	2.500	0.275	10	B
	-8.00"-C2.50"-SN15-12	8.000	8.602	2.500	2.500	0.275	12	C
	-10.00"-C2.50"-SN15-14	10.000	10.602	2.500	2.500	0.275	14	C
	-12.00"-D2.50"-SN15-18	12.000	12.602	2.500	2.500	0.275	18	D
	-5.00"-B1.50"-SN19-07	5.000	5.720	1.500	2.500	0.354	7	B
-6.00"-B2.00"-SN19-09	6.000	6.720	2.000	2.500	0.354	9	B	
-8.00"-C2.50"-SN19-11	8.000	8.720	2.500	2.500	0.354	11	C	
-10.00"-C2.50"-SN19-13	10.000	10.720	2.500	2.500	0.354	13	C	
-12.00"-D2.50"-SN19-16	12.000	12.720	2.500	2.500	0.354	16	D	
FMA11 (Close pitch)	-2.50"-A0.75"-SN12-06C	2.500	2.953	0.750	1.750	0.216	6	A
	-3.00"-A1.00"-SN12-07C	3.000	3.453	1.000	2.000	0.216	7	A
	-4.00"-B1.50"-SN12-09	4.000	4.453	1.500	2.500	0.216	9	B
	-5.00"-B1.50"-SN12-10	5.000	5.453	1.500	2.500	0.216	10	B
	-6.00"-B2.00"-SN12-12	6.000	6.453	2.000	2.500	0.216	12	B

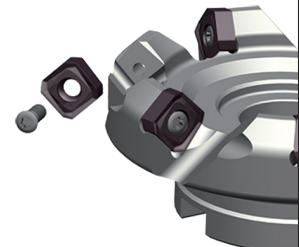
FMA11 series Face milling tools



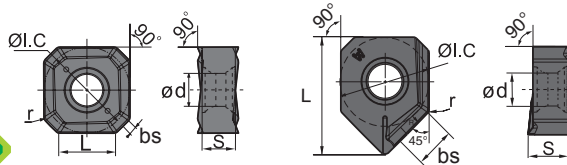
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	-4.00"-B1.50"-SN15-09	4.000	4.602	1.500	2.500	0.275	9	B
	-5.00"-B1.50"-SN15-10	5.000	5.602	1.500	2.500	0.275	10	B
	-6.00"-B2.00"-SN15-12	6.000	6.602	2.000	2.500	0.275	12	B
	-8.00"-C2.50"-SN15-15	8.000	8.602	2.500	2.500	0.275	15	C
	-10.00"-C2.50"-SN15-18	10.000	10.602	2.500	2.500	0.275	18	C
	-12.00"-D2.50"-SN15-22	12.000	12.602	2.500	2.500	0.275	22	D
	-5.00"-B1.50"-SN19-09	5.000	5.720	1.500	2.500	0.354	9	B
	-6.00"-B2.00"-SN19-11	6.000	6.720	2.000	2.500	0.354	11	B
	-8.00"-C2.50"-SN19-14	8.000	8.720	2.500	2.500	0.354	14	C
	-10.00"-C2.50"-SN19-17	10.000	10.720	2.500	2.500	0.354	17	C
-12.00"-D2.50"-SN19-20	12.000	12.720	2.500	2.500	0.354	20	D	

Tool accessories

Tool diameter ØD	Insert	Insert clamping screw	Wrench	
				
Ø2.00" -Ø6.00"	SNEG1205ANR-GM/HGR/W	I60M3.5×10	--	WT15IS
Ø2.00" -Ø12.00"	SNEG1506ANR-GM/HGR/W	I60M5×13	WT20IT	--
Ø5.00" -Ø12.00"	SNEG1907ANR-HGR	I43M6×16	WT25IT	--



FMA11 series Face milling tools



Applicable inserts

Insert shape	Specification	Basic dimensions(inch)						CVD coating					PVD coating				Cermet		Carbide							
		L	ØI.C	S	bs	ød	r	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YNG151	YNG151C	YC30S	YD051	YD101	YD201
	SNEG1205ANR-GM	0.299	0.472	0.187	0.041	0.181	0.031	●	●	●					●	●										
	SNEG1506ANR-GM	0.370	0.591	0.218	0.051	0.217	0.035	●	●	●					●	●										
	SNEG1205ANR-HGR	0.299	0.472	0.187	0.041	0.181	0.031	●	●	●	○				●	●										
	SNEG1506ANR-HGR	0.370	0.591	0.218	0.05	0.217	0.035	●	●	●	○				●	●										
	SNEG1907ANR-HGR	0.476	0.748	0.276	0.066	0.283	0.039	●	●	●	○				●	●										
	SNEG1205ANR-W	0.626	0.472	0.187	0.16	0.181	0.024								●											
	SNEG1506ANR-W	0.783	0.591	0.218	0.196	0.217	0.035								●											

● Always stock available ○ Produce according to order

Recommended cutting parameters

	Workpiece material	Hardness HB	Insert grade	Cutting data		
				V(SFPM)	f(in/z)	a _{pmax} (in)
P	Low carbon steel soft steel	≤ 180	YBM253 YBC302 YBG205 YB9320	880 (720-1150)	0.008(0.004-0.016)	0.216(SN12) 0.275(SN15) 0.354(SN19)
	High carbon steel alloy steel	180-280	YBM253 YBC302 YBG205 YB9320	850 (650-1050)	0.008(0.004-0.016)	
	Alloy tool steel	280-350	YBM253 YBC302 YBG205 YB9320	780 (590-1000)	0.008(0.004-0.016)	
K	Cast iron	180-250	YBD152	880 (490-1000)	0.012(0.004-0.02)	
			YBD252	650 (490-820)	0.016 (0.008-0.02)	



ZCC USA Inc.

36 22 W. Liberty Rd. Ann Arbor, MI 48103

Tel: 734-997-3811 Fax: 734-997-3820

E-Mail: sales@zccusa.com

[Http://www.zccusa.com](http://www.zccusa.com)