

Appropriative inerts for stainless steel machining

Safety precautions:

- Very hot or lengthy chips may be discharged while the machine is in operation. So, safety goggles or other protective covers must be used.
- In cutting process, sparks and hot chips may cause fire and explosion hazard. Therefore please make sure the fire extinguishers are ready for use.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.
- Please handle with care as this product has sharp edges.

Zhuzhou Huarui Cemented Carbide Tools Co.,Ltd.

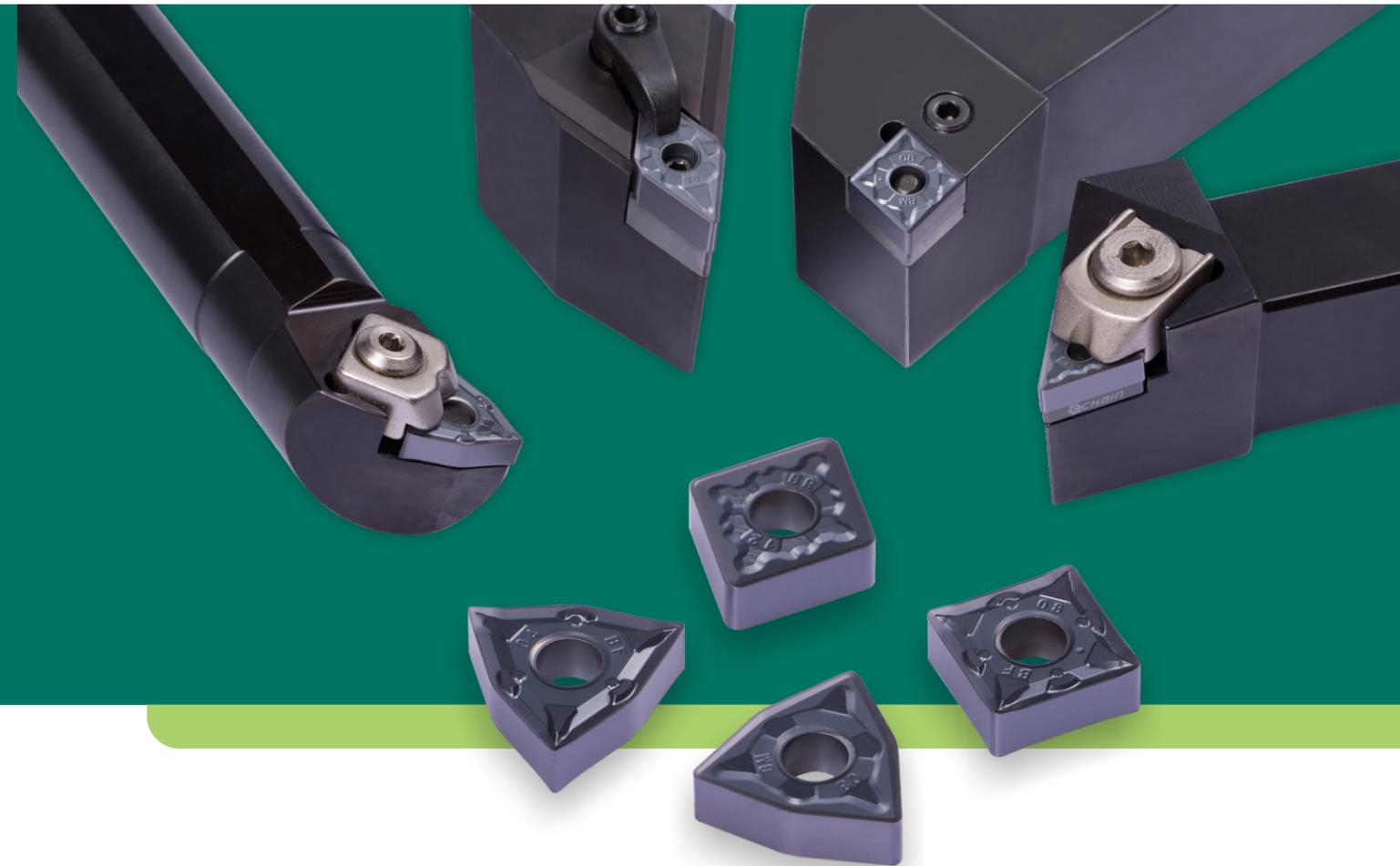
Add.No.68 Chuangye 2nd RD., Lusong District, Zhuzhou, Hunan, P.R.China

Postcode : 412000

Tel : +86-731-22286602 Fax : +86-731-22286653

Website : www.zzhrhj.com

Zhuzhou Huarui Cemented Carbide Tools Co.,Ltd.



INTRODUCTION

Zhuzhou Huarui Cemented Carbide Tools Co.,Ltd. is a high and new tech enterprise engaged in the production of cemented carbide cutting tools for CNC machinery, the municipal supporting institution of Zhuzhou Carbide Precision Cutting tool Engineering Technology Research Center. Also the production line has been named key project of “Manufacture makes Hunan stronger”. In the market, its “Hardstone” Brand products with excellent properties have been widely used in industries of automobiles, aviation & aerospace, rail traffic, heavy equipment, mold manufacture, power equipment,etc. and have been accepted by customers. Therefore they are selling to various overseas markets.

With its good development prospects, the company has won great favor from various investors. The well-known domestic equity investment funds invested a large sum of money for company in 2011, 2015 and 2017, which has speeded up the introduction of high-tech manufacturing equipments and quality test instruments. Therefore, the product quality has climbed one storey higher & reached the first- class in Asia.

The company has in its possession a strong technical strength & has forged a top domestic specialized & high-level R & D team of old, middle-aged & young professional personnel. They included experts enjoying special allowance of the state council & introduced outstanding CNC talents. The company has its own R&D Center consisting of material research, products design, mould design & manufacture, cutting experiments & technical application service, etc. ensuring the provision to customers of the best solutions to products & technical service. At present, the company has 22 nationally authorized patents.

The company has its quality control system covering the whole processes with independent intellectual property rights to guarantee the stability and consistency of its products. The company was awarded ISO9001:2000 quality management system certificate.2014, enterprise have passed 2008 quality standard system certificate.

The company has experienced sales engineers and technical application engineers, and has set up its product and technical service branched in China’s major industrial cities to provide the most professional and efficient service.

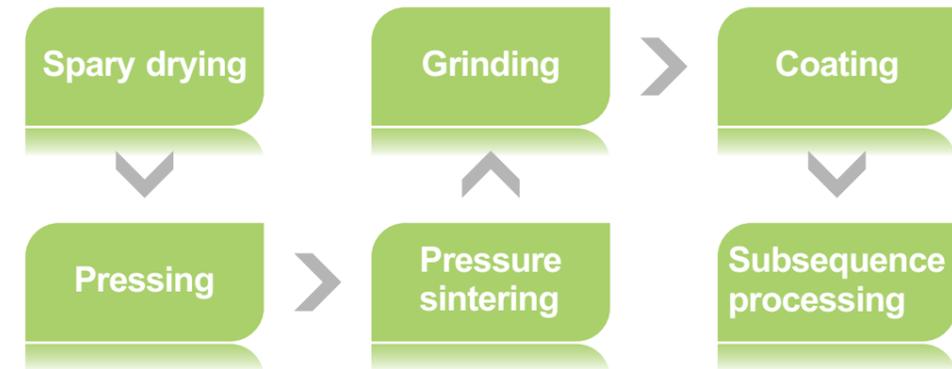


EQUIPMENT

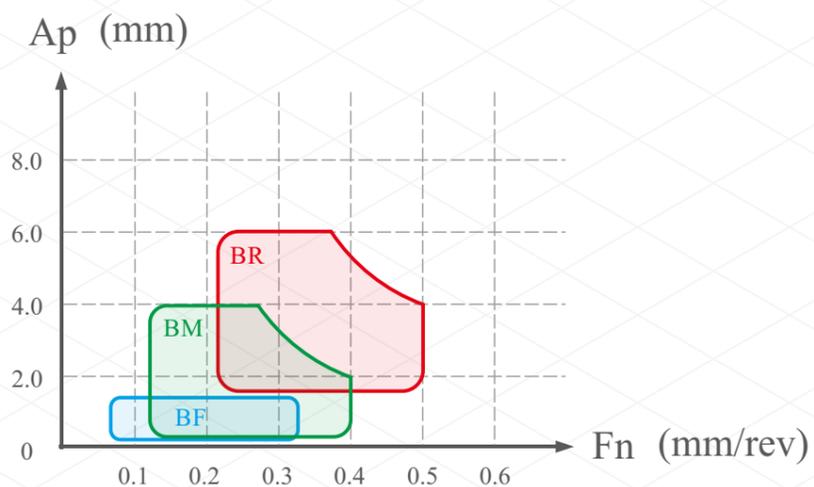
The company has a full set of high-level producing equipments ranging from raw power material preparation, mould manufacture, pressing, pressure sintering, grinding to post processing. We use spray drying tower in mixing process. Its advanced technique ascertains the best performance behavior of material in physical property and formability.

Using powder compacting press with Electro-Servo Motor Direct Drive, the most advanced machine for press shaping in the world, which meet the high requirements on precision, performance and stability. For sintering, we equipped the most advanced devices to meet the quality requirements on chemical and physical performance.

For grinding and machining, we equipped Fully auto CNC periphery insert grinder, CNC two-wheel flat lapping machine etc. to ensure product shape and precision demand. We also use the most advanced PVD/CVD coating machines. The state-of-the-art subsequence process devices equipped for better performance.



Chipbreaker application range



The inserts for stainless steel machining (negative inserts)

80° CN** inserts with hole

Inserts shape	Type	Dimension (mm)					Cutting parameters	Shape
		L	IC	S	Φd	Re		
	CNMG120404-BF	12.9	12.7	4.76	5.16	0.4	ap : 0.1~ 1.5 ; fn : 0.08~ 0.25	
	CNMG120408-BF	12.9	12.7	4.76	5.16	0.8	ap : 0.1~ 2.0 ; fn : 0.10~ 0.30	
	CNMG120404-BM	12.9	12.7	4.76	5.16	0.4	ap : 0.5~ 4.0 ; fn : 0.15~ 0.25	
	CNMG120408-BM	12.9	12.7	4.76	5.16	0.8	ap : 0.6~ 4.0 ; fn : 0.15~ 0.40	
	CNMG120412-BM	12.9	12.7	4.76	5.16	1.2	ap : 0.8~ 4.0 ; fn : 0.15~ 0.50	
	CNMG120408-BR	12.9	12.7	4.76	5.16	0.8	ap : 2.0~ 5.0 ; fn : 0.25~ 0.40	
	CNMG120412-BR	12.9	12.7	4.76	5.16	1.2	ap : 2.0~ 5.0 ; fn : 0.25~ 0.50	

55° DN** inserts with hole

Inserts shape	Type	Dimension (mm)					Cutting parameters	Shape
		L	IC	S	Φd	Re		
	DNMG150404-BM	15.5	12.7	4.76	5.16	0.4	ap : 0.5~ 4.0 ; fn : 0.15~ 0.25	
	DNMG150408-BM	15.5	12.7	4.76	5.16	0.8	ap : 0.6~ 4.0 ; fn : 0.15~ 0.40	
	DNMG150412-BM	15.5	12.7	4.76	5.16	1.2	ap : 0.8~ 4.0 ; fn : 0.15~ 0.50	
	DNMG150604-BM	15.5	12.7	6.35	5.16	0.4	ap : 0.5~ 4.0 ; fn : 0.15~ 0.25	
	DNMG150608-BM	15.5	12.7	6.35	5.16	0.8	ap : 0.6~ 4.0 ; fn : 0.15~ 0.40	
	DNMG150612-BM	15.5	12.7	6.35	5.16	1.2	ap : 0.8~ 4.0 ; fn : 0.15~ 0.50	

90° SN** inserts with hole

Inserts shape	Type	Dimension (mm)					Cutting parameters	Shape
		L	IC	S	Φd	Re		
	SNMG120404-BF	12.7	12.7	4.76	5.16	0.4	ap : 0.1~ 1.5 ; fn : 0.08~ 0.25	
	SNMG120408-BF	12.7	12.7	4.76	5.16	0.8	ap : 0.1~ 2.0 ; fn : 0.10~ 0.30	
	SNMG120404-BM	12.7	12.7	4.76	5.16	0.4	ap : 0.5~ 4.0 ; fn : 0.15~ 0.25	
	SNMG120408-BM	12.7	12.7	4.76	5.16	0.8	ap : 0.6~ 4.0 ; fn : 0.15~ 0.40	
	SNMG120412-BM	12.7	12.7	4.76	5.16	1.2	ap : 0.8~ 4.0 ; fn : 0.15~ 0.50	
	SNMG120408-BR	12.7	12.7	4.76	5.16	0.8	ap : 2.0~ 5.0 ; fn : 0.25~ 0.40	
	SNMG120412-BR	12.7	12.7	4.76	5.16	1.2	ap : 2.0~ 5.0 ; fn : 0.25~ 0.50	

60° TN** inserts with hole

Inserts shape	Type	Dimension (mm)					Cutting parameters	Shape
		L	IC	S	Φd	Re		
	TNMG160404-BF	16.5	9.525	4.76	3.81	0.4	ap : 0.1~ 1.5 ; fn : 0.08~ 0.25	
	TNMG160408-BF	16.5	9.525	4.76	3.81	0.8	ap : 0.1~ 2.0 ; fn : 0.10~ 0.30	
	TNMG160404-BM	16.5	9.525	4.76	3.81	0.4	ap : 0.5~ 4.0 ; fn : 0.15~ 0.25	
	TNMG160408-BM	16.5	9.525	4.76	3.81	0.8	ap : 0.6~ 4.0 ; fn : 0.15~ 0.40	
	TNMG160412-BM	16.5	9.525	4.76	3.81	1.2	ap : 0.8~ 4.0 ; fn : 0.15~ 0.50	
	TNMG160408-BR	16.5	9.525	4.76	3.81	0.8	ap : 2.0~ 5.0 ; fn : 0.25~ 0.40	

80° WN** inserts with hole

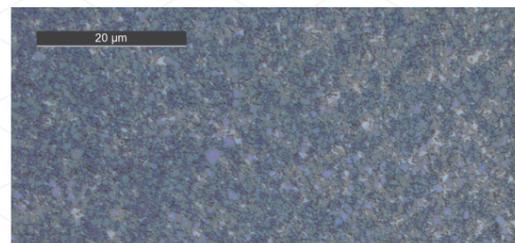
Inserts shape	Type	Dimension (mm)					Cutting parameters	Shape
		L	IC	S	Φd	Re		
	WNMG080404-BF	8.7	12.7	4.76	5.16	0.4	ap : 0.1~ 1.5 ; fn : 0.08~ 0.25	
	WNMG080408-BF	8.7	12.7	4.76	5.16	0.8	ap : 0.1~ 2.0 ; fn : 0.10~ 0.30	
	WNMG080408-BM	8.7	12.7	4.76	5.16	0.8	ap : 0.6~ 4.0 ; fn : 0.15~ 0.40	
	WNMG080412-BM	8.7	12.7	4.76	5.16	1.2	ap : 0.8~ 4.0 ; fn : 0.15~ 0.50	
	WNMG080408-BR	8.7	12.7	4.76	5.16	0.8	ap : 2.0~ 5.0 ; fn : 0.25~ 0.40	

The inserts' features

- ◆ The special design chipbreaker has excellent performance of stainless steel for rough machining, semi-finishing machining and finishing machining.
- ◆ BF-chipbreaker inserts are used for semi-finishing machining and finishing good surface. The specific chipbreaker solved the burr phenomenon on the parts surface.
- ◆ BM-chipbreaker inserts are the first choice for stainless steel common machining, the cutting tools with both sharpness and hardness, which suitable use to semi-finishing and rough turning.
- ◆ Well-solved the difficulty of the stainless steel hard chip breaking, sticking, surface hardening etc, thus obtain the high quality surface..
- ◆ Special chipbreaker can control the chipping direction, thus raises the production efficiency and reduce the built-up edge occur.
- ◆ There are different cutting edge designs for rough machining, semi-finishing machining and finishing machining. The inserts for finishing and semi-finishing are emphasize the sharpness of cutting edge. To optimize the cutting edge for rough machining inserts, well balanced the safety and sharpness, improved service efficiency of tool.

WS7125 Grade Features

- ◆ Strict control of substrate production, lead to the optimal and stable performance of all property indexes.
- ◆ The special treatment to the substrate surface, contribute to more stable combination of substrate and coating.
- ◆ The substrate has good performance at high wearing resistance requirements conditions.
- ◆ The new generation of high-aluminum coating cutting tools can well machining stainless steel, Stability machining and excellent performance, greatly extend the tool's service life.

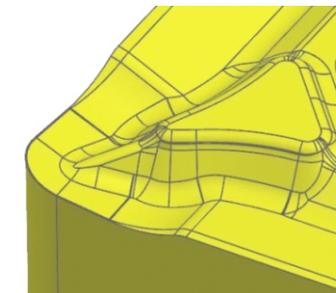


WS7125 substrate micrograph under 100 times

Chipbreaker features

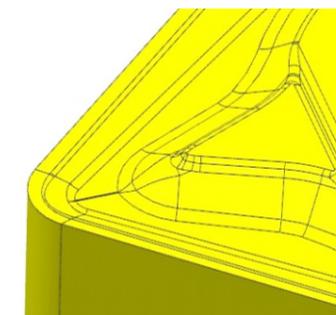
BF

- ◆ Chipbreaker for finishing machining and semi-finishing machining.
- ◆ The sharp cutting edge with smaller cutting resistance.
- ◆ It has good chipping processing power even machining small cutting depth.
- ◆ The special treatment for the cutting edge can reduce the production of built-up edge.



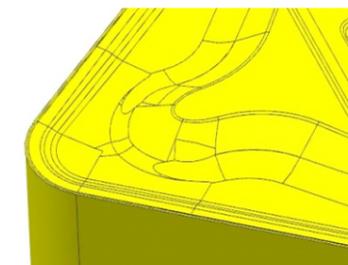
BM

- ◆ Chipbreaker for semi-finishing machining and rough machining.
- ◆ The combination of sharpness and hardness for cutting edge, which can achieved wider range of machining.
- ◆ Good chipping removal performance with lower cutting resistance.



BR

- ◆ Improved chip breaking boss.
- ◆ Well-proportioned cutting edge passivation
- ◆ The solid cutting edge is suitable for rough and intermittent turning.
- ◆ The large space for chipping can easy handle rough and high feed rates machining.



Application case

Flange rough turning

Workpiece material	Stainless steel SUS201
Machining way	Continuous external turning
Inserts type/Grade	WNMG080408-BM WS7125
Cutting parameters	Vc=273m/min, f=0.3mm/r, ap=1.0mm
Result of cutting	Hardstone, 37~42 pieces/cutting edge Brand M, 38~42 pieces/cutting edge



Flange finishing turning

Workpiece material	Stainless steel SUS304
Machining way	Continuous external finishing turning
Inserts type/Grade	WNMG080408-BF WS7125
Cutting parameters	Vc=220m/min, f=0.14mm/r, ap=0.1mm
Result of cutting	Surface roughness: lower than Ra1.6 Hardstone, 242 pieces / cutting edge Brand C, 212 pieces /cutting edge



Flange finishing turning

Workpiece material	Stainless steel SUS304
Machining way	Continuous external finishing turning
Inserts type/Grade	WNMG080408-BF WS7125
Cutting parameters	Vc=210m/min, f=0.1mm/r, ap=0.1mm (Ra≤0.8)
Result of cutting	Surface roughness: lower than Ra1.6 Hardstone, 740 pieces / cutting edge Brand Z, 450 pieces /cutting edge



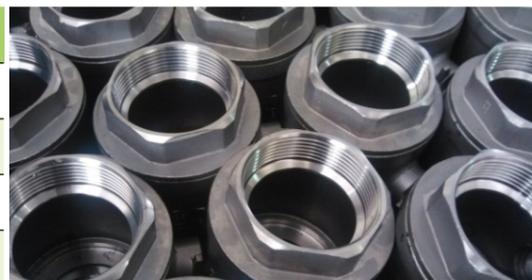
Globe valve body turning

Workpiece material	Stainless steel SUS304
Machining way	Continuous finishing turning for external and end turning(with solder joint)
Inserts type/Grade	TNMG1680408-BM WS7125
Cutting parameters	Vc=150~500m/min, f=0.06~0.24mm/r, ap=0.05~2mm
Result of cutting	Hardstone, 80~90 pieces/cutting edge Brand M, 80~90 pieces/cutting edge



Pipe joint turning

Workpiece material	Stainless steel SUS304
Machining way	Intermittent turning end face
Inserts type/Grade	WNMG080408-BF WS7125
Cutting parameters	Vc=168m/min, f=0.18mm/r, ap=0.5mm
Result of cutting	Hardstone, 1200 pieces/cutting edge Brand M, 750 pieces/cutting edge



HARDSTONE CUTTING TOOLS MARKETING NETWORK

