

High-benefit shallow drill inserts

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.



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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.

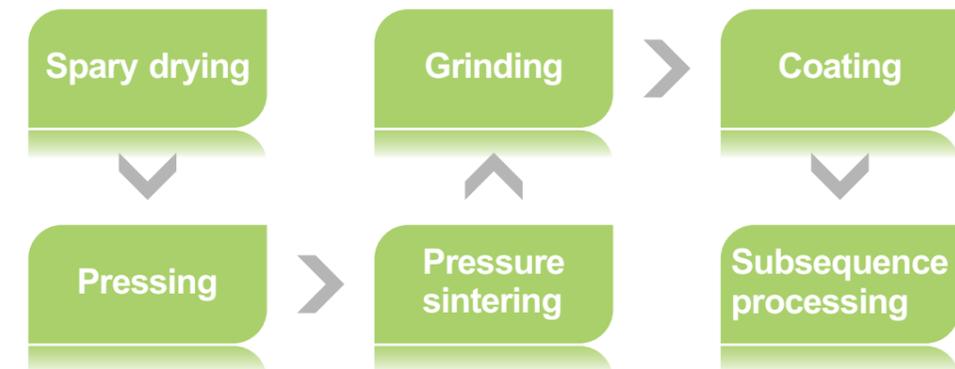


EQUIPMENT

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.



Inserts for shallow drill machining(positive inserts)

90° SP** inserts with hole

Inserts shape	Type	Dimension (mm)				Angle(°)	Grade	Shape
		IC	T	Re	Φd	α		
	SPMG050204	5.0	2.38	0.4	2.25	14.0	WS5130	
	SPMG060204	6.0	2.38	0.4	2.61	14.0	WS5130	
	SPMG07T308	7.94	3.97	0.8	2.85	15.5	WS5130	
	SPMG090408	9.8	4.3	0.8	4.05	17.5	WS5130	
	SPMG110408	11.5	4.8	0.8	4.5	16.5	WS5130	

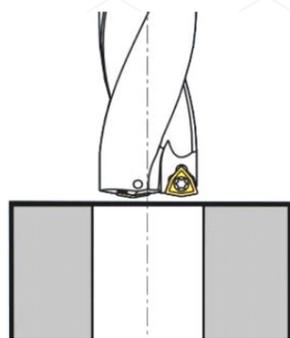
80° WC** inserts with hole

Inserts shape	Type	Dimension (mm)				Angle(°)	Grade	Shape
		IC	T	Re	Φd	α		
	WCMX030204	5.56	2.38	0.4	2.55	7	WS5130	
	WCMX040204	6.35	2.38	0.4	2.8	7	WS5130	
	WCMX050308	7.94	3.18	0.8	3.2	7	WS5130	
	WCMX06T308	9.525	3.97	0.8	3.7	7	WS5130	
	WCMX080412	12.7	4.76	1.2	4.25	7	WS5130	

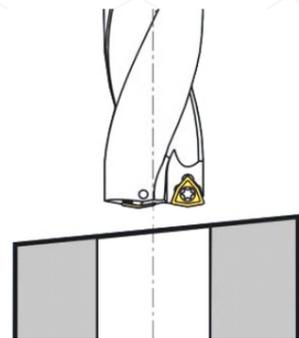
Features of the inserts

- ◆ Using the same types of inserts at the center and in the surrounding of drilling inserts, which is more easier for inserts replacement.
- ◆ With sharp cutting edge, reducing the vibration of machining process , which is beneficial to the insert surface with low roughness
- ◆ Optimized chipbreaker structure improve the cutting performance and chipping control, contributing to easy and fast cutting.
- ◆ The combination of specific substrate and coating, well balanced the different wear patterns of center inserts and surrounding inserts.

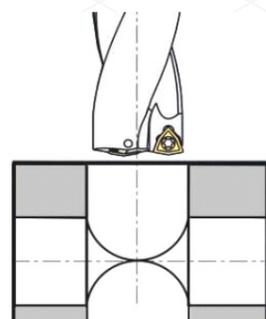
Drilling function schematic diagram



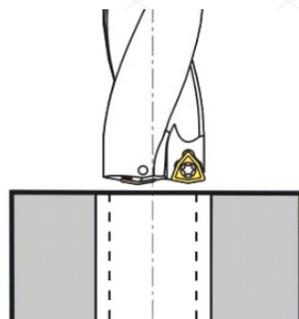
1. Drilling



2. Drilling on inclined surface



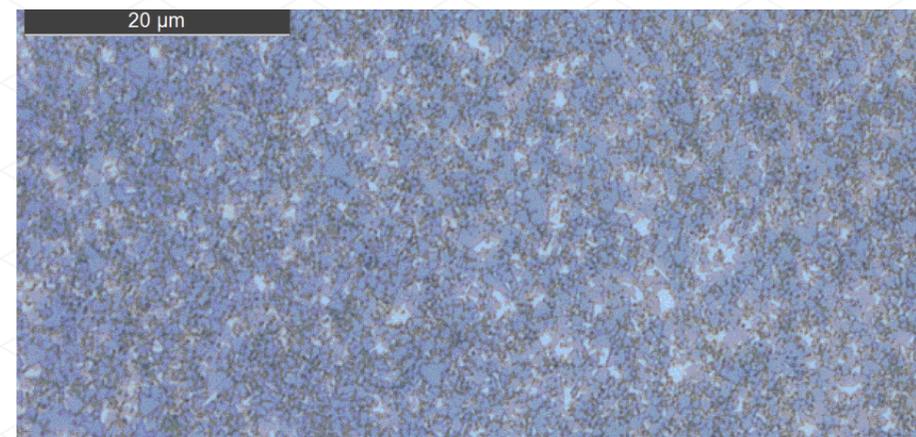
3. Cross-hole drilling



4. Expand drilling

WS5130 Grade Features

- ◆ Strict control of substrate production, lead to the optimal and stable performance of all property indexes.
 - ◆ Because of the special raw material matching and production technique, the substrate has a better impact resistance and wear resistance, which effectively prevent the break and abrasion.
 - ◆ The special treatment to the substrate surface, contribute to more stable combination of substrate and coating.
 - ◆ The new generation of high-aluminum coating cutting tools can well machining high hard steel, stainless steel, cast iron, etc..
- Stability machining and excellent performance, greatly extend the tool's service life.



WS5130 substrate micrograph under 100 times

Application cases

Condensing plate drilling

Parts	stainless steel 304
Machining way	Inter-cooled drilling D35.8
Inserts type	SPMG110408
Cutting parameters	Vc=160m/min, fn=0.12mm/r
Result of cutting	Hardstone, 2.4M /cutting edge Brand A, 2.0-2.6M/ cutting edge



Condensing plate drilling

Parts	Stainless steel 304
Machining way	Inter-cooled drilling D23.5
Inserts type	SPMG07T308
Cutting parameters	Vc=140m/min, fn=0.10mm/r
Result of cutting	Hardstone, 3.0 M/cutting edge Brand A, 2.5-3.0 M/ cutting edge



Flange end face drilling

Parts	Stainless steel SUS 304
Machining way	Deep hole D14.5 25 depth
Inserts type	SPMG050204
Cutting parameters	Vc=159.4m/min, f=0.034mm/r (≤Ra1.6)
Result of cutting	Hardstone, 240 hole/cutting edge Brand D, 200 hole/ cutting edge



HARDSTONE CUTTING TOOLS MARKETING NETWORK

