



**HARD-FACING MATERIALS**

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# FACTORY INTRODUCTION

Ganzhou Stone Alloy Material Co., Ltd. is located in the "world tungsten capital" - Jiangxi Dayu Tungsten deep processing Industrial Park.

The products: hard surface carbide materials: multi-prism carbide breaking particles, multi-prism light alloy particles, thermal spraying powder.

The products are suitable for various processes of hot surfacing welding and thermal spray welding, widely used in: oil mining, mining, automobile agricultural machinery parts and other fields.

赣州金石合金材料有限公司 坐落于“世界钨都”一江西大余钨精深加工产业园。公司厂房面积 7200 平方米。公司主导产品：硬质合金硬面材料：多棱体硬质合金破击粒，多棱体轻质合金粒，热喷涂粉体，YZ 球粒合金。产品适合各种工艺的热堆焊和热喷涂焊，广泛应用于：石油开采，矿山采掘，汽车农机配件等领域。

## COMPANY INTRODUCTION

1.Zigong Joint Carbide Co.,Ltd. dedicates on R&D of carbide blanks;

2.Chengdu Joint Carbide Co.,Ltd. works on sales and export of carbide tools.

3.Ganzhou Stone Alloy Material Co., Ltd. Production of carbide particles and carbide composite welding rods.



# WC - Thermal Spray Powder

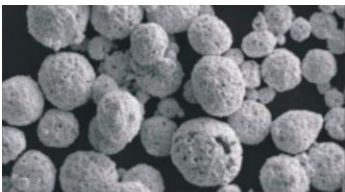
## Product Introduction

Agglomerated sintered or sintered crushed gray/black particles; Agglomerated sintered particles are spherical or nearly spherical, with good fluidity, sintered crushed particles are irregularly shaped particles; Maximum operating temperature 500℃;

High hardness, dense coating, resistant to abrasive wear, fretting wear, adhesive wear, erosion wear; High fracture toughness.

### WC-10Co4Cr

Morphology pictures



Coating pictures

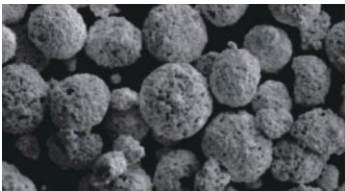


Specification	Type	Granularity (μm)	Loose density (g/cm³)	Hall velocity (s/50g)	Application
10Co4Cr-5320	WC-Co-Cr 86/10/4	53-20	≥4	≤25	Aircraft landing gear, gate valves and ball valves, papermaking rolls, hydraulic cylinders, compressor rods, metallurgical rolling mills, mechanical parts, etc.
10Co4Cr-4520		45-20	≥4	≤25	
10Co4Cr-4515		45-15	≥4	≤25	
10Co4Cr-3810		38-10	≥4	≤18	

Main Ingredients(%): T.C=5.0-6.0, Co=9.0-10.5, Cr=3.0-4.5, Fe≤1.0, O≤0.5.

### WC-12Co

Morphology pictures



Coating pictures

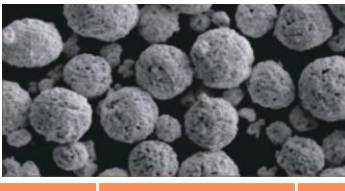


Specification	Type	Granularity (μm)	Loose density (g/cm³)	Hall velocity (s/50g)	Application
12Co-5320	WC-Co 88/12	53-20	≥4	≤25	Mechanical parts, oil and gas equipment, metallurgical rollers, pump sealing parts, etc.
12Co-4520		45-20	≥4	≤25	
12Co-4515		45-15	≥4	≤25	
12Co-3810		38-10	≥4	≤18	

Main Ingredients(%): T.C=5.2-5.8, Co=11.5-12.5, Fe≤1.0, O≤0.5.

### WC-17Co

Morphology pictures



Coating pictures



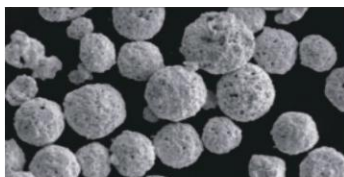
Specification	Type	Granularity (μm)	Loose density (g/cm³)	Hall velocity (s/50g)	Application
17Co-5320	WC-Co 83/17	53-20	≥4	≤25	Aircraft landing gear, extrusion dies, wire drawing equipment, papermaking rollers, glass industry, crushing rollers, pump sealing parts, etc.
17Co-4520		45-20	≥4	≤25	
17Co-4515		45-15	≥4	≤25	
17Co-3810		38-10	≥4	≤18	

Main Ingredients(%): T.C=4.7-5.2, Co=16.5-17.5, Cr=3.0-4.5, Fe≤1.0, O≤0.5.

# WC - Thermal Spray Powder

## WC-10Ni

Morphology pictures



Coating pictures

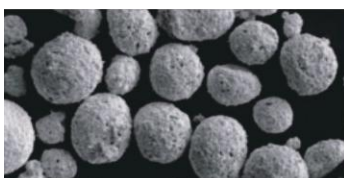


Specification	Type	Granularity (μm)	Loose density (g/cm <sup>3</sup> )	Hall velocity (s/50g)	Application
10Ni-5320	WC-Ni 90/10	53-20	≥4	≤18	Oilfield equipment, petrochemical industry, ball valves (under oxidizing environment), plate valves, offshore equipment and parts, etc.
10Ni-4520		45-20	≥4	≤18	
10Ni-4515		45-15	≥4	≤18	
10Ni-3810		38-10	≥4	≤18	

Main Ingredients(%): T.C=5.2-6.0, Ni=9.0-11.0, Fe≤0.2, O≤0.5.

## WC-12Ni

Morphology pictures



Coating pictures

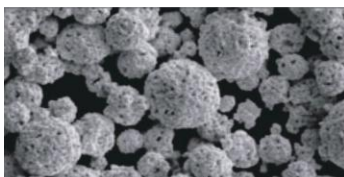


Specification	Type	Granularity (μm)	Loose density (g/cm <sup>3</sup> )	Hall velocity (s/50g)	Application
12Ni-5320	WC-Ni 88/12	53-20	≥4	≤18	Oilfield equipment, petrochemical industry, ball valves (under oxidizing environment), plate valves, offshore equipment and parts, etc.
12Ni-4520		45-20	≥4	≤18	
12Ni-4515		45-15	≥4	≤18	
12Ni-3810		38-10	≥4	≤18	

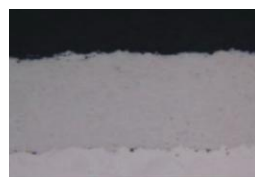
Main Ingredients(%): T.C=5.2-5.8, Ni=11.5-12.5, Fe≤0.5, O≤0.5.

## WC-17Ni

Morphology pictures



Coating pictures



Specification	Type	Granularity (μm)	Loose density (g/cm <sup>3</sup> )	Hall velocity (s/50g)	Application
17Ni-5320	WC-Ni 83/17	53-20	≥4	≤18	Oilfield equipment, petrochemical industry, ball valves (under oxidizing environment), plate valves, offshore equipment and parts, etc.
17Ni-4520		45-20	≥4	≤18	
17Ni-4515		45-15	≥4	≤18	
17Ni-3810		38-10	≥4	≤18	

Main Ingredients(%): T.C=4.7-5.2, Ni=16.5-17.5, Fe≤0.5, O≤0.5.

# Thermal Spray Powder for Special Environments

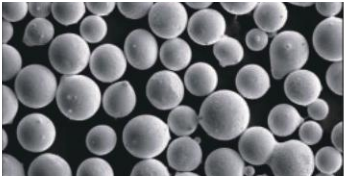
WC-15NiCr	Application
Particle size: Customized according to customer equipment and process. Main Ingredients(%): T.C=4.7-5.3, NiCr=14.5-15.5, Fe≤0.5, O≤0.5.	Ball valves (under oxidizing environment), gate hydraulic rods, transport container hydraulic rods, petrochemical industry, offshore equipment and parts, etc.
WC-20Cr-7Ni	Application
Particle size: Customized according to customer equipment and process. Main Ingredients(%): T.C=4.7-5.3, Cr=19.5-20.5, Ni=6.5-7.5, Fe≤0.5, O≤0.5.	Steel, papermaking, pumps and valves, etc.
Cr <sub>3</sub> C <sub>2</sub> -37WC-18NiCoCr	Application
Particle size: Customized according to customer equipment and process. Main Ingredients(%): Cr <sub>3</sub> C <sub>2</sub> -37WC-18NiCoCr=45/37/18	Pump valve parts, power generation boilers, biomass incineration boilers, chemical industry, etc
Cr <sub>3</sub> C <sub>2</sub> -20NiCoCr	Application
Particle size: Customized according to customer equipment and process. Main Ingredients(%): Cr <sub>3</sub> C <sub>2</sub> -NiCoCr=80/20	Gas turbine, aircraft engine, valve stem, power generation boiler, metallurgical furnace rod and hydraulic valve, etc

## WC - PTA Powder

WC/Ni Carbide Powder

Spherical Casting

Morphology pictures



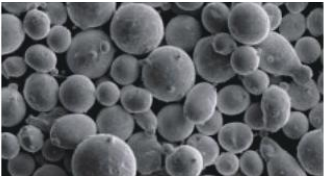
Coating pictures



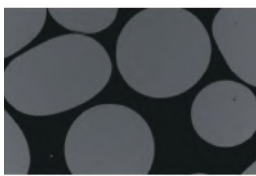
Specification	Type	Granularity (μm)	PTA Coating Hardness (HRC)	Application
WC40Ni60 WC50Ni50 WC60Ni40	WC40-Ni60 WC50-Ni50 WC60-Ni40	45-150	55-65	Pre-strengthening or wear repair of wear-resistant and impact-resistant surfaces.

Nickel-based Self-fluxing Carbide Powder

Morphology pictures



Coating pictures



Specification	Granularity (μm)	Loose density (g/cm³)	Hall velocity (s/50g)	Application
Ni-25 Ni-35 Ni-45 Ni-55 Ni-65	-55+20 -150+45 -45+15 -160+45 -150+45	≥4 ≥4 ≥4 ≥4 ≥4	≤18 ≤18 ≤18 ≤18 ≤18	Medium frequency melting gas atomization/water atomization preparation is used for various surface strengthening, surface protection, surface repair, etc. It has the properties of wear resistance, corrosion resistance, high temperature resistance, etc. It is widely used in petroleum, chemical, mining and other industries.
NiBSi40 NiBSi45 NiBSi50	-150+45 -150+45 -150+45	≥4 ≥4 ≥4	≤18 ≤18 ≤18	



# Tungsten Carbide Particles

## Product Introduction

**Product Application:** For the preparation of spray welding materials, surfacing materials; Used in mining, petroleum, metallurgical industry, agricultural machinery and steel and other industries wear-resistant surface pre-strengthening or wear repair.

Nominal Size: 5MM - 7MM




Nominal Size: 1.6MM - 3.2MM




## Product Specifications

**YG Series Carbide Particles:** The YG (YT) type tungsten carbide with the same material is selected through crushing and then the carbide particles of various particle sizes are selected. It is mainly used for surface cladding (brazing) of various wear-resistant workpieces and the main raw material of carbide composite welding rods.

Grade	Nominal Size (mm)	Particle Size (mm)	Sieve Mesh	Standard Photo Reference
YG	9.5	9.5 - 6.5	Stamped Sieve	
YG	8	8 - 6.5	Stamped Sieve	
YG	6.5	6.5 - 5	Stamped Sieve	
YG	5	5 - 3	Stamped Sieve	
YG	3	3 - 2	Stamped Sieve	
YG	10Mesh	10 - 18Mesh (0.88-2)	10Mesh Sieve	
YG	18Mesh	18 - 30Mesh (0.59-0.88mm)	18Mesh Sieve	
YG	30Mesh	30 - 50Mesh (0.3-0.59mm)	30Mesh Sieve	

**YN Series Carbide Particles:** The multi-element alloy particles mainly composed of tungsten carbide are prepared according to the wear resistance requirements of users. They are mainly used for surface surfacing (brazing) of various wear-resistant workpieces and casting of wear-resistant matrix.

Grade	Nominal Size (mm)	Particle Size (mm)	Standard Photo Reference
YN-1.0	1	0.8 - 1.4	
YN-2.0	2	1.0 - 3.0	
YN-4.0	4	3.0 - 5.0	
YN-6.0	6	5.0 - 6.5	

# Carbide Composite Welding Rods

## Product Introduction

Product Application: Used for surfacing the severely worn or cut workpieces in petroleum, mining, geology, construction. Such as milling shoes, grinding shoes, centralizers, reamers, downhole drilling tools, hydraulic cutters, etc.



## Product Specifications

YG Series Tungsten Carbide composite welding rods is made by mixing the granular Tungsten carbide particles as the hard phase and the copper alloy or nickel alloy as the bonding phase through high-temperature sintering.

Grade	YG series
The Granular Particles	WC - Co Tungsten carbide
The hardness	HRA 89.5-91
Rod Overall Length (MM)	440MM - 450MM
Rod Diameter (MM)	1.8-2MM
Carbide Particle Content	70% - 60% (7:3 or 6:4)
Two Types	Composite rod with copper matrix alloy / LT
	Composite rod with nickel matrix alloy / LN

Grade	Nominal Size (mm)	Particle Size (mm)	Welding Rod Size and Weight	Note
LT / LN-3.2	3.2	1.6 - 3.2	(500g±5g/440±10mm) / pcs	LT: Composite rod with copper matrix alloy  LN: Composite rod with nickel matrix alloy
LT / LN-4.8	4.8	3.2 - 4.8	(500g±5g/440±10mm) / pcs	
LT / LN-6.4	6.4	4.8 - 6.4	(500g±5g/440±10mm) / pcs	
LT / LN-8.0	8.0	6.4 - 8.0	(500g±5g/440±10mm) / pcs	
LT / LN-9.5	9.5	8.0 - 9.5	(500g±5g/440±10mm) / pcs	
LT / LN-11.0	11.0	9.5 - 11.0	(500g±5g/440±10mm) / pcs	



# Carbide Sintered Welding Rod

## Product Introduction

**Product Application:** Used for surfacing the severely worn or cut workpieces in petroleum, mining, geology, construction. Such as milling shoes, grinding shoes, centralizers, reamers, downhole drilling tools, hydraulic cutters, etc.



## Product Specifications

Grade	Rod Length (mm)	Rod Diameter (mm)	Hard Phase Material
LN-103	550	3 / 4 / 5 / 6	Cast tungsten carbide and spheroidal alloys
LN-203	550	3 / 4 / 5 / 6	Spheroidal tungsten carbide and spheroidal alloy
LN-303	550	3 / 4 / 5 / 6	Spherical high entropy alloy

## Product Display





JOINT CARBIDE

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