



STARDUST



微信公众号



公司网址

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星尘科技（广东）有限公司

Stardusttechnology(Guangdong)Co.,Ltd



星辰科技 (广东) 有限公司
Stardusttechnology(Guangdong)Co.,Ltd

公司简介

PROFILE COMPANY

Our company primary products include spherical tantalum powder and tantalum alloy powder, spherical tungsten & tungsten alloy powder, spherical molybdenum and molybdenum powder, spherical niobium and niobium alloy powder, spherical titanium and spherical titanium alloy powder, Spherical refractory high entropy alloy powder, and high-end rare refractory metal and compound spherical powder, and also provide RF plasma spheroidization service, plasma rotating electrode atomization service, 3D printing service, hot isostatic pressing, injection molding, powder metallurgy and other technical services.

Stardust Technology (Guangdong) Co., Ltd. is a high-tech enterprise specializing in the research and development, production and sales of high-end spherical powder materials for 3D printing, powder metallurgy, surface engineering and other fields. The company adheres to the RF plasma spheroidization metal powder technology as the guidance, to provide international advanced products and application solutions.

The company is jointed venture by Foshan Stardust Information Consulting Partnership (Limited Partnership), Guangdong Province Institute of Materials and Processing, and Guangdong Province Academy of Sciences Foshan City Industrial Technology Research Institute Co., LTD.It has a powerful R & D center and a complete technical support team. The company relies on a team from the Materials and Processing Institute of Guangdong Academy of Sciences.

The institute focuses on the modification of powder manufacturing equipment and the application research and promotion of powder metallurgy products. It has established "National Titanium and Rare Metal Powder Metallurgy Engineering Technology Research Center", "Guangdong Province Metal Powder Materials Engineering Technology Research Center", "Guangzhou City Powder Materials and Precision Parts Manufacturing Engineering Technology Research Center". Currently, there are 2 academicians of the Chinese Academy of Engineering (Academician Zhou Kesong and Academician Pan Fusheng), 1 of "Cheungkong Scholar", 1 of "973 Chief Scientist" and 2 of "National Special Support Program for High-level Talents" (" 10,000 Talents Program "). We have international leading high-end powder manufacturing equipments and forming equipments such as Canadian TEKNA RF plasma spheroidization equipment, Ukrainian plasma rotating electrode atomization equipment, Swedish Quintus hot isostatic pressing equipment and German EOS 3D printing equipment.



先进装备

ADVANCED EQUIPMENT



Radio frequency plasma powder manufacturing system



Plasma rotary atomization powder manufacturing system



Vacuum atomization powder manufacturing system



Hot isostatic pressing equipment



3D printing equipment



Ejection molding equipment

合作伙伴

ADVANCED EQUIPMENT



北京理工大学
Beijing institute of technology



吉林大学
Jilin university



南京工业大学
Nanjin university of technology



南京大学
Nanjin university



西北有色金属
Northwest institute for non-ferrous metal research



北京科技大学
University of science and technology beijing



清华大学



光韵达



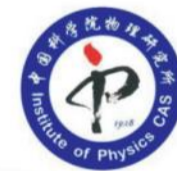
上海大学
Shanghai university



中南大学
Central south university



广东省新材料研究院



中国科学院物理研究院



中国工程物理研究院



大连大学

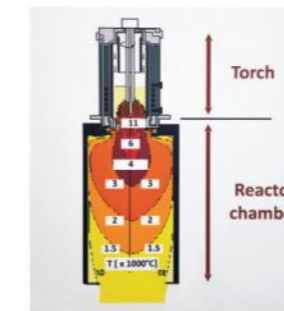
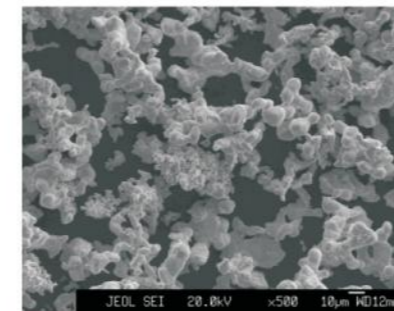


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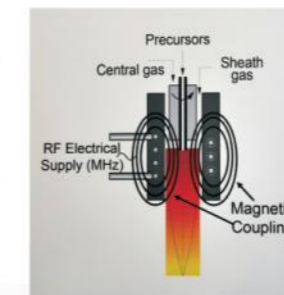
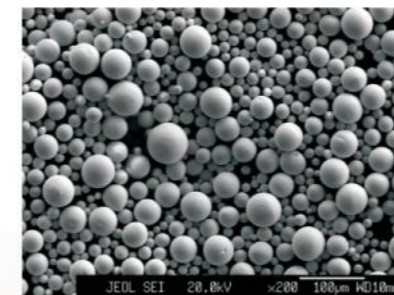
World – class RF plasma spheroidization powder technology



- Power: 40KW
- Frequency: 1.5-4.0MHz
- Function: Micron spheroidization;
Nano spheroidization
- Continuous working time: $\geq 8h$
- Gas atmosphere: Inert; Oxidation; Reduction
- Particle size: 0-250 μm
- Material category: elementary substance;
alloy; compound
- Low oxygen: $\leq 300ppm$

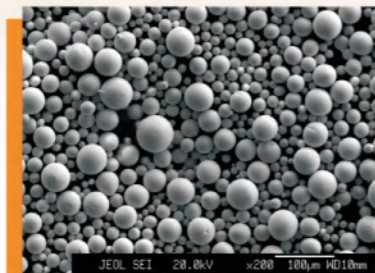


- ◆ Plasma high temperature ($\geq 8000^{\circ}C$)
- ◆ No electrode erosion, have effect of purification
- ◆ Big plasma torch
- ◆ Long retention time for raw materials
- ◆ Plasma atmosphere controllable

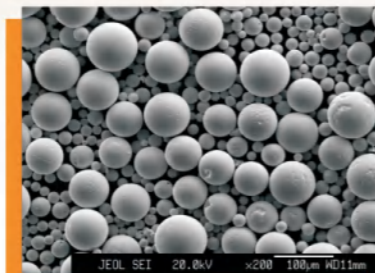


- ☑ High sphericity, less internal defects
- ☑ Controllable particle size distribution
- ☑ various raw materials, low prices
- ☑ Low energy consumption, high capacity

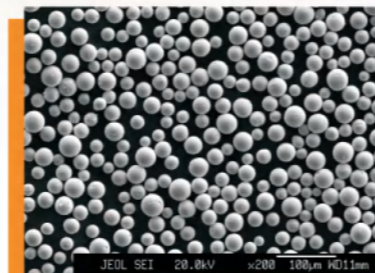
Spherical powders of high-end metals and compounds



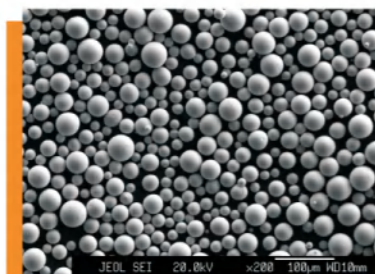
· Spherical tantalum powder



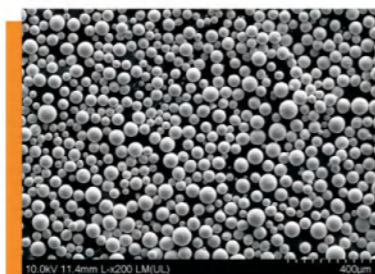
· Spherical tungsten powder



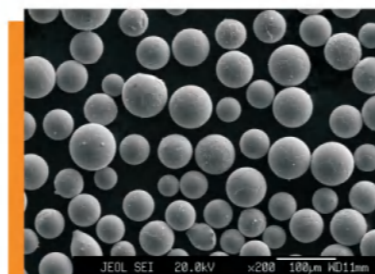
· Spherical molybdenum powder



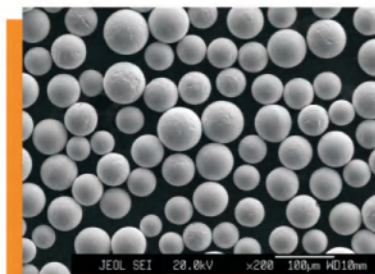
· Spherical niobium powder



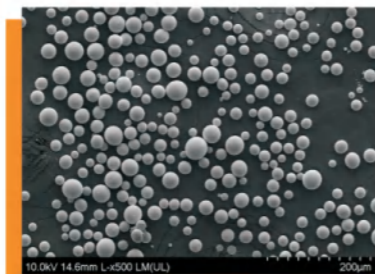
· Spherical titanium powder



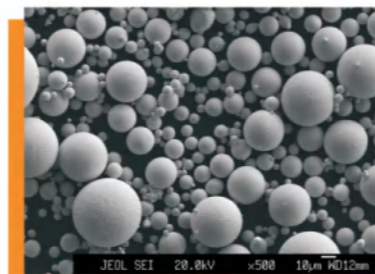
· Spherical chrome powder



· Spherical Cast tungsten carbide powder



· Spherical W-Mo alloy powder



· Spherical W-Re alloy powder

	Ta	W	Mo	Nb	Ti	Cr	Cast WC	W-Mo	W-Re
Apparent density / (g/cm ³)	≥ 9.5	≥ 10.0	≥ 6.0	≥ 4.5	≥ 2.1	≥ 4.2	≥ 10.0	≥ 6.0	≥ 9.0
Tap density / (g/cm ³)	≥ 10.5	≥ 12.0	≥ 6.5	≥ 5.5	≥ 2.8	≥ 5.5	≥ 11.0	≥ 7.0	≥ 10.0
Hall flow rate / (s/50g)	≤ 6.5	≤ 6.0	≤ 12.0	≤ 15.0	≤ 25.0	≤ 15.0	≤ 6.0	≤ 10.0	≤ 10.0
Purity / (wt%)	≥ 99.98	≥ 99.9	≥ 99.8	≥ 99.9	≥ 99.9	≥ 99.9	≥ 99.9	≥ 99.8	≥ 99.9
Oxygen content / (ppm)	≤ 300	≤ 100	≤ 200	≤ 800	≤ 1200	≤ 400	≤ 200	≤ 300	≤ 600

Spherical tungsten powder

• Powder characteristics

Tungsten has excellent high temperature resistance and ray shielding properties, also widely used in defense industry, medical equipment and other fields. Spherical tungsten powder is suitable for laser/electron beam additive manufacturing, laser direct deposition, hot isostatic pressing, injection molding, laser cladding and other processes.

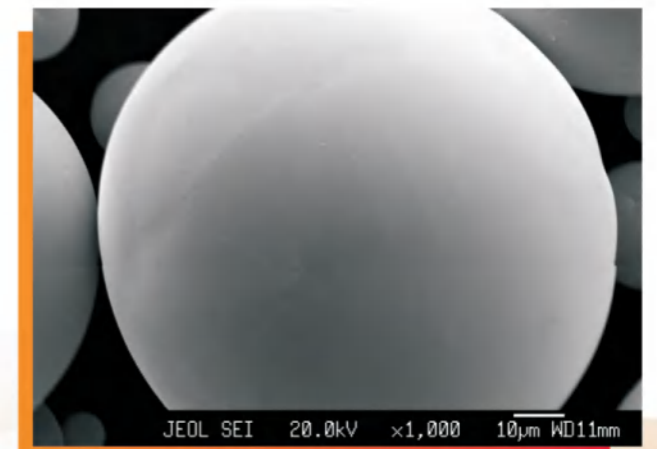
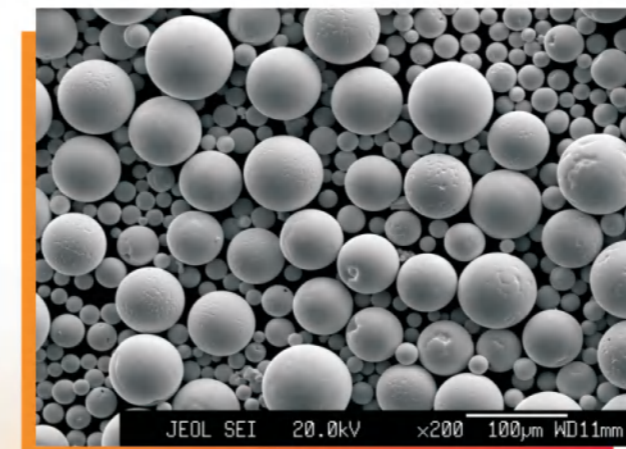
• Chemical component

Chemical Composition					
Element	Value(%)	Test Method	Element	Value(%)	Test Method
W	≥ 99.98	—	Sn	< 0.001	ICP-AES
Al	< 0.001	ICP-AES	Mo	< 0.001	ICP-AES
Si	< 0.002	ICP-AES	Cu	< 0.001	ICP-AES
Ni	< 0.001	ICP-AES	Fe	< 0.005	ICP-AES
Gas Impurities					
Element	Value(%)	Test Standard	Element	Value(%)	Test Standard
C	≤ 0.005	GB/T 4324-2012	O	≤ 0.01	GB/T 4324-2012
N	≤ 0.003	GB/T 4324-2012	P	≤ 0.002	GB/T 4324-2012

• Physical property

Density (g/cm ³)			Hall Flow Rate (s/50g)	
Apparent Density	Tap Density	Test Standard	Value	Test Standard
≥ 10.0	≥ 12.0	GB/T 1479-1984 GB/T 5162-2006	≤ 6.5	GB/T 1482-2010

• Powder appearance



Spherical molybdenum powder

• Powder characteristics

High purity, low oxygen, high sphericity, smooth surface, no satellite spheres, bare hollow particle, uniform particle size distribution, excellent flow properties, and high bulk density and tap density.

Widely used in contact materials, aerospace high temperature resistant components, target materials and other fields. Spherical molybdenum powder is suitable for laser/electron beam additive manufacturing, laser direct deposition, hot isostatic pressing, injection molding, laser cladding and other processes.

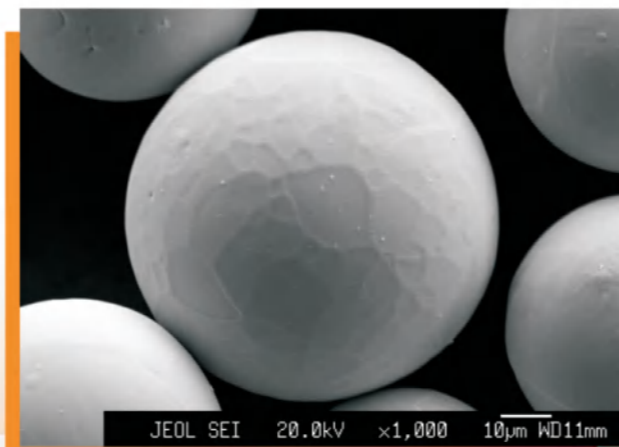
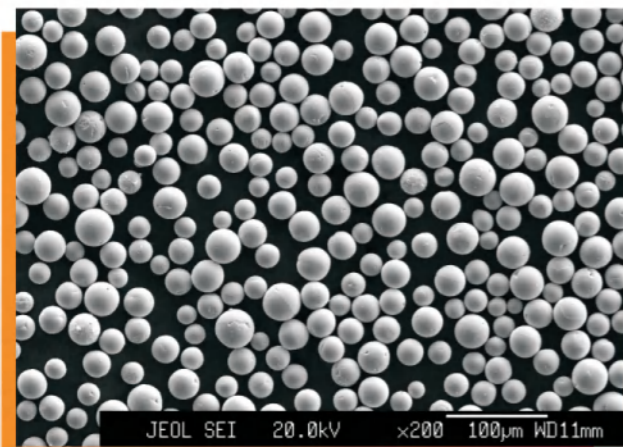
• Chemical component

Chemical Composition					
Element	Value(%)	Test Method	Element	Value(%)	Test Method
Mo	≥99.8	—	Ni	<0.01	ICP-AES
Al	<0.001	ICP-AES	Si	<0.005	ICP-AES
Cr	<0.002	ICP-AES	Fe	<0.005	ICP-AES
Cu	<0.005	ICP-AES	Mg	<0.002	ICP-AES
Gas Impurities					
Element	Value(%)	Test Standard	Element	Value(%)	Test Standard
C	≤0.004	GB/T 4325-2013	O	≤0.02	GB/T 4325-2013
N	≤0.003	GB/T 4325-2013	P	≤0.005	GB/T 4325-2013

• Physical property

Density (g/cm ³)			Hall Flow Rate (s/50g)	
Apparent Density	Tap Density	Test Standard	Value	Test Standard
≥6.0	≥6.5	GB/T 1479-1984 GB/T 5162-2006	≤12.0	GB/T 1482-2010

• Powder appearance



Spherical tantalum powder

• Powder characteristics

High purity, low oxygen, high sphericity, smooth surface, no satellite spheres, bare hollow particle, uniform particle size distribution, excellent flow properties, and high bulk density and tap density. Tantalum has excellent biocompatibility. The tantalum implant formed by 3D printing has the elastic modulus closest to human cartilage tissue, making it the most ideal orthopedic implant material. Spherical molybdenum powder is suitable for laser/electron beam additive manufacturing, hot isostatic pressing, laser cladding, hot/cold coating and other processes.

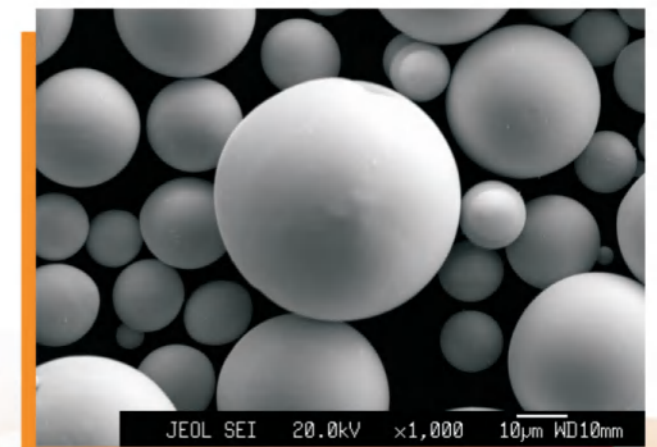
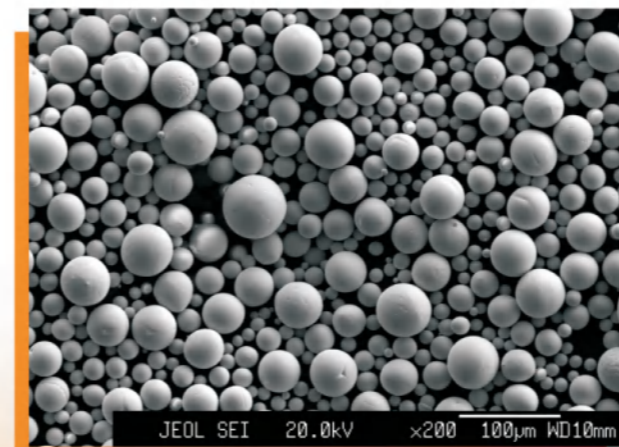
• Chemical component

Chemical Composition					
Element	Value(%)	Test Method	Element	Value(%)	Test Method
Ta	≥99.98	—	Ti	<0.001	ICP-AES
Fe	<0.001	ICP-AES	Mo	<0.001	ICP-AES
Si	<0.005	ICP-AES	W	<0.01	ICP-AES
Ni	<0.002	ICP-AES	Nb	<0.01	ICP-AES
Gas Impurities					
Element	Value(%)	Test Standard	Element	Value(%)	Test Standard
C	≤0.003	GB/T 15076.8-2008	O	≤0.03	GB/T 15076.14-2008
H	≤0.0015	GB/T 15076.15-2008	N	≤0.004	GB/T 15076.13-2017

• Physical property

Density (g/cm ³)			Hall Flow Rate (s/50g)	
Apparent Density	Tap Density	Test Standard	Value	Test Standard
≥9.5	≥10.5	GB/T 1479-1984 GB/T 5162-2006	≤6.5	GB/T 1482-2010

• Powder appearance



Spherical niobium powder

• Powder characteristics

High purity, low oxygen, high sphericity, smooth surface, no satellite spheres, uniform particle size distribution. As the lightest refractory metal, niobium has the characteristics of high melting point, high temperature strength and high specific strength, and no radioactivity. It's the perfect thermal protection material and structural material for aerospace engines. Spherical niobium powder is suitable for laser/electron beam additive manufacturing, hot isostatic pressing, laser cladding, hot/cold coating and other processes.

• Chemical component

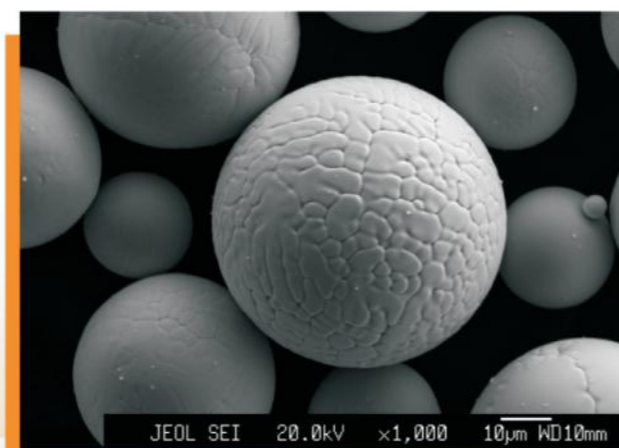
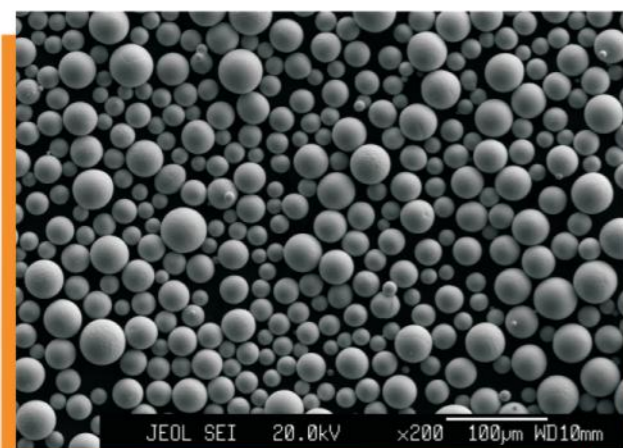
Chemical Composition					
Element	Value(%)	Test Method	Element	Value(%)	Test Method
Nb	≥99.98	—	Ta	<0.005	ICP-AES
Mo	<0.003	ICP-AES	Si	<0.002	ICP-AES
Fe	<0.005	ICP-AES	Cr	<0.002	ICP-AES
Ni	<0.001	ICP-AES	Ti	<0.002	ICP-AES

Gas Impurities					
Element	Value(%)	Test Standard	Element	Value(%)	Test Standard
C	≤0.01	GB/T 15076.8-2008	O	≤0.06	GB/T 15076.14-2008
N	≤0.003	GB/T 15076.13-2017	P	≤0.002	GB/T 4324-2012

• Physical property

Density (g/cm ³)			Hall Flow Rate (s/50g)	
Apparent Density	Tap Density	Test Standard	Value	Test Standard
≥4.5	≥5.5	GB/T 1479-1984 GB/T 5162-2006	≤15.0	GB/T 1482-2010

• Powder appearance



Spherical chrome powder

• Powder characteristics

Radio-frequency plasma spheroidized chromium powder have high sphericity, high purity, excellent flow properties, and high bulk density, no hollow particle etc characteristics. It can be widely used in cemented carbide, diamond tools, welding materials, palladium and other fields. Spherical chrome powder is suitable for laser/electron beam additive manufacturing, hot isostatic pressing, laser cladding, vacuum coating, hot/cold coating and other processes.

• Chemical component

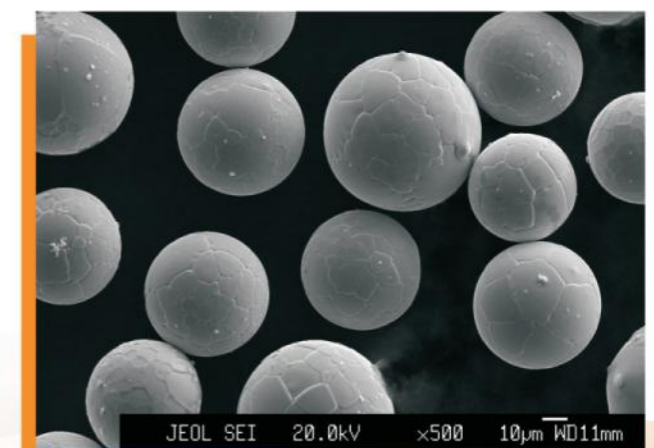
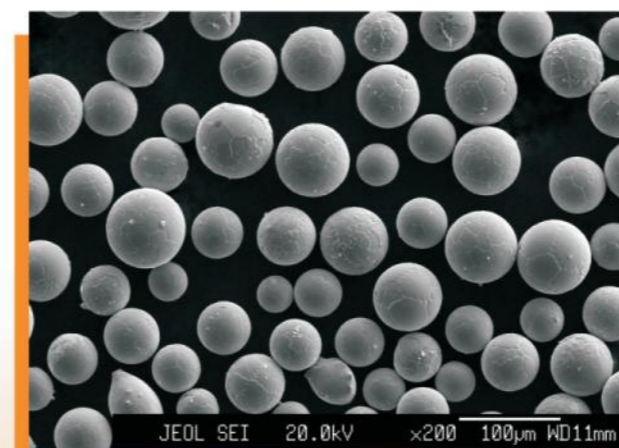
Chemical Composition					
Element	Value(%)	Test Method	Element	Value(%)	Test Method
Cr	≥99.9	—	Mo	<0.005	ICP-AES
Fe	<0.02	ICP-AES	Ti	<0.001	ICP-AES
Si	<0.01	ICP-AES	W	<0.001	ICP-AES
Al	<0.006	ICP-AES	Ni	<0.001	ICP-AES

Gas Impurities					
Element	Value(%)	Test Standard	Element	Value(%)	Test Standard
C	≤0.005	GB/T 4324-2012	O	≤0.030	GB/T 4324-2012
S	≤0.001	GB/T 4324-2012	N	≤0.004	GB/T 4324-2012

• Physical property

Density (g/cm ³)			Hall Flow Rate (s/50g)	
Apparent Density	Tap Density	Test Standard	Value	Test Standard
≥4.2	≥5.5	GB/T 1479-1984 GB/T 5162-2006	≤15.0	GB/T 1482-2010

• Powder appearance



Spherical cast tungsten carbide powder

• Powder characteristics

High purity, low oxygen, low free carbon, high sphericity, smooth surface, no satellite spheres, uniform particle size distribution. Spherical cast carbonized pigeon is a WC and W₂C biphasic structure with high strength, high hardness, and excellent high-temperature performance. Spherical cast tungsten carbide powder is widely used in machining, petroleum exploration, surface engineering, and other fields, and it is suitable for 3D printing, hot isostatic pressing, laser cladding, and other processes.

• Chemical component

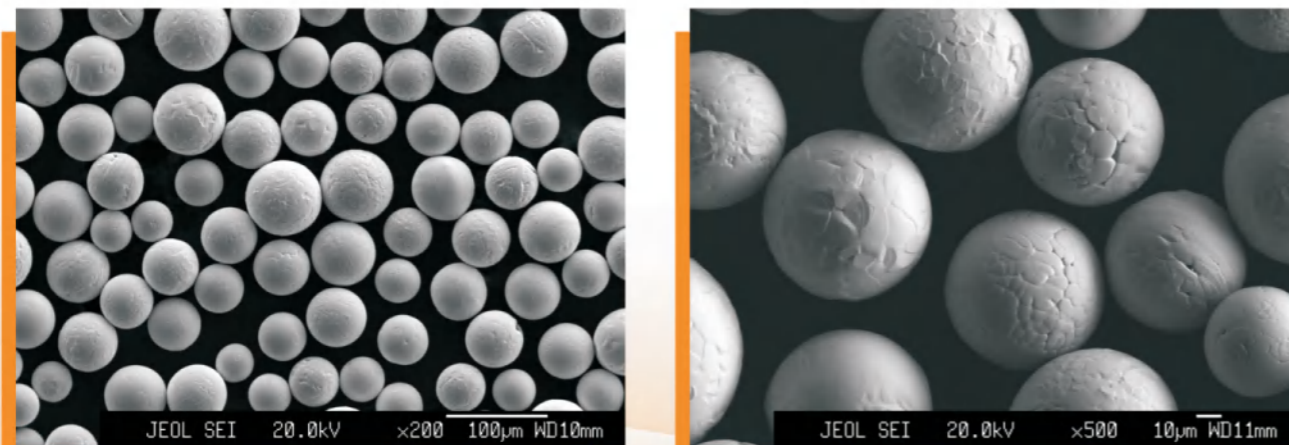
Chemical Composition					
Element	Value(%)	Test Method	Element	Value(%)	Test Method
W	Bal	—	Nb	<0.05	ICP-AES
Fe	<0.40	ICP-AES	V	<0.05	ICP-AES
Cr	<0.05	ICP-AES	Co	<0.01	ICP-AES
Ti	<0.05	ICP-AES	Ni	<0.01	ICP-AES

Gas Impurities					
Element	Value(%)	Test Standard	Element	Value(%)	Test Standard
Total C	3.70-4.20	GB/T 5124.1-2008	Free C	≤0.005	GB/T 5124.2-2008
O	≤0.01	GB/T 4324-2012	N	≤0.002	GB/T4324-2012

• Physical property

Density (g/cm ³)			Hall Flow Rate (s/50g)	
Apparent Density	Tap Density	Test Standard	Value	Test Standard
≥10.0	≥11.0	GB/T 1479-1984 GB/T 5162-2006	≤6.0	GB/T 1482-2010

• Powder appearance



Spherical titanium powder

• Powder characteristics

Titanium has outstanding biocompatibility, high specific strength and excellent mechanical properties, and is widely used in biomedical, aerospace, 3C electronics and other fields. Radio-frequency plasma spherical titanium powder have high purity, high sphericity, no satellite spheres, excellent flow properties, and high bulk density, no hollow particle etc characteristics. Suitable for 3D printing, hot isostatic pressing, ejection molding, and other processes.

• Chemical component

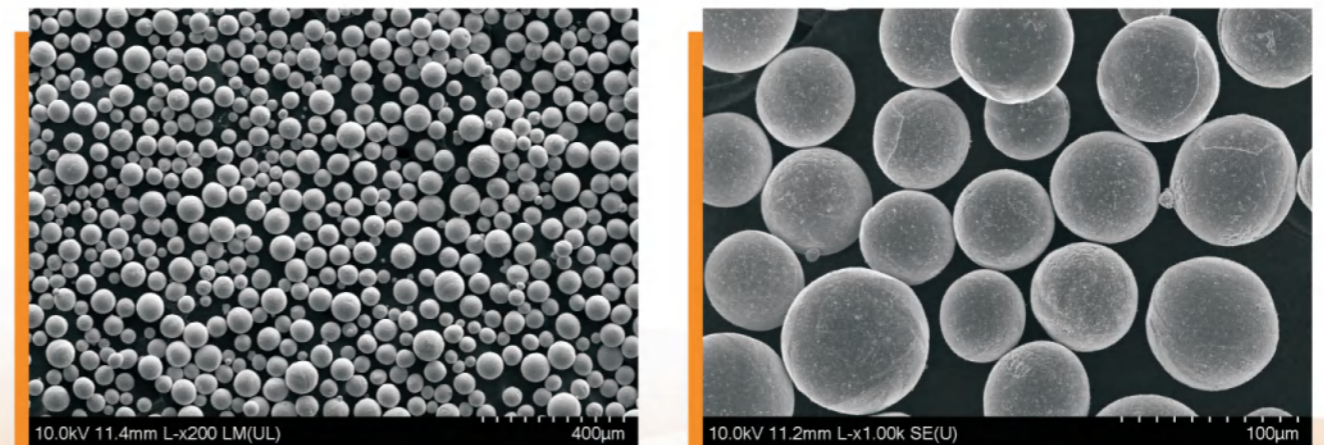
Chemical Composition					
Element	Value(%)	Test Method	Element	Value(%)	Test Method
Ti	≥99.9	—	Si	<0.02	ICP-AES
Fe	<0.003	ICP-AES	Mn	<0.01	ICP-AES
Cr	<0.001	ICP-AES	Mg	<0.01	ICP-AES
Mo	<0.001	ICP-AES	Others	<0.05	—

Gas Impurities					
Element	Value(%)	Test Standard	Element	Value(%)	Test Standard
C	≤0.005	GB/T 4698-2017	O	≤0.12	GB/T 4698-2017
H	≤0.015	GB/T 4698-2017	N	≤0.005	GB/T 4698-2017

• Physical property

Density (g/cm ³)			Hall Flow Rate (s/50g)	
Apparent Density	Tap Density	Test Standard	Value	Test Standard
≥2.1	≥2.8	GB/T 1479-1984 GB/T 5162-2006	≤25.0	GB/T 1482-2010

• Powder appearance



Spherical refractory high entropy alloy powder

• Powder characteristics

W-Mo-Ta-Nb-V etc serials refractory high entropy alloys have high strength, high hardness, good high temperature performances, excellent wear and corrosion resistance. It's urgent demanded in the defense industry, aerospace, nuclear industry and other high-end fields. Radio-frequency plasma spheroidized refractory high entropy alloy powder have high purity, high sphericity, no satellite spheres, excellent flow properties, no hollow particle etc characteristics. Suitable for 3D printing, hot isostatic pressing, ejection molding, laser cladding and other processes.

• Chemical component

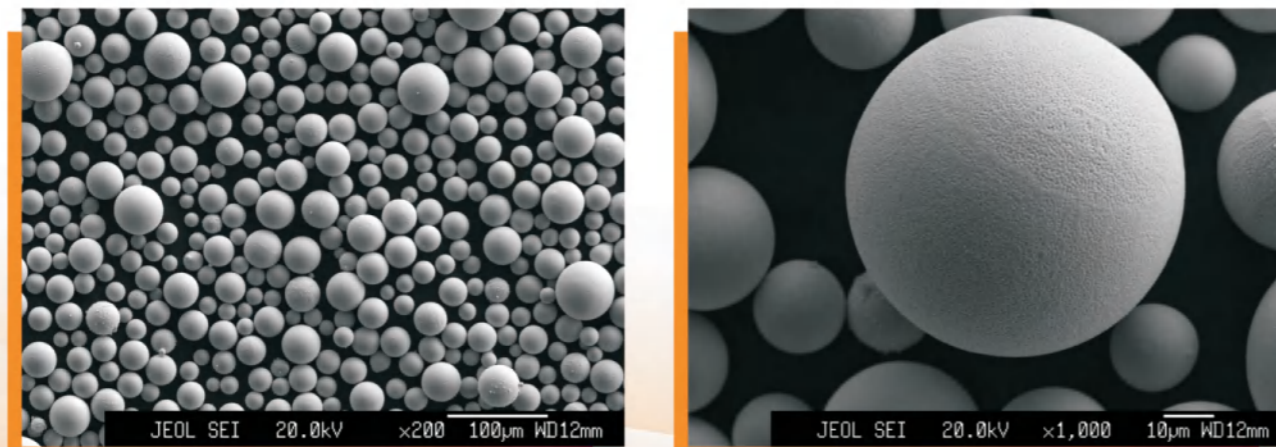
Chemical Composition					
Element	Value(%)	Test Method	Element	Value(%)	Test Method
W	~30.4	—	V	~8.4	ICP-AES
Mo	~15.9	ICP-AES	Mn	<0.01	ICP-AES
Ta	~29.9	ICP-AES	Mg	<0.01	ICP-AES
Nb	~15.4	ICP-AES	Others	<0.1	—

Gas Impurities					
Element	Value(%)	Test Standard	Element	Value(%)	Test Standard
C	≤0.008	GB/T 4698-2017	O	≤0.06	GB/T 4698-2017
H	≤0.015	GB/T 4698-2017	N	≤0.005	GB/T 4698-2017

• Physical property

Density (g/cm ³)			Hall Flow Rate (s/50g)	
Apparent Density	Tap Density	Test Standard	Value	Test Standard
≥7.5	≥8.0	GB/T 1479-1984 GB/T 5162-2006	≤10.0	GB/T 1482-2010

• Powder appearance



Rare refractory alloy powder

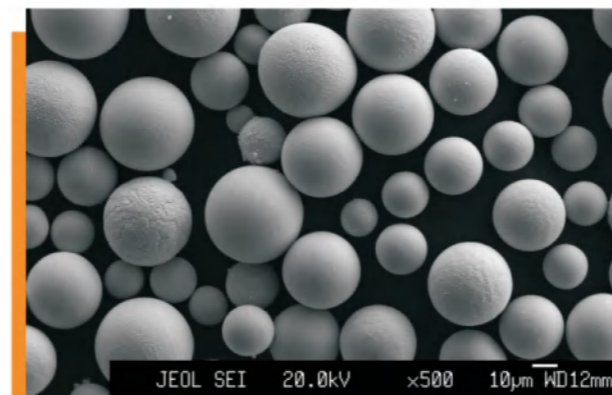
• Chemical component

	W/(%)	Ni/(%)	Fe/(%)	Re/(%)	Mo/(%)	Co/(%)	Ti/(%)	C/(%)	O/(%)
W-Ni-Fe	90-98	1.0-9.0	1.0-9.0	≤0.001	≤0.02	≤0.01	≤0.005	≤0.002	≤0.04
W-Mo	2-98	≤0.01	≤0.02	≤0.005	2-98	≤0.01	≤0.005	≤0.004	≤0.03
W-Re	75-98	≤0.01	≤0.02	2-25	≤0.01	≤0.01	≤0.005	≤0.004	≤0.06
Ni-Ti	≤0.001	40-50	≤0.01	≤0.001	≤0.001	≤0.001	50-60	≤0.003	≤0.15

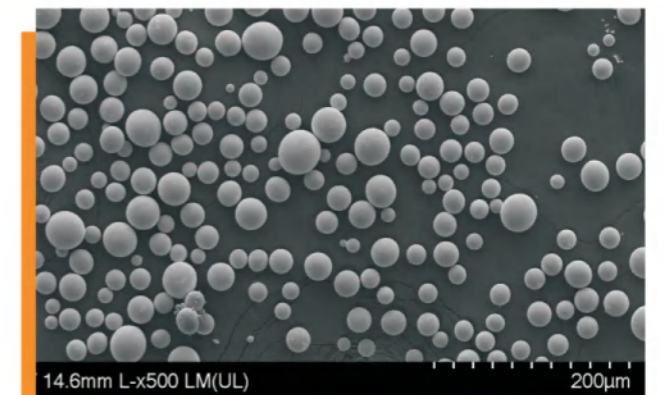
• Physical property

	粒度 / (μm)	松装密度 / (g/cm ³)	振实密度 / (g/cm ³)	霍尔流速 / (s/50g)	球形度 / (%)
W-Ni-Fe	15-45/45-106	≥8.5	≥9.5	≤8.0	≥98
W-Mo	15-45/45-106	≥6.0	≥7.0	≤10.0	≥98
W-Re	15-45/45-106	≥9.0	≥10.0	≤10.0	≥95
Ni-Ti	15-45/45-106	≥3.0	≥4.0	≤30.0	≥95

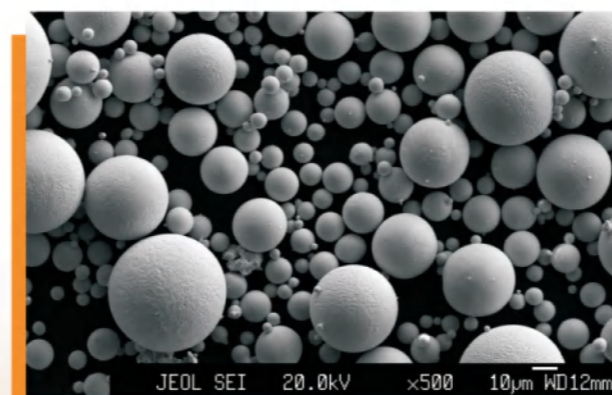
• Powder appearance



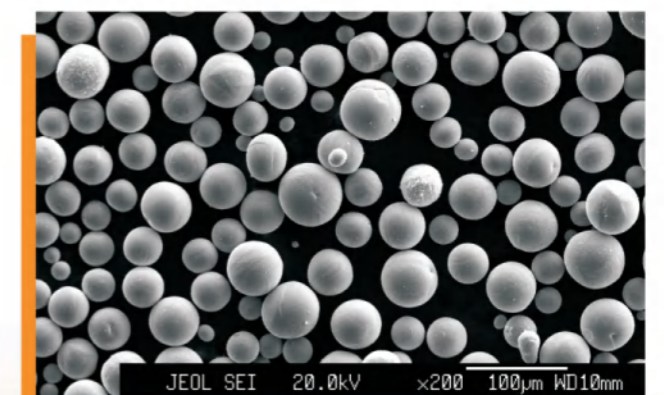
W-Ni-Fe



W-Mo



W-Re



Ni-Ti

Functional composite powder

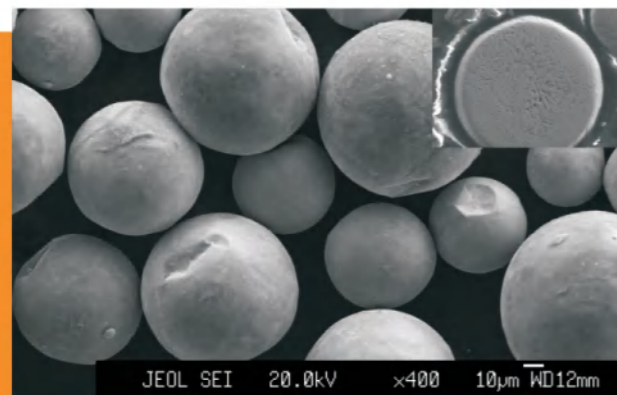
• Chemical component

	W/(%)	Cu/(%)	Ni/(%)	Mo/(%)	Co/(%)	Ti/(%)	C/(%)	O/(%)
Tungsten carbide - cobalt powder	Bal	≤0.01	≤0.001	≤0.005	7-25	≤0.002	4.0-4.5	≤0.03
Copper-clad tungsten powder	Bal	2-20	≤0.002	≤0.01	≤0.01	≤0.001	≤0.004	≤0.10
Nickel-clad tungsten powder	Bal	≤0.02	2-25	≤0.01	≤0.01	≤0.005	≤0.004	≤0.06
Nickel-clad tungsten carbide powder	Bal	≤0.01	5-20	≤0.001	≤0.001	≤0.005	2.0-4.0	≤0.15

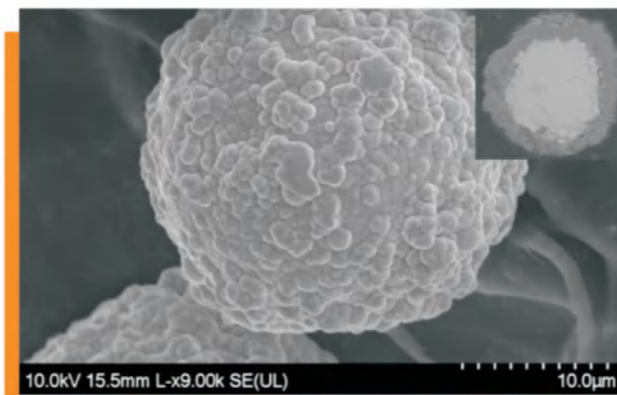
• Physical property

	粒度 / (μm)	松装密度 / (g/cm ³)	振实密度 / (g/cm ³)	霍尔流速 / (s/50g)	球形度 / (%)
Tungsten carbide - cobalt powder	15-45/45-106	≥8.5	≥9.5	≤8.0	≥98
Copper-clad tungsten powder	15-45/45-106	≥6.0	≥7.5	≤15.0	≥98
Nickel-clad tungsten powder	15-45/45-106	≥6.5	≥8.0	≤8.0	≥95
Nickel-clad tungsten carbide powder	15-45/45-106	≥6.0	≥7.5	≤9.0	≥95

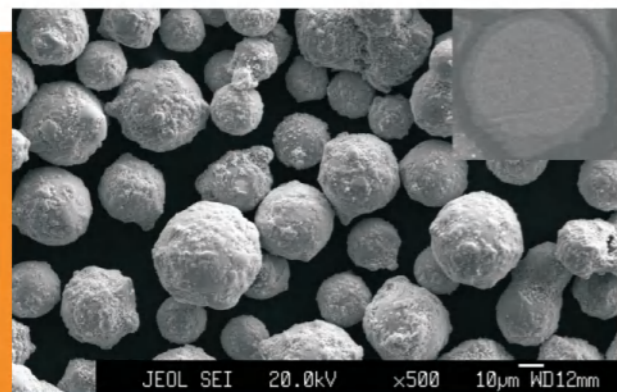
• Powder appearance



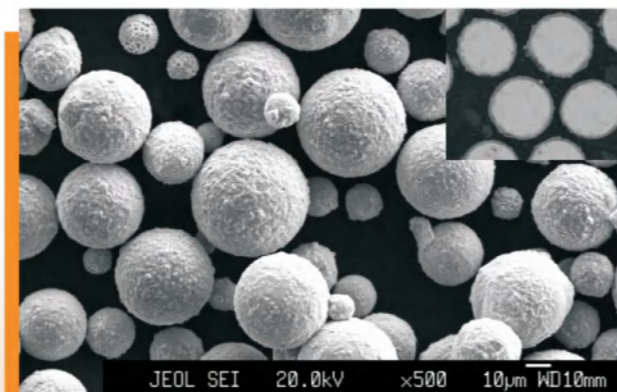
Tungsten carbide - cobalt powder



Copper-clad tungsten powder



Nickel-clad tungsten powder



Nickel-clad tungsten carbide powder