



陕西鑫恒稀有金属有限公司  
SHAANXI XINHENG RARE METAL CO.,LTD

# 产品手册

PRODUCT MANUAL

中国·陕西  
China·Shaanxi

# 公司简介

## Company Profile

陕西鑫恒稀有金属有限公司成立于2010年，是一家专业从事高比重钨合金、钨铜合金、纯钨产品的生产、加工及销售为一体的综合性公司。

钨合金具有高密度、高硬度、高熔点、防腐蚀、防辐射、无毒环保等特点，产品广泛应用于航空航天、医疗器械、军工、机械电子、石油勘探、汽车、体育配重等领域。公司生产的产品主要包括高比重钨合金、钨合金圆球、钨合金方粒、钨合金圆柱、钨合金飞镖杆、钨合金旋锻棒、钨铜合金电极、钨合金防辐射注射器、钨合金准直器、钨合金配重等。产品远销美洲、欧洲、韩国、加拿大、日本等国家。

公司通过ISO9001全面质量管理体系认证，产品依靠科技创新，品质保证占领国际国内市场，立志建设成为西部领先的国际化稀有金属生产、贸易企业。

产品创新，质量完美，价格合理，交货及时，精诚服务，客户至上是我们一直坚持的宗旨。

欢迎各界朋友莅临本厂参观、指导和业务洽谈，公司全体员工竭诚为您服务！

Shaanxi Xinheng Rare Metal Co.,Ltd was founded in 2010,we are concentrated on the Research & Development,Manufacture & Sales of Rare Refractory metals,including pure Tungsten & Tungsten heavy alloy products,Tungsten Copper alloy products etc.

Tungsten alloy have properties with high density,high hardness,high melting point,corrosion resistant,radiation protection, non-toxic environmental protection etc,tungsten series products are widely used in the aerospace,medical instrument,military,industry, metallurgy,machinery & electronics,oil exploration,automobiles,sports counterweight etc.

Our major products including tungsten alloy balls,tungsten alloy cubes,cylinders,blocks,tungsten alloy arrow point,tungsten alloy rod,tungsten copper alloy electrode,tungsten alloy radiation protection syringe, tungsten alloy collimator,counterweight etc.

Our products export to Europe,USA,Korea,Canada,Japan,India etc,our company are Certificated by ISO 9001 quality management system certification and rely on Technology Innovation,best quality assurance occupying the international and domestic markets,we are dedicated to become a leading rare metal production & trade enterprises in west part of China.

Our mission is always keep product innovation,guarantee perfect product quality,always keep reasonable price & timely delivery and provide our best customer service, customer always first.

You are welcome to visit our factory at any time for business negotiation & technical communication,we are here and ready to provide our service for you,contact us now,

We sincerely hope to build a long term and win-win business relationship with you.

## 主营产品目录及介绍

### Major Product Catalogue & Brief Introduction

Tungsten heavy alloy products	
Tungsten alloy rod/bar	Tungsten alloy shot/ball/sphere
Tungsten alloy plate/sheet	Tungsten alloy cube/cylinder
Tungsten alloy blocks/square bar	x10 Tungsten points 100-140 grains
Tungsten alloy bucking bar	Tungsten alloy machined parts
Tungsten alloy radiation shielding	Tungsten alloy darts rod
Tungsten copper alloy products	
Tungsten copper alloy bar/rod	
Tungsten copper alloy sheet/plate/disk	
Tungsten copper alloy blocks/ square bar	
Tungsten copper alloy contacts	

## 高比重钨合金系列 Tungsten Heavy Alloy Products

高比重钨合金是什么？ What is Tungsten heavy alloy?

钨合金 (W Ni Fe, W Ni Cu)

钨合金通常是难熔金属，是由W-Ni-Fe或W-Ni-Cu组成的两种复合材料

或者甚至W-Ni-Cu-Fe，一些钨合金添加Co, Mo, Cr等。它可以制成各种形状，如棒，方粒，块，板，环等。

Tungsten Heavy Alloy(W Ni Fe, W Ni Cu).

Tungsten alloy generally are refractory metal, which have two-phase composites consist of W-Ni-Fe or W-Ni-Cu or even W-Ni-Cu-Fe

some tungsten alloy is added Co, Mo, Cr, etc. It could be made as various shapes, such as rod/bar,cylinder,cube,ball,block,sheet,ring etc.

## 高比重钨合金优势 The Advantage of Tungsten Alloy

- 能够吸收光线：比铅高约30-40%；
- 导热系数高：是模具钢的5倍；
- 低热膨胀系数：仅为铁或钢的1/2-1/3；
- 具有良好的焊接性和加工性；
- Able to absorb the rays: The ability is so strong that it' s about 30-40% higher than lead;
- High Thermal conductivity coefficient: 5 times that of die steel;
- Low Thermal expansion coefficient: Only 1/2-1/3 of that of iron or steel;
- With good weld-ability and process-ability;



## 高比重钨合金用途 The Applications Of Tungsten Alloy

辐射屏蔽，准直器，核屏蔽，PET注射器屏蔽，小瓶屏蔽，同位素容器，FDG容器，多叶准直器；平衡部分；钨沉降杆，重金属镗杆，帆船，潜艇和其他船只曲柄。凸轮轴，测井持有人，赛车重量。减振和动平衡。钨沉降杆，钨补给杆，钨镗杆，钨熔接器，钨合金配重。用于高尔夫和钨合金飞镖零件球体，立方体和抛射物形状；高温模具，电加热，黄铜和铜，铝和黄铜的低压压铸工具，热墩模具，模具修补用填充棒，墩粗砧块电铆钉；弹片头；电气接触；导弹和飞机的平衡球；高尔夫和钨合金飞镖零件球体，立方体和抛射物形状；用于穿甲子弹测量的核心。

Radiation shield, collimator, nuclear shielding, PET syringe shield, vial shield, isotope container, FDG container, multi leaf collimator; Balanced part; tungsten sinker bar, heavy metal boring bar, sailboat, submarine and other vessels crank.camshafts, holders for Well Logging, Racing Weights. vibration damping and dynamic balancing. Tungsten sinker bar, Tungsten bucking bar, Tungsten boring bar, Tungsten Sinkers, tungsten alloy counterweights. For golf and tungsten alloy dart parts spheres, cubes, and projectile shapes; High-temperature die, Electro heat, brass and copper, Tooling for low-pressure die-casting of aluminum and brass, Hot upsetting dies, Filler rods for die repair, upsetting anvil block, electrical rivet; Shrapnel head; Electrical contact; Balanced ball for missile and plane; golf and tungsten alloy dart parts spheres, cubes, and projectile shapes; Core for armor piercing bullet measurement.

## 钨合金材料等级 & 物理性能

### Tungsten Heavy Alloy Material Grade & Physical Properties

Alloy Type (% > )	90W 6Ni 4Cu	90W 7Ni 3Fe	92.5W 5.25Ni 2.25Fe	93W 4Ni 3Cu	93W 5Ni 2Fe	95W 3.5Ni 1.5Cu	95W 3.5Ni 1.5Fe	97W 2.1Ni 0.9Fe
MIL-T-21014	Class1	Class1	Class1	-	-	Class3	Class3	Class4
SAE-AMS-T-21014	Class1	Class1	Class2	-	-	Class3	Class3	Class4
ASTM B777-87	Class1	Class1	Class2	-	-	Class3	Class3	Class4
Typical Density (g/cm <sup>3</sup> )	17.1	17.1	17.5	17.6	17.6	18.0	18.0	18.5
Yield Strength Min (MPa)	550-750	650-850	650-850	550-700	650-850	500-700	600-750	620-670
Elongation (%)	8-15	20-25	18-24	5-10	5-20	3-5	8-13	2-5
Typical Hardness (RC)	24	25	26	26	26	27	27	28
Magnetic	No	Slightly	Slightly	No	Slightly	No	Slightly	Slightly
Heat Treatment	Sintering	Sintering	Sintering	Sintering	Sintering	Sintering	Sintering	Sintering

## 钨合金球 Tungsten Super Shot

Tungsten alloy hunting shot also called tss shot which is used as the shot of shotgun. A shotgun is a firearm that is usually designed to be fired from the shoulder. The shot pellets from a shotgun spread upon leaving the barrel and the power of the burning charge is divided among the pellets, which means that the energy of any one ball of shot is fairly low. In a hunting context, tungsten alloy hunting shot makes shotguns useful primarily for hunting birds and other small games.



## 为什么用钨合金球狩猎？ Why Hunting With Tungsten Shot?

高密度，高硬度和耐高温性使钨合金成为历史上最受欢迎的散弹丸颗粒材料之一。

钨的密度约为18g / cm<sup>3</sup>，只有金，铂和一些其他稀有金属具有相似的密度。

它比任何其他射击材料更密集，包括铅，钢的或铋的。

High density, great hardness and resistance to high temperature make tungsten alloy to be one of the most sought-after materials for shotgun pellets in history. The density of tungsten is about 18g/cm<sup>3</sup>, only gold, platinum, and a few other rare metals have a similar density. It is denser than any other shot material, including lead, steel or bismuth.

## 产品信息 Tss Shot Product Details

直径:1.8-10.0mm或定做, Dia:1.8-10.0mm or custom-made size.

表面:毛坯或者磨光面, Surface:workblank,polished.

磨光公差: +/-0.03mm, Tolerance: +/-0.03mm.

密度:17-18.5g/cm<sup>3</sup>, Density:17-18.5g/cm<sup>3</sup>.

低密度的:定做, Density:11g, 14g, 15g, custom-made.

## 用途 Application

狩猎运动:Hunting sports.

散弹枪弹,打猎用子弹:Shotshell reloading,tss turkey loads,hunting sphere.

配重:Counterweight.

钓鱼配重:Fishing sinker.



## 钨球尺寸/型号 Tungsten Shot Sizes/model

Size	Type	Diameter	Material	Density(18g/cc)
BBB	Bird	4.82mm(0.190")	95wnife	18g/cc
BB	Bird	4.60mm(0.180")	95wnife	18g/cc
BB(air)	Bird	4.57mm(0.177")	95wnife	18g/cc
#1	Bird	4.50mm(0.170")	95wnife	18g/cc
#1	Bird	4.10mm(0.160")	95wnife	18g/cc
#2	Bird	3.76mm(0.150")	95wnife	18g/cc
#3	Bird	3.6mm(0.140")	95wnife	18g/cc
#4	Bird	3.28mm(0.130")	95wnife	18g/cc
#4 1/2	Bird	3.18mm(0.125")	95wnife	18g/cc
#5	Bird	3.05mm(0.120")	95wnife	18g/cc
#6	Bird	2.77mm(0.110")	95wnife	18g/cc
#7	Bird	2.50mm(0.100")	95wnife	18g/cc
#7 1/2	Bird	2.39mm(0.095")	95wnife	18g/cc
#8	Bird	2.26mm(0.090")	95wnife	18g/cc
#8 1/2	Bird	2.16mm(0.085")	95wnife	18g/cc
#9	Bird	2.01mm(0.080")	95wnife	18g/cc
#10	Pest	1.80mm(0.070")	95wnife	18g/cc
#11	Pest	1.50mm(0.060")	95wnife	18g/cc
#12	Pest	1.30mm(0.050")	95wnife	18g/cc

## 其他钨合金产品 Other Tungsten Alloy Products



### ● 钨合金棒 Tungsten Alloy Rod

- 直径 Diameter:  $\Phi$ 3.0-100.0mm
- 长度 Length : 50-1000mm
- 密度 Density:17-18.5g/cm<sup>3</sup>
- 成份 Composition : W content : 85-99% , W-Ni-Fe,W-Ni-Cu

钨合金棒：可以用于配重件、辐射屏蔽件、军用行业、飞镖杆、焊接棒、模具等  
Tungsten allot rod; They are used for the counter weight,radiation shield,military industry,dart rods,welding rod,mould etc.



### ● 钨合金条 Tungsten Alloy Bar

- Width×Length: (2.0-100.0mm)×(2.0-100.0mm)
- High : 50-1000mm
- Density : 15.8-18.75g/cm<sup>3</sup>

钨合金条用途：钨合金条还可以作为平衡配重应用于飞机的控制面、螺旋桨、导航台、飞轮、引擎和引擎曲轴。

Tungsten alloy strips: they are used as a balance weights in aircraft control surfaces,propeller,navigation station, the engine and engine crankshaft.



### ● 钨合金板 Tungsten Alloy Plate

钨合金板用途：可以作为配重应用于各个领域，例如机械锤、飞锤、石油钻井平台配重件、防震工具刀架；也可用于制作X射线靶材、准直器、核燃料容器、针管屏蔽件等。

Tungsten Alloy plates they can be used as counterweights in various fields,such as mechanical hammer,hammers,oil drilling platform counterweights,and shockproof tool holder.Also they can be used for the X ray target,collimator,nuclear fuel container,the needle shielding etc.



### ● 钨合金块 Tungsten Alloy Block

钨合金块用途：可以制作武器部件，模具以及配重件，也广泛应用于医疗领域，如屏蔽墙以及CT设备上的屏蔽块等。

Tungsten alloy blocks:they can be made into weapon parts,molds and weight balances,also widely used in the medical field,such as shielding wall,the CT device on the shielding block etc.

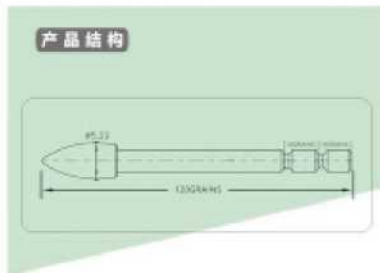


### ● 钨合金圆柱/方粒 Tungsten Alloy Cylinder/Cube

钨合金圆柱：常用于汽车配重平衡件，石油钻探机配重件，飞机配重件，直升机配重件，船用配重和坦克配重件。

Tungsten alloy cylinder & cubes:they are used for automobile and vehicle weight balance,pinewood derby car counterweight,oil drilling machine counterweight,the helicopter weights,ship weights and counterweight.

## 钨合金箭头 Tungsten Arrow Points



重量:119.6-120.4GRAINS



X10 Ballistic Tungsten Point由Easton开发,由反装甲材料技术的全球领导者Aerojet建立。  
The X10 Ballistic Tungsten Point was developed by Easton and built by Aerojet, the world leader in anti-armour materials technology.

### 材料钨 Material Tungsten (Wolfram)

钨具有高硬度，一致性和密度，是一种优质的白色金属。它比传统的不锈钢重约三倍，因此非常适合箭头将重量转移到箭头点，它的另一个优点是它可以调整箭头，钨在地球表面上的沉积量约为0.0001克/吨，因此它是非常稀有的金属，并且也非常昂贵。

With high hardness, consistency & density, Tungsten is a superior white metal. It is approximately three times heavy than the conventional stainless steel, and thus perfect for arrowheads to shift the weight into the arrow point. Its another advantage is that it gives the arrow tuning. The deposit of tungsten on the earth's surface is about 0,0001 g/t, and therefore it is a very rare metal, and very expensive as well.

### 钨箭头的优点 Key Advantages Of Tungsten Points

更短，并降低了箭头的下侧区域。

更重，因此提供更重的箭头。

不太可能弯曲，不锈钢的箭头容易弯曲，因为它们比钨箭头要长,但是它们会比常规箭头弯曲得更少。

Shorter, and result in lower side area of arrow.

Heavier, and hence offer a heavier arrow.

Less likely to bend, stainless steel points bend easily because they are long as compared to the tungsten points. But they will bend less than the regular points.

### 产品型号举例 Product Model Example

120gr Archery Tungsten Points Arrow Tungsten Break Off Points Bullet – Shape

Product name:	Tungsten Arrow Point
Material:	Tungsten
Type:	Arrow
Weight:	100gr,110gr,120gr



## 钨合金飞镖桶 Tungsten Dart Barrels

在飞镖中，飞镖桶是主要部件，由圆柱体制成不同的形状。制造这些飞镖桶的最佳材料是钨，因为它非常密集，并且可以制造具有相当重量的细长飞镖，根据客户的具体要求提供65%和95%至97%的钨，钨合金坯料实际上是通过无中心加工进行表面研磨后的钨圆柱棒，其重量根据不同的钨含量和棒子的尺寸而变化。

我们可以提供不同尺寸的钨合金飞镖组件。

In a dart, barrel is the main part, which is made in different shapes, from cylinder. The best material to manufacture these barrels is tungsten, as it is very dense, and can made slim dart with a considerable weight, 65% and 95~97% tungsten are offered following customers' specific request.

Tungsten heavy alloy billets are actually tungsten cylinder rods after surface grinding by center-less processing, and their weights are varied from different tungsten contents and rod sizes.

## 产品型号 Product Model Example

Tungsten Dart Barrels

Soft Tip Tungsten Dart Barrels(软尖钨镖桶) :

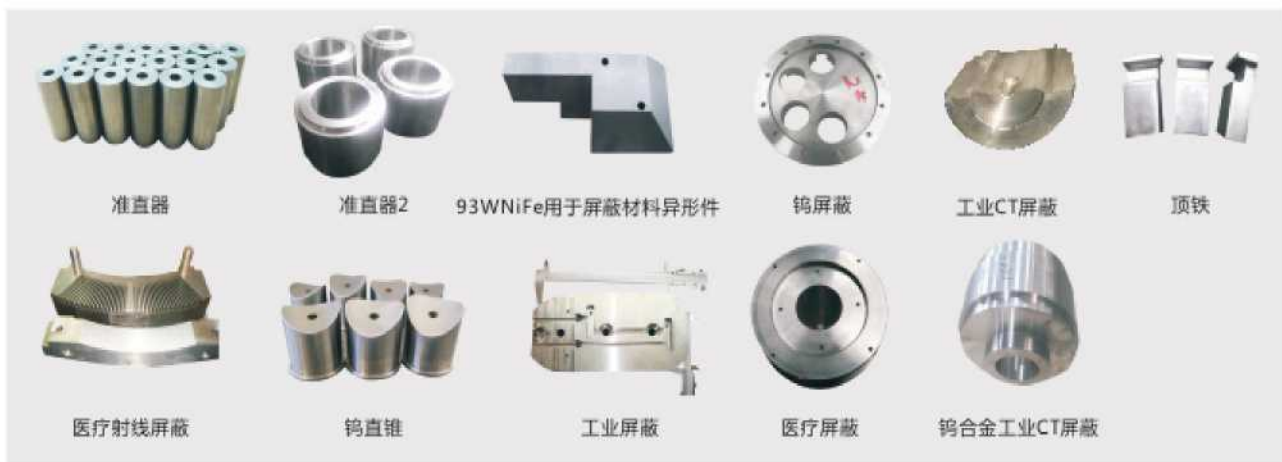
Model Type	Soft tip Tungsten
Material	90% Tungsten
Length & Diameter	45.0mm x 7.6mm
Barrel weight	19.0g(+/-0.05g)



## 钨合金屏蔽件 Tungsten Alloy Shielding Parts

钨合金屏蔽件是辐射屏蔽的首选，它既可以用于医疗领域和工业领域，和传统的屏蔽材料（例如铅）相比，钨合金的屏蔽性更佳，由于钨合金的高密度性，使其体积比铅小1/3，而屏蔽性却与铅相当，它们也可作为准直器和屏蔽件用于放疗及注射器屏蔽件中。

Tungsten alloy shielding is the first choice of radiation shielding, it can be used in the medical field and industrial field, compare with the traditional shielding material (such as lead), the shielding function of Tungsten alloy is much better than others, due to its high density, the volume of Tungsten alloy is 1/3 smaller than lead, but shielding functions is equivalent, they also are used as collimators and shielding members for radiotherapy and syringe shield.



## 钨合金CT屏蔽件 Tungsten Alloy CT Shield

主要应用医疗领域，PET屏蔽注射器，钨合金保护罐，脱氧核糖（FDG）容器，y照相机侦测器，钨发射器。They are mainly used in medical areas, PET shielding injection, tungsten alloy protective pot, deoxyribose (FDG) container, the Y camera detector and technetium generator.

## 钨合金屏蔽薄板 Tungsten Alloy Shielding Sheets/Plates

钨合金屏蔽薄板，屏蔽墙，屏蔽地板的原材料，太空舱里的屏蔽窗，屏蔽毯，放射性核废料辐射屏蔽盖。Shielding wall, floor shielding materials, shielding windows for spacecraft, shielding blanket, radioactive nuclear waste radiation shielding cover.

## 钨合金X射线靶材 Tungsten Alloy X-ray Target

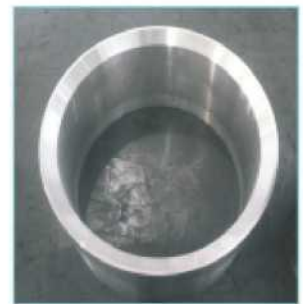
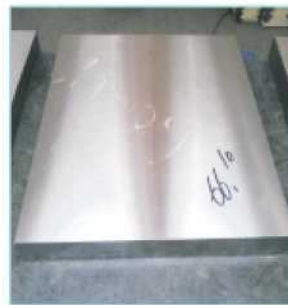
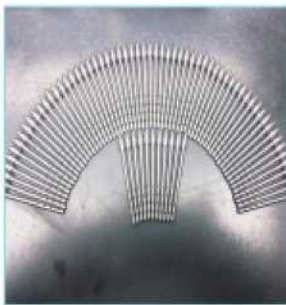
X射线靶材固件，旋转器，固定阳极，阴极元件，侦测器元件。X ray target firmware, rotators, fixed anode, cathode elements, detector elements.

## 钨合金准直器 Tungsten Alloy Collimator

可用于医疗器械中的直线加速器及回旋加速器。This can be used as linear accelerator and cyclotron in the medical field.



## 钨合金加工件 Tungsten Machined Parts



## 钨铜合金 Tungsten Copper Alloy



### ● 钨铜圆棒 Tungsten Copper Alloy Round Rod/Bar

钨铜圆棒：钨铜圆棒的制造工序有静压成型、高温烧结、溶渗铜。  
Tungsten copper alloy round rod: the manufacturing processes of it are: static pressure molding, high temperature sintering, soluble copper infiltration.

- 钨铜棒规格：直径  $\geq 0.9\text{mm}$ ；长度  $\leq 300\text{mm}$ ；
- Tungsten copper rod specification: diameter  $\geq 0.9\text{mm}$  length  $\leq 300\text{mm}$



### ● 钨铜块 Tungsten Copper Block

钨铜块：采用精细钨、铜粉末，通过粉末冶金技术制成的。  
Tungsten copper block: they are made from the fine tungsten and copper powder and used powder metallurgy technology.

- 钨铜块的优势：耐高温，耐电弧烧蚀，高强度，良好的导热性及导电性等特性。
- Advantages of tungsten copper: high temperature resistance, high arc resistance, high strength and good thermal and electrical conductivity properties.

- 钨铜棒/块的成分：55%-90%W，其余成分均为铜。
- The composition of tungsten copper rod/block: 55%-90%W, the other component is copper.
- 所有的钨铜棒/块均可按照客户的要求进行生产。
- All of tungsten copper rods/block can be produced according to customers requirement.



### ● 钨铜板 Tungsten Copper Alloy Plate/Sheet

钨铜板：是经过静压成型，高温烧结，溶渗铜等工序制成的。它们可制作成导热板、芯片载体、高能电子设备的框架、其导热性好，膨胀性低。它的膨胀性与碳化硅、氧化铝以及氧化铍相当。钨铜板的特性使得它们成为集成电路的最佳材料，广泛用于各个领域。

Tungsten copper alloy plate /sheet, they are produced by isostatic pressing, high temperature sintering and copper infiltration process. They can be made into frame heat conducting plates, chip carriers and high-energy electron devices. They have good thermal conductivity and low expansion. Its expansion is equal to the silicon carbide, alumina oxide and beryllium oxide. The good characteristics of tungsten copper plate made themselves to become the best material for integrated circuits, and they are widely used in various fields. for integrated circuits, and they are widely used in various fields.

## 其他钨铜合金产品 Other Tungsten Copper Alloy Products





## 钨铜合金材料等级 & 物理性能

### Tungsten Copper Alloy Material Grades & Physical Properties

Grade	Chemical Content			Density	Hardness	Resistivity	IACS	Bending Strength
	Cu	Impurity≤	W	g/cm <sup>3</sup>	HBKgf/mm <sup>2</sup> ≥	μΩ.cm≤	%≥	Mpa ≥
W50/Cu50	50±2.0	0.5	BAL	11.85	115	3.2	54	---
W55/Cu45	45±2.0	0.5	BAL	12.30	125	3.5	49	---
W60/Cu40	40±2.0	0.5	BAL	12.75	140	3.7	47	---
W65/Cu35	35±2.0	0.5	BAL	13.30	155	3.9	44	---
W70/Cu30	30±2.0	0.5	BAL	13.80	175	4.1	42	790
W75/Cu25	25±2.0	0.5	BAL	14.50	195	4.5	38	885
W80/Cu20	20±2.0	0.5	BAL	15.15	220	5.0	34	980
W85/Cu15	15±2.0	0.5	BAL	15.90	240	5.7	30	1080
W90/Cu10	10±2.0	0.5	BAL	16.75	260	6.5	27	1160

## 规格 Specifications

Type	Length mm	Width mm	Thickness mm	Diameter mm
Rod	2-300			2-100
Bar	<300	<200	>1mm	
Plate/sheet	10-300	10-300	2-100	

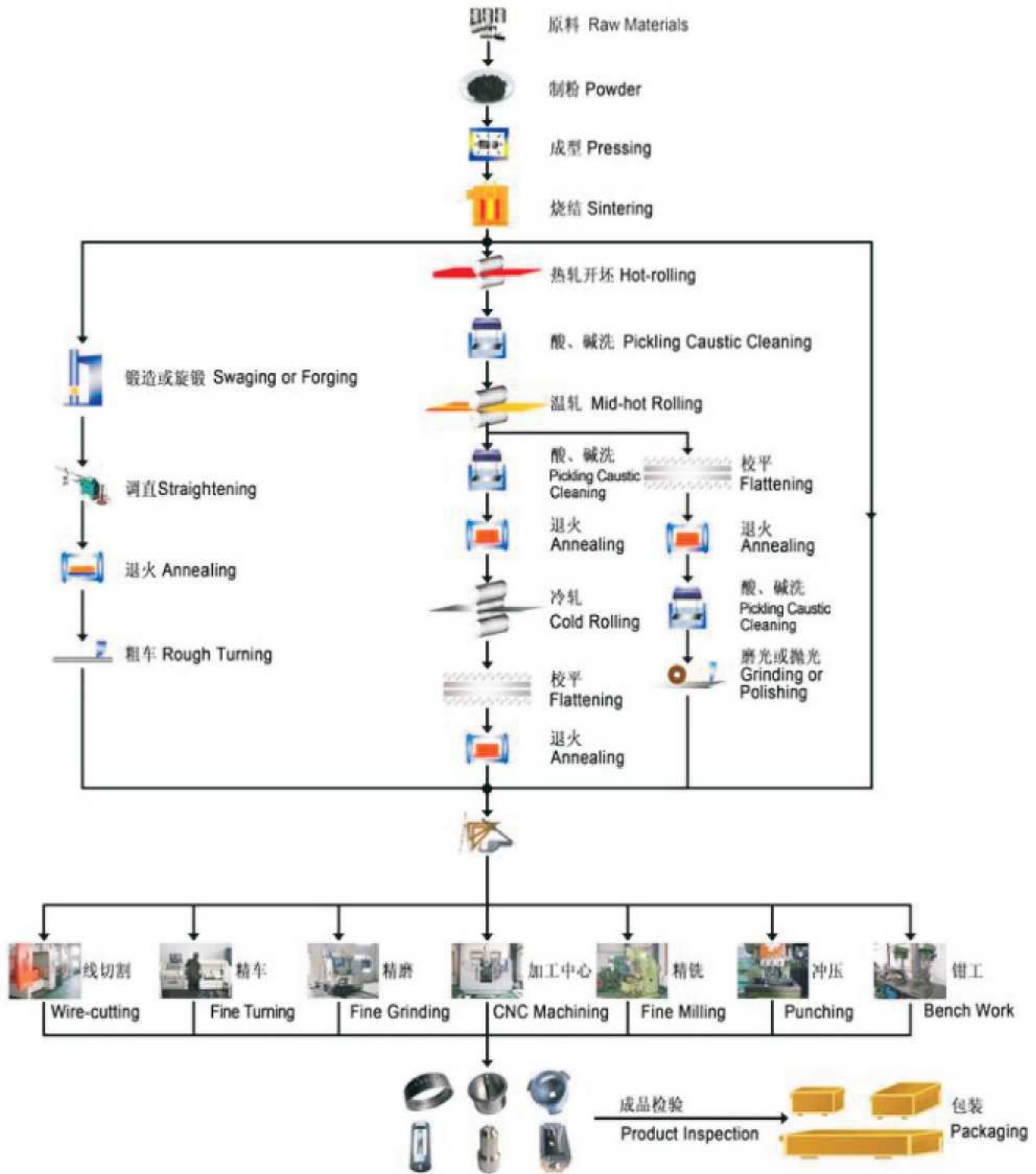
## 钨铜合金用途 Application Of Tungsten Copper Alloy

钨铜合金 (W-Cu合金) 是钨和铜的复合物,具有钨和铜最优异的性能,它广泛应用于发动机,电粉,冶金,航天和航空等行业。

Tungsten copper alloy (W-Cu alloy) is the composite of tungsten and copper which own it excellent performance of tungsten and copper.It is used widely in such industries as engine , electric powder, electron, metallurgy, spaceflight and aviation.

- a. 航空航天工业用高性能材料。
  - b. 真空接触材料。
  - c. 用于放电加工的电极
  - d. 电子封装材料和散热片材料。
- a.High performance material for aerospace industry.
  - b.Vacuum contact materials.
  - c.Electrode for electrical discharge machining
  - d.Electronic packaging materials and heat sink material.

## 钨合金生产工艺流程图 Tungsten Alloy Production Processing





## 工厂 Factory Show

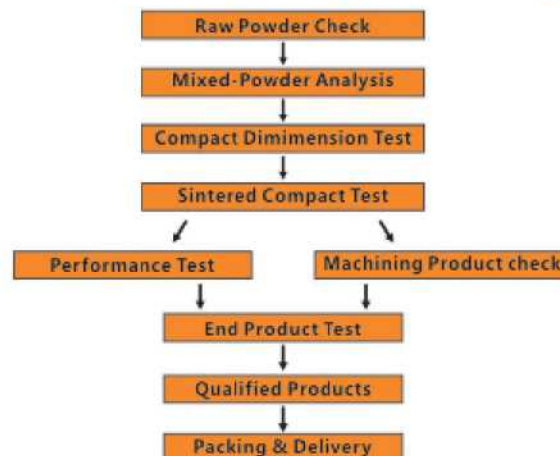


## 检测设备 Test Equipment



## 质量控制 Quality Control

### Process Of Quality Controlling





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