
株洲创德硬质合金有限公司

ZHUZHOU CHUANGDE CEMENTED CARBIDE CO., LTD

# 简 介

## Company Introduction

株洲创德硬质合金有限公司位于中国湖南省株洲市。它主要生产钨重合金、钨和钼合金以及碳化硅产品等。我们拥有高素质、积极进取、经验丰富的员工，他们在我们公司提供协同效应，这是为我们的客户创造和保证高质量、长期解决方案所必需的。

质量第一、全员参与、精诚服务、客户至上是本公司始终坚持的工作准则。全力满足甚至超越顾客的期望是公司全体员工最高的要求和最大的快乐。

我们以最好的价格和最好的服务，提供给客户最好的质量，我们期待着与您真诚合作。

Zhuzhou Chuangde Cemented Carbide Co., Ltd located in Zhuzhou, Hunan, China . It mainly produces Tungsten heavy alloy, Tungsten & Molybdenum alloy, and Silicon Carbide products etc.We have highly qualified, motivated and experienced employees who are providing synergies in our company which are necessary to create and guarantee high-quality and long-lasting solutions for our customers.We provide a worldwide distribution network. As a medium-sized company we react fast and we are flexible to our customer requirements. Based on partnership, we supply suitable solutions for the respective needs.

Our company was certified after ISO in 9001:2015. A comprehensive quality assurance system guarantees high-class standards of our products. Our production are exported to UK, European, Japan, Taiwan and South-east Asia etc.

# 目 录

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# 高密度钨基合金

## High density W based alloys

● 描述
Description

钨基高比重合金是钨中加入少量的镍铁或镍铜烧结而成。
Tungsten alloys are materials with a high tungsten content and low amounts of Ni Fe or Ni Cu.

● 优点：
Advantages:

★比重大
High density (17.0~18.5g/cm)

★易切削加工
Good machinability

★优良的机械性能
Good mechanical properties

★高的弹性模量
High modulus of elasticity

★能有效吸收x射线和γ射线
High absorption capacity against x-rays and y-rays

★对环境和健康无危害
Harmless to the health and environment.

● 用途：
Applications:

★放射线屏蔽
Protection shields for nuclear radiation

★子母弹、破甲弹用球
Balls in bomb

★配重件
Balancing weights

★高压电触头
High voltage electrical contact

★代铀材料
Substitutional material for Uranium

★电阻焊用电极
Electrodes for Resistance Welding

★电镦占块
Electroheat upsetting anvil block

●产品标准：ASTMB777、SAE AMS T 21014
Product Standard:ASTM B 777、SAE AMS T 21014

## ●钨基高比重合金化学成分与物理机械性能（理论值）

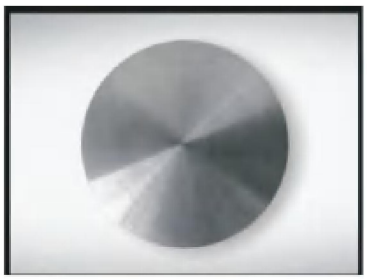
Chemical Composition,Physical &Mechanical Properties of Tungsten Base,High Density Metal (Theoretical value)

| 牌号 Type | 密度 Density g/cm° | 抗拉强度 Tensile strength Mpa | 延伸率 Elongation % | 硬度 HRC |
|---|---|---|---|---|
| 85W–10.5Ni–4.5Fe | 15.8–16.0 | 700–1000 | 20–33 | 20–30 |
| 90W–7Ni–3Fe | 16.9–17.1 | 700–1000 | 20–33 | 24–32 |
| 90W–6Ni–4Fe | 16.7–17.0 | 700–1000 | 20–33 | 24–32 |
| 91W–6Ni–3Fe | 17.1–17.3 | 700–1000 | 15–28 | 25–30 |
| 92W–5Ni–3Fe | 17.3–17.5 | 700–1000 | 18–28 | 25–30 |
| 92.5W–5Ni–2.5Fe | 17.4–17.6 | 700–1000 | 25–30 | 25–30 |
| 93W–4Ni–3Fe | 17.5–17.6 | 700–1000 | 15–25 | 26–30 |
| 93W–4.9Ni–2.1Fe | 17.5–17.6 | 700–1000 | 15–25 | 26–30 |
| 93W–5Ni–2Fe | 17.5–17.6 | 700–1000 | 15–25 | 26–30 |
| 95W–3Ni–2Fe | 17.9–18.1 | 700–900 | 8–15 | 25–35 |
| 95W–3.5Ni–1.5Fe | 17.9–18.1 | 700–900 | 8–15 | 25–35 |
| 96W–3Ni–1Fe | 18.2–18.3 | 600–800 | 6–10 | 30–35 |
| 97W–2Ni–1Fe | 18.4–18.5 | 600–800 | 8–14 | 30–35 |
| 98W–1Ni–1Fe | 18.4–18.6 | 500–800 | 5–10 | 30–35 |
| 90W–6Ni–4Cu | 17.0–17.2 | 600–800 | 4–8 | 25–35 |
| 93W–5Ni–2Cu | 17.5–17.6 | 500–600 | 3–5 | 25–35 |

## ● 尺寸

Dimensions:

高比重合金球Balls: ϕ0.5–ϕ200mm
杆Shafts:(ϕ1mm above) × (Length max.500mm)
板材Sheets:(Thickness 1.5mm above) x (Wideness max.200mm) × (Length max.300mm)
钨合金异型件Special tungsten alloy products:
按用户要求定制各种规格的钨合金异型制品
Special tungsten alloy products of various specs.are available at customers'requests.

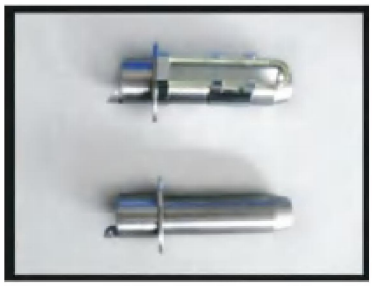


# 医疗辐射屏蔽

## Nuclear medical radiation shielding

钨合金是一种屏蔽X射线和伽马射线辐射的理想材料。该材料与铅相比可以大大减少其物理尺寸，但却不会降低其屏蔽性能。

高比重钨合金常被用作放射源容器、伽马射线防护屏、屏蔽块、X射线准直器、核屏蔽墙等。



Tungsten alloy is ideal for shielding against X rays and gamma radiation.The very high density of tungsten shielding (more than 60% denser than lead)allows a reduction in the physical size of shielding components,without comp romising their rigidity or the effectiveness of the shielding chara cteristics .

Tungsten heavy alloy shielding is used in applications such as Radioactive source containers, Gamma radiography shields, Shielding block,X – ray collimators,Nuclear shielding wall etc.

# 工业

## Industry

（1）交通工具配重：

由于钨合金具有高密度、很好的抗拉强度和易加工以及无污染等特性，因此成为了最普遍作为交通工具配重的材料。

（2）航空：

钨合金一般被航空设计者用作配重件或用来减振。

应用实例：平衡块、飞行控制翼、抗振件、螺旋桨叶片、配重件。

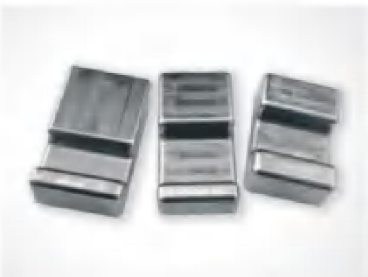
（3）石油勘探

（4）打钉杆

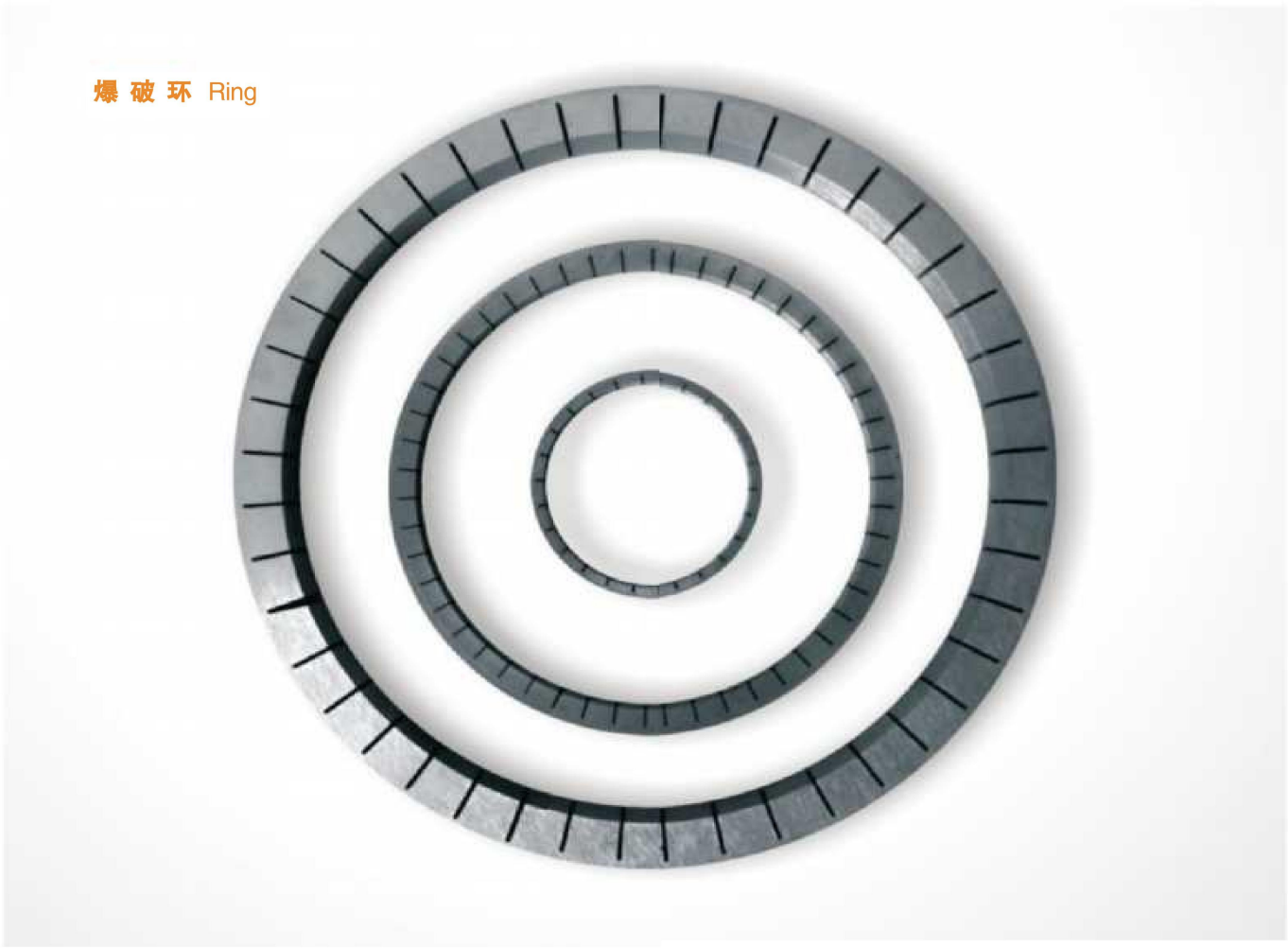
(1)Tungsten alloy ballast for vehicle:
Tungsten heavy alloy balance weight for vehicle is now becoming the most popular material for ballast,due to its main advantages:Highest density,High tensile strength and Machined easily,Non-Toxic.
(2)In aerospace:
Tungsten alloys are generally used by aerospace designers for balancing components or reducing vibration.
Examples of applications:Trim weights,Flight control surfaces,Anti-vibration weights, Propeller blades and Ballast weights.
(3)In oil exploration
(4)Bucking bars








爆 破 环 Ring



# 军用

## Military industry

使用我们的材料生产球、小方块和射弹形状的产品进行装甲穿透。

生产技术使我们可以改变一定的性能，来满足您的需求，如延伸率、拉伸强度和硬度。

Hyper–velocity armor–penetratingapplications use our materials in spheres,cubes, and projectile shapes.Manufacturing techniques allow us to varycertain properties, such as elongation,ultimate tensile strength and hardness ofour tungsten alloy in order to meet yourneeds.

小 方 块 Cube

高比重钨球Tungsten ball/Tungsten shot

| Tungsten Shot Size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Dust | #12 | #11 | #10 | #9 | #8 1/2 | #8 | #7 1/2 | #7 |
| 1.00mm (0.039") | 1.30mm (0.051") | 1.50mm (0.059") | 1.80mm (0.071") | 2.01mm (0.079") | 2.16mm (0.085") | 2.26mm (0.089") | 2.39mm (0.094") | 2.5mm (0.098") |
| #6 | #5 | #4 1/2 | #4 | #3 | #2 | #1 | #B | BB |
| 2.77mm (0.109") | 3.05mm (0.120") | 3.18mm (0.125") | 3.28mm (0.129") | 3.60mm (0.142") | 3.76mm (0.148") | 4.10mm (0.161") | 4.50mm (0.177") | 4.57mm (0.180") |
| BB | BBB | T | TT | TTT | FF | #4 | #3 | #3 1/2 |
| 4.60mm (0.181") | 4.82mm (0.190") | 5.08mm (0.200") | 5.33mm (0.210") | 5.59mm (0.220") | 5.84mm (0.230") | 6.09mm (0.240") | 6.35mm (0.250") | 6.60mm (0.260") |
| #2 | #2 1/2 | #1 | #1 1/2 | 0 | 00 1/2 | 0 | 000 1/2 | 0 |
| 6.86mm (0.270") | 7.40mm (0.291") | 7.62mm (0.300") | 7.90mm (0.311") | 8.38mm (0.330") | 8.60mm (0.339") | 9.14mm (0.360") | 9.40mm (0.370") | 9.70mm (0.382") |

## Grade Introduce

| ASTM B777 Class | G/BT Grade | Component | | | Density g/cm3 | Hardness | Ultimate Tensile Strength (Mpa) | Yield Strength (Mpa) | Elongation % |
|---|---|---|---|---|---|---|---|---|---|
| | | Tungsten % | Nickel % | Iron % | | | | | |
| 1 | 90WNiFe | 90 | 7.1 | 2.9 | 16.95-17.25 | 32 | 758 | 517 | 5 |
| 2 | 92.5WNiFe | 92.5 | 5 | 2.5 | 17.45-17.85 | 33 | 758 | 517 | 5 |
| 3 | 95WNiFe | 95 | 3.5 | 1.5 | 17.95-18.35 | 34 | 724 | 517 | 3 |
| 4 | 97WNiFe | 97 | 2.2 | 0.8 | 18.45-18.85 | 35 | 689 | 517 | 2 |

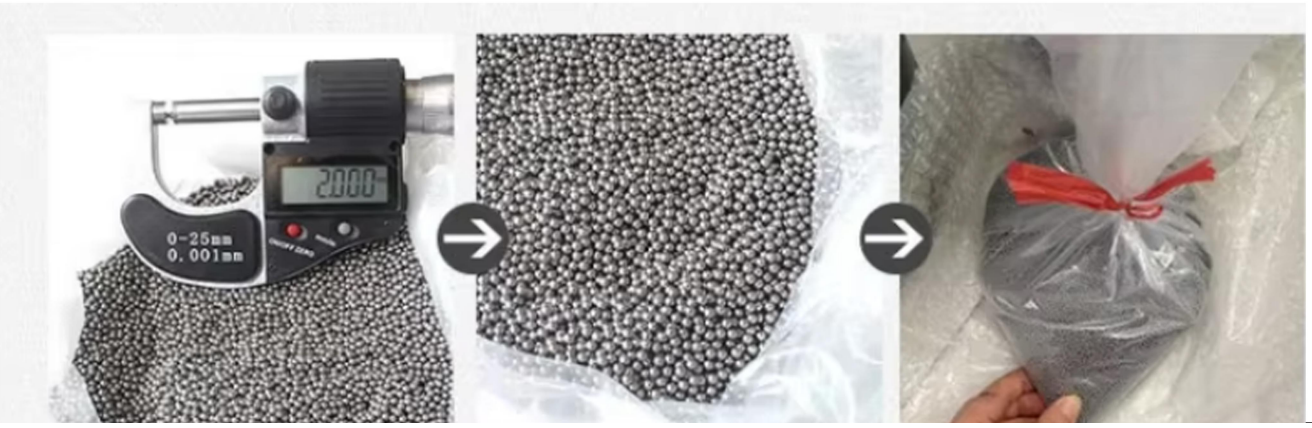
## Package

For the packing of the providers tungsten metal ball

* Sealing bag* Shockproof foam

* Protective foam export standard carton box or wooden case.

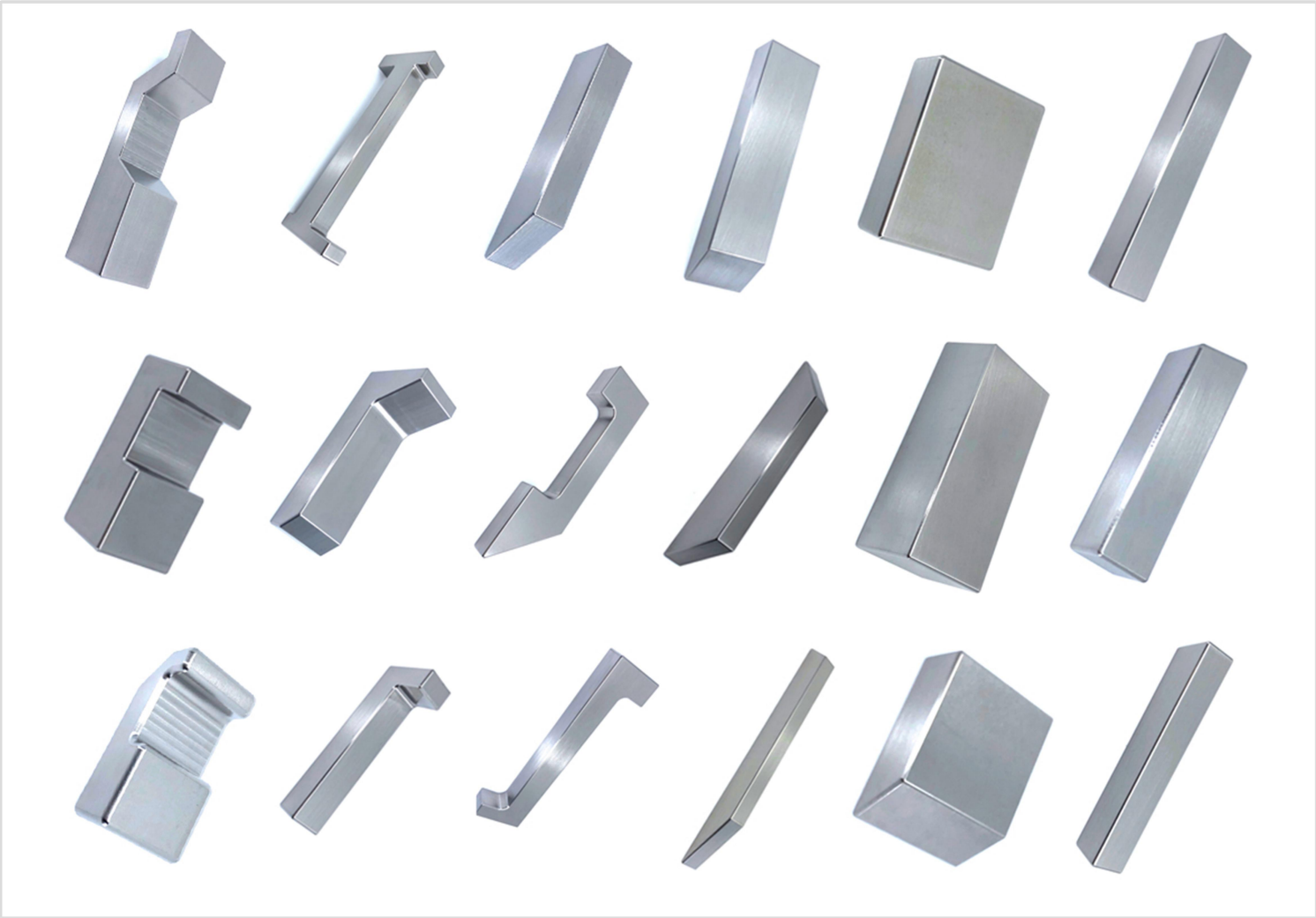
Note: On the basis of reducing weight and saving freight, the safety of tungsten bead packing is guaranteed.



# Tungsten Bucking Bar

Bucking bars are tools used to form bucktails (the head formed during riveting operations) on rivets. They come in many different shapes and sizes, the best  Bucking Bars are normally made from Tungsten heavy alloy .

CDCARBIDE Tungsten Offers Custom Bucking Bars



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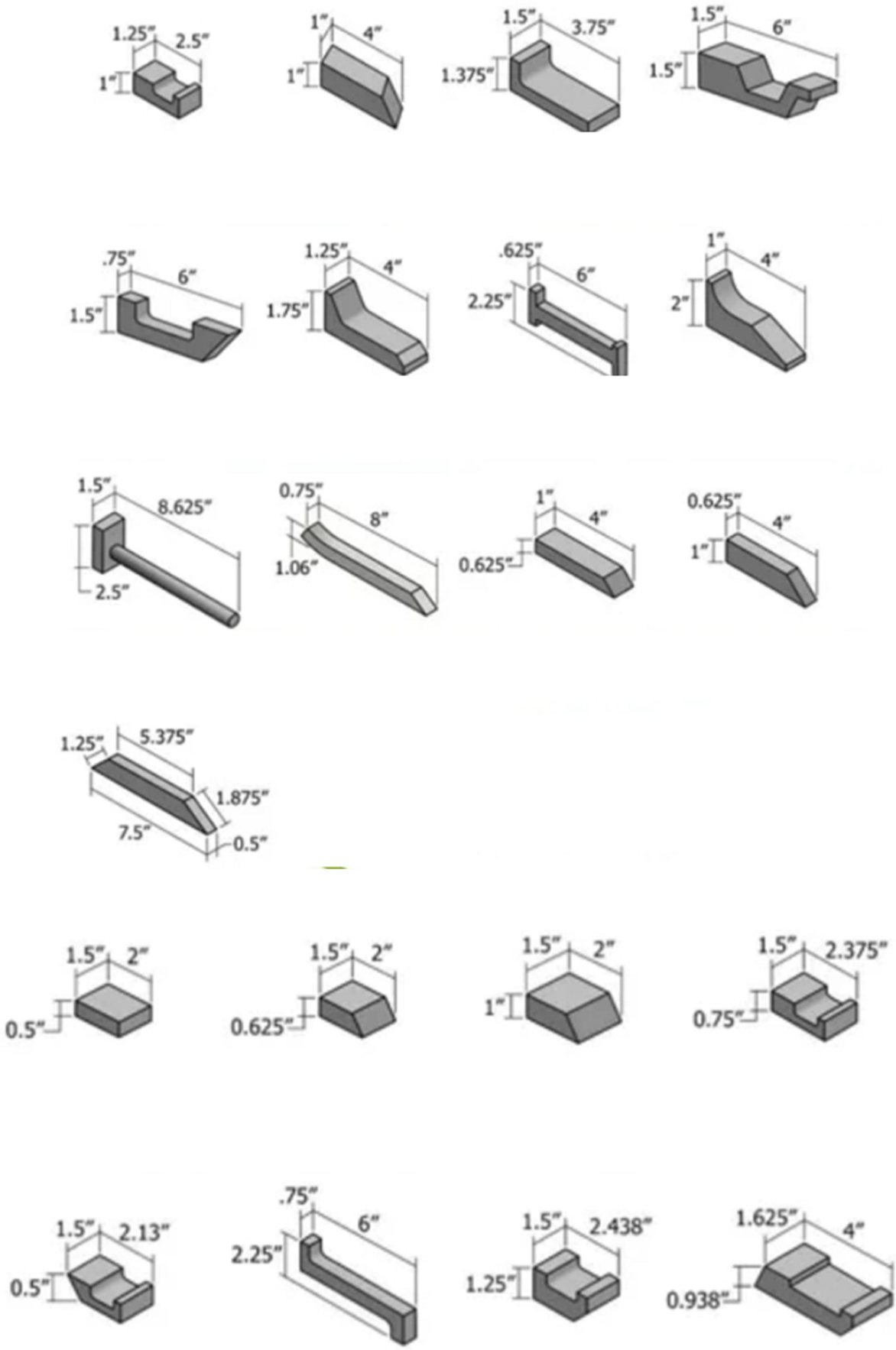
# Tungsten Bucking Bars



# 体育用品配重

## Weights for sport equipment

高比重钨合金具有无污染、体积小、高密度、抗弯曲能力强、符合国际环保标准等优点，是铅理想的替代品，在西方国家有很好的销量。

(1)飞镖杆：众所周知，飞镖杆是飞镖的主要组成部分。由于高比重钨合金的比重大，小体积也能 具有很好的比重，因此钨合金被广泛作为生产飞镖杆 的材料。另外，其有很好的耐磨性和好的机械加工性等。

我们除了提供飞镖杆的毛坯，还可以提供加工好的成品。

(2)高尔夫配重块：我们可以为高尔夫球具生产各种各样的配重部件。

(3)渔坠：我们可以根据客户提供的图纸生产渔坠。

High Density Tungsten Alloy is made from clean metal. The advantages:nuisance free,international environment protection standard,small body,high density,strong wind resistance.It is the ideal substitute of lead which finds good sales among western countries.

(1)Dart:As we know,the barrel forms the main part of a dart.Nowadays,tungsten–based heavy alloy billet is widely used as the standard barrel material,for it has a specific gravity,making it a very dense material with small volume.Besides,it has superior wearing resistance,well machinability,etc.

In addition to supplying the tungsten billet raw materials, we can also provide the machined part as tungsten barrel.

(2)Tungsten alloy counterweights for golf:We can offer tungsten alloy counterweights for various kinds of parts and screws of golf clubs.

(3)Fishing sinker:We can manufacture fishing sinkers according to your drawings.

# 钨铜合金
# Tungsten–copper alloys

● 描述
Description

钨铜复合材料含有10～50%(重量比)的铜。
WCu composites are offered with 10~50wt.%Cu.

● 优点：
Advantages:

★断弧性能好，导电性好
High arc resistance combined with good electrical conductivity

★导热性好
High thermal conductiveity

★热膨胀小
Low thermal expansion

● 用途：
Applications:

★高中压开关或断路器的弧触头和真空触头
Arcing contacts and vaccum contacts in high and medium voltage breakers or vaccum interruptors

★电火花加工用的电极
Electrodes in electric spark erosion cutting machines

★电子设备上用的散热器件.
Heat sinks as passive cooling elements of electronic devices.

★电阻焊用电极
Electrodes for Resistance Welding

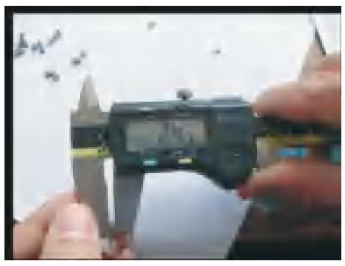
产品标准： ASTM B 702
Product Standard:ASTM B 702

● 钨铜复合材料化学成分与物理机械性能
Chemical Composition,Physical &Mechanical Properties of Tungsten–Copper Composites

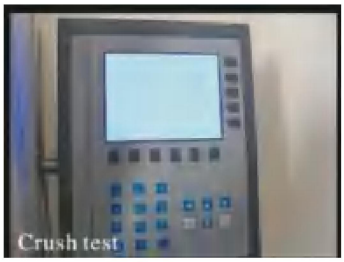
| 牌号 Class | 化学成分(重量%) Chemical Composition(wt%) | | | 密度 Density | 硬度 Hardness | 电阻率 Resistivity | 导电度 IACS | 抗弯强度 Bending Strength |
|---|---|---|---|---|---|---|---|---|
| | Cu | 杂质总和 Total Impurities ≤ | W | g/cm ≥ | HB Kgf/mm2 ≥ | μ Ω.cm ≤ | % ≥ | Mpa ≥ |
| W50/Cu50 | 50±2.0 | 0.5 | 余量 balance | 11.85 | 115 | 3.2 | 54 | |
| W55/Cu45 | 45±2.0 | 0.5 | 余量 balance | 12.30 | 125 | 3.5 | 49 | |
| W60/Cu40 | 40±2.0 | 0.5 | 余量 balance | 12.75 | 140 | 3.7 | 47 | |
| W65/Cu35 | 35±2.0 | 0.5 | 余量 balance | 13.30 | 155 | 3.9 | 44 | |
| W70/Cu30 | 30±2.0 | 0.5 | 余量 balance | 13.80 | 175 | 4.1 | 42 | 790 |
| W75/Cu25 | 25±2.0 | 0.5 | 余量 balance | 14.50 | 195 | 4.5 | 38 | 885 |
| W80/Cu20 | 20±2.0 | 0.5 | 余量 balance | 15.15 | 220 | 5.0 | 34 | 980 |
| W85/Cu15 | 15±2.0 | 0.5 | 余量 balance | 15.90 | 240 | 5.7 | 30 | 1080 |
| W90/Cu10 | 10±2.0 | 0.5 | 余量 balance | 16.75 | 260 | 6.5 | 27 | 1160 |

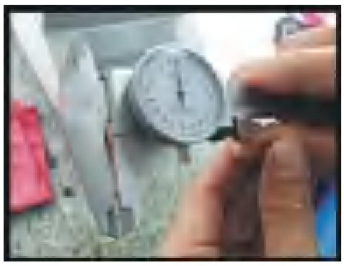




## 产品检测 Product Inspection




CD合金 精益求精

CD CARBIDE PERSUE THE BEST

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