

钨丝分厂产品使用指南

Product manual of tungsten wire product



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简介

BRIEF INTRODUCTION

分厂主要从事钨粉、钨条、杆材、线材、细钨丝等产品的研发、生产与销售。产品广泛应用于电光源、电真空、半导体及电子技术、汽车工业、工业窑炉、机械加工、机器制造及焊接等多个领域，分厂拥有600吨钨产品和50亿米细钨丝生产能力。

We are mainly focusing on the development, production and sale of tungsten powder, tungsten rods, tungsten bars, tungsten wires and tungsten filaments, etc. Our products are widely applied in industries like electrical lighting, electrical vacuum, semiconductor & electronic technology, automobile, industrial furnaces, mechanical machining, machine manufacturing, welding and the like. We have a production capacity of 600 tons tungsten product and 5 billion meters tungsten filament.

分厂通过酸洗、垂熔工序，极好地控制了产品杂质含量为后续生产加工提供了品质保证；分厂改进传统工艺采用3公斤坯条对焊，为客户降低了生产成本，提高了生产效率。

We excellently control the impurity content by acid washing and vertical sintering process, it benefits the quality in further processing. We improve the traditional process and adopt 3 kilograms tungsten rods for butt welding process, it reduce the cost and improve the production efficiency.

公司的主要产品有高纯钨粉、掺杂钨粉、高纯钨条、掺杂钨条、钨杆、粗钨丝、细钨丝、白钨丝等。

Our main products are high purity tungsten powder, doped tungsten powder, high purity tungsten bars, doped tungsten bars, tungsten rods, coarse tungsten wire, fine tungsten wire, cleaned tungsten wire, etc.

阅读指引

READING GUIDE

尊敬的用户，您好！请根据您的产品应用领域，选择您需要的产品指南阅读。
Dear users, please select the page according to your products field.

电光源/Electrical lighting

- 钨条 ----- P03
Tungsten bar
- 钨杆 ----- P04
Tungsten rod
- 粗钨丝 ----- P05
Coarse tungsten wire
- 细钨丝 ----- P06-P07
Fine tungsten wire

半导体及电子技术/Semiconductor and electronic technology

- 酸洗纯钨粉 ----- P09
Pure acid-washed tungsten powder
- 高纯钨条 ----- P09
High purity tungsten bar

真空镀膜/Vacuum coating

- 钨绞丝及合股丝 ----- P11-P12
Tungsten wire for stranding and stranded tungsten wire

工艺窑炉/Industrial furnace

- 酸洗掺杂钨粉 ----- P14
Doped acid-washed tungsten powder
- 钨条 ----- P15
Tungsten bar
- 钨杆 ----- P16
Tungsten rod
- 钨丝 ----- P17
Tungsten wire

规格

Specification

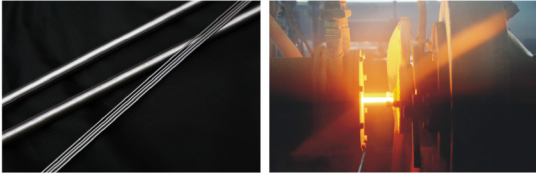
牌号 Code	形状 Shape	规格 Size (mm)	单重 Single weight (kg)	长度 Length (mm)	锥度 Taper (mm)
CCW92 CCW61 CCW91 CCW31	Round	Φ17.0*750	2.65~3.00	720~780	15.5~17.2

化学成分

Chemical Composition

牌号 Code	W含量 Tungsten content (wt%)	其它元素最大含量 Max. content of impurities (ppm)					
		K	Fe	Al	Mo	As/Ca/Cr/Mg/ Mn/Na/Ni/Ti/Si	Bi/Cd/ Cu/Pb/Sb/Sn
CCW92	99.95	80 ~ 100	20	15	30	10	5
CCW91	99.95	70 ~ 90	20	15	30	10	5
CCW61	99.95	60 ~ 75	20	15	30	10	5
CCW31	99.95	40 ~ 60	20	15	30	10	5
Analysis method	Minusing	AAS	AAS	ICP	ICP	AAS/ICP	ICP

钨杆/Tungsten Rod



» 用途

Application

主要用于机械加工制造各种发射阴极、定型杆、导丝、电极芯棒等。
It is mainly used to prepare various emitting cathodes, shaping rods, lead wire, electrode mandrel and the like by mechanical machining.

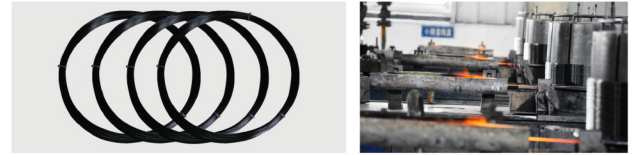
牌号 Code	用途 Application
CCW91	制造发射阴极、高温定型杆等。 It is used for emitting cathodes, high temperature shaping rods, etc.
CCW61	制造发射阴极、低温定型杆等。 It is used for emitting cathodes, low temperature shaping rods, etc.
CCW31	制造导丝、电极芯棒等。 It is used for lead wires, electrode mandrel, etc.

» 规格

Specification

表面状态 Surface	锻制/碱洗 Forged/Alkali cleaned		矫直/碱洗 Straightened/Alkali cleaning		磨光 Polished		长度公差 Length tolerance (mm)
	直径公差 Dia. Tolerance (mm)	椭圆度 Ovality (mm)	直径公差 Dia. Tolerance (mm)	椭圆度 Ovality (mm)	直径公差 Dia. Tolerance (mm)	椭圆度 Ovality (mm)	
规格 Size(mm)							
0.6≤d<0.8	-	-	±0.01	≤0.01	±0.01	≤0.01	L < 100 ± 1.0
0.8≤d<1.0	-	-	±0.01	≤0.01	±0.01	≤0.01	100≤L < 300 ± 1.5
1.0≤d<3.0	-	-	±0.02	≤0.02	±0.02	≤0.02	300≤L < 500 ± 2.0
3.0≤d<4.0	±0.10	≤0.10	±0.10	≤0.10	±0.02	≤0.02	500≤L < 1000 ± 2.5
4.0≤d<6.0	±0.10	≤0.10	±0.10	≤0.10	±0.03	≤0.03	1000≤L < 2000 ± 5.0
6.0≤d<12.0	±0.20	≤0.20	±0.20	≤0.20	±0.03	≤0.03	

粗钨丝/Coarse tungsten wire



» 用途

Application

主要用于改拉制造各种灯用钨丝、绕制弹簧电极等。
It is drawn to prepare tungsten filaments for various lamps, spring electrodes, etc.

牌号 Code	用途 Application
CCW92	用于拉制汽车灯用钨丝、高温卤素灯用钨丝等。 It is drawn to make filaments for automotive lamps and high temperature halogen lamp, etc.
CCW91	用于拉制卤素灯用钨丝、汽车辅助灯用钨丝等。 It is drawn to make filaments for halogen lamp and automotive auxiliary lamps, etc.
CCW61	用于拉制普通照明灯用细钨丝（普通、节能灯）。 It is drawn to make filaments for general lamps (ordinary bulbs, energy-saving lamps).
CCW31	用于绕制弹簧电极等。 It is drawn to make spring electrode.

» 规格

Specification

表面状态 Surface	拉制 Drawn		电解抛光 Electropolished	
规格尺寸 Size (mm)	直径公差 Dia. Tolerance (mm)	椭圆度 Ovality (mm)	直径公差 Dia. Tolerance (mm)	椭圆度 Ovality (mm)
0.35≤d≤1.0	±0.01	±0.01	±0.01	±0.01

» 物理性能

Physical property

类别 Size D (mm)	单根丝净重 Weight of single wire G (kg)	探伤裂点数 Split X (split quantity/kg)	脆性 Brittleness	抗拉强度 Tensile strength N/mm ²
0.35≤d<0.6	2.0≤G≤5.5	X≤35	Pass	1900-2400
0.6≤d≤1.0	2.0≤G≤11	X≤15	Pass	1850-2350
检测 Analysis method	电子秤 Electronic balance	涡流探伤 Eddy current inspection	弯折 Bending test	拉力试验机 Tensile strength tester

注：有特殊要求在订货时说明。
Remarks: Special requirement should be declared when placing order.

细钨丝/Fine tungsten wire



» 用途 Application

细钨丝主要用于绕制各种白炽灯、荧光灯、卤素灯、汽车灯灯丝，绕制灯丝承托圈等。
Fine tungsten wire is mainly used to make coils for incandescent lamps, fluorescent lamps, halogen lamps, automotive lamps, and make bearing rings of filament, etc.

牌号 Code	K含量 Potassium content (ppm)	高温性能 High temperature property	规格范围 Size range (mm)	用途 Application
CCW92	80~100	Excellent	0.015 ~ 0.35	高温卤素灯灯丝、汽车灯。 It will be made into coils for high temperature halogen lamps, automotive lamps.
CCW91	70~90	Excellent	0.015 ~ 0.35	卤素灯、汽车辅灯等。 It will be made into coils for halogen lamps, automotive auxiliary lamps, etc.
CCW61	60~75	Good	0.015 ~ 0.35	普通白炽灯、荧光灯、节能灯、灯丝承托圈等。 It will be made into coils for incandescent lamps, fluorescent lamps, energy-saving lamps and bearing rings, etc.

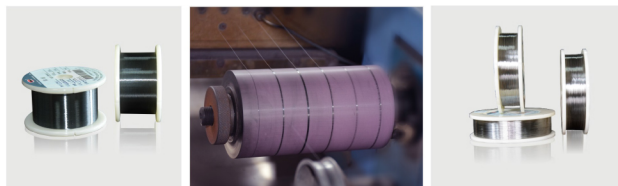
» 尺寸公差 Dimensional tolerance

钨丝直径 Diameter (μm)	钨丝重量 Diameter in weight (mg/200mm)	200mm 丝段偏差, % Tolerance of diameter in weight, %			单长 Single length (m)
		0 level	I level	II level	
$15 \leq d \leq 18$	$0.68 \leq p \leq 0.98$	± 2.5	± 3.0	± 4.0	5000
$18 < d \leq 40$	$0.98 < p \leq 4.85$	± 2.0	± 2.5	± 3.0	2000
$40 < d \leq 80$	$4.85 < p \leq 19.39$	± 1.5	± 2.0	± 2.5	1000
$80 < d \leq 300$	$19.39 < p \leq 272.71$	± 1.0	± 1.5	± 2.0	300
$300 < d \leq 350$	$272.71 < p \leq 371.18$	± 1.0	± 1.0	± 1.5	300

注：尺寸公差和单长可按客户要求订制。
Note: Dimensional tolerance and single length can be customized according to customer's requirements.

» 加工状态 Wire status

产品名称 Product name	产品代码 Code	加工状态 Wire status	直线度 Straightness
卤素灯黑钨丝 Coated tungsten filaments for halogen lamp	WLH	拉制 Drawn	
卤素灯白钨丝 Cleaned tungsten filaments for halogen lamp	WLB	拉制+电解抛光 Drawn and electropolished	
卤素灯伸直白钨丝 Straightened & cleaned tungsten filaments for halogen lamp	WLS	拉制+电解抛光+伸直 Drawn, electropolished and straightened	对于伸直型钨丝，其直线度满足下列要求： For straightened tungsten wires, the straightness meets following requirements:
汽车灯黑钨丝 Coated tungsten filaments for automotive lamp	WQH	拉制 Drawn	①直径 $d \leq 100\mu\text{m}$ (30.3mg)，取500mm 丝段，其自然下垂高度不少于450mm。 I 1) Diameter $d \leq 100\mu\text{m}$ (30.3 mg), the free sagging height of 500mm wire shall not be less than 450mm.
汽车灯白钨丝 Cleaned tungsten filaments for automotive lamp	WQB	拉制+电解抛光 Drawn and electropolished	②直径 $d > 100\mu\text{m}$ ，切取200mm 长丝段，放置在平板上，其100mm 弦长的弧高不超过10mm。 I 2) diameter $d > 100\mu\text{m}$, cut 200 mm filament and place it on a flat plate; the arc height of 100 mm chord should not exceed 10 mm.
汽车灯伸直白钨丝 Straightening and cleaned tungsten filaments for automotive lamp	WQS	拉制+电解抛光+伸直 Drawn, electropolished and straightened	
普通灯黑钨丝 Coated tungsten filaments for ordinary bulbs	WPH	拉制 Drawn	
普通灯白钨丝 Cleaned tungsten filaments for ordinary bulbs	WPB	拉制+电解抛光 Drawn and electropolished	



半导体及电子技术

SEMICONDUCTOR AND ELECTRONIC TECHNOLOGY >>

酸洗纯钨粉/Pure acid-washed tungsten powder

» 用途 Application

酸洗纯钨粉主要用作生产钨靶材和其它高纯度钨制品。

Mainly used to produce tungsten target and other high purity tungsten products.

» 物理性能

Physical Properties

费氏平均粒度：2.0~4.0 μm 。

Average F.S.S. particle size: 2.0~4.0 μm .

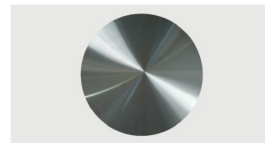
粒度分布：按客户要求提供。

Particle Size Distribution: Upon the request of customer.

» 化学成份

Chemical compositions (单位unit: ppm)

牌号 Code	W含量 Tungsten content (wt%)	其它元素最大含量 Max. content of impurities (ppm)					
		K	Fe	Al	Mo	As/Ca/Cr/Mg/ Mn/Na/Ni/Ti/Si	Bi/Cd/ Cu/Pb/Sb/Sn
XW11	99.99	≤ 5	10	5	20	10	5
Analysis method	Minusing	AAS	AAS	ICP	ICP	AAS/ICP	ICP



钨条/Tungsten bar



» 用途

Application

主要用于压力加工制造各种高真空用电极、触点材料等。

It is mainly used to prepare various high vacuum electrodes, contact materials and the like by pressure processing.

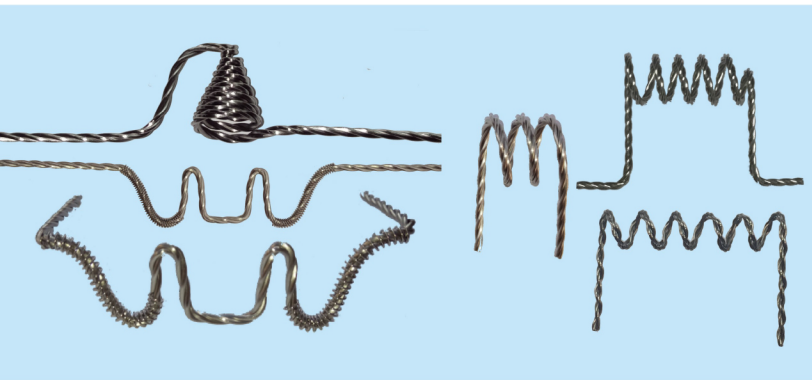
» 规格

Specification

牌号 Code	形状 Shape	规格 Size (mm)	单重 Single weight (kg)	长度 Length (mm)	锥度 Taper (mm)
XW11	Square	12*12*360	0.90~1.00	340~380	11.50~12.50
XW11	Round	Φ17.0*750	2.65~3.00	720~780	15.50~17.20

真空镀膜

VACUUM COATING »



钨绞丝及合股丝

Tungsten wire for stranding and stranded tungsten wire



» 用途

Application

制作真空镀膜用加热器。 Used for heaters of vacuum coating.

牌号 Code	K含量 (wt%) Potassium content (wt%)	性能及用途 Property and application
CCW91	0.0070~0.0090	用于绞合制作特殊耐高温加热器、加工性能较好。 It is used for making special high temperature resistant heater, with common processability.
CCW61	0.0060~0.0075	用于绞合制作耐高温加热器、加工性能好。 It is used for making high temperature resistant heater, with good processability.
CCW31	0.0040~0.0060	用于绞合制作普通加热器、加工性能最好。 It is used for making common heater, with best processability.

» 化学成分

Chemical composition

牌号 Code	W含量 W content (wt%)	其它元素最大含量 Max. content of impurities (ppm)					
		K	Fe	Al	Mo	As/Ca/Cr/Mg/ Mn/Na/Ni/Ti/Si	Bi/Cd/ Cu/Pb/Sb/Sn
CCW91	99.95	70~90	20	15	30	10	5
CCW61	99.95	60~75	20	15	30	10	5
CCW31	99.95	40~60	20	15	30	10	5
Analysis method	Minusing	AAS	AAS	ICP	ICP	AAS/ICP	ICP

» 钨绞丝典型规格及物理性能

Typical specifications and physical properties of tungsten wire for standing

规格 Size (mm)	公差 Tolerance (mm)	单根丝净重G weight of single wire, G (kg)	探伤裂点数量 Split X (split quantity/kg)	脆性 Brittleness	抗拉强度 Tensile strength, N/mm ²
0.60	±0.01	2.0≤G≤5.5	X≤35	Qualified	1850-2350
0.76	±0.01	2.0≤G≤11	X≤40	Qualified	1850-2350
0.80	±0.01	2.0≤G≤11	X≤40	Qualified	1850-2350
0.82	±0.01	2.0≤G≤11	X≤40	Qualified	1850-2350
0.85	±0.01	2.0≤G≤11	X≤40	Qualified	1850-2350
1.00	±0.01	2.0≤G≤11	X≤40	Qualified	1850-2350
检测 Inspection	数显千分尺 Digital Micrometer	电子秤 Electronic balance	涡流探伤 Eddy current inspection	弯折 Bending test	拉力试验机 Tensile strength tester

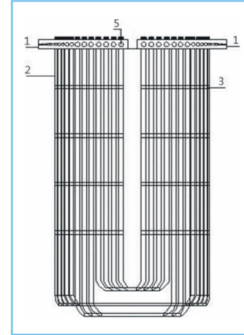
注：有特殊要求请在订货时说明。

Remarks: Special requirement should be declared when placing order.

» 钨合股丝典型规格及物理性能

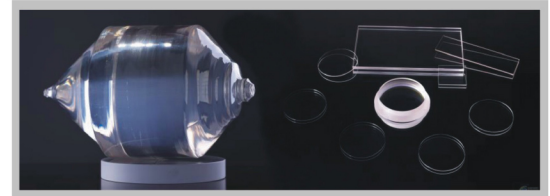
Typical specifications and physical properties of stranded tungsten wire

规格 Size (mm)	单重 Single weight G (kg)	绕制根数 No. of stranding wire	TPI	旋转方向 Stranding direction	表面状态 Surface status
0.60	G≥1.0	3 or 4	按客户要求 According to customer requirements	右旋或左旋 Right or left	黑色或白色 Coated or cleaned
0.76	G≥1.0	3 or 4	按客户要求 According to customer requirements	右旋或左旋 Right or left	黑色或白色 Coated or cleaned
0.80	G≥1.0	3 or 4	按客户要求 According to customer requirements	右旋或左旋 Right or left	黑色或白色 Coated or cleaned
0.82	G≥1.0	3 or 4	按客户要求 According to customer requirements	右旋或左旋 Right or left	黑色或白色 Coated or cleaned
0.85	G≥1.0	3 or 4	按客户要求 According to customer requirements	右旋或左旋 Right or left	黑色或白色 Coated or cleaned
1.00	G≥1.0	3 or 4	按客户要求 According to customer requirements	右旋或左旋 Right or left	黑色或白色 Coated or cleaned
检测 Inspection	电子秤 Electronic balance	目测 Vision	弯折 Bending test	目测 Vision	目测 Vision



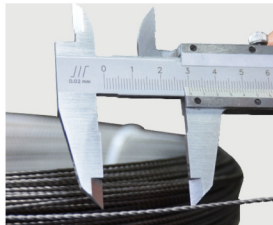
工业窑炉

INDUSTRIAL FURNACE »



示例 Demonstration

绕制根数 No. of stranding wire	3
TPI	10/30mm
旋转方向 Stranding direction	Right
表面状态 Surface status	白色 Cleaned



酸洗掺杂钨粉/Doped acid-washed tungsten powder



» 用途

Application

酸洗掺杂钨粉主要用作生产工业炉用耐高温板材、棒材的原材料。
Mainly used as raw material for high temperature resistant plate and rod used in industrial furnace.

» 物理性能

Physical Properties

费氏平均粒度: 3.0~4.0 μm 。

Average F.S.S.S. particle size: 3.0-4.0 μm .

粒度分布: 按客户要求提供。

Particle size distribution: Upon the request of customer.

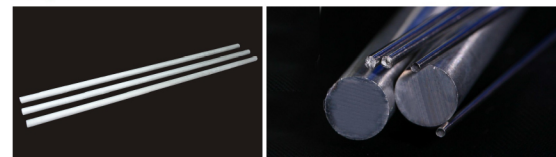
» 化学成分

Chemical compositions (单位unit: ppm)

产品名称 Product name	W含量 Tungsten content (wt%)	Fe	Mo	K	Al	Si	O	其他 Others
掺杂钨粉 Doped tungsten powder	≥99.4	≤20	≤30	60-160	30-100	150-330	≤2000	≤10



钨条/Tungsten bar



» 用途

Application

主要用于压力加工后制造蓝宝石加热炉热场钨杆、捆扎丝、引出线，单晶硅熔炼炉钨丝绳等。
It is mainly used to prepare thermal field tungsten rod, strapping wire, lead wire used in heating furnace for sapphire production, tungsten ropes in monocrystalline silicon melting furnace by pressure processing.

牌号 Code	用途 Application
CCW92	用于制造加热炉引出线等。 It is used to prepare lead wire for heating furnace.
CCW91	用于制造热场钨杆、捆扎丝等。 It is used to prepare thermal field tungsten rods, strapping wire, etc.
CCW61	用于制造钨丝绳。 It is used to make tungsten ropes.

» 规格

Specification

牌号 Code	形状 Shape	规格 Size (mm)	单重 Single weight (kg)	长度 Length (mm)	锥度 Taper (mm)
CCW92 CCW91 CCW61	Round	Φ17.0*750	2.65-3.00	720-780	15.5-17.2

» 化学成分

Chemical composition

牌号 Code	W含量 Tungsten content (wt%)	其它元素最大含量 Max. content of impurities (ppm)					
		K	Fe	Al	Mo	As/Ca/Cr/Mg/ Mn/Na/Ni/Ti/Si	Bi/Cd/ Cu/Pb/Sb/Sn
CCW92	99.95	80-100	20	15	30	10	5
CCW91	99.95	70-90	20	15	30	10	5
CCW61	99.95	60-75	20	15	30	10	5
Analysis method	Minusing	AAS	AAS	ICP	ICP	AAS/ICP	ICP

钨杆/Tungsten rod



» 用途

Application

主要用于制造蓝宝石加热炉热场。

It is mainly applied in the thermal field of heating furnace for sapphire production.

牌号 Code	用途 Application
CCW91	制造蓝宝石加热炉热场，真空烧结炉发热体等。 It is used to make the thermal field of heating furnace for sapphire production, heating component of vacuum sintering furnace, etc.

» 规格

Specification

表面状态 Surface	轧制/碱洗 Forged/alkaline cleaned		矫直/碱洗 Straightened/alkaline cleaned		磨光 Polished		长度公差 Length tolerance (mm)
规格 Size (mm)	直径公差 Dia. Tolerance (mm)	椭圆度 Ovality (mm)	直径公差 Dia. Tolerance (mm)	椭圆度 Ovality (mm)	直径公差 Dia. Tolerance (mm)	椭圆度 Ovality (mm)	
3.0≤d<4.0	±0.10	≤0.10	±0.10	≤0.10	±0.02	≤0.02	300≤L<500±2.0 500≤L<1000±2.5 1000≤L<2000±5.0
4.0≤d<6.0	±0.10	≤0.10	±0.10	≤0.10	±0.03	≤0.03	
6.0≤d<12.0	±0.20	≤0.20	±0.20	≤0.20	±0.03	≤0.03	



钨丝/Coarse tungsten wire



» 用途

Application

主要用于钨丝绳、捆扎丝、引出线等。

It is drawn to prepare tungsten ropes, strapping wire, lead wire, etc.

牌号 Code	用途 Application
CCW92	用于高温炉引出线。 It is used for lead wire in high temperature furnace.
CCW91	用于捆扎丝。 It is used for strapping wire.
CCW61	用于钨丝绳。 It is used for tungsten ropes.

» 规格

Specification

表面状态 Surface	拉制 Drawn		电解抛光 Electropolished	
规格尺寸 Size (mm)	直径公差 Dia. Tolerance (mm)	椭圆度 Ovality (mm)	直径公差 Dia. Tolerance (mm)	椭圆度 Ovality (mm)
0.15≤d<0.35	±0.005	±0.005	±0.005	±0.005
0.35≤d<1.5	±0.01	±0.01	±0.01	±0.01
1.5≤d<2.0	±0.015	±0.015	±0.015	±0.015

» 物理性能

Physical properties

类别 Size D (mm)	单根丝净重 weight of single wire G (kg)	探伤裂点 Split X (split quantity/kg)	脆性 Brittleness	抗拉强度 Tensile strength N/mm ²
0.15≤d<0.35	0.1≤G≤5.5	X≤35	Pass	2100~2700
0.35≤d<0.6	2.0≤G≤5.5	X≤35	Pass	1900~2400
0.6≤d<1.0	2.0≤G≤11	X≤15	Pass	1850~2350
1.0≤d<2.0	2.0≤G≤11	X≤15	Pass	1750~2250
检测 Analysis method	电子秤 Electronic balance	涡流探伤 Eddy current inspection	弯折 Bending test	拉力试验机 Tensile strength tester

注：有特殊要求请在订货时说明。

Remarks: Special requirement should be declared when placing order.

» 规格

Specification

牌号 Code	形状 Shape	规格 Size (mm)	单重 Single weight (kg)	长度 Length (mm)	锥度 Taper (mm)
CCW92 CCW61 CCW91 CCW31	Round	Φ17.0*750	2.65~3.00	720~780	15.5~17.2

» 化学成分

Chemical Composition

牌号 Code	W含量 Tungsten content (wt%)	其它元素最大含量 Max. content of impurities (ppm)					
		K	Fe	Al	Mo	As/Ca/Cr/Mg/ Mn/Na/Ni/Ti/Si	Bi/Cd/ Cu/Pb/Sb/Sn
CCW92	99.95	80 ~ 100	20	15	30	10	5
CCW91	99.95	70 ~ 90	20	15	30	10	5
CCW61	99.95	60 ~ 75	20	15	30	10	5
CCW31	99.95	40 ~ 60	20	15	30	10	5
Analysis method	Minusing	AAS	AAS	ICP	ICP	AAS/ICP	ICP