

# 汉和工业致力于 感应加热 技术应用

## INDUCTION HEATING

### 株洲汉和工业设备有限公司

ZHUZHOU HAN HE INDUSTRIAL EQUIPMENT CO.,LTD.

### 株洲汉和工业设备有限公司

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 **汉和工业**  
INDUCTION HEATING



# 品牌 · 信誉 · 诚信 · 创新

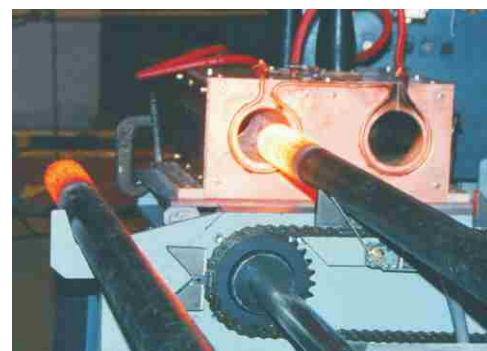
BRAND · REPUTATION ·  
SINCERITY · INNOVATION

以质量求生存、以信誉求永恒、以创新求发展；国际化品质、本土化价格、人性化服务。株洲汉和工业设备有限公司愿与各界朋友竭诚合作，共创繁荣。

We strive for survival by quality, eternity by reputation, development by innovation. We aim to provide customers with international quality, localized price and humanized service. Zhuzhou Hanhe is willing to cooperate with friends from all walks of life to create prosperity together.

## 汉和工业致力于 感应加热 技术应用

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## 汉和工业理念

Concept

秉承专业和敬业的工作精神。

Adhere to professional & dedicated work spirit

以客户为主向导，注重细节。

Customer oriented guide, focusing on details.

为客户创造价值，实现共赢。

Create values for customer, and achieve win-win situation.

## 汉和工业使命

Mission

勇于开拓，锐意进取

Brave to explore and forge ahead with determination.

成就员工，造福世界

Achieve employees and benefit the world.

## 汉和工业愿景

Vision

成为领先全球的管道装备，真空冶金，感应加热领域的高科技企业。

To be a leading global high-tech enterprise in pipeline equipment, vacuum metallurgy, and induction heating fields

## 服务宗旨

Tenet

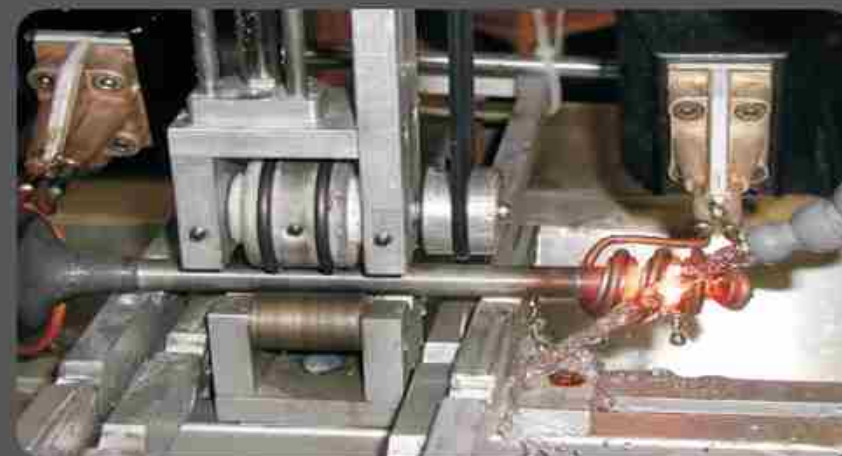
以人为本，诚信务实，创新进取，回报社会

People oriented, honest & pragmatic, innovative & enterprising, and rewarding society



## 产品应用领域 PRODUCT APPLICATIONS

- |                                      |                                        |                                 |                                  |
|--------------------------------------|----------------------------------------|---------------------------------|----------------------------------|
| 1 汽车摩托车<br>Automobile and motorcycle | 3 船舶制造<br>Shipbuilding                 | 5 航空航天<br>Aerospace             | 7 新能源新材料<br>New Energy Materials |
| 2 铁路机车<br>Railway locomotive         | 4 石化核电<br>Petro chemical nuclear power | 6 工程机械<br>Engineering machinery | 8 合金工具<br>Alloy tools            |





# 企业简介 COMPANY PROFILE

株洲汉和工业设备有限公司（以下简称“汉和工业”）位于长株潭国家两型社会实验区核心区一株洲，是一家从事金属制粉、感应加热设备、真空冶金设备、管道成型设备、铁路工装与自动化等产品的研发、生产与销售的专业化高科技企业。

汉和工业拥有现代化厂房1.2万平方米，大型机床加工设备200余台。汉和工业技术力量雄厚，研发能力强，拥有一支由专家、博士组成的研发队伍，并与多家科研机构 and 大学建立了密切合作关系。汉和工业严格执行ISO9001-2015质量管理体系认证，并享有多项专利技术。

汉和工业目前主要产品有：真空/非真空雾化制粉设备，数控中频弯管机，石墨埴碳化炉，碳化硅晶体生长高精度加热电源，真空定向凝固炉，中频碳化炉，真空感应熔炼炉，真空感应烧结炉，CVD气相沉积炉，中频感应透热炉，钢管焊缝退火设备，高中频感应淬火成套设备，感应钎焊设备，坡口机，钢管焊前加热设备，钢管扩径机等。

汉和工业以全心全意为客户创造价值为理念，为各地区客户提供中国优质机电设备咨询和代理进出口业务，为客户提供“交钥匙”工程。做您所想的，为您创造价值，汉和工业与您一起携手共创未来！

Zhuzhou HanHe Industrial Equipment Co., Ltd. is located in the core area of Chang-Zhu-Tan national two oriented society experimental area-Zhuzhou. It is a high-tech enterprise that researches, produces and sales atomization equipment for producing metal powders, induction heating equipment, vacuum metallurgy equipment, pipeline forming equipment, railway tooling & automation products etc. The company has a modern factory with 12000m² area and about 200 sets of manufacturing tools. The company has abundant technical force and strong R&D ability. It is equipped with a team made up of experts and doctors, and establishes close cooperations with many scientific research institution and universities. Hanhe strictly implements ISO9001-2015 quality management system certification, and enjoys a number of patented technologies. At present, the main products of Hanhe include: vacuum / gas atomization equipment, CNC medium frequency pipe bending machine, graphene carbonization furnace, silicon carbide crystal growth high-precision heating power supply, vacuum directional solidification furnace, MF carbonization furnace, vacuum induction melting furnace, vacuum induction sintering furnace, CVD vapor deposition furnace, MF induction diathermy furnace, steel pipe weld annealing equipment, high and medium frequency induction quenching equipment, induction brazing equipment, beveling machine, steel pipe heating equipment before welding, steel pipe expanding machine etc. Zhuzhou Hanhe aims to create value for customers with soul & heart, provide China optimal equipment consultancy, import & export agency business and 'turn-key' project. Do what you think and create value for you. Hanhe is willing to create the future together with you!

## 企业资质 ENTERPRISE QUALIFICATION



## 国际业务 INTERNATIONAL BUSINESS





# 水雾化制粉设备

## WATER ATOMIZING EQUIPMENT

• 用途及原理

WA水雾化制粉设备具体工艺是合金（金属）在感应炉中熔化、精炼后，熔化的金属液体倒入保温坩埚中，并进入导流管，由喷盘喷射出高压水流将金属液撞击破碎成极细小的液滴，金属液滴在雾化塔中进行凝固、降落、然后落入收粉罐中收集，收集后的粉浆经压滤、脱水，最后干燥、筛分。

• Application and principle

The process of (WA) water atomization equipment is that after the alloy (metal) is melted and refined in induction furnace, the molten metal liquid is poured into the heat preservation crucible and enters into the diversion tube. The high-pressure water flow from the spray tray will crush and atomize the metal liquid into very small droplets. The metal droplets will solidify and drop in the atomization tower, and then fall into the powder collecting tank. The collected powder slurry is filtered by pressure dehydration, drying and screening.

| 型号<br>Model | 容 量<br>Capacity(KG) | 电源功率<br>Supply power(KW) | 频 率<br>Freq.(HZ) | 高压泵功率<br>Water pump power(KW) | 高压水压力<br>Water pressure(Mpa) | 最高温度<br>Max. temperature(°C) |
|-------------|---------------------|--------------------------|------------------|-------------------------------|------------------------------|------------------------------|
| WA-1        | 1                   | 20                       | 2500             | 90                            | 25-140                       | 1800                         |
| WA-3        | 3                   | 25                       | 2500             | 90                            | 25-140                       | 1800                         |
| WA-5        | 5                   | 30                       | 2500             | 90                            | 25-140                       | 1800                         |
| WA-10       | 10                  | 60                       | 2500             | 90                            | 25-140                       | 1800                         |
| WA-25       | 25                  | 100                      | 2500             | 90                            | 25-140                       | 1800                         |
| WA-50       | 50                  | 160                      | 1000             | 130                           | 25-140                       | 1800                         |
| WA-100      | 100                 | 200                      | 1000             | 200                           | 25-140                       | 1800                         |
| WA-200      | 200                 | 250                      | 1000             | 200                           | 25-140                       | 1800                         |
| WA-300      | 300                 | 300                      | 1000             | 400                           | 25-140                       | 1800                         |
| WA-500      | 500                 | 400                      | 1000             | 400                           | 25-140                       | 1800                         |
| WA-1000     | 1000                | 800                      | 1000             | 400                           | 25-140                       | 1800                         |

其他规格可按照要求制作。Other specifications can be customized.



ZHUZHOU HAN HE INDUSTRIAL EQUIPMENT CO.,LTD.



# 水气联合雾化制粉设备

## WATER AIR COMBINED ATOMIZATION EQUIPMENT

• 用途及原理

水气联合雾化喷嘴是在高压水雾化喷嘴的基础上增加了气体流道，在雾化过程中进行氮气保护，使粉末在雾化过程中不被氧化，从而有效降低粉末的氧含量。水气联合雾化设备采用循环水，喷雾后的水和粉末混合物通过连续式真空抽滤实现水粉分离，分离后的水再通过高压泵进入管道循环利用。粉末脱水后产生含水10%的粉块进入破碎机进行分散处理。分散的粉末经过带式输送机连续给料到真空干燥料中转料仓，粉末进入连续式真空干燥机进行干燥后，进入粗筛过滤，筛下粉末通过料筒转运到后处理设备精密分级机进行分级，再进入混料机进行合批，得到的成品粉末经过人工转运到包装机上进行袋装。

• Application and principle

The water air combined atomization nozzle adds a gas flow channel on top of the high-pressure water atomization nozzle, which provides nitrogen protection during the atomization process to prevent powder oxidation and effectively reduce the oxygen content of the powder. The water air combined atomization equipment uses circulating water. The mixture of water and powder after spray is separated by continuous vacuum suction filtration, and the separated water is recycled through the high-pressure pump into the pipeline. After the powder is dehydrated, a powder block containing 10% water is generated and enters the crusher for dispersion treatment. The dispersed powder is continuously fed to the vacuum drying material transfer silo through a belt conveyor. After being dried by a continuous vacuum dryer, the powder enters a coarse screen for filtration. The sieved powder is transported to the precision classifier of the post-processing equipment through a material barrel for grading, and then enters the mixing machine for batching. The resulting finished powder is manually transported to the packaging machine for bagging.



| 型号<br>Model | 容 量<br>Capacity(KG) | 电源功率<br>Supply power(KW) | 频 率<br>Freq.(HZ) | 高压泵功率<br>Water pump power(KW) | 高压水压力<br>Water pressure(Mpa) | 最高温度<br>Max. temperature(°C) |
|-------------|---------------------|--------------------------|------------------|-------------------------------|------------------------------|------------------------------|
| WGA-1       | 1                   | 20                       | 2500             | 90                            | 25-140                       | 1800                         |
| WGA-3       | 3                   | 25                       | 2500             | 90                            | 25-140                       | 1800                         |
| WGA-5       | 5                   | 30                       | 2500             | 90                            | 25-140                       | 1800                         |
| WGA-10      | 10                  | 60                       | 2500             | 90                            | 25-140                       | 1800                         |
| WGA-25      | 25                  | 100                      | 2500             | 90                            | 25-140                       | 1800                         |
| WGA-50      | 50                  | 160                      | 1000             | 130                           | 25-140                       | 1800                         |
| WGA-100     | 100                 | 200                      | 1000             | 200                           | 25-140                       | 1800                         |
| WGA-200     | 200                 | 250                      | 1000             | 200                           | 25-140                       | 1800                         |
| WGA-300     | 300                 | 300                      | 1000             | 400                           | 25-140                       | 1800                         |
| WGA-500     | 500                 | 400                      | 1000             | 400                           | 25-140                       | 1800                         |
| WGA-1000    | 1000                | 800                      | 1000             | 400                           | 25-140                       | 1800                         |

其他规格可按照要求制作。Other specifications can be customized.



# 气雾化制粉设备

## GAS ATOMIZATION EQUIPMENT

- 用途及原理  
气雾化制粉设备是在气体保护下熔炼金属和金属合金，金属液体经过保温坩埚、导流嘴向下流出，由高压气流将金属液体雾化破碎成大量细小的液滴，细小的液滴在飞行中凝固成球形和亚球形颗粒，再经筛选分离达到制备各种粒度的金属粉末。
- 特点  
可以制备大多数不能采用水雾化方法制造的金属及合金粉末；  
可以制备球型或亚球型粉末；  
由于凝固克服了偏析现象，可以制取许多特殊合金粉末；  
采用合适的工艺，可以使粉末粒度达到一个要求范围。

● Application and principle  
Gas atomization equipment is to melt metal and metal alloy under the protection of gas. The metal liquid flows down through the heat preservation crucible and guide nozzle, then is crushed and atomized into a large number of small droplets by high-pressure air flow. The small droplets solidify into spherical and sub-spherical particles in flight. Through screening and separation, metal powders with various particle sizes can be prepared.

● Features  
Most metal and alloy powders that cannot be manufactured by water atomization can be prepared by gas atomization technology;  
Spherical or sub- spherical powders can be prepared;  
Due to the elimination of segregation during solidification, many special alloy powders can be prepared;  
The powder size can reach a required range with appropriate process.

| 型号<br>Model | 容 量<br>Capacity(KG) | 电源功率<br>Supply power(KW) | 频 率<br>Freq.(HZ) | 冷却水量<br>Cooling water flow(T/h) | 冷却水压力<br>Cooling water pressure(Mpa) | 最高温度<br>Max. temperature(°C) |
|-------------|---------------------|--------------------------|------------------|---------------------------------|--------------------------------------|------------------------------|
| GA-1        | 1                   | 20                       | 2500             | 8-12                            | 0.3                                  | 1800                         |
| GA-3        | 3                   | 25                       | 2500             | 8-12                            | 0.3                                  | 1800                         |
| GA-5        | 5                   | 30                       | 2500             | 8-12                            | 0.3                                  | 1800                         |
| GA-10       | 10                  | 60                       | 2500             | 15-20                           | 0.3                                  | 1800                         |
| GA-25       | 25                  | 100                      | 2500             | 15-20                           | 0.3                                  | 1800                         |
| GA-50       | 50                  | 160                      | 1000             | 30-40                           | 0.3                                  | 1800                         |
| GA-100      | 100                 | 200                      | 1000             | 30-40                           | 0.3                                  | 1800                         |
| GA-200      | 200                 | 250                      | 1000             | 50-60                           | 0.3                                  | 1800                         |
| GA-300      | 300                 | 300                      | 1000             | 60-80                           | 0.3                                  | 1800                         |
| GA-500      | 500                 | 400                      | 1000             | 60-80                           | 0.3                                  | 1800                         |
| GA-1000     | 1000                | 800                      | 1000             | 80-100                          | 0.3                                  | 1800                         |

其他规格可按照要求制作。Other specifications can be customized.





# 真空气雾化制粉系统（VIGA法）

## VACUUM INDUCTION MELTING GAS ATOMIZATION(VIGA) SYSTEM

- 用途及原理  
真空气雾化工作原理是在真空状态气体保护条件下熔炼金属和金属合金，金属液体经过保温坩埚、导流嘴向下流出，通过喷嘴由高压气流将金属液体雾化破碎成大量细小的液滴。细小的液滴在飞行中凝固成球形和亚球形颗粒，再经筛选分离达到制备各种粒度的金属粉末。  
生产容量范围：1-1000kg。可以制备铁基，钴基，镍基，铝基，铜基等金属粉末。
- 特点  
1. 液滴在下降的过程中，快速凝固，克服了偏析现象，组织均匀。  
2. 采用陶瓷或石墨坩埚中频感应加热熔炼合金材料，通过精炼及纯净导流技术有效提纯。  
3. 采用超音速紧耦合和限制式气雾化喷嘴技术，可实现多种合金材料微细粉体的制备。  
4. 采用二级旋风分级收集系统设计，提高细粉收得率，减少或杜绝微细粉尘排放。

● Application and principle  
The metal & metal alloy are melted under vacuum conditions with protective gas. The metal liquid flows through thermal insulating crucible and diversion tube to the atomizing chamber. Meanwhile, the liquid will be cracked & atomized into small droplets by high pressure air flow via tight coupling nozzle. The droplet will solidify into spherical or semi-spherical particles during falling down.  
Production capacity：1-1000kg. The system can produce Iron-based, Co-based, Ni-based, Al-based, Copper-based metal powders etc.

● Features  
1.The droplets rapidly solidify during falling down and overcome segregation phenomenon.  
2.Adopt ceramic or graphite crucible induction heating process to melt alloy material. Effective purification can be achieved by finishing & pure diversion technology.  
3.The production of fine powders of various alloy materials can be realized by adopting the supersonic tight coupling and restriction atomizing nozzle technology.  
4.Secondary cyclone separator collection system can improve powder obtaining rate and reduce dust emission.



| 型号<br>Model | 容 量<br>Capacity(KG) | 电源功率<br>Supply power(KW) | 频 率<br>Freq.(HZ) | 高压泵功率<br>Water pump power(KW) | 高压水压力<br>Water pressure(Mpa) | 最高温度<br>Max. temperature(°C) |
|-------------|---------------------|--------------------------|------------------|-------------------------------|------------------------------|------------------------------|
| VIGA-1      | 1                   | 20                       | 2500             | 8-12                          | 0.3                          | 1800                         |
| VIGA-3      | 3                   | 25                       | 2500             | 8-12                          | 0.3                          | 1800                         |
| VIGA-5      | 5                   | 30                       | 2500             | 8-12                          | 0.3                          | 1800                         |
| VIGA-10     | 10                  | 60                       | 2500             | 15-20                         | 0.3                          | 1800                         |
| VIGA-25     | 25                  | 100                      | 2500             | 15-20                         | 0.3                          | 1800                         |
| VIGA-50     | 50                  | 160                      | 1000             | 30-40                         | 0.3                          | 1800                         |
| VIGA-100    | 100                 | 200                      | 1000             | 30-40                         | 0.3                          | 1800                         |
| VIGA-200    | 200                 | 250                      | 1000             | 50-60                         | 0.3                          | 1800                         |
| VIGA-300    | 300                 | 300                      | 1000             | 60-80                         | 0.3                          | 1800                         |
| VIGA-500    | 500                 | 400                      | 1000             | 60-80                         | 0.3                          | 1800                         |
| VIGA-1000   | 1000                | 800                      | 1000             | 80-100                        | 0.3                          | 1800                         |

其他规格可按照要求制作。Other specifications can be customized.



# 电极感应熔炼气雾化制粉系统（EIGA法）

## ELECTRODE INDUCTION MELTING GAS ATOMIZATION (EIGA) SYSTEM

- 用途及原理
- EIGA电极感应熔炼惰性气体雾化制粉设备将预制好的电极棒材在无陶瓷坩埚的惰性气体环境中进行区域精炼，金属液体连续垂直穿过喷嘴，由高速气流将熔融金属雾化破碎成大量细小的液滴，液滴在飞行中固化形成球形粉末。粉末气体混合物通过输送管送至水冷式旋风分离器中进行分离。细小的金属粉末被收集在真空密封的收粉罐中。
- 特点
1. 不与水冷坩埚和导流管接触，材料不会发生污染，EIGA技术几乎适合制备所有活性材料、难熔金属粉末等。  
 2. 技术优化实现粉末粒度分布、球形度和增氧量等技术指标的有效控制。  
 3. 二级旋风分级收集系统设计，提高粉末收得率，减少或杜绝微细粉尘排放。  
 4. 进口欧洲专业喷嘴技术及生产工艺。
- Application and principle
- EIGA electrode induction melting inert gas atomization equipment melts & refines the prefabricated electrode bar in inert gas environment without ceramic crucible. The molten metal passes through the nozzle continuously and vertically. The molten metal is crushed and atomized into a large number of small droplets by high-speed air flow, and the droplets solidify in flight to form spherical powder. The powder gas mixture is sent to the water-cooled cyclone separator for separation through the conveying tube. Fine metal powder is collected in a vacuum sealed powder collector.
- Features
- 1.Without in contact with water-cooled crucible or diversion tube, the material will not be polluted. EIGA technology is suitable for producing almost all active materials and refractory metal powders.  
 2.Technical optimization can achieve effective control of powder particle size distribution, sphericity and oxygen content.  
 3.The design of two-stage cyclone classification collection system can improve the yield of powder and reduce or eliminate the emission of fine dust.  
 4.Imported European professional nozzle technology and production process.

| 型号<br>Model | 电源功率<br>Supply power(KW) | 频 率<br>Freq.(KHZ) | 冷却水量<br>Cooling water flow(T/h) | 冷却水压力<br>Cooling water pressure(Mpa) | 最高温度<br>Max. temperature(°C) | 极限真空度<br>Limit vacuum(Pa) |
|-------------|--------------------------|-------------------|---------------------------------|--------------------------------------|------------------------------|---------------------------|
| EIGA-50/500 | 100                      | 200               | 8-12                            | 0.3                                  | 2000                         | 6.67×10 <sup>-3</sup>     |
| EIGA-80/800 | 160                      | 200               | 8-12                            | 0.3                                  | 2000                         | 6.67×10 <sup>-3</sup>     |

其他规格可按照要求制作。Other specifications can be customized.



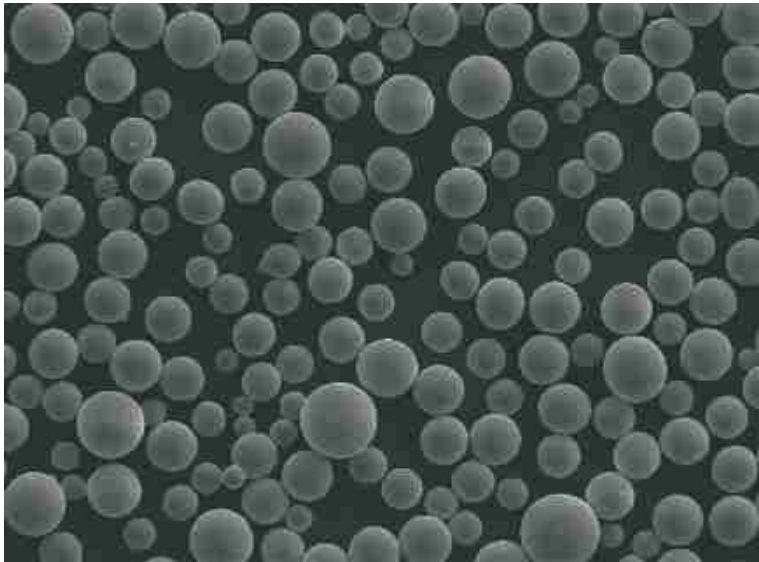


# 离心雾化制粉设备

## CENTRIFUGAL ATOMIZATION EQUIPMENT

- 用途及原理
- 离心雾化制粉设备原理是在合适的真空条件保护下熔炼金属或金属合金，金属溶液通过限流导出装置流向高速旋转盘中心，然后沿径向分布，在旋转盘上面形成一层金属溶液薄膜，在惯性和离心的作用下，金属溶液薄膜到达旋转盘边缘，雾化成液滴，细小的液滴在飞行中凝固成颗粒。粉末气体混合物通过输送管送至收集密封容器中。
- 生产容量范围：1-1000kg，额定温度：1750°C。
- 特点
1. 主要应用于高等级、高技术要求金属粉末的生产；  
 2. 高球形度、高纯度、低含氧量、快速凝固、均匀微观结构。

- Application and principle
- The centrifugal atomization equipment is to melt metal or alloy under the protection of appropriate vacuum conditions. The metal liquid flows to the center of the high-speed rotating disk through the flow limiting device, and then distributes along the radial direction. Under the action of inertia and centrifugation, the metal solution film reaches the edge of the rotating disk and atomizes into droplets. The small droplets solidify into particles in flight. The powder gas and mixture is sent to the collection sealed container through the delivery tube.
- Production capacity：1-1000kg, Rated temperature：1750°C.
- Features
- 1.Mainly used in the production of high-grade and high-tech metal powder;  
 2.High sphericity, high purity, low oxygen content, rapid solidification and uniform microstructure.





# 等离子球化制粉设备

## PLASMA SPHEROIDIZING EQUIPMENT

• 用途及原理

等离子体粉末球化技术原理，是在高频电源作用下，惰性气体(如氩气)被电离，形成稳定的高温惰性气体等离子体；形状不规则的原料粉末用运载气体（氮气）经送粉器喷入等离子炬中，粉末颗粒在高温等离子体中吸收大量的热，表面迅速熔化；并以极高的速度进入反应器，在惰性气氛下快速冷却，在表面张力的作用下，冷却凝固成球形粉末；再进入收料室中收集。

生产能力：1-40kg/h

• 特点

1. 加热温度高、冷却速度快、无电极污染；
2. 反应物料在等离子体中动态分散，可以避免粉体的团聚和长大，适合进行粉体的熔融球化；
3. 可以制备钨、钼、Ti、W、WC、氧化铝、氧化硅、氧化锆等高温难熔金属及其它化合物粉体材料；
4. 粉末形状规则球化率高，表面光洁，流动性好；粉末致密性和堆积密度增大。

• Application and principle

The principle of plasma powder spheroidization technology is that under the action of high frequency power supply, inert gas (such as argon) is ionized to form a stable high-temperature inert gas plasma. The irregular shape of raw powder is sprayed into the plasma torch with carrier gas (such as N2) through the powder feeder. The powder particles absorb a large amount of heat in the high-temperature plasma. The powder particles surface melts rapidly and enters the reactor and cools rapidly in inert atmosphere at a very high speed and then solidify into spherical powder under the action of surface tension and then is collected in the collection chamber.

Production capacity：1-40kg/h

• Features

1. High heating temperature, fast cooling speed, without electrode pollution;
2. The dynamic dispersion of the reactants in the plasma can avoid the agglomeration and growth of the powders, which is suitable for the melting spheroidization of the powders;
3. Tungsten, molybdenum, Ti, W, WC, alumina, silicon oxide, zirconia and other refractory metals can be prepared;
4. The powder has regular high spheroidization rate shape, smooth surface and good fluidity, and its compactness and bulk density increase.





# WGY系列中频感应加热弯管机

## WGY SERIAL MEDIUM FREQUENCY INDUCTION HEATING PIPE BENDING MACHINE

• 用途及原理

WGY液压弯管机是将钢管两端固定，以一端设置好的弯曲半径，另一端保持匀速推进绕弯，通过电磁感应线圈将钢管局部加热，弯曲时以液压为动力，采用合适的冷却介质连续冷却定型到所需要的弯曲角度。用于各种圆形或方型钢管，不锈钢管，工字钢热弯，适用于石油，化工，冶金，钢结构，锅炉等工程。

• Application and principle

WGY hydraulic pipe bending machine is to fix both ends of the steel pipe. Set the bending radius at one end, and push the other end forward to bend at a constant speed. The steel pipe is locally heated by electromagnetic induction coil. When bending, the steel pipe is driven by hydraulic cylinder and cooled continuously with appropriate cooling medium to the required bending angle.It can be used for the hot bending of various types of round or square steel pipe, stainless steel pipe and joist steel; and is applicable to petroleum, chemical industry, metallurgy, steel structure and boiler etc.



WGY系列中频感应加热弯管机技术参数表：
 Technical parameters of WGY serial pipe bending machine：

| 型号<br>Model | 管径范围(mm)<br>Pipe diameter | 最大弯管壁厚(mm)<br>Max wall thickness<br>of the bent pipe | 最大推力(T)<br>Max thrust | 弯曲半径R<br>Bending<br>radius | 弯曲角度<br>Angle of<br>bending | 弯管速度mm/s<br>Speed of pipe<br>bending | 快退速度mm/min<br>Speed of quick return | 感应加热功率KW<br>Induction<br>heating power |
|-------------|---------------------------|------------------------------------------------------|-----------------------|----------------------------|-----------------------------|--------------------------------------|-------------------------------------|----------------------------------------|
| WGY-219     | φ 76-219                  | 18/25/40                                             | 60                    | ≥1.5D                      | 0-180                       | 0.3-4                                | 1000                                | 160                                    |
| WGY-325     | φ 76-325                  | 18/25/40                                             | 70                    | ≥2.5D                      | 0-180                       | 0.25-3                               | 1000                                | 200                                    |
| WGY-426     | φ 108-426                 | 18/25/40                                             | 100                   | ≥3 D                       | 0-180                       | 0.25-3                               | 1000                                | 250                                    |
| WGY-530     | φ 159-529                 | 18/25/40                                             | 120                   | ≥3 D                       | 0-180                       | 0.2-3                                | 1000                                | 300                                    |
| WGY-630     | φ 159-630                 | 18/25/40                                             | 160                   | ≥3 D                       | 0-180                       | 0.2-3                                | 1000                                | 400                                    |
| WGY-720     | φ 219-720                 | 18/25/40                                             | 180                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 500                                    |
| WGY-830     | φ 219-830                 | 18/25/40                                             | 220                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 550                                    |
| WGY-1020    | φ 426-1020                | 18/25/40                                             | 260                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 600                                    |
| WGY-1220    | φ 529-1220                | 18/25/40                                             | 300                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 700                                    |
| WGY-1420    | φ 630-1420                | 18/25/40                                             | 350                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 800                                    |

其他规格可按照要求制作。Other specifications can be customized.



# WGYP系列机械式感应加热弯管机

## WGYP SERIAL MECHANICAL INDUCTION HEATING PIPE BENDING MACHINE

• 用途及原理

WGYP系列弯管机是将钢管两端固定，以一端设置好的弯曲半径，另一端保持匀速推进绕弯，通过电磁感应线圈将钢管局部加热，弯曲时以链条驱动为动力，采用合适的冷却介质连续冷却定型到所需要的弯曲角度。用于各种圆形或方型钢管，不锈钢管，工字钢热弯，适用于石油，化工，冶金，钢结构，锅炉等工程。

• Application and principle

WGYP serial pipe bending machine is to fix both ends of the steel pipe. Set the bending radius at one end, and push the other end forward to bend at a constant speed. The steel pipe is locally heated by electromagnetic induction coil. When bending, the steel pipe is driven by chain link and cooled continuously with appropriate cooling medium to the required bending angle.It can be used for the hot bending of various types of round or square steel pipe, stainless steel pipe and joist steel; and is applicable to petroleum, chemical industry, metallurgy, steel structure and boiler etc.



WGYP系列机械式中频感应加热弯管机技术参数表：  
Technical parameters of WGYP serial pipe bending machine：

| 型号<br>Model | 管径范围(mm)<br>Pipe diameter | 最大弯管壁厚(mm)<br>Max wall thickness<br>of the bent pipe | 最大推力(T)<br>Max thrust | 弯曲半径R<br>Bending<br>radius | 弯曲角度<br>Angle of<br>bending | 弯管速度mm/s<br>Speed of pipe<br>bending | 快退速度mm/min<br>Speed of quick return | 感应加热功率KW<br>Induction<br>heating power |
|-------------|---------------------------|------------------------------------------------------|-----------------------|----------------------------|-----------------------------|--------------------------------------|-------------------------------------|----------------------------------------|
| WGYP-219    | φ 76-219                  | 18/25/40                                             | 60                    | ≥1.5D                      | 0-180                       | 0.3-4                                | 1000                                | 160                                    |
| WGYP-325    | φ 76-325                  | 18/25/40                                             | 70                    | ≥2.5D                      | 0-180                       | 0.25-3                               | 1000                                | 200                                    |
| WGYP-426    | φ 108-426                 | 18/25/40                                             | 100                   | ≥3 D                       | 0-180                       | 0.25-3                               | 1000                                | 250                                    |
| WGYP-530    | φ 159-529                 | 18/25/40                                             | 120                   | ≥3 D                       | 0-180                       | 0.2-3                                | 1000                                | 300                                    |
| WGYP-630    | φ 159-630                 | 18/25/40                                             | 160                   | ≥3 D                       | 0-180                       | 0.2-3                                | 1000                                | 400                                    |
| WGYP-720    | φ 219-720                 | 18/25/40                                             | 180                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 500                                    |
| WGYP-830    | φ 219-830                 | 18/25/40                                             | 220                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 550                                    |
| WGYP-1020   | φ 426-1020                | 18/25/40                                             | 260                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 600                                    |
| WGYP-1220   | φ 529-1220                | 18/25/40                                             | 300                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 700                                    |
| WGYP-1420   | φ 630-1420                | 18/25/40                                             | 350                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 800                                    |

其他规格可按照要求制作。Other specifications can be customized.

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# WGYP系列一轴数控感应加热弯管机

## WGYP SERIAL 1-AXLE CNC INDUCTION HEATING PIPE BENDING MACHINE

• 用途及原理

WGYP系列弯管机是将钢管两端固定，以一端设置好的弯曲半径，另一端保持匀速推进绕弯，通过电磁感应线圈将钢管局部加热，弯曲时以精密丝杠驱动为动力，采用合适的冷却介质连续冷却定型到所需要的弯曲角度。用于各种圆形或方型钢管，不锈钢管，工字钢热弯，适用于石油，化工，冶金，钢结构，锅炉等工程。

• Application and principle

WGYP serial pipe bending machine is to fix both ends of the steel pipe. Set the bending radius at one end, and push the other end forward to bend at a constant speed. The steel pipe is locally heated by electromagnetic induction coil. When bending, the steel pipe is driven by precise screw rod and cooled continuously with appropriate cooling medium to the required bending angle.It can be used for the hot bending of various types of round or square steel pipe, stainless steel pipe and joist steel; and is applicable to petroleum, chemical industry, metallurgy, steel structure and boiler etc.



WGYP系列一轴数控感应加热弯管机技术参数表：  
Technical parameters of WGYP serial pipe bending machine

| 型号<br>Model | 管径范围(mm)<br>Pipe diameter | 最大弯管壁厚(mm)<br>Max wall thickness<br>of the bent pipe | 最大推力(T)<br>Max thrust | 弯曲半径R<br>Bending<br>radius | 弯曲角度<br>Angle of<br>bending | 弯管速度mm/s<br>Speed of pipe<br>bending | 快退速度mm/min<br>Speed of quick return | 感应加热功率KW<br>Induction<br>heating power |
|-------------|---------------------------|------------------------------------------------------|-----------------------|----------------------------|-----------------------------|--------------------------------------|-------------------------------------|----------------------------------------|
| WGYP-219    | φ 76-219                  | 18/25/40                                             | 60                    | ≥1.5D                      | 0-180                       | 0.3-4                                | 1000                                | 160                                    |
| WGYP-325    | φ 76-325                  | 18/25/40                                             | 70                    | ≥2.5D                      | 0-180                       | 0.25-3                               | 1000                                | 200                                    |
| WGYP-426    | φ 108-426                 | 18/25/40                                             | 100                   | ≥3 D                       | 0-180                       | 0.25-3                               | 1000                                | 250                                    |
| WGYP-530    | φ 159-529                 | 18/25/40                                             | 120                   | ≥3 D                       | 0-180                       | 0.2-3                                | 1000                                | 300                                    |
| WGYP-630    | φ 159-630                 | 18/25/40                                             | 160                   | ≥3 D                       | 0-180                       | 0.2-3                                | 1000                                | 400                                    |
| WGYP-720    | φ 219-720                 | 18/25/40                                             | 180                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 500                                    |
| WGYP-830    | φ 219-830                 | 18/25/40                                             | 220                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 550                                    |
| WGYP-1020   | φ 426-1020                | 18/25/40                                             | 260                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 600                                    |
| WGYP-1220   | φ 529-1220                | 18/25/40                                             | 300                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 700                                    |
| WGYP-1420   | φ 630-1420                | 18/25/40                                             | 350                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 800                                    |

其他规格可按照要求制作。Other specifications can be customized.



# WGYD系列二轴数控感应加热弯管机

## WGYD SERIAL 2-AXLE CNC INDUCTION HEATING PIPE BENDING MACHINE

• 用途及原理

WGYD系列弯管机是将钢管两端固定，以一端设置好的弯曲半径，另一端保持匀速推进绕弯，通过电磁感应线圈将钢管局部加热，弯曲时以重型丝杠驱动为动力，采用合适的冷却介质连续冷却定型到所需要的弯曲角度。用于各种圆形或方型钢
 管，不锈钢管，工字钢热弯，适用于石油，化工，冶金，钢结构，锅炉等工程。

• Application and principle

WGYD serial pipe bending machine is to fix both ends of the steel pipe. Set the bending radius at one end, and push the other end forward to bend at a constant speed. The steel pipe is locally heated by electromagnetic induction coil. When bending, the steel pipe is driven by heavy screw rod and cooled continuously with appropriate cooling medium to the required bending angle.It can be used for the hot bending of various types of round or square steel pipe, stainless steel pipe and joist steel; and is applicable to petroleum, chemical industry, metallurgy, steel structure and boiler etc.



WGYD系列二轴数控感应加热弯管机技术参数表：
 Technical parameters of WGYD serial pipe bending machine

| 型号<br>Model | 管径范围(mm)<br>Pipe diameter | 最大弯管壁厚(mm)<br>Max wall thickness<br>of the bent pipe | 最大推力(T)<br>Max thrust | 弯曲半径R<br>Bending<br>radius | 弯曲角度<br>Angle of<br>bending | 弯管速度mm/s<br>Speed of pipe<br>bending | 快退速度mm/min<br>Speed of quick return | 感应加热功率KW<br>Induction<br>heating power |
|-------------|---------------------------|------------------------------------------------------|-----------------------|----------------------------|-----------------------------|--------------------------------------|-------------------------------------|----------------------------------------|
| WGYD-219    | φ 76-219                  | 18/25/40                                             | 60                    | ≥1.5D                      | 0-180                       | 0.3-4                                | 1000                                | 160                                    |
| WGYD-325    | φ 76-325                  | 18/25/40                                             | 70                    | ≥2.5D                      | 0-180                       | 0.25-3                               | 1000                                | 200                                    |
| WGYD-426    | φ 108-426                 | 18/25/40                                             | 100                   | ≥3 D                       | 0-180                       | 0.25-3                               | 1000                                | 250                                    |
| WGYD-530    | φ 159-529                 | 18/25/40                                             | 120                   | ≥3 D                       | 0-180                       | 0.2-3                                | 1000                                | 300                                    |
| WGYD-630    | φ 159-630                 | 18/25/40                                             | 160                   | ≥3 D                       | 0-180                       | 0.2-3                                | 1000                                | 400                                    |
| WGYD-720    | φ 219-720                 | 18/25/40                                             | 180                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 500                                    |
| WGYD-830    | φ 219-830                 | 18/25/40                                             | 220                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 550                                    |
| WGYD-1020   | φ 426-1020                | 18/25/40                                             | 260                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 600                                    |
| WGYD-1220   | φ 529-1220                | 18/25/40                                             | 300                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 700                                    |
| WGYD-1420   | φ 630-1420                | 18/25/40                                             | 350                   | ≥3 D                       | 0-180                       | 0.15-2.5                             | 800                                 | 800                                    |

其他规格可按照要求制作。Other specifications can be customized.

ZHUZHOU HAN HE INDUSTRIAL EQUIPMENT CO.,LTD.



# 电机端环感应钎焊设备

## MOTOR END-RING INDUCTION WELDING EQUIPMENT



• 用途

大中型电机转子端环铜钎焊，磁极线圈接头，电器触头，盾构刀具，掘进机截齿及其他工
 件平面硬钎焊，产品适应船用，矿用，铁路牵引电机，隧道工程和煤矿机械等行业。

• 特点

采用晶体管感应加热电源，加热效率高，焊接质量好，焊接适应于整体钎焊和分段焊接，
 满足银基和铜基合金钎焊材料加热需要，焊接强度和导电性能均满足工艺。全球领先的焊接工
 艺支持，减少用户许多焊接的问题。

• 设备组成

设备由晶体管变频电源、中频焊接变压器、红外线测温仪、感应加热器、水冷机组和焊接
 辅助机床组成。

• Application

Used for large and middle scale electrical machinery rotor ring copper brazing, magnetic pole coil joint, electrical contact, shield cutter, roadheader cutter and other workpiece plane brazing, suitable for marine, mining, railway traction motor, tunnel engineering and coal mining machinery and other industries.

• Features

Transistor induction heating power source is adopted, with high efficiency and good welding quality. The welding is suitable for integral welding and sequence welding. It can meet the requirements for heating of silver-based and copper-based alloy brazing material and both the welding strength and the conductivity can meet the technological requirements. Global leading welding procedure is adopted to solve many problems regarding the welding for the users.

• Composition

The device is made up of middle frequency power, middle frequency transformer, infrared thermometer, induction heater and welding machine tool.

主要技术参数Main technical parameters

| 型 号<br>Model | 额定功率( KW )<br>Rated power | 频率 ( KHZ )<br>freq. | 最大直径( mm )<br>Max. Diameter | 最大厚度( mm )<br>Max. Height | 加热时间<br>Heating time ( min ) | 加热温度(℃)<br>Heating temperature | 水冷流量( T/h )<br>Water flow |
|--------------|---------------------------|---------------------|-----------------------------|---------------------------|------------------------------|--------------------------------|---------------------------|
| MFSC-100     | 100                       | 5-15                | φ 350                       | 10-40                     | ≤4                           | 850                            | 1.5-2                     |
| MFSC-160     | 160                       | 6-10                | φ 550                       | 10-80                     | ≤4                           | 850                            | 1.7-2.3                   |
| MFSC-250     | 250                       | 6-10                | φ 750                       | 10-100                    | ≤6                           | 850                            | 3-5                       |
| MFSC-300     | 300                       | 4-10                | φ 900                       | 10-100                    | ≤8                           | 850                            | 4-6                       |
| MFSC-400     | 400                       | 3-10                | φ 1050                      | 10-120                    | ≤12                          | 850                            | 5-7                       |
| MFSC-500     | 500                       | 3-10                | φ 1200                      | 10-150                    | ≤12                          | 850                            | 8-10                      |
| MFSC-600     | 600                       | 3-10                | φ 1500                      | 10-200                    | ≤12                          | 850                            | 10-12                     |

其他规格可按照要求制作。Other specifications can be customized.

## 复合锅底电子管高频钎焊设备 COMPOUND POT BOTTOM BRAZING MACHINE

- 用途  
各种不锈钢锅、煲、壶等餐具的复合底焊接，也可以其他平面工件加热场合。
- 特点  
电子管GGP变频电源，电器性能稳定，效率高，采用局部感应加热焊接，抛光工作量少，感应器中心和边缘温度可调整，加热均匀，整体机电一体化设计，安装极为简单，设置加热，保温，保压冷却时间，方便用户调整参数，焊接压力可以自动根据设定压力范围转换，循环水处理系统，高性能数字流量监控，采用PLC自动控制和保护系统。
- Application  
Compound bottom welding for all kinds of stainless pots, and also heating for other plain work-piece.
- Features  
The electronic tube GGP frequency conversion power supply has stable electrical performance and high efficiency. It adopts local induction heating welding and has less polishing workload. The temperature of inductor center and edge can be adjusted and heated evenly. The whole mechatronics design is extremely simple to install. The setting of heating, heat preservation, pressure maintaining and cooling time is very simple. It is convenient for users to adjust parameters. Welding pressure can be automatically converted according to the set pressure range, circulating water treatment system, high-performance digital flow monitoring, PLC automatic control and protection system.



## 截齿/盾构刀具钎焊设备 BRAZING EQUIPMENT FOR PICK/ SHIELD CUTTER

## 便携式感应钎焊设备 PORTABLE INDUCTION WELDING EQUIPMENT

- 用途  
本成套设备用于闭式冷却塔冷却器铜管接头等需要移动场合的感应加热钎焊。
- 特点  
本产品加热电源采用国际最先进的高速IGBT晶体管变频装置，它将50Hz三相工频电能转换成单相高中频电能。该设备应用电磁感应原理在空气、真空与保护气体环境下置工件于交变磁场中，产生涡流损耗而发热，达到熔炼、透热、淬火等加热的要求。这种加热方式，具有加热速度快、烧损少、劳动强度低、产品质量好等优点。较以往老式电子管高频电源节能35%，较以往老式可控硅中频电源节能20%，又无可控硅中频噪音；本产品以极其优越的性能，在机械零部件焊接和热处理行业占有不可替代的地位。
- 组成  
设备由晶体管高频电源、远程柔性输出电缆、感应加热线圈、输出电缆吊架、闭式冷水机组组成。
- Application  
Used for induction heating brazing of copper pipe joints of cooler of the closed cooling tower.
- Features  
The heating power supply of this product adopts the most advanced high-speed IGBT transistor frequency conversion device, which converts the 50Hz three-phase power frequency electric energy into the single-phase high-frequency electric energy. This equipment applies the principle of electromagnetic induction to place the workpiece in alternating magnetic field under the environment of air, vacuum and protective gas, which produces eddy current loss and generates heat, which meets the requirements of smelting, diathermy and quenching. This heating method has the advantages of high heating speed, less burning loss, low labor intensity and good product quality. Compared with the old-fashioned electronic tube high-frequency power supply, it can save energy by 35% and 20% compared with the old-fashioned thyristor medium frequency power supply, and has no SCR medium frequency noise. With extremely superior performance, this product occupies an irreplaceable position in the mechanical parts welding and heat treatment industry.
- Composition  
Transistor high frequency power supply, remote soft output cable, induction heating coil, output cable hanger, closed cooling tower etc.





# 真空定向凝固炉

## VACUUM DIRECTIONAL SOLIDIFICATION FURNACE

- 用途

太阳能级硅锭制造，也可以用于其他半导体材料提纯。
- 特点

控制精度高，结晶速度自由调节，采用石墨电阻或感应加热熔炼法，增加熔液搅拌，熔炼速度快。定向凝固保温采用特制加热电源，具有三相电流平衡，维护费用低，采用恒温度控制仪，可设置148段加热工艺曲线，炉室采用高真空炉体，真空度高，抽气速度快。
- 主要技术参数

熔炼容量：10-450KG

电源功率：40-450KW

设计温度：1700℃

工作温度：1550℃

升温速率：40℃/Min

炉温均匀性：+5℃

极限真空度：6.67x10-2Pa

压升率：0.01PaL/S

额定充气压力：0.05Mpa

铸锭方式：坩埚下降/保温桶提升定向凝固

伺服控制范围：0.01mm-6mm/Min

定向凝固速率：0.01mm-0.5mm/Min

坩埚快速返回速度：80-100mm/Min
- Application

For solar ingot production and refining of semiconductor materials.
- Features

High control precision, free adjustment of crystallization speed, graphite resistance or induction heating melting method, increasing melt stirring, fast melting speed. Special heating power supply is adopted for directional solidification heat preservation, which has three-phase current balance and low maintenance cost. 148 heating process curves can be set with constant temperature controller. High vacuum furnace body is used in furnace chamber, which has high vacuum degree and fast pumping speed.
- Main technical parameters

Melting capacity: 10-450KG

Power: 40-450KW

Design temperature: 1700℃

Working temperature: 1550℃

Temperature rising rate: 40℃/Min

Furnace temperature uniformity: +5℃

Limit vacuum: 6.67x10-2Pa

Pressure rising rate: 0.01PaL/S

Rated inflation pressure: 0.05Mpa

Casting ingot method: Directional solidification with crucible falling/ holding furnace lifting

Servo control range: 0.01mm-6mm/Min

Directional solidification rate: 0.01mm-0.5mm/Min

Crucible fast return speed: 80-100mm/Min





# PI膜/石墨烯膜真空脱焦碳化多功能炉

## PI FILM / GRAPHENE VACUUM DECARBONIZATION AND CARBONIZATION FURNACE

- 用途：新型导热石墨膜/PI膜/石墨烯膜材料前级真空负压脱焦和中温碳化处理。
- 特点

1600℃的高温，温度均匀性≤5℃

测温精度0.3%，控温精度+1℃

极限真空度可按照工艺需要设置

炉膛气氛可控，可通丙烯/甲烷/高纯氮/氩气

清洁真空炉室设计，附带专业排胶系统

西门子PC平板电脑监控，提供最可靠的安全保护

性能优越的保温材料，延长炉衬保温层使用寿命

超大容量存储，提供全年工作参数记录

快速热交换冷却系统，减少1/3的降温速度

- Application
- Vacuum decarbonization and intermediate temperature carbonization for a new type conductive graphite film / PI film / graphene film material.
- Features
- 1600℃ high temperature, temperature uniformity ≤5%.
- Detecting temperature accuracy 0.3%, temperature control accuracy +1℃ .
- Limiting vacuum degree can be set as per technological requirement.
- Furnace chamber atmosphere controllable, suitable for propylene/methane/high purity nitrogen/argon.
- Clean vacuum furnace chamber design, with professional glue discharging system.
- Siemens PC monitoring provides reliable safe protection.
- Optimal insulation material increases the service life of furnace lining insulation layer.
- Large capacity storage memory provides annual working parameter records.
- Fast heat exchange cooling system can reduce the cooling rate by 1/3.

主要技术参数Main technical parameters

| 型号<br>Model | 装料区尺寸<br>Loading area size(mm) | 有效容积<br>Effective capacity(L) | 额定温度<br>Rated temperature(℃) | 极限真空度<br>Limit vacuum(Pa) |
|-------------|--------------------------------|-------------------------------|------------------------------|---------------------------|
| THL-200     | 200×160×300                    | 10                            | 1600/2200                    | 3                         |
| THL-250     | 250×230×500                    | 28                            | 1600/2200                    | 3                         |
| THL-300     | 300×280×600                    | 50                            | 1600/2200                    | 3                         |
| THL-350     | 350×320×700                    | 78                            | 1600/2200                    | 3                         |
| THL-400     | 400×380×800                    | 122                           | 1600/2200                    | 3                         |
| THL-450     | 450×420×900                    | 170                           | 1600/2200                    | 3                         |
| THL-500     | 500×480×1200                   | 280                           | 1600/2200                    | 3                         |
| THL-550     | 550×520×1200                   | 340                           | 1600/2200                    | 3                         |
| THL-600     | 600×500×1800                   | 540                           | 1600/2200                    | 3                         |

其他规格可按照要求制作。Other specifications can be customized.



## 石墨烯导热膜热处理设备

# GRAPHENE INDUCTIVE FILM HEAT TREATMENT EQUIPMENT

- 用途

本成套设备用于导热石墨膜高温加热石墨化处理。

- 特点

本产品加热采用德国进口大功率晶体管变频，它将50Hz三相工频电能转换成单相中频电能。该设备应用电磁感应原理，在真空与保护气体环境下置工件于交变磁场中，产生涡流损耗而发热，达到熔炼、透热、淬火等加热的要求。这种加热方式，具有加热速度快、烧损少、劳动强度低、产品质量好、对电网谐波干扰小等优点；较以往老式电子管高频电源节能35%，较以往老式可控硅中频电源节能20%；本产品以极其优越的性能，在精密铸造和热处理淬火行业占有不可替代的地位。

- Application

The whole set of equipment is used for high temperature heating graphitization of thermal conductive graphite film.

- Features

This product adopts German imported high power transistor frequency conversion, which converts the 50Hz three-phase power frequency electric energy into single-phase medium frequency electric energy. This equipment applies the principle of electromagnetic induction. In vacuum and protective gas environment, the workpiece is placed in alternating magnetic field, which produces eddy current loss and generates heat, which meets the requirements of smelting, diathermy and quenching. This heating method has the advantages of fast heating speed, less burning loss, low labor intensity, good product quality and small harmonic interference to power grid. Compared with the old-fashioned high frequency power supply of electronic tube and 20% energy-saving compared with the old-fashioned thyristor middle frequency power supply. The product has an irreplaceable position in the precision casting and heat treatment quenching industry with extremely superior performance.



## 超高温石墨化炉

# ULTRA HIGH TEMPERATURE GRAPHITIZING FURNACE

- 用途

碳纤维制品，C/C复合材料，电池负极材料，PI导热石墨膜/石墨烯膜超高温石墨化处理。

- 特点

3000°C的超高温高温，温度均匀性 $\leq 10^{\circ}\text{C}$

测温精度0.3%，控温精度+1℃

极限真空度可按照工艺需要设置

炉膛气氛可控，可通丙烯/甲烷/高纯氮/氩气

清洁真空炉室设计，附带专业排胶系统

西门子PC平板电脑监控，提供最可靠的安全保护

欧洲进口孔板式水流量控制系统，提供多通道监测

性能优越的保温材料，延长炉衬保温层使用寿命

超大容量存储，提供全年工作参数记录

快速热交换冷却系统，减少1/3的降温速度

可配置一电二炉，一电四炉经济型设备选择方式

- Application

Ultra-high temperature graphitization treatment on carbon fiber products, C/C composites, battery anode materials, PI conductive graphite film/graphene film.

- Features

3000°C ultra high temperature, temperature uniformity  $\leq 10\%$ .  
Detecting temperature accuracy 0.3%, temperature control  
accuracy  $\pm 1^\circ\text{C}$ .

Limiting vacuum degree can be set as per technological requirement.

Furnace chamber atmosphere controllable, suitable for propylene / methane / high purity nitrogen / argon.

Siemens PC monitoring provides reliable safe protection.  
European imported orifice plate water flow control system  
provides multi-channel monitoring.

Optimal insulation material increases the service life of furnace lining insulation layer.

Large capacity storage memory provides annual working parameter records.

Fast heat exchange cooling system can reduce the cooling rate by 1/3.

It can be configured with one power supply with two furnaces or four furnaces



### 主要技术参数Main technical parameters

| 装料区尺寸(φ D×h mm)<br>Loading area size | 额定温度 (℃)<br>Rated temperature | 额定加热功率 (KW)<br>Rated heating power | 额定加热频率 (HZ)<br>Rated heating freq. | 极限真空度 (Pa)<br>Limit vacuum |
|--------------------------------------|-------------------------------|------------------------------------|------------------------------------|----------------------------|
| 100×150                              | 3000                          | 60                                 | 4000                               | 6.67×10 <sup>-1</sup>      |
| 150×200                              | 3000                          | 80                                 | 4000                               | 6.67×10 <sup>-1</sup>      |
| 200×300                              | 3000                          | 100                                | 4000                               | 6.67×10 <sup>-1</sup>      |
| 250×400                              | 3000                          | 160                                | 2500                               | 6.67×10 <sup>-1</sup>      |
| 300×500                              | 3000                          | 200                                | 2500                               | 6.67×10 <sup>-1</sup>      |
| 350×750                              | 3000                          | 250                                | 2500                               | 6.67×10 <sup>-1</sup>      |
| 400×850                              | 3000                          | 300                                | 2000                               | 6.67×10 <sup>-1</sup>      |
| 500×1000                             | 3000                          | 300                                | 1500                               | 6.67×10 <sup>-1</sup>      |
| 600×1200                             | 2850                          | 350                                | 1500                               | 6.67×10 <sup>-1</sup>      |
| 800×1500                             | 2850                          | 500                                | 1000                               | 6.67×10 <sup>-1</sup>      |
| 900×1800                             | 2850                          | 600                                | 1000                               | 6.67×10 <sup>-1</sup>      |
| 1100×2000                            | 2850                          | 700                                | 1000                               | 6.67×10 <sup>-1</sup>      |

其他规格可按照要求制作。Other specifications can be customized.



# CVD气相沉积炉

## CVD VAPOR DEPOSITION FURNACE

- 用途

CVD化学气相沉积炉是用于制备碳碳复合材料，完成CVD气相沉积工艺的重要工艺装备。
- 基本参数
  - 设计温度：1250℃
  - 常用温度：900~1200℃
  - 真空度：< 50Pa
  - 压升率：空炉冷态6.67Pa/h(或150Pa/24h)
  - 加热方式：石墨电阻加热或感应加热
  - 气氛介质：氮气、天然气或丙烯、乙炔、氢气
  - 控气方式：质量流量计控制
  - 炉型：方形、圆形、立式或卧式结构（非标设计）
  - 其它介质：炉壳冷却水



- Application

Chemical vapor deposition (CVD) furnace is an important process equipment for preparing C / C composites and completing CVD process.
- Basic parameters
  - Design temperature: 1250 °C
  - Common temperature: 900 ~ 1200 °C
  - Vacuum degree: < 50Pa
  - Pressure rising rate: 6.67Pa/h or 150Pa/24h (empty furnace cold state)
  - Heating mode: Graphite resistance or induction heating
  - Atmosphere media: N2, natural gas, C3H6 ,C2H2 or H2
  - Gas control mode: mass flowmeter control
  - Furnace type: square, round, vertical or horizontal (non-standard design)
  - Other media: cooling water of furnace shell





# 真空感应烧结炉

## VACUUM INDUCTION SINTERING FURNACE

- 用途

适用于铜钨合金、铝镍钴永磁、钕铁硼、碳纤维石墨化，碳碳复合材料，碳化硅制品，钨钼及其他合金材料的真空或气氛高温烧结，也可作为其他金属材料的热处理及气象沉积。
- 特点

采用合理的真空机组，满足真空烧结的工艺要求，配置智能温控仪表，可自由设置148段升温曲线，控温精度高，可自动按照程序升温，采用高效率中频电源及感应线圈，输出功率大升温速度快，温度高，炉内气氛可控，温度均匀，炉内可通入氢气，氮气，氩气等。
- Application

Used for vacuum or atmosphere high temperature sintering for copper tungsten alloy, aluminum nickel cobalt permanent magnet, neodymium iron boron, carbon fiber graphitization, silicon carbide product, tungsten molybdenum and other metal materials. Also suitable for heat treatment and meteorological deposition for other metal materials.
- Features

Reasonable vacuum set can meet the requirement of vacuum sintering technology. Intelligent temperature control instrument is free to set 148 rising temperature curves. High precision of temperature control. Temperature can rise automatically as per the program. Adopt highly efficient middle frequency power and induction coil with big output power and fast temperature rising speed. High & even temperature. Atmosphere controllable in furnace. Hydrogen, nitrogen and argon can be inflated into the furnace.





# 真空感应烧结炉

## VACUUM INDUCTION SINTERING FURNACE

选型数据参考 Parameters for reference

| 型号<br>Model | 额定功率<br>Power(kw) | 加热区尺寸<br>Heating area size(直径×高度) | 工作温度<br>Temperature(°C) | 极限真空度<br>Limit vacuum(pa) | 压升率<br>Rate of barometric pressure rising<br>(Pa/min) | 额定频率<br>Frequency(HZ) |
|-------------|-------------------|-----------------------------------|-------------------------|---------------------------|-------------------------------------------------------|-----------------------|
| ZVF 50      | 60                | 150×200                           | 3000                    | 4.7×10 <sup>-3</sup>      | <0.15                                                 | 8                     |
| ZVF 100     | 100               | 250×400                           | 3000                    | 4.7×10 <sup>-3</sup>      | <0.15                                                 | 6                     |
| ZVF 160     | 160               | 360×750                           | 2800                    | 4.7×10 <sup>-3</sup>      | <0.15                                                 | 4                     |
| ZVF 200     | 200               | 450×900                           | 2800                    | 4.7×10 <sup>-3</sup>      | <0.15                                                 | 4                     |
| ZVF 300     | 300               | 600×1200                          | 2800                    | 4.7×10 <sup>-3</sup>      | <0.15                                                 | 4                     |
| ZVF 400     | 400               | 680×1200                          | 2500                    | 4.7×10 <sup>-3</sup>      | <0.15                                                 | 2.5                   |
| ZVF 500     | 500               | 800×1500                          | 2500                    | 4.7×10 <sup>-3</sup>      | <0.15                                                 | 2.5                   |
| ZVF 600     | 600               | 600×2500                          | 2500                    | 5×10 <sup>-3</sup>        | <0.15                                                 | 2.5                   |
| ZVF 630     | 600               | 850×2600                          | 2500                    | 5×10 <sup>-3</sup>        | <0.15                                                 | 2.5                   |

其他规格可按照要求制作。Other specifications can be customized.





# 贵重金属感应熔炼炉

## INDUCTION MELTING FURNACE FOR PRECIOUS METALS

- 用途
 

大型冶炼厂和小型贵重金属加工企业铸造上市金/银锭，首饰和工艺品。
- 特点
 

底部顶升或定点浇铸式结构，操作安全；特种急热高温陶瓷内腔，熔炼环境清洁；最佳的加热电流频率，延长坩埚使用寿命；采用全球领先的感应加热系统稳定可靠；加热能量精密控制，满足多种升温工艺需要；高功率因数下熔炼，对电源谐波干扰极小；快速的熔炼速度，贵重金属成分不会损失；系统对水压力，流量，温度进行可靠监控；配置制冷式循环水冷系统，占地空间小；可配置全自动浇铸系统适应大批量铸锭；全方位支持99.995金银提纯及铸锭工艺。

- Application
 

It is used to cast gold/silver ingots, jewellery and artware for large-scale smeltery and small-size precious metal processing enterprises.
- Features
 

Bottom lifting or fixed-point casting structure, safe operation. Special rapidly-heated & high-temperature ceramic cavity, clean smelting. Optimum heating current frequency, extending the lifetime of the crucible. Global leading induction heating system, stable & reliable. Precise control of heating energy for various heating technologies. Smelting under high power factor, quite low harmonic interference on the power. Rapid smelting speed, no loss of any composition of the precious metal. Reliable monitoring on water pressure, flow rate and temperature. Equipped with refrigerating circulating water cooling system, small space occupied. Automatic casting system can be equipped to adapt to the casting of ingots in bulk. Fully support 99.995 gold & silver purification and ingot casting technology.

| 设备型号<br>Model | 容 量 ( KG )<br>Capacity | 额定功率 ( KW )<br>Rated power | 频率范围 ( KHZ )<br>Frequency range | 熔炼温度 ( °C )<br>Smelting temperature |
|---------------|------------------------|----------------------------|---------------------------------|-------------------------------------|
| HFSC-30       | 1-5                    | 30                         | 10-15                           | 1300                                |
| HFSC-40       | 5-10                   | 40                         | 10-15                           | 1300                                |
| HFSC-60       | 10-15                  | 60                         | 4-6                             | 1300                                |
| MFSC-100      | 30-60                  | 100                        | 2.5-3                           | 1300                                |
| MFSC-160      | 100-150                | 160                        | 2.5-3                           | 1300                                |
| MFSC-200      | 200-300                | 250                        | 1-2.5                           | 1300                                |
| MFSC-300      | 500                    | 300                        | 1-2.5                           | 1300                                |
| MFSC-400      | 1000                   | 400                        | 1-1.5                           | 1300                                |

其他规格可按照要求制作。Other specifications can be customized.





# ZLP系列真空/气氛感应熔炼炉

## VACUUM /ATMOSPHERE INDUCTION SMELTING FURNACE

- 用途  
铁基、镍基、高温合金及其他精密合金、磁性材料的熔炼和精密浇注。
- 特点  
加热温度高，熔炼速度快，在真空条件下，熔炼过程可添加其他元素，结构紧凑，布局合理，操作简单。炉体类型分为立式和卧式两种。
- 设备组成  
由炉体、炉盖、感应器、熔炼坩埚、保温材料、加料箱、炉盖升降机构、真空机组、中频电源、电控柜、测温仪器组成。
- Application  
Smelting and precise casting for ferric-based, nickel-based, high temperature alloy and other precise alloy and magnetic material.
- Features  
High heating temperature, fast smelting speed. Other element can be added during melting under vacuum circumstance. Compact structure, reasonable layout, simple operation. Furnace body is divided into vertical and horizontal types.
- Composition  
It is made up of furnace body, cover, sensor, melting crucible, thermal insulation material, charging box, cover elevating mechanism, vacuum unit, middle frequency power, electrically-controlled cabinet, temperature-measuring instrument.

| 型号<br>Model | 额定容量<br>Rated capacity(KG) | 极限真空度<br>Limit vacuum (Pa) | 最高温度<br>Max. temperature ( °C ) | 电源功率<br>Power(KW) | 电源频率<br>Power frequency(Hz) |
|-------------|----------------------------|----------------------------|---------------------------------|-------------------|-----------------------------|
| ZLP-5       | 5                          | 6.67×10 <sup>-3</sup>      | 1800                            | 50                | 8000                        |
| ZLP-10      | 10                         | 6.67×10 <sup>-3</sup>      | 1800                            | 50                | 4000                        |
| ZLP-25      | 25                         | 6.67×10 <sup>-3</sup>      | 1800                            | 100               | 2500                        |
| ZLP-50      | 50                         | 6.67×10 <sup>-3</sup>      | 1800                            | 100               | 2500                        |
| ZLP-100     | 100                        | 6.67×10 <sup>-3</sup>      | 1800                            | 160               | 2500                        |
| ZLP-200     | 200                        | 6.67×10 <sup>-3</sup>      | 1800                            | 250               | 2500                        |
| ZLP-300     | 300                        | 6.67×10 <sup>-3</sup>      | 1800                            | 300               | 1000                        |
| ZLP-500     | 500                        | 6.67×10 <sup>-3</sup>      | 1800                            | 500               | 1000                        |
| ZLP-1000    | 1000                       | 6.67×10 <sup>-3</sup>      | 1800                            | 700               | 1000                        |
| ZLP-1500    | 1500                       | 6.67×10 <sup>-3</sup>      | 1800                            | 1000              | 1000                        |
| ZLP-2000    | 2000                       | 6.67×10 <sup>-3</sup>      | 1800                            | 1500              | 1000                        |
| ZLP-3000    | 3000                       | 6.67×10 <sup>-3</sup>      | 1800                            | 2000              | 1000                        |

其他规格可按照要求制作。Other specifications can be customized.





# GWJ系列中频无芯感应熔炼炉

## GWJ SERIAL MEDIUM FREQUENCY CORELESS INDUCTION MELTING FURNACE

- 用途：中频感应熔炼炉主要用于钢、合金钢、铸铁、等黑色金属材料以及不锈钢、铜、铝、锌等有色金属材料的熔炼。
- 特点：具有熔炼快、节能效果好、金属成分均匀、烧损少、温升快、温度控制容易等特点。
- Application: The medium frequency induction melting furnace is mainly used to melt non-ferrous metals such as steel, alloy steel, cast iron and ferrous metals like stainless steel, copper, aluminum and zinc etc.
- Features: Fast melting, energy-saving, uniform metal components, less burning loss, rapid temperature rising, and easy temperature control etc.

GWJ系列中频无芯感应熔炼炉主要参数：  
Main parameters for GWJ serial induction melting furnace

| 额定容量(T)<br>Nominal Capacity | 额定功率(KW)<br>Nominal Power | 额定频率(Hz)<br>Nominal Freq. | 输入电压(V)<br>Input Voltage | 化钢 ( 1600℃) Smelting Steel |                                          | 化铁 ( 1450℃) Smelting Iron  |                                          | 耗水量(t/h)<br>Water Consumption |
|-----------------------------|---------------------------|---------------------------|--------------------------|----------------------------|------------------------------------------|----------------------------|------------------------------------------|-------------------------------|
|                             |                           |                           |                          | 熔化率(t/h)<br>Smelting Ratio | 电耗(KW.H/t)<br>Electric Power consumption | 熔化率(t/h)<br>Smelting Ratio | 电耗(KW.H/t)<br>Electric Power Consumption |                               |
| 0.5                         | 250                       | 1000                      | 3N<br>380V<br>50Hz或60Hz  | 0.35                       | 800                                      | 0.37                       | 770                                      | 8                             |
| 0.5                         | 350                       |                           |                          | 0.5                        | 760                                      | 0.53                       | 680                                      | 8                             |
| 0.5                         | 500                       |                           |                          | 0.74                       | 615                                      | 0.81                       | 585                                      | 10                            |
| 1                           | 500                       |                           |                          | 0.76                       | 789                                      | 0.79                       | 750                                      | 10                            |
| 1                           | 750                       |                           |                          | 1.05                       | 690                                      | 1.1                        | 680                                      | 15                            |
| 1                           | 1000                      |                           |                          | 1.5                        | 590                                      | 1.6                        | 565                                      | 20                            |
| 1.5                         | 750                       |                           |                          | 1.1                        | 650                                      | 1.13                       | 620                                      | 15                            |
| 1.5                         | 1000                      |                           |                          | 1.5                        | 600                                      | 1.53                       | 570                                      | 20                            |
| 1.5                         | 1500                      |                           |                          | 2.4                        | 575                                      | 2.57                       | 555                                      | 30                            |
| 2                           | 1000                      |                           |                          | 1.54                       | 630                                      | 1.58                       | 610                                      | 20                            |
| 2                           | 1500                      | 500                       | 3N<br>660V<br>50Hz或60Hz  | 2.5                        | 575                                      | 2.6                        | 555                                      | 30                            |
| 2                           | 2000                      |                           |                          | 3.0                        | 570                                      | 3.15                       | 550                                      | 45                            |
| 3                           | 1500                      |                           |                          | 2.4                        | 640                                      | 2.5                        | 610                                      | 30                            |
| 3                           | 2000                      |                           |                          | 2.9                        | 610                                      | 3.05                       | 590                                      | 45                            |
| 3                           | 2500                      |                           |                          | 4.0                        | 600                                      | 4.18                       | 575                                      | 50                            |
| 5                           | 2500                      |                           |                          | 4.05                       | 570                                      | 4.16                       | 555                                      | 50                            |
| 5                           | 3000                      |                           |                          | 5.00                       | 560                                      | 5.20                       | 545                                      | 60                            |
| 5                           | 3500                      |                           |                          | 5.36                       | 559                                      | 5.46                       | 545                                      | 70                            |
| 8                           | 4000                      |                           |                          | 5.40                       | 569                                      | 5.90                       | 557                                      | 80                            |
| 8                           | 5000                      |                           |                          | 8.2                        | 560                                      | 8.6                        | 556                                      | 100                           |
| 8                           | 6000                      | 500                       | 3N<br>750V<br>50Hz或60Hz  | 10.2                       | 560                                      | 10.8                       | 555                                      | 120                           |
| 10                          | 5000                      |                           |                          | 8.2                        | 560                                      | 8.06                       | 556                                      | 100                           |
| 10                          | 6000                      |                           |                          | 10.6                       | 560                                      | 10.9                       | 555                                      | 120                           |
| 10                          | 8000                      |                           |                          | 14.1                       | 560                                      | 14.6                       | 554                                      | 160                           |
| 12                          | 6000                      |                           |                          | 10.6                       | 560                                      | 10.9                       | 555                                      | 120                           |
| 12                          | 8000                      |                           |                          | 14.2                       | 559                                      | 14.8                       | 555                                      | 160                           |
| 15                          | 8000                      |                           | 3N<br>950V<br>50Hz或60Hz  | 14.3                       | 558                                      | 14.9                       | 554                                      | 160                           |
| 15                          | 9000                      |                           |                          | 15.8                       | 558                                      | 16.1                       | 554                                      | 165                           |
| 20                          | 10000                     |                           |                          | 17.1                       | 557                                      | 17.9                       | 553                                      | 200                           |
| 20                          | 12000                     |                           |                          | 20.6                       | 556                                      | 21.2                       | 553                                      | 240                           |



# GWL系列中频无芯感应熔铝炉

## GWL SERIAL MEDIUM FREQUENCY CORELESS INDUCTION MELTING FURNACE FOR ALUMINUM

| 容量(t)<br>Capacity | 电源功率(KW)<br>Power | 输入电压(V)<br>Input Voltage | 中频电压(V)<br>Intermediate<br>Frequency Voltage | 频率(KHz)<br>Freq | 工作温度(°C)<br>Working Temp. | 熔化率(t/h)<br>Smelting Ratio | 电耗(KW.h/t)<br>Electric Power Consumption | 耗水量(t/h)<br>Water Consumption |
|-------------------|-------------------|--------------------------|----------------------------------------------|-----------------|---------------------------|----------------------------|------------------------------------------|-------------------------------|
| 0.15              | 100               | 3N<br>380V<br>50Hz或60Hz  | 750                                          | 1               | 780                       | 0.13                       | 650                                      | 2                             |
| 0.3               | 160               |                          |                                              |                 |                           | 0.26                       | 650                                      | 5                             |
| 0.5               | 250               |                          |                                              |                 |                           | 0.45                       | 640                                      | 8                             |
| 0.75              | 350               |                          |                                              |                 |                           | 0.62                       | 630                                      | 10                            |
| 1                 | 500               |                          |                                              |                 |                           | 0.92                       | 570                                      | 12                            |
| 1.5               | 750               |                          |                                              |                 |                           | 1.45                       | 560                                      | 15                            |
| 3                 | 1500              | 660V                     | 1300                                         | 0.5             |                           | 2.58                       | 549                                      | 20                            |



# GWT系列中频无芯感应熔铜炉

## GWT SERIAL MEDIUM FREQUENCY CORELESS INDUCTION MELTING FURNACE FOR COPPER

| 容量<br>Capacity | 功率(KW)<br>Power | 输入电压(V)<br>Input Voltage | 中频电压(V)<br>Intermediate<br>Frequency Voltage | 频率(KHz)<br>Freq | 工作温度(°C)<br>Working Temp. | 熔化率(t/h)<br>Smelting Ratio | 耗水量(t/h)<br>Water Consumption |
|----------------|-----------------|--------------------------|----------------------------------------------|-----------------|---------------------------|----------------------------|-------------------------------|
| 0.15           | 100             | 3N<br>380V<br>50Hz或60Hz  | 750                                          | 1               | 1250                      | 0.16                       | 2                             |
| 0.3            | 160             |                          |                                              |                 |                           | 0.31                       | 5                             |
| 0.5            | 250             |                          |                                              |                 |                           | 0.52                       | 8                             |
| 1              | 500             |                          |                                              |                 |                           | 1.16                       | 10                            |
| 1.5            | 750             |                          |                                              |                 |                           | 1.69                       | 15                            |
| 2              | 1000            |                          |                                              |                 |                           | 2.38                       | 20                            |
| 3              | 1500            | 3N<br>660V<br>50Hz或60Hz  | 1300                                         | 0.5             | 1250                      | 3.21                       | 30                            |
| 5              | 2500            |                          |                                              |                 |                           | 5.34                       | 50                            |





# 感应透热炉

## INDUCTION DIATHERMY FURNACE

- 用途
 

主要用于金属材料整体在锻造、挤压、和折弯前的加热以及金属材料的整体调质、退火、回火等热处理。
- 特点
 

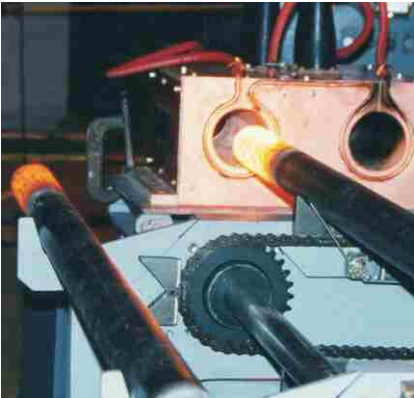
加热速度快、氧化脱碳少、能耗低、无污染、自动化程度高，可实现全自动无人操作、加热均匀，温度控制精度高。
- Application
 

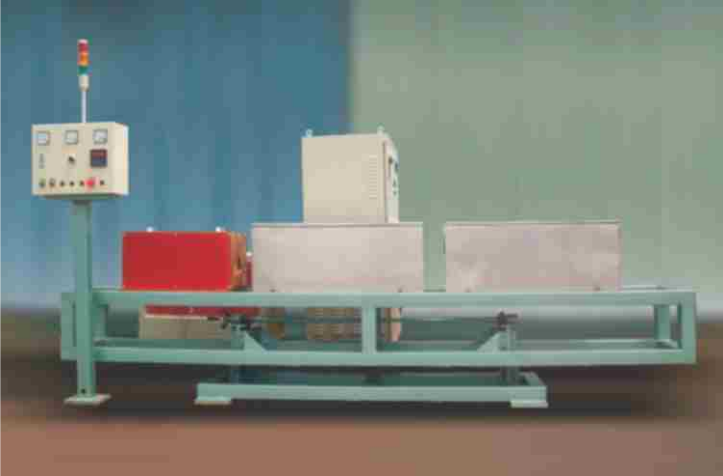
Mainly used to heat metal material before forging, extrusion, winding and heat treatment such as overall quenching and annealing.
- Features
 

Fast heating, less oxidativede-carbonization, low energy consumption, no pollution, high automation, homogeneous heating, high temperature control precision.

| 产品直径(mm)<br>Diameter | 功 率(kw)<br>Power | 频率(khz)<br>Frequency | 温度(°C)<br>Temperature | 加热效率<br>Heating power<br>(kg/h) | 电耗(kw/h)<br>Electric Power Consumption |
|----------------------|------------------|----------------------|-----------------------|---------------------------------|----------------------------------------|
| 5-12                 | 50               | 10-40                | 200-1250              | 138                             | <360                                   |
| 5-30                 | 100              | 4-40                 | 200-1250              | 278                             | <360                                   |
| 12-40                | 160              | 4-20                 | 200-1250              | 445                             | <360                                   |
| 30-80                | 250              | 1-4                  | 200-1250              | 698                             | <360                                   |
| 50-100               | 500              | 0.5-2.5              | 200-1250              | 1388                            | <360                                   |
| 80-100               | 1000             | 0.5-1                | 200-1250              | 2778                            | <360                                   |
| 120-160              | >1000            | 0.2-0.5              | 200-1250              | >2778                           | <360                                   |

- 加热炉炉衬分：碳化硅、白刚玉、不锈钢及整体打结四种，可供用户自由选择如无特殊要求我们将根据结构特点设计选配合适的炉衬，对螺栓或钢管端头加热、异型材料加热，可非标提供仿型加热炉体。
- The heating furnace lining can be categorized into 4 sorts : silicon carbide, white corundum, stainless steel and integral sintered, which can be selected by users freely. We' ll design and select a suitable kind of lining according to structure characteristics for end heating of bolt or steel pipe, heating special shaped materials and non-standardized heating furnace body can be provided.





## 不锈钢管光亮退火设备

### STAINLESS STEEL PIPE BRIGHT ANNEALING EQUIPMENT

- 用途  
用于清洁不锈钢焊管生产线上或单根管连续式光亮退火。
- 特点  
采用感应加热电源进行加热，节能高效无环境污染，适用不锈钢管材质304、316、316L等。加热温度根据不锈钢材质任意设定，在线处理管材直径为Φ6—Φ273mm。独立的支撑架装置，适应不同管材，管材加热均匀，升温迅速。采用智能点火系统可随时监测火焰状态，控制系统采用西门子PLC及大屏幕显示器，配有先进的红外线测温自动检测，整机设置多种保护措施，最大限度提高设备稳定性和可靠性。
- Application  
It is used for continuous bright annealing of clean stainless steel welded pipes on the production line or single pipe.
- Features  
Induction heating power source is used, energy-saving & high-efficiency, without pollution. It is applicable for stainless steel tube with materials of 304, 316, 316L etc. Heating temperature can be randomly set as per the material of stainless steel. Diameter of pipelines involved in the on-line processing is Φ6-Φ273mm. Independent support which is appropriate for different tubes. Tubes are evenly heated and the temperature will rise rapidly. Intelligent ignition system is adopted to monitor the flame at all times. The control system uses Siemens PLC and large-screen display. It is equipped with advanced automatic detection of infrared temperature measurement. The entire equipment is provided with various protection measures, to improve the equipment stability and reliability to the maximum extent.

主要技术参数Main technical parameters:

| 型号<br>Model | 管材直径(mm)<br>Diameter | 管材厚度(mm)<br>Thickness | 生产速度 ( m/min)<br>Production speed | 电源功率 ( KW)<br>Source power |
|-------------|----------------------|-----------------------|-----------------------------------|----------------------------|
| XZGR-25     | 14-25                | 0.5-1                 | 1-6                               | 100KW                      |
| XZGR-38     | 22-38                | 0.5-2                 | 1-6                               | 160KW                      |
| XZGR-76     | 32-76                | 0.8-3                 | 1-6                               | 200KW                      |
| XZGR-114    | 60-114               | 1-4                   | 1-6                               | 300KW                      |
| XZGR-168    | 114-168              | 2-6                   | 0.5-2                             | 400KW                      |
| XZGR-273    | 168-273              | 3-8                   | 0.5-1                             | 500KW                      |

其他规格可按照要求制作。Other specifications can be customized.

ZHUZHOU HAN HE INDUSTRIAL EQUIPMENT CO.,LTD.

## 立式淬火机床

### VERTICAL QUENCHING MACHINE

- 用途  
适用于轴类和齿轮类零件淬火
- 特点  
欧洲装备工艺设计，外观精致美观  
模块化组合，功能拓展强大  
单工位和双工位结构可选  
可选择工件移动或感应线圈移动  
旋转速度可调节，旋转角度可定位控制  
控制系统采用西门子PLC可编程控制各项参数  
配置智能及高稳定的数控系统及驱动器  
智能监测淬火过程中的淬火速度，加热能量，淬火液压力及冷却流量  
各项零部件淬火回火工艺参数可存储并可任意调选

- Application  
Used for quenching of fittings such as shafts & gears.
- Features  
European equipment, technology & design, and beautiful & exquisite appearance.  
Modularized assembly and strong function expansion.  
Selectable single-station and double-station structure.  
Movement of workpiece or induction coil can be choosen.  
Adjustable rotation speed, and positioning control of rotation angle.  
Apply Siemens PLC programmable control system to control various parameters.  
Equipped with intelligent & high-stability numerical controls system and driver.  
Intelligently monitor the speed, heating energy, pressure of quenching liquid and cooling flow during quenching.





# 卧式淬火机床

## HORIZONTAL QUENCHING MACHINE

● 用途

大批量小轴和长轴类零件淬火及回火。

● 特点

适应自动化作业，生产效果高，运行成本低，输送工件形式采用推杆方式或滚轮推送方式，可选择工件移动或感应线圈移动，控制系统采用西门子PLC可编程控制各项参数。配置智能及高稳定的数控系统及驱动器，智能监测淬火过程中的淬火速度，加热能量，淬火液压力及冷却流量。各项零部件淬火回火工艺参数可存储并可任意调选。可根据工艺需要布置回火热校直装置。

● Application

Quenching and tempering of fittings in large volume, i.e. small shaft and long shaft.

● Features

Adapt to automatic operation, high production efficiency, and low operation cost. Push-rod or roller is used for conveying of work pieces. Movement of work piece or induction coil can be choosen. Apply Siemens PLC control system to control various parameters. Equipped with intelligent & high-stability CNC system and driver. Intelligent monitor on speed, heating energy, pressure of quenching liquid and cooling flow during the quenching. Technological parameters for quenching and tempering of various parts and components can be stored and furthermore adjusted & selected randomly. Heat straightening device for tempering can be equipped as per the technology requirement.





# 其他感应淬火设备

## OTHER INDUCTION QUENCHING MACHINE





# 油锯导板数控淬火设备

## CNC QUENCHING MACHINE FOR CHAIN SAW GUIDE PLATE

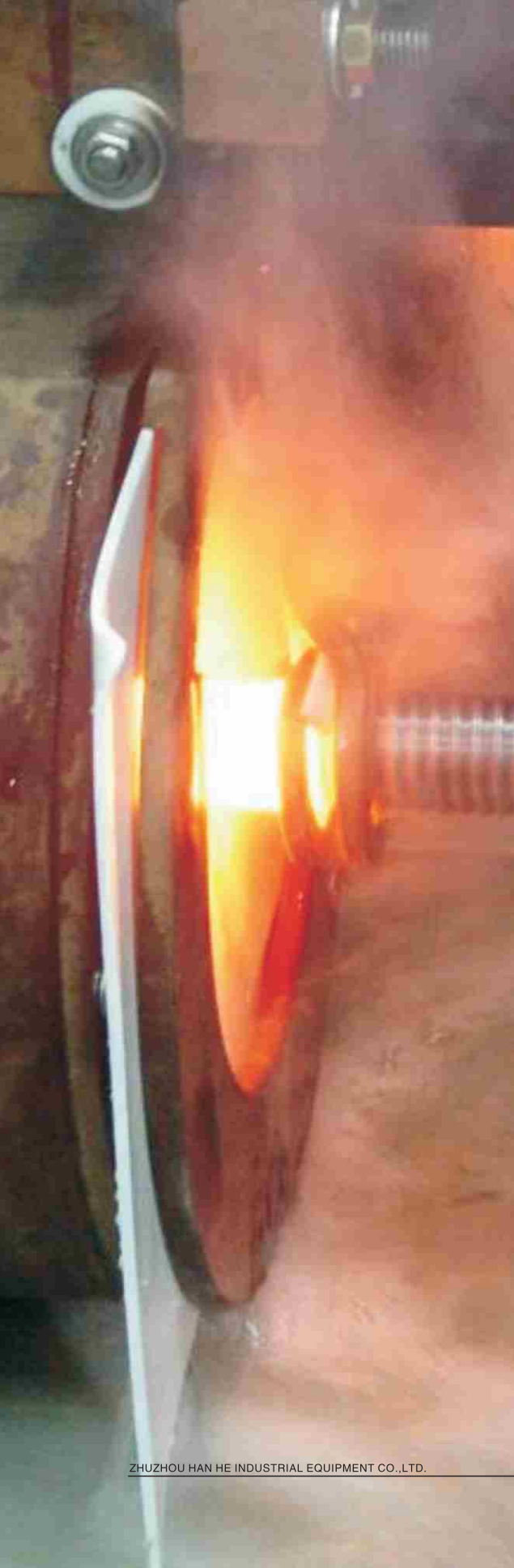




# 回转支承数控淬火设备

## CNC QUENCHING MACHINE FOR SLEWING BEARING







# 滚珠丝杆感应淬火回火设备

## INDUCTION HARDENING AND TEMPERING EQUIPMENT FOR BALL SCREW

- 用途

用于高精度滚动功能部件滚珠丝杆热处理，适应各类数控切削机床，雕刻机，木工机械，各类机械手等直线运动场合。
- 特点

全自动上下料方式，操作简单，淬火及回火采用感应线圈固定，工件旋转移动方式。全球领先的工艺及智能化控制，确保淬硬层深一致，可对圆型轴类实现连续淬火及回火，极小的热处理控制变形，减轻后期的校直工作。西门子S802系列数控系统，确保工件运动稳定，西门子PLC控制系统，程序控制各项参数及保护，高效和稳定的感应加热系统，精密控制加热温度，恒温控制电源和淬火液冷却机组，温度自动控制。
- Application

For high precision rolling ball screw heat treatment to adapt to all types of CNC cutting machine, engraving machine, woodworking machinery, various types of manipulator and so on linear motion.
- Features

Automatic loading/unloading, simple operation. Fixed induction coil and rotary workpiece for quenching and tempering. Global leading technology and intelligent control ensure consistent hardened layer depth. It can realize continuous quenching and tempering on round shafts. Control on deformation, which can reduce further alignment work. Siemens S802 series CNC system ensures stable movement of the workpiece. Siemens PLC control systems, with control parameters and protection, high performance and stable induction heating system, precise control of the heating temperature, constant temperature control power and quenching liquid cooling unit, automatic temperature control.

| 设备型号<br>Model | 适应丝杆型号<br>Adapt to the screw rod type | 最大加工长度(m)<br>Maximum processing length | 淬火功率(kw)<br>Hardening power | 回火功率(kw)<br>Tempering power |
|---------------|---------------------------------------|----------------------------------------|-----------------------------|-----------------------------|
| XZGC-60       | φ 15-40                               | 6-8                                    | 160                         | 50                          |
| XZGC-120      | φ 50-120                              | 10-12                                  | 1350                        | 100                         |

设备外型尺寸：( 长 ) 18-27× ( 宽 ) 4.5 × ( 高 ) 2.1m





# 线性导轨感应淬火回火设备

## INDUCTION QUENCHING & TEMPERING EQUIPMENT FOR LINEAR GUIDEWAY

- 用途

用于高精度滚动功能部件直线导轨热处理，适应各类数控切削机床，雕刻机，木工机械，各类机械手等直线运动场合。
- 特点

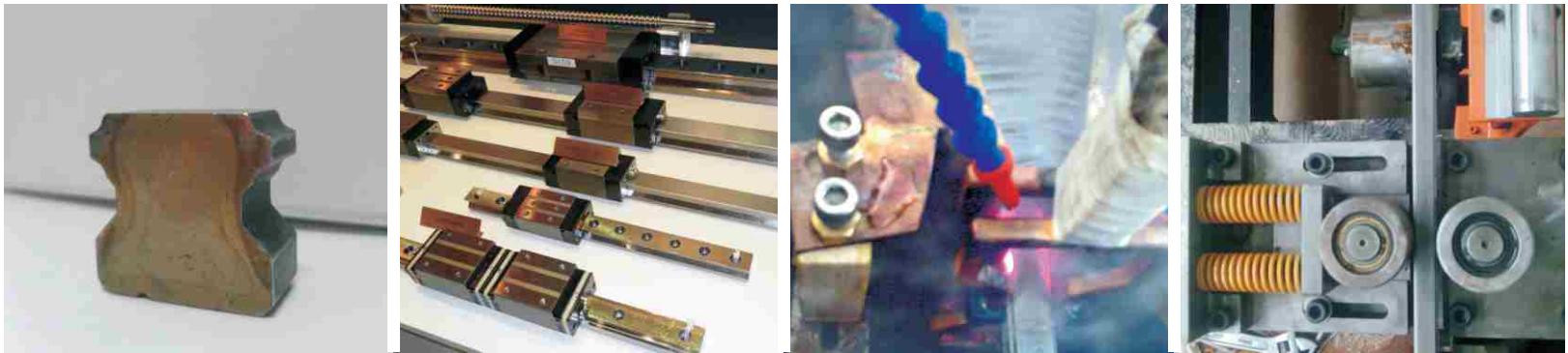
全自动上下料方式，操作简单，淬火及回火采用感应线圈固定，工件移动方式，全球领先的工艺及智能化控制，确保淬硬层深一致，可对圆型或方型轴类实现连续淬火及回火。极小的热处理控制变形，减轻后期的校直工作，西门子S802C/D系列数控系统，确保工件运动稳定，西门子PLC控制系统，程序控制各项参数及保护，高效和稳定的感应加热系统，精密控制加热温度，恒温控制电源和淬火液冷却机组，温度自动控制。
- Application

Used for heat treatment on high precision rolling linear guide rail, adapted to all types of CNC cutting machine, engraving machine, woodworking machinery, various types of mechanical hand and so on linear motion.
- Features

Automatic loading/unloading, simple operation. Fixed induction coil and rotary workpiece for quenching and tempering, rotating the workpiece moves. Global leading technology and intelligent control ensure consistent hardened layer depth. It can realize continuous quenching and tempering on round shafts. Control on deformation, which can reduce further alignment work. Siemens S802 series CNC system ensures stable movement of the workpiece. Siemens PLC control systems, with control parameters and protection, high performance and stable induction heating system, precise control of the heating temperature, constant temperature control power and quenching liquid cooling unit, automatic temperature control.

| 设备型号<br>Model | 适应导轨型号<br>Adapt to Guide Model | 最大加工长度(m)<br>Maximum Processing length | 淬火功率(kw)<br>Hardening Power | 回火功率(kw)<br>Tempering Power |
|---------------|--------------------------------|----------------------------------------|-----------------------------|-----------------------------|
| XZGC-4000     | R15-45                         | 4000                                   | 160                         | 50                          |
| XZGC-6000     | R15-45                         | 6000                                   | 160                         | 50                          |
| XZGC-4000C    | R45-85                         | 4000                                   | 250                         | 100                         |
| XZGC-6000C    | R45-85                         | 6000                                   | 250                         | 100                         |
| XZGC-6000B    | R55-125                        | 6000                                   | 300                         | 100                         |

设备外型尺寸：(长)14.2-16×(宽)4.8 ×(高)2.2m   Equipment Outlook Size



# 圆环链感应淬火回火设备

## ROUND-LINK CHAIN INDUCTION HARDENING AND TEMPERING EQUIPMENT

- 用途

用于起重，矿用，船用高强度圆环链连续式热处理。

  - 特点

PC电脑控制圆环链输送机，冷却机组和加热系统，热处理机床能适应预热淬火回火以及差温回火，链输送采用抱紧式设计，适应多种规格的圆环链。西门子PLC控制系统，程序控制各项参数及保护，高效和稳定的感应加热系统，精密控制加热温度，采用晶体管中频电源，加热效率高，节能效果好，高功率因数运行，对电网谐波干扰极小，恒温控制电源和淬火液冷却机组，温度自动控制。

- Application

Continuous heat treatment of high-strength round-link chain for hoisting, mining and ships.

  - Features

Round-link chain conveyor, cooling unit and heating system are controlled by PC computer. Heat treatment machine is adaptable to preheating, quenching, tempering and differential tempering. Clasp design is adopted for the chain delivery, adapting to various sizes of round link chain; Siemens PLC control system and procedure are adopted for control of various parameters and protection. High-efficiency and stable induction heating system, precise control of heating temperature. Transistor medium frequency power source with high heating efficiency and good energy conservation effect. Operating under high power factor, quite low harmonic interference on power grid. Constant temperature controlled power source and unit cooled by quenching liquid, automatic temperature control.

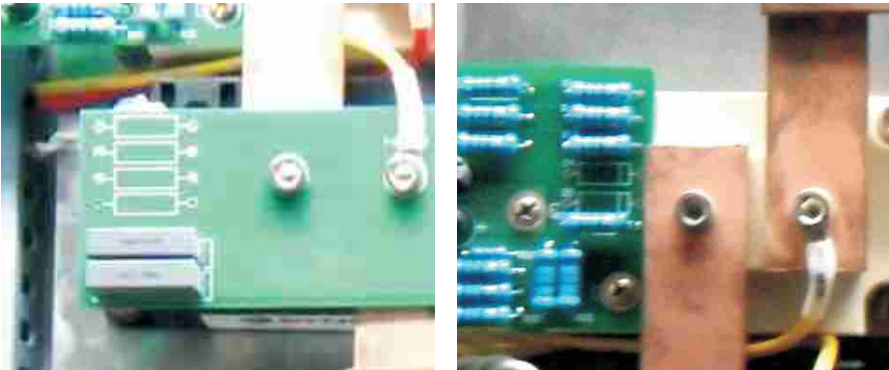
主要技术参数Main technical parameters

| 设备型号<br>Model | 适应圆环链范围(°C)(mm)<br>Range of applicable round-link chain | 淬火温度(°C)<br>Quenching temperature | 回火温度(°C)<br>Tempering temperature | 加热总功率(KW)<br>Total heating power | 加热功率(KHZ)<br>Heating power |
|---------------|---------------------------------------------------------|-----------------------------------|-----------------------------------|----------------------------------|----------------------------|
| IGPS-100      | 4-6                                                     | 800-1000                          | 180-450                           | 100                              | 8-10                       |
| IGPS-160      | 6-11                                                    | 800-1000                          | 180-450                           | 160                              | 6-8                        |
| IGPS-200      | 12-16                                                   | 800-1000                          | 180-450                           | 200                              | 5-7                        |
| IGPS-250      | 18-22                                                   | 800-1000                          | 180-450                           | 250                              | 4-6                        |
| IGPS-300      | 22-26                                                   | 800-1000                          | 180-450                           | 300                              | 4-6                        |
| IGPS-400      | 26-30                                                   | 800-1000                          | 180-450                           | 400                              | 3-5                        |
| IGPS-600      | 30-34                                                   | 800-1000                          | 180-450                           | 600                              | 3-4                        |
| IGPS-800      | 34-48                                                   | 800-1000                          | 180-450                           | 800                              | 2-4                        |
| IGPS-950      | 48-52                                                   | 800-1000                          | 180-450                           | 950                              | 2-4                        |

其他规格可按照要求制作。Other specifications can be customized.

# IGPS PC晶体管高中频感应电源

## IGPS PC TRANSISTOR HIGH MEDIUM FREQUENCY POWER SUPPLY

- 先进的德国技术：全数字控制，光纤信号传送。
  - 电路谐振方式：并联谐振，适应各种加热工艺。
  - 效率高：晶体管电源效率可达95%以上，比电子管电源节能45%，比可控硅中频节能15%，运行成本低。
  - 频率范围广：电源可以在中频和超音频之间任一频率下工作，不需要调整电路，可以满足多种工艺要求。
  - 负载匹配简单：设置频率自动扫描系统，与负载匹配简单。
  - 启动成功率高：具有可频繁启动，安全可靠，启动成功率高达100%。
  - 保护系统齐全：具有水温，水流量，电流等最大和最小值保护，工作过程采用PLC监控。
- 
- Advacnced German technology: Fully digital control, transmission by optics fiber signal.
  - Resonance method: Parallel resonance, suitable for all kinds of heating technology.
  - Hig hefficiency: Power efficiency ≥ 95%, 45% energy saving than electronic tube power, 15% energy saving than SCR middle frequency power, lower cost.
  - Wide frequency range: The power can work in any frequency between middle frequency and super audio frequency without adjusting the circuit. It meets more need of technology.
  - Simple load matching: Auto frequency scanning system. Simply the matching with load.
  - High starting rate: User can frequently start with safety and reliability. 100% successful starting rate.
  - Complete protective system: Max. and min. protections on water temperature, water flow, current etc. PLC monitors the whole working process.



| 电源型号<br>Power Model | 输入电压<br>Input (V) | 输出功率<br>Power (KW) | 振荡频率<br>Frequency (KHZ) | 冷却水压力<br>Cool-Water<br>pressure(Mpa) | 冷却水量<br>Cool-Water(T/h) | 外形尺寸<br>Out-Dimension (mm) |
|---------------------|-------------------|--------------------|-------------------------|--------------------------------------|-------------------------|----------------------------|
| IGPS/PC-60          | 380               | 60                 | 1-200                   | ≥0.15                                | 1.8                     | 800×800×1980               |
| IGPS/PC -100        | 380               | 100                | 1-200                   | ≥0.15                                | 2.5                     | 1400×800×1980              |
| IGPS/PC -160        | 380               | 160                | 1-200                   | ≥0.25                                | 3.0                     | 1600×800×1980              |
| IGPS/PC -250        | 380               | 250                | 1-100                   | ≥0.25                                | 6.0                     | 2100×800×2100              |
| IGPS/PC -300        | 380               | 300                | 1-100                   | ≥0.25                                | 8.0                     | 2400×800×2100              |
| IGPS/PC -400        | 400               | 400                | 1-50                    | ≥0.25                                | 8.0                     | 3200×800×2100              |
| IGPS/PC -500        | 400               | 500                | 1-50                    | ≥0.30                                | 10                      | 3200×800×2100              |
| IGPS/PC -600        | 400               | 600                | 1-20                    | ≥0.30                                | 12                      | 3200×800×2100              |
| IGPS/PC -800        | 440               | 800                | 1-10                    | ≥0.30                                | 15                      | 3500×800×2100              |
| IGPS/PC -1000       | 440               | 1000               | 1-10                    | ≥0.35                                | 20                      | 3500×800×2100              |
| IGPS/PC -1200       | 440               | 1200               | 1-10                    | ≥0.35                                | 25                      | 4000×900×2100              |
| IGPS/PC -1500       | 440               | 1500               | 1-10                    | ≥0.35                                | 28                      | 4000×900×2100              |
| IGPS/PC -1800       | 440               | 1800               | 1-5                     | ≥0.35                                | 28                      | 4000×900×2100              |
| IGPS/PC -2000       | 440               | 2000               | 1-5                     | ≥0.35                                | 28                      | 4000×900×2100              |

其他规格可按照要求制作。Other specifications can be customized.



# KGPS 系列晶闸管中频电源

## KGPS SERIAL THYRISTOR MEDIUM FREQUENCY POWER SUPPLY

• 特点

- ① KGPS晶闸管中频电源全数字控制：具有高精度和高可靠性。
- ② 电压电流双闭环控制系统：确保系统稳定运行。
- ③ 完善的保护系统：具有过压、过流、缺相、水压不足、水温度过高等各种保护，确保设备在发生故障时不损坏元器件。
- ④ 高功率因数运行特性：使整套设备的效率和功率因数达到最高值运行。
- ⑤ 完善的外控接口：可以方便的实现外部温度的闭环控制等，电源启动性能100%，彻底排除了启动失败的问题。



● Features

- ① Full digital control: with high precision & reliability.
- ② Voltage and current double closed loop control system which ensure the stable operation of the system.
- ③ Perfect protection system: with over-voltage, over-current, lack of phase, insufficient water pressure, over-high water temperature, ensuring that the components will not be damaged in case of failure.
- ④ High power factor operation: the efficiency and power factor of the whole set of equipment can reach the highest value.
- ⑤ Perfect external control interface: conveniently realize the closed-loop control of external temperature, and 100% starting performance of power supply, which completely eliminates the problem of starting failure.

选型数据参考 Parameters for reference

| 电源型号<br>Power Model | 输入电源<br>Input(V) | 输出功率<br>Power(KW) | 振荡频率<br>Frequency(KHZ) | 冷却水量<br>Cool Water(T/h) | 冷却水压力<br>Cool-Water<br>pressure(Mpa) | 外型尺寸<br>Out-Dimension(mm) | 重量<br>Weight(KG) |
|---------------------|------------------|-------------------|------------------------|-------------------------|--------------------------------------|---------------------------|------------------|
| KGPS60              | 380              | 60                | 1-10                   | 2.5                     | 0.25                                 | A-750×800×1980(L×W×H)     | 400              |
| KGPS100             | 380              | 100               | 1-10                   | 3                       | 0.25                                 | A-750×800×1980(L×W×H)     | 480              |
| KGPS160             | 380              | 160               | 1-8                    | 5                       | 0.3                                  | B-1400×800×1980(L×W×H)    | 600              |
| KGPS250             | 380              | 250               | 1-8                    | 5                       | 0.3                                  | B-1400×800×1980(L×W×H)    | 700              |
| KGPS400             | 380              | 400               | 1-8                    | 6                       | 0.4                                  | C-1800×800×1980(L×W×H)    | 850              |
| KGPS500             | 380              | 500               | 1-6                    | 6                       | 0.4                                  | C-1800×800×1980(L×W×H)    | 1000             |
| KGPS750             | 380              | 750               | 1-6                    | 8                       | 0.4                                  | C-1800×800×1980(L×W×H)    | 1250             |
| KGPS1000            | 380              | 1000              | 1-4                    | 10                      | 0.4                                  | D-2200×800×2100(L×W×H)    | 1250             |
| KGPS1500            | 380              | 1500              | 1-4                    | 12                      | 0.4                                  | E-3600×800×2100(L×W×H)    | 1750             |
| KGPS2000            | 380              | 2000              | 1-2.5                  | 18                      | 0.4                                  | E-3600×800×2100(L×W×H)    | 2000             |
| KGPS2500            | 380              | 2500              | 0.5-2.5                | 20                      | 0.4                                  | E-3600×800×2100(L×W×H)    | 2500             |
| KGPS3200            | 380              | 3200              | 0.5-1                  | 35                      | 0.4                                  | E-3600×800×2100(L×W×H)    | 2800             |
| KGPS6500            | 380              | 6500              | 0.4-0.5                | 50                      | 0.4                                  | F-5200×800×2100(L×W×H)    | 3500             |

其他规格可按照要求制作。Other specifications can be customized.

# IGPS/SC系列晶体管高中频感应电源

## IGPS/SC SERIAL TRANSISTOR HIHG/MEDIUM FREQUENCY INDUCTION POWER SUPPLY

● 技术性能

系统采用DSP全数字控制，控制精度高，电路运行稳定。

● 电路谐振方式

串联谐振，适应多种加热工艺。功率因数高达≥0.95

● 加热效率高

晶体管电源效率可达95%以上，比电子管电源节能50%，比可控硅中频节能20%，运行成本低。

● 频率范围广

电源可以在中频和高频频率下工作，只需要调整LC电路。

● 负载匹配简单

设置频率自动扫描系统，与负载匹配简单。

● 启动成功率高

具有可频繁启动，安全可靠，启动成功率高达100%。

● 保护系统齐全

具有水温超高，欠水，过流，电压过低，频率限制等保护，工作过程采用程序监控。

● Technical properties

The system is DSP fully digital controlled, high control precision, stable circuit operation.

● Circuit resonance method

Serial resonance, suitable for various kinds of heating technology. Power factor≥0.95.

● High heating effecieny

Power efficiency ≥ 95%, 50% energy saving than electronic tube power, 20% energy saving than SCR middle frequency power, lower cost.

● Wide frequency range

The power can work in any frequency between middle frequency and super audio frequency with adjusting the LC circuit.

● Simple load matching

Auto frequency scanning system. Simply the matching with load.



- High starting rate

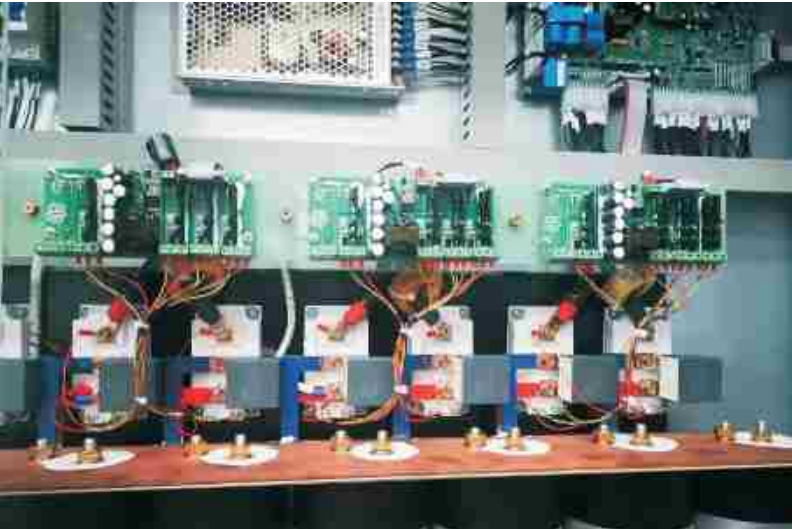
User can frequently start with safety and reliability. 100% successful starting rate.

- Complete protective system

Max. and min. protections on water temperature, water flow, current etc. PLC monitors the whole working process.

| 电源型号<br>Power Model | 输入电压<br>Input (V) | 输出功率<br>Power (KW) | 振荡频率<br>Frequency (KHZ) | 冷却水压力<br>Cool-Water<br>pressure(Mpa) | 冷却水量<br>Cool-Water(T/h) | 外型尺寸<br>Out-Dimension (mm) |
|---------------------|-------------------|--------------------|-------------------------|--------------------------------------|-------------------------|----------------------------|
| IGPS/SC-60          | 380               | 60                 | 1-200                   | ≥0.15                                | 1.8                     | 800×800×2000               |
| IGPS/SC -100        | 380               | 100                | 1-200                   | ≥0.15                                | 2.5                     | 800×800×2000               |
| IGPS/SC -160        | 380               | 160                | 1-200                   | ≥0.25                                | 3.0                     | 1400×800×2000              |
| IGPS/SC -250        | 380               | 250                | 1-100                   | ≥0.25                                | 6.0                     | 1400×800×2000              |
| IGPS/SC -300        | 380               | 300                | 1-100                   | ≥0.25                                | 8.0                     | 2100×800×2000              |
| IGPS/SC -400        | 400               | 400                | 1-50                    | ≥0.25                                | 8.0                     | 2100×800×2000              |
| IGPS/SC -500        | 400               | 500                | 1-50                    | ≥0.30                                | 10                      | 2400×800×2000              |
| IGPS/SC -600        | 400               | 600                | 1-20                    | ≥0.30                                | 12                      | 2400×800×2000              |
| IGPS/SC -800        | 400               | 800                | 1-10                    | ≥0.30                                | 15                      | 3200×800×2000              |
| IGPS/SC-1000        | 400               | 1000               | 1-10                    | ≥0.35                                | 20                      | 4000×800×2000              |
| IGPS/SC-1200        | 400               | 1200               | 1-10                    | ≥0.35                                | 25                      | 4000×800×2000              |
| IGPS/SC -1200       | 400               | 1200               | 1-10                    | ≥0.35                                | 25                      | 4000×900×2100              |
| IGPS/SC-1500        | 400               | 1500               | 1-10                    | ≥0.35                                | 28                      | 4000×900×2100              |
| IGPS/SC -1800       | 400               | 1800               | 1-3                     | ≥0.35                                | 28                      | 4200×900×2100              |
| IGPS/SC -2000       | 400               | 2000               | 1-3                     | ≥0.35                                | 28                      | 4200×900×2100              |
| IGPS/SC -2500       | 400               | 2500               | 1-3                     | ≥0.35                                | 32                      | 4800×900×2100              |
| IGPS/SC -3000       | 400               | 3000               | 1-3                     | ≥0.35                                | 35                      | 4800×900×2100              |

其他规格可按照要求制作。Other specifications can be customized.



## 管道预热设备 PRE-HEATING EQUIPMENT FOR PIPELINE

- 用途

用于钢管焊前预热/焊后热处理，大型轴套和电机热装配。

- 典型技术指标：

工件材料要求：钢管材质合金钢，碳钢，加热区域宽度最大为400-600mm。

加热温度：最高加热温度180℃，0~180℃温度可调，温度均匀。

加热精度：根据用户加热曲线进行分段温度控制，控温精度±1℃。

暂载率：110%。

保温要求/运行方式: 恒温运行、时间段控制、恒电流模式。

运行方式: 就地恒温运行、分段恒温运行

感应器方式:采用空冷加热电缆缠绕在工件外围方式

测温方式：K型热电偶接触式测温

- 组成

本系统由风冷式中频感应加热电源、感应加热线圈（开口感应线圈、滑动感应线圈、线绕感应圈或加热带）、空冷加热电缆、K型加热热电偶、温控仪、温度记录仪、保温毯等组成。

- Function

This equipment adopts fully digital air-cooled induction heating technology, suitable for partial heating of various assemblies in low-temperature environments (field operations).

- Typical technical specifications

Requirements for job material : alloy steel, carbon steel, and the max. width of the heating area is 400-600mm.

Heating temp.: the max. heating temp. is 180 °C, and the temperature can be adjusted from 0 to 180 °C, uniform temperature.

Heating accuracy: segmented temperature control based on user's heating curve, with a temperature control accuracy of ±1℃.

Temporary load rate: 110%.

Insulation requirements/operation mode: constant temperature operation, time period control, constant current mode.

Operation mode: on-site constant temperature operation, segmented constant temperature operation

Sensor method: air-cooled heating cable wrapped around the periphery of the job

Temperature measurement method: K-type thermocouple contact temperature measurement

- Composition

This system is composed of an air-cooled medium frequency induction heating power supply, induction heating coil(open induction coil, sliding induction coils, wire wound induction coil or heating strip), air-cooled heating cable, K-type heating thermocouples, temperature controller, temperature recorder, insulation blankets etc.

