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铸造及冶金用成套电气及辅助设备

**Electrical Equipment and Auxiliary Device
for Foundry and Metallurgy**

天津森诚电子有限公司
Tianjin Century Electronics Co., Ltd.

Company Introduction

Tianjin Century Electronics Co., Ltd (hereafter referred to as TCEC) was registered in Tianjin Port Free Trade Zone as an independent legal entity. TCEC is a professional import & export corporation which mainly exports power electronic devices, electric and mechanical equipments applied in foundry and metallurgy industry. Tianjin Century Electronics Co., Ltd. has a global market network covering over 40 countries and regions overall Europe, Middle East and South East Asia, Africa and South America.

The Products and equipments include:

- Medium-frequency and High-frequency power supply
- Medium-frequency and High-frequency induction heating equipment
- Molding machine
- Continuous casting machine
- Automatic control system
- Related equipments and devices applied in foundry and metallurgy industry

The earliest business that can be traced back to 1987 started with the export thyristors and its spare parts such as ceramic metal housing, ceramic rings and molybdenum discs. It is generally acknowledged that TCEC is the first specialized import & export company in the industry of power electronics in China. The development of TCEC has gone through the six years of hard entrepreneurship development period and four years of second pioneering stage of development. Currently, TCEC has entered a rapid growth period.

While the original business of power semiconductor devices is booming, kinds of complete sets of equipment such as power supply, metal heating treatment and foundry equipments as well as the turnkey solution have gradually become the major products. Currently, we have exported the complete set equipment and turnkey solution to Egypt, Tanzania, Morocco, Russia, Pakistan...etc

In addition, TCEC is the Director of Power Electronics Society under China Electrical Equipment Industrial Association (CEEIA), and the Working Committee on International Trade of China Electronic Chamber of Commerce Special Committee of Power Supply (CPSSC) has been set up in TCEC. TCEC has been acknowledged by the accreditation of Standard ISO9001:2008 of Quality Management System in 2009, and the company also has been rated as the highest AAA enterprise of Credit China System issued by Ministry of Commerce.

Credit-worthiness is the core philosophy of our company, so TCEC provides the long term focused training in order to upgrade the skills of employees. All these positive factors will guarantee TCEC's sustainable development. We have established the friendly and long-term strategic cooperation with our current customers. We wish we can establish long-term cooperation with the domestic and foreign customers.



目 录

Content

1. KGPS系列中频电源 KGPS Series Medium Frequency Power Supply·····	01
2. IGBT系列中频电源 IGBT Series Medium Frequency Power Supply·····	02
3. 串联谐振电路可控硅中频装置 Series Resonance SCR Medium Frequency Equipment·····	04
4. GW系列中频无芯感应熔炼炉 GW Series MF Coreless Induction Melting Furnace·····	08
5. GWB系列中频无芯感应保温炉 GWB Series MF Coreless Induction Holding Furnace·····	11
6. GWL系列中频无芯感应熔铝炉 GWL Series MF Coreless Induction Al-melting Furnace·····	11
7. GWT系列中频无芯感应熔铜炉 GWT Series MF Coreless Induction Copper-melting Furnace·····	12
8. GWG系列贵金属及稀有金属熔炼炉 GWG Series Rare Metal Melting Furnace·····	12
9. 中频感应加热设备 MF Induction Heating Equipment·····	14
10. 弹簧钢丝及管桩热处理生产线 Spring Steel Wire And PC Bar Induction Heating Treatment Line·····	16
11. 中/高频感应加热淬火机床 Medium/High Frequency Induction Quenching Machine Tool·····	18
12. 小型中频感应加热设备 (1kHz-20kHz) Portable MF Heating Machine (1kHz-20kHz)·····	21
13. 小型高频感应加热设备 (30-80kHz) Portable HF Induction Heating Machine (30-80kHz)·····	23
14. 超高频感应加热设备 (1.1-2.0MHz) Ultra-HF Induction Heating Machine (1.1-2.0MHz)·····	25
15. 钢坯连铸机 Steel Billet Continuous Casting Machine (CCM)·····	27
16. 微震压实造型机 Squeeze Jolt Molding Machine·····	29
17. 铸造用树脂砂再生生产线 Regeneration Line of Casting Resin Sand·····	31

KGPS系列中频电源 KGPS Series Medium Frequency Power Supply

产品用途:

适用于各种金属的熔炼、保温、透热、热处理、钎焊、弯管等感应设备的供电电源。

产品特点:

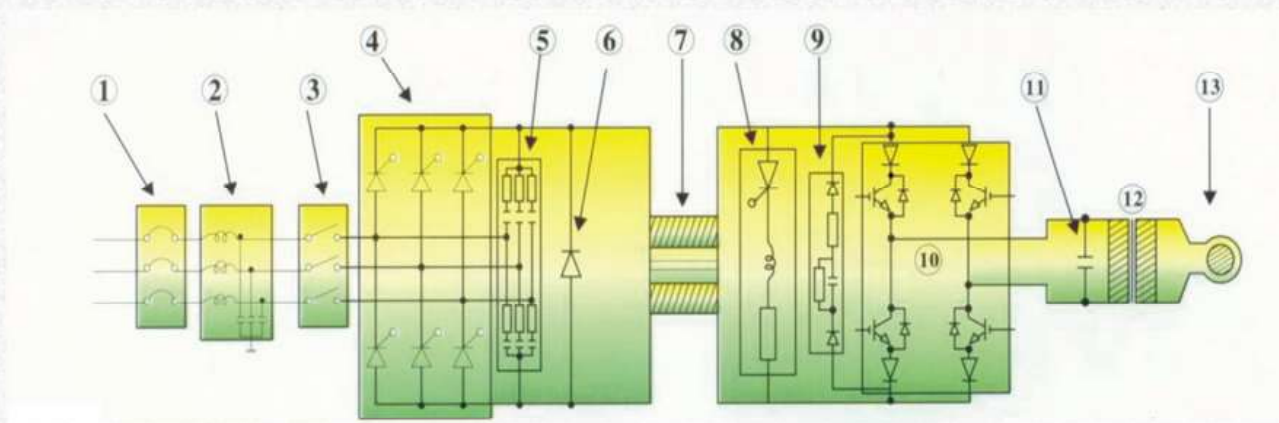
- 控制电路全数字化、集成化、高抗干扰性，功率因数达95%以上。
- 采用扫频式电路，工作稳定，保护可靠，负载适应性强，频繁启动成功率高达98%以上。
- 全面保护功能（负载短路、开路、缺水、过滤、过压、缺相等），可确保设备在多种故障情况下自动安全停机。
- 体积小、占地少，效率高，线路简介，美观，空间布局合理，全功率连续可调，温度闭环及恒功率控制，设备故障自诊断功能。
- 主电路有并联谐振和串联谐振两种。

Product application

The KGPS power supply is widely applied in melting, heat preservation, forging, thermal processing, braze-welding, bending of all kinds of metal heating treatment.

Product feature

- The character of control circuit: full digitalization, integration, reliable anti-interference, power factor more than 95%.
- The sweep-frequency circuit is adopted, steady operation, reliable protection and strong adaptability with load, frequent start-up successful rate more than 98%.
- Overall protection (short circuit, open circuit, lack water, over current, over voltage, lack phase...etc) ensure automatic stop running in case failure occurred.
- The advantages are: small volume, less space taken-up, high efficiency, concise circuit, reasonable layout, full load adjustable, temperature and power control constantly, failure diagnosis automatically.
- Two kinds of Parallel resonance and Series resonance circuits.



电气原理图 Schematic circuit diagram

1. 断路器 Breaker; 2. 交流滤波器 AC Wave Filter; 3. 接触器 Contactor; 4. 可控硅变频器 Controlled Silicon Converter; 5. 缓冲回路 Buffer Return Circuit; 6. 二极管 Diode; 7. 直流电抗器 DC Reactor; 8. 事故保护回路 Accident Production Return Circuit; 9. 逆变吸收回路 Inverter Absorber Return Circuit; 10. 逆变桥 Inverter Bridge; 11. 补偿电路 Compensating Circuit; 12. 变压器 Transformer; 13. 感应器 Inductor

Electrical Equipment and Auxiliary Device for Foundry and Metallurgy

技术参数 Technical parameter

型号 Model	进线电压 Input voltage (V)	额定功率 Rated power (kW)	额定频率 Rated frequency (kHz)	中频电压 MF voltage (V)
KGPS-50/1-8	380	50	1-8	700
KGPS-100/1-8	380	100	1-8	700
KGPS-160/1-8	380	160	1-8	700
KGPS-250/1-8	380	250	1-8	700
KGPS-350/0.5-8	380	350	0.5-8	700
KGPS-500/0.5-8	380	500	0.5-8	700
KGPS-600/0.5-8	380/575	600	0.5-8	700/1050
KGPS-750/0.5-6	380/575	750	0.5-8	700/1050
KGPS-1000/0.2-2.5	575	1000	0.2-2.5	1050
KGPS-1250/0.2-2.5	575	1250	0.2-2.5	1050
KGPS-1500/0.2-2.5	575	1500	0.2-2.5	1050
KGPS-2000/0.2-2.5	575	2000	0.2-2.5	1050
KGPS-2500/0.2-2.5	575/950	2500	0.2-2.5	1050/1900
KGPS-3000/0.2-2.5	575/950	3000	0.2-2.5	1050/1900
KGPS-3500/0.2-1	575/950	3500	0.2-1	1050/1900
KGPS-4000/0.2-1	575/950	4000	0.2-1	1050/1900
KGPS-4500/0.2-0.5	575/950	4500	0.2-0.5	1050/1900
KGPS-5000/0.2-0.5	575/950	5000	0.2-0.5	1050/1900
KGPS-6000/0.2-0.5	575/950	6000	0.2-0.5	1050/1900
KGPS-8000/0.2-0.5	575/950	8000	0.2-0.5	1050/1900

IGBT系列中频电源

IGBT Series Medium Frequency Power Supply

产品介绍:

IGBT 中频电源是一种采用新型半导体器件IGBT（绝缘栅双极型晶体管），串联谐振式的感应加热电源，是KGPS可控硅中频电源的换代产品。

产品特点:

· 恒功率输出、熔炼速度快：可控硅中频电源采用调压调功，而IGBT采用调频调功，它不受炉料多少和炉衬薄厚的影响，始终保持恒功率输出，尤其是生产不锈钢、铜、铝等不导磁物质时，更显示它的优越性，熔化速度快，元素烧损少。

- 节能：因逆变部分采用IGBT半桥逆变，逆变电压高，达到2800伏，逆变电流比同容量KGPS电源电流小了近4倍，固线路损耗小，比普通可控硅电源设备节能10%；
- 无高次谐波干扰：高次谐波主要来自整流部分调压时可控硅产生的毛刺电压，它会严重污染电网，导致其他电器设备无法正常工作。而IGBT中频电源采用三相全波不控整流、无相序、不调导通角，直流电压始终工作在最大，不产生高次谐波，不污染电网。
- 启动成功率高：因采用串联逆变技术，所以启动容易，可以实现100%启动。
- 功率因数高：功率因数始终大于0.95，无功损耗小。

Introduction

The IGBT MF power supply is the series resonance type of induction heating power supply, which adopts a new type semiconductor device IGBT (Insulated gate bipolar transistor). It's new designed equipment to replace KGPS SCR medium frequency power supply.

Product feature

- Constant output power, fast melting speed: SCR MF power supply will adjust voltage to adjust power, while IGBT power supply will adjust frequency to adjust power. The power factor of IGBT power supply will never be affected by the material volume in crucible or thickness variation of kiln lining, the power is outputted constantly all the time. Especially when melting the poor magnetic conductive material such as stainless steel, copper and aluminum, the advantage is much superior of fast melting speed and less element burned.
- Power saving: As the inversion part IGBT is applied for half bridge inversion, the inversion voltage is about 2800V, so the inversion current will be less than 25% of KGPS power supply with the same power capacity. So the power consumption of IGBT power supply is less, 10% power will be saved more than SCR power supply.
- No harmonic interference: Higher harmonic is mainly generated by burr voltage when rectifier adjusting the voltage. It will severely pollute the power Grid, damage the other electric equipments working properly. While IGBT MF power supply apply 3 phase full-wave uncontrolled rectification, no phase sequence, no conduction angle and the DC voltage is always working at the max value. So it won't generate higher harmonic nor power system pollution.
- Reliable start-up ratio: since the series resonance inversion technology is applied, easy to start and 100% successful.
- High power factor: The power factor is more than 0.95 and less reactive loss.

技术参数 Technical parameter

型号 Model	进线电压 Input voltage (V)	额定功率 Rated power (kW)	额定频率 Rated frequency (kHz)	中频电压 MF voltage (V)
IGBT/S-10/1-30	220	10	1, 2, 4, 5, 8, 10, 20, 30	240
IGBT/S-15/1-30	220	15	1, 2, 4, 5, 8, 10, 20, 30	240
IGBT/S-20/1-30	3N-380	20	1, 2, 4, 5, 8, 10, 20, 30	540
IGBT/S-30/1-30	3N-380	30	1, 2, 4, 5, 8, 10, 20, 30	540
IGBT/S-50/1-30	3N-380	50	1, 2, 4, 5, 8, 10, 20, 30	540
IGBT/S-100/1-30	3N-380	100	1, 2, 4, 5, 8, 10, 20, 30	540
IGBT/S-160/1-30	3N-380	160	1, 2, 4, 5, 8, 10, 20, 30	540
IGBT/S-250/1-30	3N-380	250	1, 2, 4, 5, 8, 10, 20, 30	540
IGBT/S-500/1-8	3N-380	500	1, 2, 4, 5, 8	540

串联谐振电路可控硅中频电源装置

Series Resonance SCR Medium Frequency Power Supply

装置的特点:

- 节能。由串联逆变电路的特征决定,吨钢电耗可控制在530~600kWh/t。
- 对电网无谐波污染,符合国家标准对电能质量和公用电网谐波GB/T14549-93要求,不需另加“消谐装置”。
- 成套设备对电网的功率因数高。不需外加任何补偿措施,在运行的全过程中自动将电网功率因数保持在0.97以上。
- 可靠性高,故障很少。
- 恒功率输出。可以做到从冷料到浇注,全过程都能保持满功率,大大提高了运行效率。熔化率高。
- 可以实现“一拖二”。自动浇注生产线上的感应熔化电炉,为了优化工艺、提高生产率、节电,要求一台电源双输出,可同时向两台电炉供电,实现“一拖二”,总功率可在两台炉体上无级分配。每台炉体上功率都可在0~100%之间分配,但两台电炉分得的功率之和不超过100%。实践中一台炉体熔化,另一台炉体保温浇注,且二台炉体均可相互置换使用。

Features

- Save energy. depending on the characteristics of series inverter circuit, power consumption of every ton of steel can be controlled at the range of 530~600kWh/t.
- Without harmonic pollution to power grid, coincide with GB/T 14549-93 National Standards of Power Quality Public Power Grid Harmonic. It does not need equip extra harmonic eliminator.
- There is high power factor to power grid of the complete equipment without any power compensation device. The power factor keeps more than 0.97 automatically in the whole process of working.
- Reliable operation and few faults.
- Constant output power. The system will keep full load power in the whole process of working, enhance working efficiency and melting rate.
- Dual-track will be realized by series resonance circuit. The dual-track system of induction melting furnace is required by the automatic casting production line, in order to optimize process, improve the productivity and save energy. The power will be stepless distributed to two furnace bodies simultaneously at the range of 0~100% from one power supply cabinet. Such will be easy to realize and switch any one furnace body in melting and another in holding.



GW-CL1600kW-B型（一拖二）内部结构照片和外观照片

The sight of internal structure and appearance of GW-CL1600kW-B Type dual-track power supply cabinet

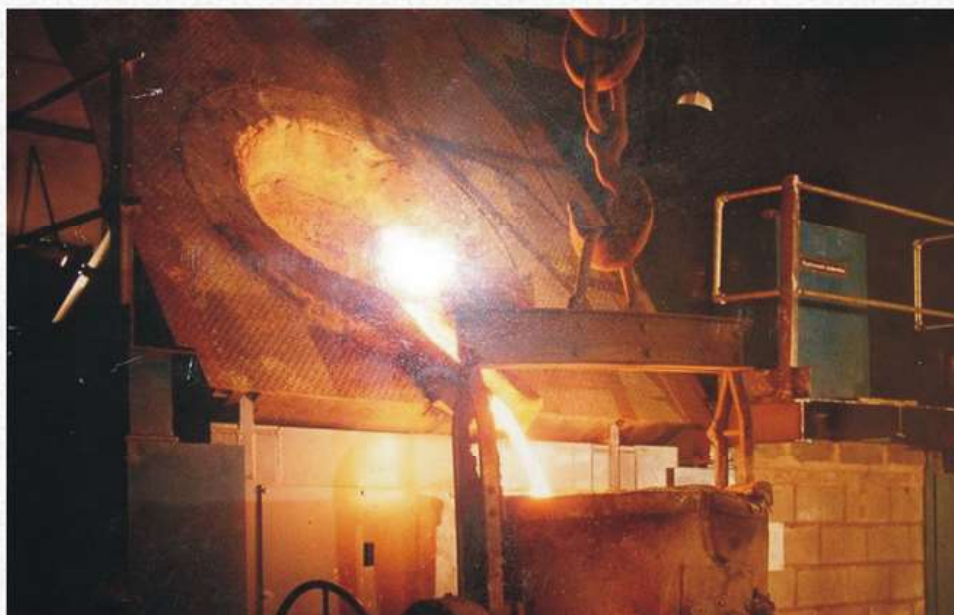


(一拖二) 串联谐振可控硅中频熔炼炉应用场景

Series Resonance Circuit SCR Medium Frequency Dual-track Melting Furnace Working Site

图中左炉达到浇注温度受控分配总功率的10%~20%作保温浇注, 而其余的80%~90%的功率自动分配到右炉作升温熔炼。等左炉铁水出毕, 这时右炉铁水也熔化达到额定温度, 可减小功率出铁水, 这时总功率自动向左炉转送, 左炉加料进入熔化, 周而复始。提高生产率、节电、优化工艺。

In the left picture, the molten iron in furnace has reached the casting temperature and preserved by 10%~20% of total power distributed by power supply control system. The balance 80%~90% of total power is automatically distributed to another furnace for melting. When the left furnace finished casting, the molten iron in right furnace will just reach the rated temperature. The power supplied will be reduced and switched automatically to previous furnace for melting. Feed raw material to the left furnace and start another melting cycle. The technology will enhance the productivity, save energy, and optimize the craft process.



Electrical Equipment and Auxiliary Device for Foundry and Metallurgy

串联谐振型可控硅中频电源系列主要技术参数

No	参数名称	1t-800- 0.35-B	1.5t-1200- 0.35-B	2t-1500- 0.3-B	2.5t-2000- 0.3-B	3t-2500- 0.3-B	5t-3000- 0.2-B	10t-6000- 0.2-B
01	炉体额定容量	1t	1.5t	2t	2.5t	3t	5t	10t
02	炉体最大容量	1.1t	1.6t	2.2t	2.8t	3.2t	5.5t	11t
03	额定总功率	800kW	1200kW	1500kW	2000kW	2500kW	3000kW	6000kW
04	单炉最大功率	600kW	1000kW	1200kW	1600kW	2000kW	2500kW	5500kW
05	进线电压相数	6相	6相	6相	6相	6相	6相	6相
06	电源整流模式	12脉	12脉	12脉	12脉	12脉	12脉	12脉
07	进线电压	380V	380V	380V	380V	480V	480V	575V
08	进线电流	480A	920A	1150A	1520A	1520A	1810A	3050A
09	直流电压	1000V	1000V	1000V	1000V	1250V	1250V	1500V
10	直流电流	600A	1200A	1500A	2000A	2000A	2400A	4000A
11	中频频率	350Hz	350Hz	300Hz	300Hz	200Hz	200Hz	200Hz
12	感应器电压	2000V	2200V	2500V	2500V	2500V	2500V	3000V
13	工作温度	1600℃	1600℃	1600℃	1600℃	1600℃	1600℃	1600℃
14	熔化率	1t/h	1.5t/h	2t/h	2.5t/h	3t/h	5t/h	9t/h
15	耗电量	550kWh/t	550kWh/t	550kWh/t	550kWh/t	550kWh/t	550kWh/t	550kWh/t
16	电源冷却水	15m ³ /h	25m ³ /h	35m ³ /h	50m ³ /h	60/h	80m ³ /h	160m ³ /h
17	电炉冷却水	30 m ³ /h	50m ³ /h	80m ³ /h	100m ³ /h	120m ³ /h	160m ³ /h	400m ³ /h
18	电网功率因数	≥0.95						
19	电网谐波影响	符合 电能质量 公用电网谐波 GB/T 14549-93 国家标准						
20	供电变压器： 电炉专用油浸 式整流变压器	ZS-800- 10/0.4	ZS-1200- 10/0.4	ZS-1500- 10/0.4	ZS-2000- 10/0.4	ZS-2500- 10/0.48	ZS-3150- 10/0.48	ZS-6000- 10/0.575
		一次3相10kV、 二次6相 D/d0,Y11接法、阻抗8%						
		380V				480V		575V
21	控制电源低压 配电柜容量： 从变电所通用 低压配电柜中， 将3相380V电源 用“三相四线” 接到“控制电 源低压配电柜” (安装在中频 电源室内)。	液压站电机5kW 电源冷却塔10kW 电炉冷却塔10kW 照明10 kW 小计容量：35kW				液压站电机5kW 电源冷却塔15kW 电炉冷却塔20kW 照明10 kW 小计容量：50kW		

Series Resonance Circuit SCR Medium Frequency Power Supply Technical Parameter

No	Parameter name	1t-800- 0.35-B	1.5t-1200- 0.35-B	2t-1500- 0.3-B	2.5t-2000- 0.3-B	3t-2500- 0.3-B	5t-3000- 0.2-B	10t-6000- 0.2-B
01	Rated capacity	1t	1.5t	2t	2.5t	3t	5t	10t
02	Max capacity	1.1t	1.6t	2.2t	2.8t	3.2t	5.5t	11t
03	Rated power	800kW	1200kW	1500kW	2000kW	2500kW	3000kW	6000kW
04	Max power of single furnace	600kW	1000kW	1200kW	1600kW	2000kW	2500kW	5500kW
05	Phase of input voltage	6phase	6phase	6phase	6phase	6phase	6phase	6phase
06	Rectification model	12pulse	12pulse	12pulse	12pulse	12pulse	12pulse	12pulse
07	Input voltage	380V	380V	380V	380V	480V	480V	575V
08	Input current	480A	920A	1150A	1520A	1520A	1810A	3050A
09	DC voltage	1000V	1000V	1000V	1000V	1250V	1250V	1500V
10	DC current	600A	1200A	1500A	2000A	2000A	2400A	4000A
11	MF frequency	350Hz	350Hz	300Hz	300Hz	200Hz	200Hz	200Hz
12	Inductor voltage	2000V	2200V	2500V	2500V	2500V	2500V	3000V
13	Working temperature	1600℃	1600℃	1600℃	1600℃	1600℃	1600℃	1600℃
14	Melting rate	1t/h	1.5t/h	2t/h	2.5t/h	3t/h	5t/h	9t/h
15	Power consumption	550kWh/t	550kWh/t	550kWh/t	550kWh/t	550kWh/t	550kWh/t	550kWh/t
16	Cooling water of power supply	15m³/h	25m³/h	35m³/h	50m³/h	60/h	80m³/h	160m³/h
17	Cooling water of furnace body	30 m³/h	50m³/h	80m³/h	100m³/h	120m³/h	160m³/h	400m³/h
18	Power factor	≥0.95						
19	Harmonic impact	Accord with power quality public power grid harmonic GB/T 14549-93 national standards						
20	Transformer: rectify transformer for MF furnace specially	ZS-800-10/0.4	ZS-1200-10/0.4	ZS-1500-10/0.4	ZS-2000-10/0.4	ZS-2500-10/0.48	ZS-3150-10/0.48	ZS-6000-10/0.575
		Primary: 3 phase/ 10 kV, Secondary: 6 phase, D/d0,Y11 connection, Impedance 8%						
		380 V				480 V		575 V
21	The capacity of low voltage Switch cabinet: from transformer connect 3N/380 V power supply to power supply LV switch control cabinet in 3 phase 4 lines(installed in MF power supply room).	Motor of hydraulic station: 5kW, Power supply cool water tower: 10kW, Furnace body cool water tower: 10kW, Lighting: 10kW, Total capacity: 35kW				Motor of hydraulic station: 5kW, Power supply cool water tower: 15kW, Furnace body cool water tower: 20kW, Lighting: 10kW, Total capacity: 50kW		

GW系列中频无芯感应熔炼炉

GW Series MF Coreless Induction Melting Furnace

产品介绍:

中频无芯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。具有熔化效率高、节电效果好、金属成分均匀、烧损少、温升快、温度容易控制等特点。

Introduction

MF induction smelting furnace will mainly be used to smelt black metal materials, such as steel, alloy steel, casting iron, etc and nonferrous metal materials, such as stainless steel, copper, aluminum, zinc, etc. It features in high melting efficiency, perfect power-saving, homogeneous metal ingredients, little smelted loss, rapid temperature rising and easy to control.



10t 熔炼炉
10t Melting Furnace



框架结构熔炼炉
Steel Frame-type Furnace Body



卷筒结构熔炼炉
Drum-type Steel Furnace Body

熔炼设备组成部件

Components of the melting equipment

No	部件名称 Component Name	数量 Qty
1	KGPS系列中频电源 Series KGPS MF induction power supply	一台 One set
2	电容柜 Capacitor bank	一台 One set
3	熔炼炉体（钢壳或者铝壳） Melting furnace body（Steel frame or aluminum frame）	二台 Two sets
4	机械倾炉装置（或者液压倾炉装置） Mechanical furnace-tilting device / hydraulic furnace-tilting device	一套 One set
5	水分配器 Water distributor	一套 One set
6	坩埚模（或者石墨坩埚、铁坩埚） Crucible former（Graphite crucible, iron crucible）	一只 One set
7	水冷电缆 Water-cooled cable	两根 Two sets
8	备用控制板 Spare main control board	一块 One set

GW系列（并联型）中频无芯感应熔炼炉主要参数

Main Parameters of GW Series MF Coreless Induction Melting Furnace (Parallel Resonance)

型号 Model	额定容量 Rated capacity (t)	额定功率 Rated power (kW)	输入电压 Input voltage (V)	输入频率 Rated freq (kHz)	额定工作电压 Rated work-voltage (V)	熔钢 Melting steel			熔铁 Melting iron			水耗 Cooling water consumption (t/h)
						工作温度 Work-temp (°C)	耗电量 Power consumption (kWh/t)	熔炼率 Melting rate (t/h)	工作温度 Work-temp (°C)	耗电量 Power consumption (kWh/t)	熔炼率 Melting rate (t/h)	
GW0.15-100-1	0.15	100	380	1	700	1600	800	0.125	1450	780	0.13	6
GW0.25-160-1	0.25	160	380	1	700		780	0.22		730	0.22	8
GW0.5-250-1	0.5	250	380	1	1400		760	0.33		690	0.36	10
GW0.75-350-1	0.75	350	380	1	1400		730	0.48		670	0.52	10
GW1-500-1	1	500	380	1	1400		680	0.75		620	0.8	12
GW1.5-750-1	1.5	750	380	1	1400		650	1.15		590	1.3	20
GW2-1000-0.5	2	1000	660	0.5	2000		640	1.55		580	1.7	30
GW2-1500-0.5	2	1500	660	0.5	2000		630	2.2		550	2.7	35
GW3-1500-0.2	3	1500	660	0.5	2000		620	2.4		550	2.7	35
GW3-2000-0.5	3	2000	660	0.5	2000		610	3.2		550	3.6	45
GW3-2500-0.5	3	2500	660	0.5	2000		600	4.1		540	4.6	50
GW5-2500-0.5	5	2500	660	0.5	2000		600	4.1		540	4.6	60
GW5-3000-0.5	5	3000	660	0.5	2000		570			520	5.8	65
GW7-3000-0.2/0.5	7	3500	660	0.2 ~ 0.5	2000		585	5.2		535	5.6	70
GW7-3500-0.2/0.5	7	3500	660	0.2 ~ 0.5	2000		575	5.3		525	6.5	70
GW8-4000-0.2/0.5	8	4000	660	0.2 ~ 0.5	2000		565	7.1		515	7.8	80
GW8-5000-0.2/0.5	8	5000	950	0.2 ~ 0.5	3000		555	9		505	9.9	100
GW10-5000-0.2/0.5	10	5000	950	0.2 ~ 0.5	3000		555	9		515	9.9	120
GW10-6000-0.2/0.5	10	6000	950	0.2 ~ 0.5	3000		545	11		505	11.8	130
GW12-6000-0.2/0.5	12	6000	950	0.2 ~ 0.5	3000		545	11		505	11.8	150
GW12-8000-0.2/0.3	12	8000	950	0.2 ~ 0.3	3000		535	15		500	16	160
GW15-8000-0.2/0.3	15	8000	950	0.2 ~ 0.3	3000		535	15		500	16	180
GW20-10000-0.2	20	10000	950	0.2	3000		525	19		495	20	200

Electrical Equipment and Auxiliary Device for Foundry and Metallurgy

GW-CL系列（串联型一拖二）中频无芯感应熔炼炉主要参数

Parameters of GW-CL Series Resonance MF Coreless Induction Melting Furnace (Dual-track)

型号 Model	额定 容量 Rated capacity (t)	额定 功率 Rated power (kW)	功率 因数 Power factor	输入 电压 Input voltage (V)	熔钢 Melting steel 1600℃		熔铁 Melting iron 1450℃		耗水量 Water consumption (t/h)
					熔炼率 Melting rate (t/h)	耗电量 Power consumption (kWh/t)	熔炼率 Melting rate (t/h)	耗电量 Power consumption (kWh/t)	
GWS1-750	1	750	95%	380	1.28	568	1.35	540	15
GWS2-1000	2	1000	95%	380	1.80	558	1.90	530	20
GWS2-1500	2	1500	95%	380	2.7	558	2.85	530	30
GWS2-2000	2	2000	95%	480	3.61	558	3.80	530	45
GWS3-1500	3	1500	95%	380	2.75	554	2.90	526	30
GWS3-2000	3	2000	95%	480	3.67	554	3.87	526	45
GWS3-2500	3	2500	95%	480	4.61	542	4.86	515	50
GWS5-2500	5	2500	95%	480	4.61	542	4.86	515	50
GWS5-3000	5	3000	95%	480	5.58	537	5.88	510	60
GWS5-3500	5	3500	95%	480	6.51	537	6.86	510	70
GWS8-4000	8	4000	95%	575	7.48	532	7.88	505	80
GWS8-5000	8	5000	95%	575	9.35	532	9.85	505	100
GWS8-6000	8	6000	95%	575	11.23	532	11.82	505	120
GWS10-5000	10	5000	95%	575	9.40	526	9.90	500	100
GWS10-6000	10	6000	95%	575	11.21	526	11.88	500	120
GWS10-8000	10	8000	95%	575	15.05	526	15.84	500	160
GWS12-6000	12	6000	95%	575	11.30	524	11.90	498	120
GWS12-8000	12	8000	95%	575	15.06	524	15.86	498	160
GWS15-8000	15	8000	95%	575	15.10	515	15.90	490	160
GWS15-9000	15	9000	95%	575	16.98	515	17.88	490	165
GWS20-10000	20	10000	95%	575	18.86	515	19.86	490	200
GWS20-12000	20	12000	95%	575	22.64	515	23.84	490	240

GWB系列中频无芯感应保温炉 GWB Series MF Coreless Induction Holding Furnace

型号 Model	额定容量 Rated capacity (t)	额定功率 Rated power (kW)	输入电压 Input voltage (V)	额定工作电压 Rated voltage (V)	额定频率 Rated frequency (kHz)	升温1350~1450 (°C)		冷却水耗量 Cooling water consumption (t/h)
						升温能力 Temperature-rising capability (t/h)	电耗 Power consumption (kWh/t)	
GWB-1/100-0.5	1	100	380	750	0.5	≥ 1.7	60	7
GWB-1.5/160-0.5	1.5	160	380	750	0.5	≥ 2.7	60	8
GWB-3/350-0.5	3	350	380	1400	0.5	≥ 6	58	10
GWB-5/500-0.5	5	500	380	1400	0.5	≥ 9.5	52	15
GWB-8/800-0.5	8	800	380	1400	0.5	≥ 16	50	20
GWB-10/1000-0.3	10	1000	660	2000	0.3	≥ 20	50	20
GWB-15/1500-0.3	15	1500	660	2000	0.3	≥ 30	50	30
GWB-20/2000-0.3	20	2000	660	2000	0.3	≥ 40	50	40
GWB-25/2500-0.3	25	2500	660	2000	0.3	≥ 50	50	50
GWB-30/3000-0.3	30	3000	660	2000	0.3	≥ 60	50	60
GWB-40/4000-0.3	40	3000	660	2000	0.3	≥ 80	38	60

GWL 系列中频无芯感应熔铝炉 GWL Series MF Coreless Induction Al-melting Furnace

型号 Model	额定容量 Rated capacity (t)	额定功率 Rated power (kW)	额定频率 Rated frequency (kHz)	输入电压 Input voltage (V)	额定工作电压 Rated voltage (V)	工作温度 Working temperature (°C)	熔化率 Melting rate (t/h)	电耗 Power consumption (kWh/t)	冷却水耗量 Cooling water consumption (t/h)
GWL0.05/50-1	0.05	50	1	380	750	780	0.075	650	2
GWL0.15/100-1	0.15	100	1	380	750		0.15	550	2
GWL0.30/160-1	0.30	160	1	380	750		0.25	640	5
GWL0.5/250-1	0.5	250	1	380	1400		0.41	6100	8
GWL0.75/350-1	0.75	350	1	380	1400		0.60	580	12
GWL1/500-1	1	500	1	380	1400		0.90	550	15
GWL1.5/750-1	1.5	750	1	380/660	1400/2000		1.42	530	20
GWL3/1500-0.5	3	1500	0.5	660	2000		2.8	535	30

GWT系列中频无芯感应熔铜炉

GWT Series MF Coreless Induction Copper-melting Furnace

型号 Model	额定容量 Rated capacity (t)	额定功率 Rated power (kW)	额定频率 Rated frequency (kHz)	输入电压 Input voltage (V)	额定工作电压 Rated voltage (V)	工作温度 Working Temp. (℃)	熔化率 Melting rate (t/h)	电耗 Power consumption (kWh/t)	冷却水耗量 Cooling water consumption (t/h)
GWT0.15/100-1	0.15	100	1	380	750	1250	0.15	660	3
GWT0.3/160-1	0.3	160	1	380	1400	1250	0.28	570	5
GWT0.5/250-1	0.5	250	1	380	1400	1250	0.48	520	8
GWT1/500-1	1	500	1	380/660	1400/2000	1250	1.1	450	12
GWT1.5/750-0.5-1	1.5	750	0.5-1	660	2000	1250	1.7	440	15
GWT2/1000-0.5	2	1000	0.5	660	2000	1250	2.4	420	20
GWT3/1500-0.5	3	1500	0.5	660	2000	1250	3.5	420	30
GWT5/2500-0.3	5	2500	0.3	660	2000	1250	5.4	460	48
GWT7.5/3000-0.3	7.5	3000	0.3	660	2000	1250	6.5	460	60
GWT10/5000-0.3	10	5000	0.3	950	3000	1250	12	410	88

注：以上数据以紫铜为准，其他材料数据将有所不同

Notes: The above data is subject to pure copper. Other material will be different respectively.

GWG系列贵重金属及稀有金属熔炼炉

GWG Series Rare Metal Melting Furnace

用途：

主要用于金银等贵重金属及稀有金属的熔炼。

特点：

熔炼速度快，效率高，操作简单，金属烧结少，设备结构紧凑，占地少。

Application

Used for melting valuable metals such as gold and silver as well as rare metals.

Features

Fast melting, high efficiency, easy operation, less burnt loss of metal, compact structure, less floor space.

功率Power (kW)	容量Capacity (kg)	频率Frequency (kHz)	进线电压Input voltage (V)
3, 5, 10, 15, 20	0.5, 1, 2, 3, 5, 10	0.5, 1, 2, 4, 10, 20	220/380
30, 50, 75, 100	15, 18, 30, 50	40, 100, 150, 200	380

成套供应范围

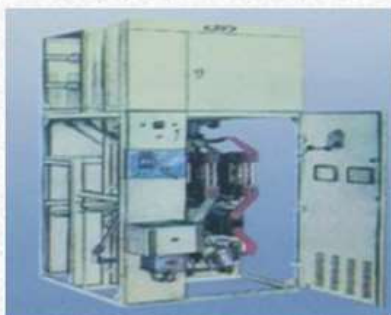
中频电源，补偿电容柜，整流变压器，高压开关柜，可根据用户需要配套中频感应熔炼设备，以及设计制造各种非标感应透热，热处理设备。

Available items scope

MF power supply, compensation capacitor cabinet, rectifier transformer, high voltage switch cabinet, make MF induction melting equipment according to customer's requirements, and design and make all kinds of non-standard induction through heating, thermal processing equipment.

与熔炼炉配套的选购件

Accessories of Melting Furnace (Optional Parts)



高低压开关柜
High & Low voltage switch cabinet



进线整流变压器
Rectification transformer



铁水包/浇包
Ladle



气动炉底筑炉工具
Pneumatic furnace bottom-built device



气动炉壁筑炉工具
Pneumatic furnace wall-built device



闭式水冷塔
Closest water cooling tower



石墨坩埚
Graphite Crucible



炉前铁水热分析仪
Molten liquid analyzer



手持测温仪
Handle thermodetector

中频感应加热设备 Medium Frequency Induction Heating Equipment

概述:

中频感应加热设备广泛应用于铸造及金属热加工领域。其设备特点是恒功率输出。启动采用扫频式零压软启动方式，对可控硅的冲击小，有利于延长可控硅的使用寿命，同时还具有轻重负载均容易启动的优点，更有利于频繁启动。控制板的核心部件采用美国生产的高性能、高密度超大规模专用集成电路。可在加热过程中不断检测感应器（炉体）的工作状态，不断调节中频电源工作参数，使其在加热过程中一直处于最佳工作状态，因而效率高，节电，电源运行平稳。并具有多项保护措施，如过流、过压、缺水、缺相等保护，使设备的运行更可靠，元器件寿命更长，大大降低了维修费用。

主要特点:

- 感应加热设备可在线工作，易于实现机械和自动化生产，环境污染小。
- 工件加热速度快，氧化和脱碳少，高效，工艺重复性更佳。
- 设备的设计充分考虑环保要求，同时降低工人工作强度改善工作环境，替代老旧的电阻，燃气和燃煤燃油炉。
- 同步加热温控准确。工件内外温差小。
- 感应器更换简便快捷。

Introduction

Medium Frequency Induction heating equipment is widely applied in forging, smelting and metal heating field. The character of the equipment is constant power output. The start mode is sweep-frequency zero voltage and soft-start which is little harm to SCR and enlarges the service time. Beside of that, the advantage is easy start at heavy or light load in frequently condition. The core of control board is high-efficiency high-integrated large scale special IC which is made in US. The working condition of furnace can be monitored during heating process. By continuously regulating the parameter of medium frequency power supply, the working condition will be steady in the best performance. Such equipment will save energy and keep high efficiency. Protection methods are applied against over-current, over-voltage, lack of water, lack of phase which can stable the operation and reduce the cost of maintenance.

Feature

- Induction heating equipment is featured of working online and better environment which is easy to realize mechanization and automatic production;
- Heating speed is higher while oxidation and decarbonization volume is less. Efficiency is higher and repeatability of craft is better;
- The device is designed in accordance with requirements of environment protection and less pollution. At the same time, it can also reduce labor strength and replace the old type resistance furnace and coal, gas and oil heat;
- The heating is homogeneous and temperature control is precise. So heating temperature different is smaller between the external and internal of the materials;
- Replacement of the inductor is simple and convenient.



Induction heating cabinet-1



Induction heating cabinet-2



Induction heating cabinet with thermal detector and auto discharge unit



Induction heating cabinet with auto discharge device

弹簧钢丝及管桩热处理生产线

Spring Steel Wire and PC Bar Induction Heating Treatment Line



产品介绍:

弹簧钢丝及高强度预应力钢棒热处理生产线，又称管桩钢丝（PC钢棒）热处理生产线。它是由放线装置、矫直装置、牵引装置、淬火装置、回火装置、剪切装置、收线装置等组成的机械系统，及由多台工作在不同频率的大功率感应加热电源装置、自动控制和配电操作装置等共同组合的机电一体化感应热加工成套设备。主要应用于冶金建材、金属制品等行业。是管桩钢丝、铁路轨枕钢丝及多种线缆材料感应热处理加工的最佳成套生产设备。

产品特点:

采用国际先进的IGBT型感应加热电源，国内先进的成套机械装置及PLC系统控制技术。生产线在线自动调控和监测，淬火、回火温度的高精度跟踪、监测及数字显示，保证产品的合格率。完善、可靠的故障监测及保护系统，确保整套设备连续、安全的平稳运行。本生产线广泛应用于 $\Phi 7.1$ 、 $\Phi 9.0$ 、 $\Phi 10.7$ 、 $\Phi 12.6$ 四种规格的PC钢丝线和 $\Phi 8$ —— $\Phi 13$ 的弹簧钢丝线的热处理，是钢丝热处理行业的一个创新，获得了国家专利。其优点主要表现在产量高、设备质量可靠、节约厂房和设备投资，节约电耗。

Product Introduction

Spring Steel wire and high-intensity Pre-stress Steel Bar Heat Treatment Product Line, also named Pipe Pile Steel Wire (PC Steel Bar) Heat Treatment Product Line. The mechanical system is consisted of spin wire devices, straightening devices, traction equipment, quenching equipment, tempering equipment, shearing mechanism and wire collection devices. The electric system is consisted of several induction power supply devices which working in different frequency, on-line automatic control device and power distribution device. The production line is widely applied in metallurgy, construction material, auto mobile parts and other metal wire heating treatment fields. It is the best complete set of production line for the induction heat treatment of processing pipe pile and spring steel wire, railway sleeper steel wire and various cable materials.

Product Features

It adopts the international advanced IGBT type induction heating power supply, the domestic advanced sets of mechanical device and PLC system control technology. It can regulate and monitor online speed on the production line, high precision tracking monitor the temperature of quenching and tempering and have digital display. It can ensure Product Pass Rate. The perfect and reliable failure monitoring and protection system ensure the whole line continuous and steady working. The line is especially applied for PC steel wire: $\Phi 7.1$, $\Phi 9.0$, $\Phi 10.7$, $\Phi 12.6$ and spring steel wire: $\Phi 8$ —— $\Phi 13$ heating treatment. This production line is an innovation in the production of steel wire with the national patent. The advantage characters are high productivity, reliable quality, less investment and less power consumption.



Straightening and hauling machine of
Pipe pile steel wire heating treatment line



Spring steel wire heating treatment line on site



Spring steel wire



PC Steel bar

中/高频感应加热淬火机床

Medium/High Frequency Induction Quenching Machine Tool



HF quenching machine tool GCJK10 series



HF quenching machine tool GCJK11 series

产品介绍:

感应淬火机床是与高频、中频或超音频加热装置配套使用，依据工件特征，对工件进行热处理的淬火设备。主要分为淬火、退火、回火、透热、焊接及成型等。

淬火机床分为通用和专用两种，传统方式分为机械式、液压式、复合式。控制部分分别采用计算机控制系统，经济型数控系统和可编程控制器，程序运行可靠，定位准确，操作方便，自动化程度高，能有效提高淬火质量。

产品应用:

用于光轴、半轴、阶梯轴、各种齿轮、花键轴及异形工件的热处理，也可用于刀具焊接、金属材料的透热、退火、预应力钢丝处理等。

Equipment Introduction

Induction quenching machine tool is combined with high frequency, medium frequency and ultra-audio frequency heating power supply for heating treatment of workpieces. The application is mainly include quenching, annealing, tempering, though-heating, welding, thermoforming and so on.

There are two kinds of quenching machine tools which are general and special type. The general type includes mechanical, hydraulic and compound. The control system is computer, economy CNC and PLC control system. The program is reliable designed, convenient and automatic operation. The quality of quenching performance will be improved.

Equipment Application

The machine is used for heating treatment of plain shaft, half shaft, stepped shaft, various gears, spline shaft, deformed work piece and also applied for welding, metal material though heating, annealing and heat-treatment of pre-stressed steel wire.

技术参数 Technical Parameter

型号 Model	最大加持长度Max holding length (mm)	最大加热直径Max heating diameter (mm)	最大零件重量Weight of the biggest part (kg)	传动结构Transmission structure	冷却方式Cooling method	主要用途Main application	
立式液压高频淬火机床（工件运动）Vertical hydraulic hardening machine tool (work piece movement)							
GC1050	500	400-600	150	全液压 Full hydraulic	喷淋、浸液 Spraying, immersion	各种轴、 齿轮 All kinds of shaft and gears	
GC10100	1000						
GC10150	1500						
Gc10200	2000				喷淋 Spraying		
立式全机械高频淬火机床（工件运动）Vertical mechanic hardening machine tool (work piece movement)							
型号 Model	最大加持长度Max h olding length (mm)	最大加热直径Max heating diameter (mm)	连续加热直径Continuous heating length	最大零件重量Weight of the biggest part (kg)	传动结构Transmission structure	主轴转速Rotary speed of main axis (rpm)	主要应用Main application
GCJK1050	500	400-600	500	150	全机械 Full mechanical	20-150	All kinds of shaft and gears
GCJK10100	1000		1000				
GCJK10150	1500		1500				
立式数控淬火机床（感应器运动）CNC Vertical hardening machine tool (inductor movement)							
GCJK1050-CNC	700	400-600	500	200	全机械 Full mechanical	1-150	All kinds of shaft and gears
GCJK10100-CNC	1200		1000				
GCJK10150-CNC	1700		1500				
GCJK10200-CNC	2200		2000				
立式、复合式中频淬火机床（感应器运动）Vertical compound medium frequency machine tools (inductor movement)							
型号 Model	最大加持长度Max holding length (mm)	最大加热直径Maxheating diameter (mm)	连续加热直径Continuous heating length	最大零件重量Weight of the biggest part (kg)	传动结构Transmission structure	冷却方式Cooling method	主要用途Main application
GCFW11150/100	1500	1000	1500	1500	可控机 Controllable machinery	喷淋 Spraying	轴类淬 火, 齿轮 单齿轮淬 火Shaft, gear hardening, Single gear hardening
GCFW11150/200		2000				喷淋油浸 Spraying, oil immersion	
GCFW11150/300		3000		10000			
GCFW11150/400	2000	4000	2000			20000	
GCFW11150/500		5000					
GCFW11150/600		6000					
多工位淬火机床 Multiple station hardening machine tool							
型号 Model	控制器Control device	最大加热直径Max heating diameter (mm)	旋转速度Rotary speed	工位数The number of the station	冷却模式Cooling method	零件下降速度Descent speed of pieces	运动方式Movement method
GCJK3315/12	PLC	100	20-150rpm	12	喷淋或浸液 Spraying or immersion	1-30rpm/sec	workpiece movement
GCJK3315/15N	CNC	100	30-300rpm	4			Inductor movement

Electrical Equipment and Auxiliary Device for Foundry and Metallurgy



QCJK 1050Q quenching machine



HF quenching machine tool 032 work piece



MOSFET Solid State Power Supply



IGBT Quenching Machine Tool

小型中频感应加热设备 (1kHz-20kHz)
Portable MF Heating Machine (1kHz-20kHz)



产品特点 Main feature

- 大功率，低频率，透热性能好
Strong power, low frequency and excellent diathermancy.
- 高效，节能，易安装，操作简单
High efficiency, power saving, simple installation and operation.
- 暂载率100%，可连续工作24小时
100% full load, 24 hours working continuously.
- 采用全固态IGBT变频及频率自动跟踪技术
Adopt solid state IGBT inversion and frequency auto tracking technology.
- 有自诊性能，包含过压、过流、缺水、缺相、过热等。
Comprehensive protection measurement: auto fault diagnosis, over voltage, over current, lack of water, phase fail, over heated, etc.
- 手动和自动模式自动调节，提高工件的加热质量、重复性和连续性。
Manual and automatic mode regulating manner, enhance the quality of work pieces heating performance, heating duplication and continuous heating.

产品应用 Application

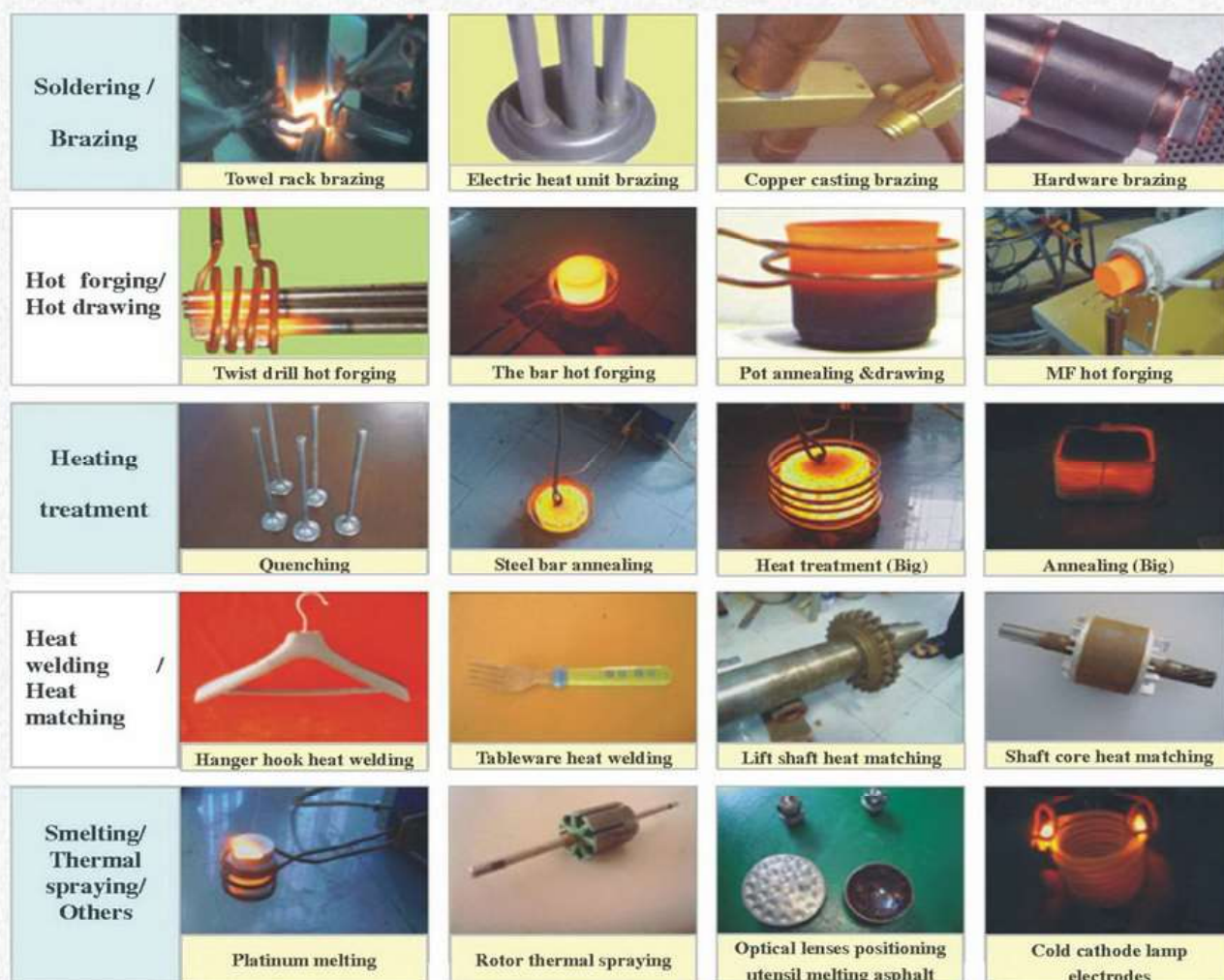
- 熔炼，轴类淬火，标准件热锻，铜/钢板加热，转子热配合，铝/铜/复合金属加热，手柄焊接，铜件加热。

Melting, shaft quenching, hot forging for standard wares, copper/steel plate heating, rotor hot cooperate, aluminum/copper/plastic complex heating, handle welding, copper work piece heating

Electrical Equipment and Auxiliary Device for Foundry and Metallurgy

技术参数 Technical parameter

参数名称 Parameter name	JLZ-15	JLZ-25	JLZ-35	JLZ-45	JLZ-70	JLZ-90	JLZ-110	JLZ-160	JLZ-260	JLZ-360
输入电压 Input voltage	3phase 380V									
输出功率 Output power	15 kW	25 kW	35 kW	45 kW	70 kW	90 kW	110 kW	160 kW	260 kW	360 kW
振荡频率Oscillate Frequency	1-20 kHz	1-20 kHz	1-20 kHz	1-20 kHz	1-20 kHz	1-20 kHz	1-20 kHz	0.5-10 kHz	0.5-10 kHz	0.5-10 kHz
冷却水压力Pressure of cooling water	0.2 Mpa	0.2 Mpa	0.3 Mpa	0.3 Mpa	0.5 Mpa	0.5 Mpa	0.5 Mpa	0.5 Mpa	0.6 Mpa	0.6 Mpa
主/分机重量 Main/auxiliary weight	25kg/ 30kg	28kg/ 30kg	43kg/ 50kg	50kg/ 55kg	130kg	140kg	150kg	160kg	350kg	450kg
进水水温Input water temperature	< 40℃									



Application of the portable induction heating machine

小型高频感应加热设备 (30-80kHz) Portable HF Induction Heating Machine (30-80kHz)



A系列- 一体机 A series- All-in-one machine



B系列- 分体机 B series- Split type machine

产品特点 The features

- 采用富士MOSFET管及西门子欧派克IGBT功率管和独特的第二代逆变技术。
Apply MOSFET, IGBT power electric device and the prior latest inversion technology.
- 可调节加热保温过程的功率、时间，有利于提高加热的质量和加热的重复性，简化工人的操作工序。
The power and time are adjustable during operation in order to improve the quality and repeatability of heating and simplify workers operation.
- 安装简单，接上单相220V或三相380V电源、进/出水即可，几分钟可完成。
Convenient installation. Just connected with single phase 220V or three phase 380V power supply, inlet and outlet water to complete the commissioning within several minutes.
- 占地极小，操作简单，几分钟可学会特别安全，输出电压低于36V,免除高压触电危险。
Small volume, simple operation, easy training, secure in operation. The output voltage is less than 36V which can avoid of the possibility of HV electrical shock.
- 无明火，更安全。利用电流产生的电磁感应，只对任何金属加热。
No open flame. The current will just generate electromagnetic induction to metal material.

产品应用 Application

- 卫浴产品钎焊
Sanitaryware brazing
- 五金件淬火
Hardware quenching
- 多管焊接
Tubes soldering
- 棒料热锻
Iron bar forging

Electrical Equipment and Auxiliary Device for Foundry and Metallurgy

技术参数 Technical Parameter

参数名称 Parameter name		XJH-15kW-A	XJH-15kW-B	XJH-25kW-A	XJH-25kW-B
输入电压 Input voltage		Single phase 220V 50-60Hz	Single phase 220V 50-60Hz	3*380V 50-60Hz	3*380V 50-60Hz
输入电流 Input current max		32A	32A	23A	23A
输出振荡功率 Oscillate power max		15kW	15kW	25kW	25kW
暂载率 Duty cycle		80%30℃	80%30℃	80%30℃	80%30℃
重量 Weight		24kg	30kg	29kg	34kg
电缆连接长度 Cable length		2-6 m			
振荡频率 Oscillate frequency		30-80kHz	30-80kHz	30-80kHz (standard 50Hz)	30-80kHz (standard 50Hz)
尺寸 Dimension	主机 Host	495*240*485	495*240*485 mm	550*240*485	550*240*485 mm
	分机 Auxiliary	mm	340*205*340 mm	mm	340*205*340 mm

参数名称 Parameter name		XJH-35kW -B	XJH-45kW -B	XJH-60kW -B	XJH-90kW -B	XJH-120kW -B
输入电压 Input voltage		Three phase 380V 50/60Hz				
输入电流 Input current max.		53A	68A	105A	160A	200A
振荡功率 Oscillate power max.		35kW	45kW	60kW	90kW	120kW
暂载率 Duty cycle		100% 30℃ Indoor temperature				
重量 Weight		56kg	64kg	81kg	95kg	105kg
冷却水流量 Cooling water flow		0.3MPa, ≥6L/min			0.4MPa, ≥10L/min	0.5MPa, ≥12L/min
连接电缆 Cable length		2-6m				
振荡频率 Oscillate frequency		30-80kHz				
尺寸 Dimension	主机 Host	550*240* 485 mm	550*240* 535 mm	650*285* 610 mm	650*350* 455 mm	650*350* 560 mm
	分机 Auxiliary	470*265* 440 mm	470*265* 440 mm	510*265* 430 mm	700*350* 450 mm	700*350* 460 mm

超高频感应加热设备 (1.1–2.0MHz) Ultra-HF Induction Heating Machine (1.1–2.0MHz)



产品特点 The features

- 体积小，搬运方便。

Machine is small volume and portable.

- 淬火、焊接面积1mm²–1cm²之间，变形允许量细小，要求超快淬火、焊接之工作，用此机可获得最佳效果。

The area of quenching or welding is just 1mm²–1cm². The transformation tolerance of work piece is very little. It's properly applied in fast quenching and welding requirement process.

- 采用专用微电脑软件，实现频率自动跟踪、具有故障自诊断功能。

The special microcomputer software is adopted to realize frequency auto tracing and auto fault diagnosis.

- 可加热焊接最小Φ0.1mm，细如发丝之金属。

This machine is available to weld tiny metal wire (Min. 0.1mm).

产品应用 Application

- 电子元件焊接 Electronic element welding;
- 工艺品焊接 Handiwork welding
- 刀具淬火 Knives quenching
- 极精细金属件焊接 Thin metal welding
- 珠宝首饰黄金焊接 Jewelry and gold welding

技术参数 Technical Parameter

参数名称 Parameter name		XJH-3.2kW	XJH-4.5kW	XJH-6kW
输入电压 Input voltage		单相220V 50–60Hz single phase 220V 50–60Hz		
振荡功率 Oscillate power max		4kW	15kW	15kW
输出电流 Output current		5–15A	5–20A	10–28A
振荡频率 Oscillate frequency		1100kHz–2000kHz		
重量 Weight		20kg	21kg	22kg
尺寸 Dimension	主机 Host	320*190*400mm	330*310*155mm	320*190*400mm
	分机 Auxiliary	125*60*95mm		

Electrical Equipment and Auxiliary Device for Foundry and Metallurgy



JLCG-10kW



XJH-35kW



JLCG-60kW



XJH-70-90kW-B

钢坯连铸机

Steel Billet Continuous Casting Machine (CCM)

产品介绍:

根据客户的要求, 设计、生产的连铸机用于连续铸造截面为 80×80 至 150×150 mm, 长度为6m/12m的定尺方坯, 并配有自动控制系统。其种类有单机单流、单机双流、多机多流等。我们同时提供拉矫机、自动切割机、钢坯冷床、钢坯吊具、钢水吊具、软水处理及水冷却系统等辅助设备和设施以及整体设计方案。

Product Introduction

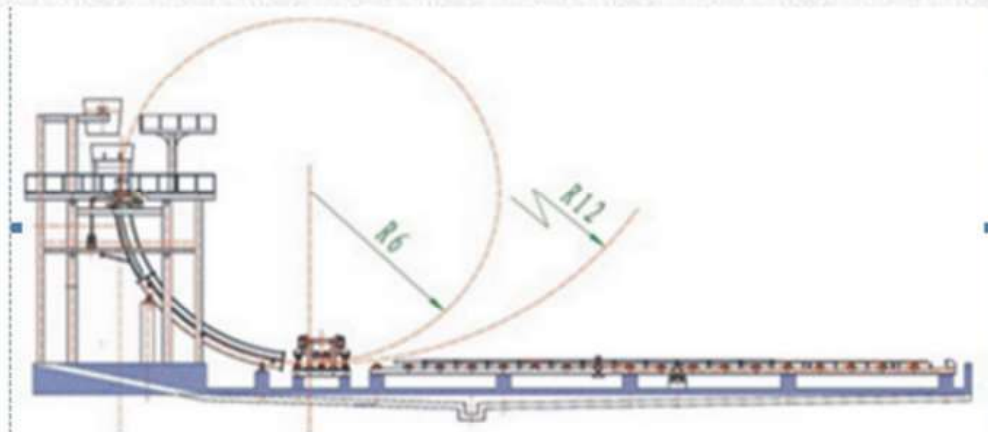
This continuous casting machine is designed and manufactured according to user's request and is used for continuously casting the square billet, the cross section of which is 80×80 , 100×100 or 120×120 , 150×150 mm with length of 6m/12m operated by automatic control system. We can provide single strand, double strands and multiple strands CCM as well as straightening machine, automatic cutting machine, billet cooling bank, billet spreader, molten steel spreader and other auxiliary devices and facilities such as soft water treatment and water cooling system. We are also the provider of turn key project proposal.

技术参数

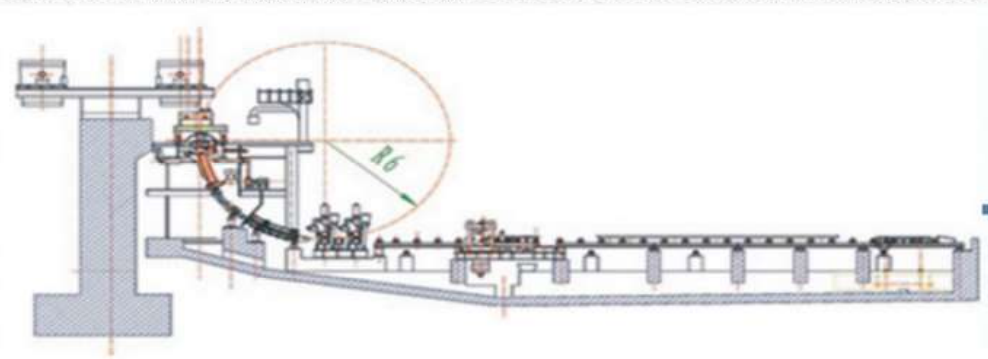
Technical parameter

项目 Item	R2.5M	R4M	R5.25M	R6M
模式 Mode	连续调节满弧 Continuous regulation full arc			
圆弧半径 Arc radius (m)	2.5	4	5.25	6
流数 Strand number	1	1	1, 2	2, 3, 4
年产量 Annual productivity (T/Y)	20000—40000	30000—50000	80000—120000	150000—200000
断面 Cast section (mm ²)	60×60 70×70	80×80 100×100	100×100 120×120	120×120 150×150
拉坯长度 Cast length(m)	10	10	10—15	20
定尺 Rated length (m)	3—6	3—6	3—8	3—9
拉速 Cast speed (m/min)	1.2	1.8	2—3	2.5
最大拉速 Max speed (m/min)	2	2.5	3—4	4
小时钢坯产量 Casting productivity (t/h)	4—8 (single strand)	8—12 (single strand)	10—14 (single strand)	15—20 (single trend)
引锭杆 Ingot leading pole	刚性引锭杆 Rigidity leading pole			
连铸机高度 Machine height (m)	5	7	8	8
占地面积 Floor space (m ²)	4×20	5×20	8×25	10×35
额定功率Rated power (kW)	50	$37+60$ (water pump)	200	250
电耗 Power consumption (kWh/t)	5	5	10—15	15

Electrical Equipment and Auxiliary Device for Foundry and Metallurgy



R6/R12m 全弧形轻型连铸机 Light type R6/R12m all arc continuous casting machine



R6m 全弧标准型连铸机 Standard type R6m all arc continuous casting machine



R2.5m 小型连铸机 R2.5m mini-type continuous casting machine

微震压实造型机 Squeeze Jolt Molding Machine

产品介绍:

该设备被广泛用于铸造行业，可以单独使用，也可以配套其他设备或组建造型生产线。该设备的特点是稳定可靠，节约劳动力，降低损耗以及有很高的生产效率。

产品特点:

- 设备结构进行优化设计，机身采用方箱框架结构，大幅度提高机身的刚性。
- 设备采用微震压实造型工艺，可大幅度提高压实力，使砂箱硬度可达HB90以上，表面粗糙度提高一个等级，稳定其产品质量。
- 设备震击部分装有缓冲弹簧，有效降低机器对地基的影响。
- 设备起模机构采用气缸、曲柄、连杆、同步轴实现同步起模。
- 设备控制部分全部采用气动元件来实现整体功能，操作简单，维护方便。
- 设备操作方便，可视砂型情况，操作程序可人性化，有效的提高生产效率。

Introduction

This machine is a kind of molding equipment widely applied in casting and foundry industry, which operated alone or combined with other machines or production lines for molding. This machine features stable and reliable quality, saving labor, low material consumption and high production efficiency in molding process.

Feature

- The machine is optimized designed with square frame structure to increase the rigidity.
- The machine adopted the jolt squeeze technology to improve the pressing power to enhance the rigidity of molding flask more than HB90 and improve the roughness performance of surface to stabilize the quality of product.
- The jolt device is assembled with cushion spring to reduce the damage to foundation.
- The rapping system adopts cylinder, crank, connecting shaft and synchronous spindle to realize synchronous drawing.
- The control system adopts the pneumatic component to realize the comprehensive function to simple operation and convenient maintenance.
- Convenient operating, the operation procedure is human friendly according to condition of the molding sand, to increase the productivity

技术参数 Technical parameter

参数名称 Parameter name	单位 Unit	Z144W	Z145W	Z146W	Z148CW
最大砂箱尺寸 Max dimension of molding flask	mm	500*400*200	550*500*250	600*550*250	800*630*320
工作台尺寸 Work plate dimension	mm	610*450	600*560	700*550	900*730
震击负荷 Squeezing load	kgf	4200	5000	7000	12000
压实力 Jolt power	kgf	160	300	300	550
压实行程 Jolt travel	mm	150	160	200	180
震击行程 Squeezing travel	mm	150	200	200	320
生产率 Productivity	Box/h	40-60	50-60	40-60	40-60
自由空气耗量 Consumption of free air	m ³ /box	0.3	0.4	0.4	0.5
外形尺寸 Dimension	mm	1300*800*700	1100*850*130	980*750*1568	1677*1038*2200



Squeeze jolt molding machine – Z144W type



Squeeze jolt molding machine – Z145W type



Squeeze jolt molding machine – Z146W type



Squeeze jolt molding machine – Z148CW type

铸造用树脂砂再生生产线 Regeneration Line of Casting Resin Sand

产品介绍:

设备具有技术先进,性能可靠,结构合理,布置灵活,使用维护方便等特点,并采用PLC控制实现了机电一体化。目前公司的树脂砂、水玻璃砂成套设备有16个系列80多种产品,能够满足铸造行业树脂砂、水玻璃砂工艺生产厂(车间)年产1000-30000吨的需要。

Product Introduction

The features of the equipment are advanced technology, reliable performance, rational structure, flexible layout, simple application and maintenance. The PLC control system is applied to realize mechatronics integration system. At present, there are 16 series, more than 80 kinds of production for the regeneration production line of resin sand sodium silicate sand and meet the demand of annual 100030000 tons of resin sand and sodium silicate-bonded sand.

主要设备 Main Equipment

1. Y335D 带式输送机Y335D Belt conveyor

该机是根据铸造车间使用特点而设计的一种新型带式输送机,主要用于铸造车间输送新砂、旧砂、型砂、焦炭、石灰石等物料,也可用于建材、化工、粮食加工等行业输送无腐蚀低温的块、粒状散性物料。

This conveyor is a new type designed according to the special application of casting plant. It is mainly used for conveying the new sand, used sand, molding sand, coat and lime stone as well as the construction material, chemical industry and food processing for all granular or block shape material.

- 带宽 Width of belt: 500mm
- 带速 Conveying speed: 1m/s
- 平行输送量 Parallel transfer volume: 50m³/h
- 电机功率 Power of motor: 1.5kW

2. S561 多功能振动再生机S561 Multi-function vibration regenerator

该系列再生机主要用于树脂砂和水玻璃砂的旧砂再生。它是以振动挫擦再生为主,集落砂破碎、筛分、脱模多功能于一体。属典型的软再生设备。再生后的砂子粒度集中度显著提高,粒型更加圆整。

This regeneration machine is designed for the resin sand or silicate bonded sand regeneration. The main mode is vibration and friction regeneration, also the function of breaking sand shakeout, sieving, demold.

- 生产率 Production rate: 1-3 t/h
- 电机功率 Power of motor: 2*1.5kW

3. Y3715 斗式提升机Y3715 Bucket elevator

该机在机械化铸造车间中是一种普遍采用的垂直输送设备,主要用于提升旧砂、废砂、新砂、清理铁丸等散材料。它同带式输送机等设备配合,可以布置成多种形式的输送系统。它具有外形尺寸小、占地面积少、提升高度大的特点,使系统的布置更为紧凑。

This machine is a vertical transferring machine which is applied in mechanical casting plant. It is mainly used for elevating the used sand, waste sand, new sand, cleaning iron shot, etc. Combined with the belt conveyor and other devices, we can design many kind of transferring system. The features are small external size, less volume and higher elevation level so that the layout drawing will be compact.

- 生产率 Production rate: 3-8 t/h
- 电机功率 Power of motor: 1.5kW

4.S522II 离心再生机S522II Centrifugal regenerator

该系列再生设备是采用干法离心式再生的原理，主要用于树脂砂旧砂的再生。工作时旧砂在高速回转叶轮的作用下，抛向耐磨衬圈，通过沙粒与粒圈、叶轮与机盒、砂粒与砂粒之间的相互碰撞和摩擦，去除砂粒表面的树脂惰性膜。根据旧砂不同的工艺要求，可调整砂子在该机中的再生循环次数，达到满足工艺要求的再生砂。

The centrifugal machine adopts the principle of dry-process centrifugal regeneration. It is mainly used for used resin sand regeneration. The used sand will be thrown to wear-resisting lining by the high speed rotating blade. And the inert cover on the surface of resin sand will be removed by the rub and collision process between the sand articles, blade and box. According to the process requirement, the process will be repeated for many times till the target achieved.

- 生产率 Production rate: 3-5 t/h
- 电机功率 Power of motor: 2*3kW

5.S562III 风选器S562III air-float separator

本机主要用于树脂砂和水玻璃砂系统的砂粒与微粉的分离，能使再生砂中的微粉彻底去除，能使再生砂子达到工艺要求。

The separator is mainly used for separating the powder from the sand of resin sand and sodium silicate sand. The powder should be completely removed from regenerating sand, so that the regenerating sand may meet the process requirement.

- 生产率 Production rate: 3-5 t/h

6.S255T 双臂树脂砂混砂机S255T Double-arm sand mixer

本系列双臂混砂机主要用于树脂砂自硬砂，水玻璃砂的混制。粘结剂供给系统采用先进的齿轮泵、隔膜泵、液体检测仪，测量准确，混砂时间短，无头尾砂损失，双臂回转灵活，作业面积大。全开式混砂搅笼壁，便于叶片清理或调整。在混砂机的一级二级衔接处及二级出料口处增加了除尘祛味系统，降低了砂中的微粉含量，减少了粘结气味在空气中的含量。电气采用PLC控制，制约保护充分，模拟屏显示，工作稳定可靠。

The machine is applied to mix the resin sand and silicate bonded sand. The adhesive feeding system consisted of the gear pump, membrane pump and liquid detector so the measurement is accurate, the mixing period is short and the loss of first and last round sand is less. The double-arm of machine rotates flexibly and the available working area is large. The open type sand mixing stir cage is advantage for cleaning or adjusting the blade. The dust collection and deflavours system are combined in the primary and secondary connection as well as the secondary outlet, in order to reduce the content of powder and binder air in the sand. The electric control system is PLC controlled and completely restricting protection. The information displayed by mimic board with reliable operation.

- 生产率 Productivity: 3-5t/h
- 一级回转半径 Primary rotating radius: 2.75m 回转范围 Rotary scope: 120°
- 电机功率 Power of motor: 2.2kW
- 二级回转半径 Secondary rotating radius: 1.75m (可变 flexible) 回转范围 Rotary scope: 270°
- 电机功率 Power of motor: 4kW

7.S524IV 砂温调节器S524IV Sand temperature regulator

砂温调节器的主要原理为：砂子从上部进入调温器，有水管外面流过，冷却水（热水）连续通过装有散热片的多级冷却水管内，热砂（冷砂）经过冷却水管与冷却水（热水）热交换热量降温（升温），温控器测量达到规定温度后，开启阀，出砂，完成砂温调节。

The main principle of sand temperature regulator: The sand is conveyed to sand temperature regulator from the top of sand temperature regulator and there are water pipes in the sand temperature regulator. The cooling water or hot water continuously flow in the heat sink which assembled with multilevel cooling pipes. Hot sand or cold sand is conveyed to from the water pipes for heating exchange. The sand will be conveyed out when reach the set temperature.

- 生产率Production rate: 3-5 t/h

8.HD8980 布袋除尘器HD8980 Bag-type dust collector

该系列单机除尘器是专为水泥厂库顶、库底、皮带输送及局部除尘而设计的，也可用于铸造机械加工、冶金、陶瓷、玻璃、化工制品、粮食加工的行业的除尘。具有面积小、处理风量大、结构紧凑、使用方便、可靠等优点。该产品对比重大的金属切屑、铸造用砂和中等比重的粉尘，均有良好的除尘效果。

The series of bag-type dust collector is specially designed for dedusting at the roof or bottom of cement plant storeroom, belt conveyer and collecting dust in a small area and it is also used for dedusting in the industry of casting machinery processing, metallurgy, ceramics, glass, heavy chemicals and food processing. The advantages of dust collector are little volume, large amount of air processing, compact structure, convenient application, strong reliability and so on. This equipment has a good dust collecting performance for large proportion of metal borings, sand for casting and medium proportion of powder.

- 处理风量Processing air volume: 5200-6000m³/h
- 过滤面积Filter area: 40m²
- 风机功率Rated power of fan: 15kW

方案实例 Case Project

1. 用户要求 User requirement

根据公司的生产纲领、车间格局和技术要求，该线设计采用以碱性酚醛树脂和有机脂作粘结剂，应用常温固化的树脂砂造型工艺，用于生产耐热钢。

According to the production program, workshop structure and technical requirements, the alkaline phenolic resin and organic material are applied as binder, adopt normal temperature cured resin sand molding process to manufacture heat resistant steel.

- 生产能力：年产铸件1000吨 Productivity: Steel casting parts 1000ton per year
- 旧砂再生能力：Regeneration capacity of used sand: 1-3t/h
- 旧砂回收率：Recovery rate of used sand: ≥95%
- 再生砂脱模率：Regeneration sand demold rate: ≥26%
- 再生砂灼减量：Ignition loss of regenerated sand: ≤3.5%
- 再生砂微粉含量：Powder content of regenerated sand: ≤0.8%
- 混砂能力：The capacity of mixing sand: 5t/h
- 除尘效率：The efficiency of removing dust: ≥98%

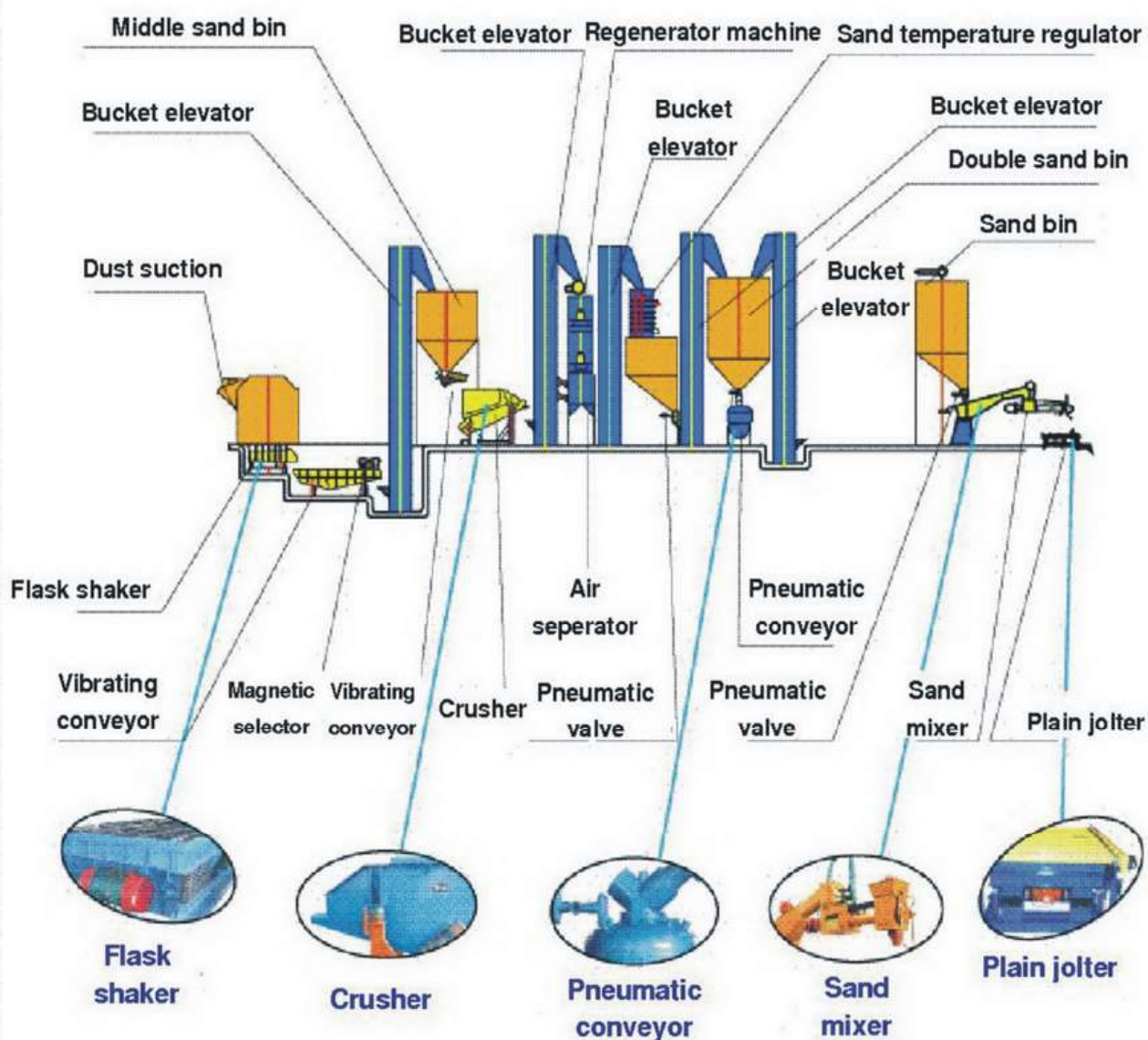
Electrical Equipment and Auxiliary Device for Foundry and Metallurgy

2. 设备配置 The configuration of equipment

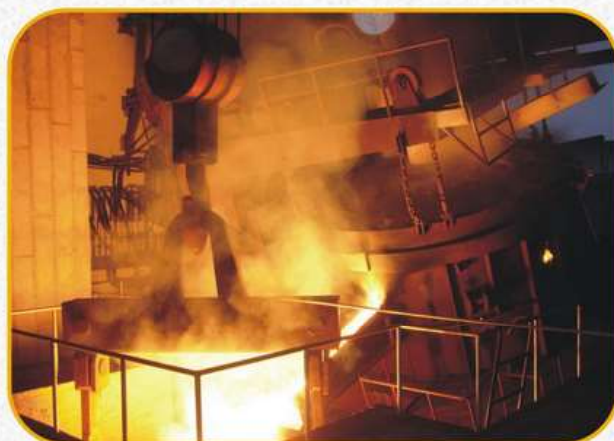
No	型号 Model	设备名称 Equipment name	数量 Qty	功率 Power (kW)	备注 Remark
1	DK	电控 (Electric control)	1		
2	Y335D	皮带机 (Belt conveyor)	1	1.5	含永磁头轮(Permanent magnet head pulley is included)
3	S561I-A	多功能振动再生机 (Multi-function vibration regenerator)	1	2x1.5	
4	Y3715	斗式提升机 (Bucket elevator)	1	1.5	H=8500mm
5	S562III	风选器 (Air-float separator)	1		
6	S522II	离心再生机 (Centrifugal regenerator)	1	2x3	
7	Y3715	斗式提升机 (Bucket elevator)	1	1.5	H=7000mm
8	C181	料位计 (Charge level indicator)	6		
9	Y5610B	砂定量器 (Sand quantitative device)	1		
10	S255T	双臂树脂砂混砂机 (Double-arm resin sand mixer)	1	4	进口隔膜泵 (Imported membrane pump)
11	HD8980	布袋除尘器 (Bag-type dust collector)	1	15	含15kW风机 (Included 15kW draught fan)
12	XLP/B-9.4	旋风除尘器 (Cyclone dust extractor)	1		
13	S524IV	Y5620	1		
14	Y3715	斗式提升机 (Bucket elevator)	1	1.5	H=7500mm
15		新旧砂比例调节器 (Used and new sand ratio regulator)	1		
16	Y3712	斗式提升机 (Bucket elevator)	1	1.5	H=7500mm For hoisting new sand (用于提升新砂)
17	L123T	震动落砂机 (Vibration shakeout machine)	1	2x3.7	可选 (Optional)
18	S995	永磁分离机 (Permanent magnetic separator)	1	1.5	可选 (Optional)
19	S564II	沸腾冷却床 (Boiling and cooling bed)	1	18.5	可选 (Optional)

树脂砂再生生产线

Resin sand regeneration production line



Electrical Equipment and Auxiliary Device for Foundry and Metallurgy





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