KEHUA INDUCTION FURNACE

QUALITY AS LIFE, INTEGRITY AS FOUNDATION

Shandong KeHua Intelligent Equipment Co., Ltd.

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刘兴科 LiuXingKe ®

A PROFESSIONAL MANUFACTURER
OF INDUCTION HEATING SYSTEM

FOCUS ON ELECTRIC FURNACE 20+ YEARS

KEHUA INDUCTION FURNACE

For Metal Melting and Heating

SUPERIOR PERFORMANCE & OUTSTANDING DURABILITY

Why Choose KeHua Induction Furnace?

PROFESSIONAL

20+ years focus on electric induction furnace equipment.

The progressive technology and experienced manufacturing production provide our customers with more stable and high efficient melting heating solutions.

CUSTOMIZED

We understand that no two customers are identical and each customer has a single own requirement.

With decades of manufacturing experience, our engineer will listen carefully to understand your requirements and propose a solution custom configured to satisfy your unique requirement.

AFTER SALE SERVICE

24H/7D customer services allows us to keep our fingers on the pulse of your requirements.

We provide 1 year warranty, after which we continue to provide accessories timely with reasonable price for our customers as a priority.
As a basic principle we will arrange engineer to your site to guide the installation and commissioning until equipment in normal running condition.

CONTENTS

ABOUT US

KeHua is a professional manufacturer of electric induction furnaces and heating systems for the metals treatment and metalworking industries. Established in the year of 2006, we have been dedicated to designing, producing, assembling and providing aftermarket services for foundries, forgings and steel industries for 20+years, we are experts in melting, pouring, holding and heating of iron, steel and nonferrous metals.

With advanced technology and a heritage of innovation, KeHua can offer you proven efficient, reliable and effective systems to give you the competitive advantages.

2006 Year
Established

Innovation award

AAAAA
Grade integrity

30+
Patents

Technology progress

20+
Focus on induction

CORPORATE REPUTATION

KeHua is recognized as a qualified manufacturer by numerous professional parties

The China National Electric Furnace Quality Supervision and Inspection Center conducted a onsite test on a KeHua Electric Induction melting Furnace "KGPS-3000-0.3S/GW4" . The product's rated capacity, rated power, rated temperature, rated frequency, power factor, melting rate, unit power consumption, heating component surface temperature rise, noise, cooling water temperature, ground resistance are complies with the national standard GB/T10067.3-2015, GB/T10066.3-2014, GB599.3-2008 technical requirements. The rated temperature is 1450°C, the power factor is up to 0.982, and the unit power consumption is 548.1KW · h/t , certified with the first-class standard.

DEVELOPMENT HISTORY

Implement intelligent induction heating technology
Promote the development for high-end equipment and new materials

2006 Year
Established
Aug.2006
Weifang KeHua electric furnace manufacturing co.,Ltd

2014 Year
Innovation
Mar. 2014
New partner team was founded

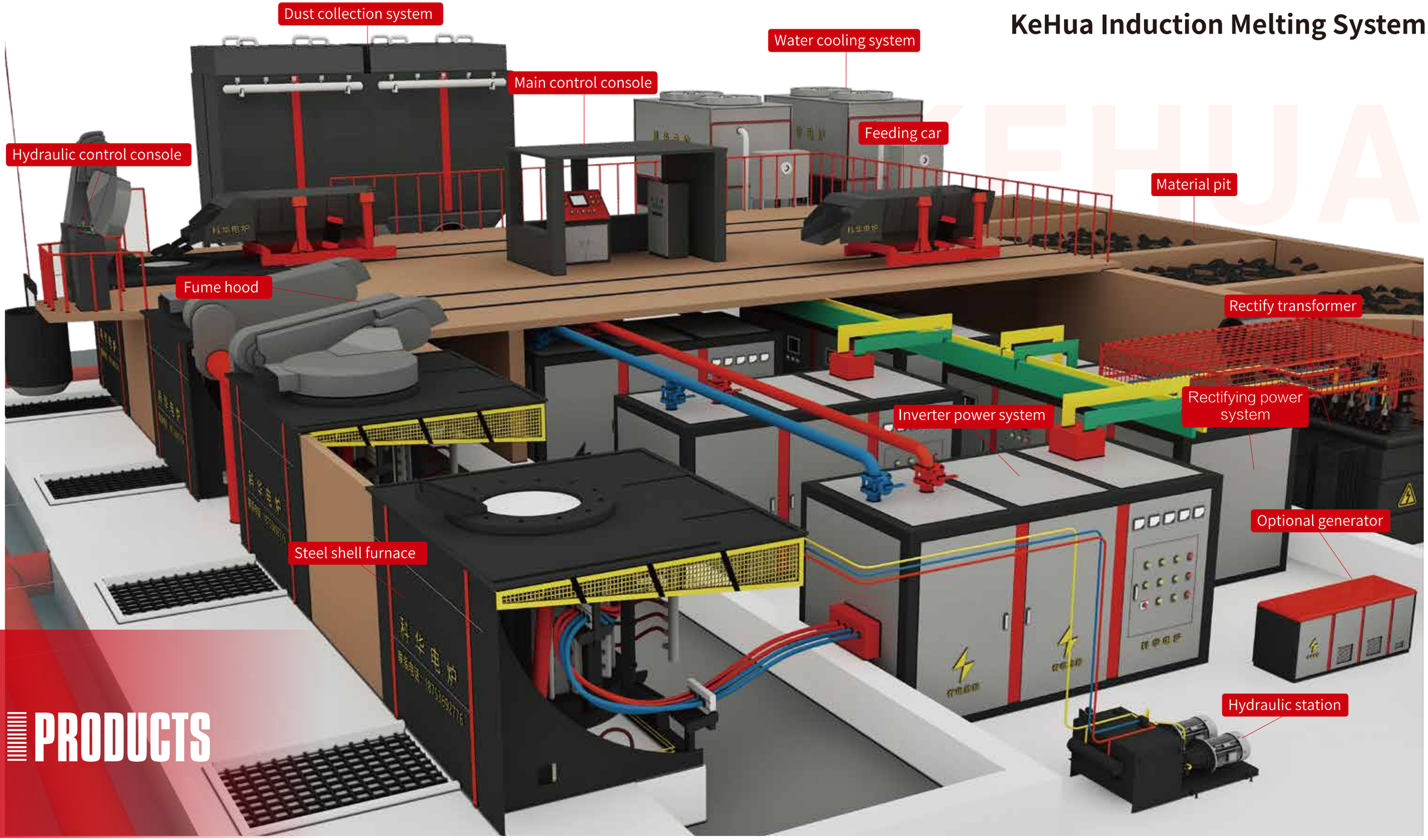
2018 Year
Expansion
Nov.2018
Jiangsu KeHua intelligent heating equipment co.,Ltd

2019 Year
Branding
Apr. 2019
“Liuxingke” brand was registered

2021 Year
Extension
Mar.2021
Shandong KeHua intelligent equipment co.,Ltd

2023 Year
Promotion
Mar. 2023
Shandong KeHua induction furnace co.,Ltd

KeHua Induction Melting System



PRODUCTS

Series Resonant Power Supply Technology

Characteristics & Advantages

- Adopt T2 red oxygen free copper, famous brand thyristors, high quality water jacket, all components lie in the power supply cabinet are reasonably arranged, which provide better space saving and friendly maintenance.
- Series resonant module design with 12 and 24 pulse rectifier to reduce the harmonic interference.
- The rectifier circuit is always in full conduction state to achieve constant power operation.
- Power factor is much improved up to 0.95 and higher.
- With higher power voltage and less loss of electricity, the equipment can achieve a lower energy consumption.
- In series resonant system, we can make one power supply to serve at least 2 or more sets of furnaces, while the main power is shared by those furnaces interchangeably. We can set each furnace in melting or in temperature holding freely.

IGBT Series Power Technology

IGBT medium frequency power supply is an advanced type of energy saving power supply with IGBT module as the main component. The equipment is a single-phase half-bridge inverter system composed of IGBT module and some auxiliary components. The main control system, drive system and inverter trigger system are composed of PLC intelligent and digital large-scale integrated circuit.

Characteristics & Advantages

- Infineon IGBT modules are originally imported from Germany.
- Lower loss of components, as 1/4 of general modules.
- 100% start rate.
- Shorter melting time.
- 5%-10% electricity cost saving.

The KGPS 12-pulse Dual Rectifying Power Supply

The KGPS 12-pulse dual rectifier equipment is powered by a special rectifier transformer, which has two sets of output windings, one set of star output and one set of triangle output. The equipment corresponds to two sets of rectification systems simultaneously , after then the two sets of rectification systems are superimposed to supply power to the inverter.

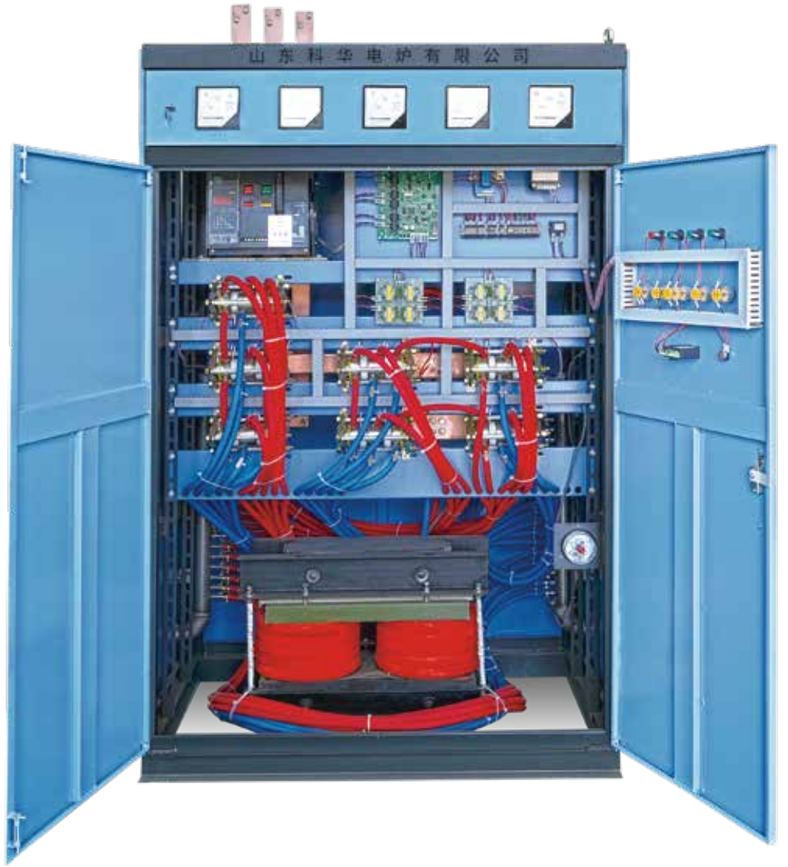
Characteristics & Advantages

- Significantly reduce the harmonic interference of 5th and 7th ,which provide a better protection to power grid.
- Duple increasing of the inverter voltage while do not improve the inlet voltage, to save power energy.
- Implement lower investment to enlarge the equipment power capacity, to save technical cost.

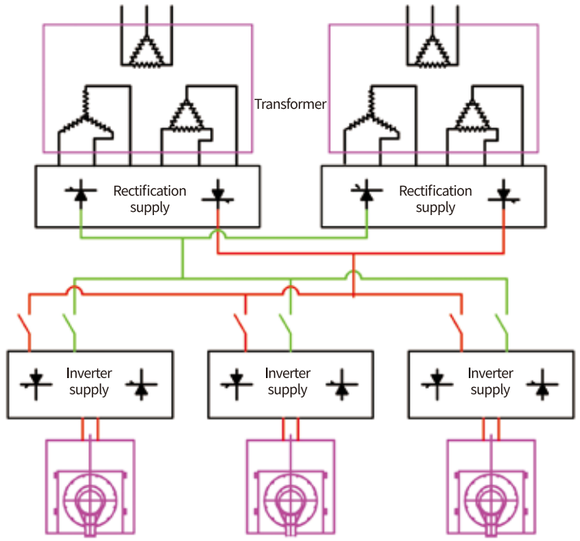
The KGPS Thyristor Power Technology

Characteristics & Advantages

- Parallel resonant inverter provides stable operation system, which is widely used for more than 20+ years.
- Provide less failure rate and easier maintaining process together with equipment cost-saving.
- Sufficient protections to avoid over-current, over-voltage, water shortage, phase loss, along with automatic power off and alarming functions.



One Power Supply Serves 3 Sets Furnaces System Diagram



one power supply serves 3 sets furnaces system diagram

Digital melting control system

This network is consisted of on-site melting management computer, digital main control board,together with PLC and other equipment, which can be expanded through the switch, such as office management, remote diagnosis, engineer maintenance, three-level network system interface, etc., by which we can achieve each furnace system data acquisition, transmission and monitoring.

- The on-site melting management system is used to observe the operating parameters of the working furnace and manage the on-site melting database.
- The office melting management system is used to observe all furnaces operating parameters and to randomly check the melting database.
- Remote diagnosis is designed for KeHua engineers to diagnose on-site operating conditions remotely.

Internet Remote Monitoring System

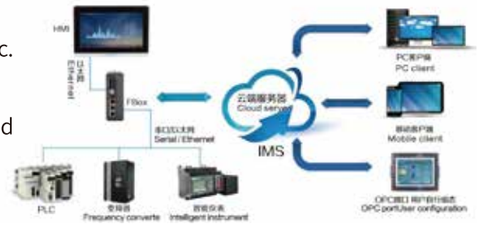
Introduction

Through the Internet (Ethernet, GPRS, 4G, etc.), the data or programs of a large number of industrial equipment in different areas of the site are transmitted to a remote cloud data center

in order to get remote data monitoring, equipment diagnosis, program maintenance and fault alarm as well as other functions. A technical department is set up to monitor the fault early warning, alarm records and other functions, to provide timely feedback and make adjustment beforehand.

The IMS system consists of device, server, and client

- **Device**
  FBox and connected device controllers, HMI, meters, etc.
- **Server**
  Fan-easy cloud server cluster or user-built private cloud server.
- **Client**
  PC client /WEB client, mobile APP, and OPC/S.



Characteristics

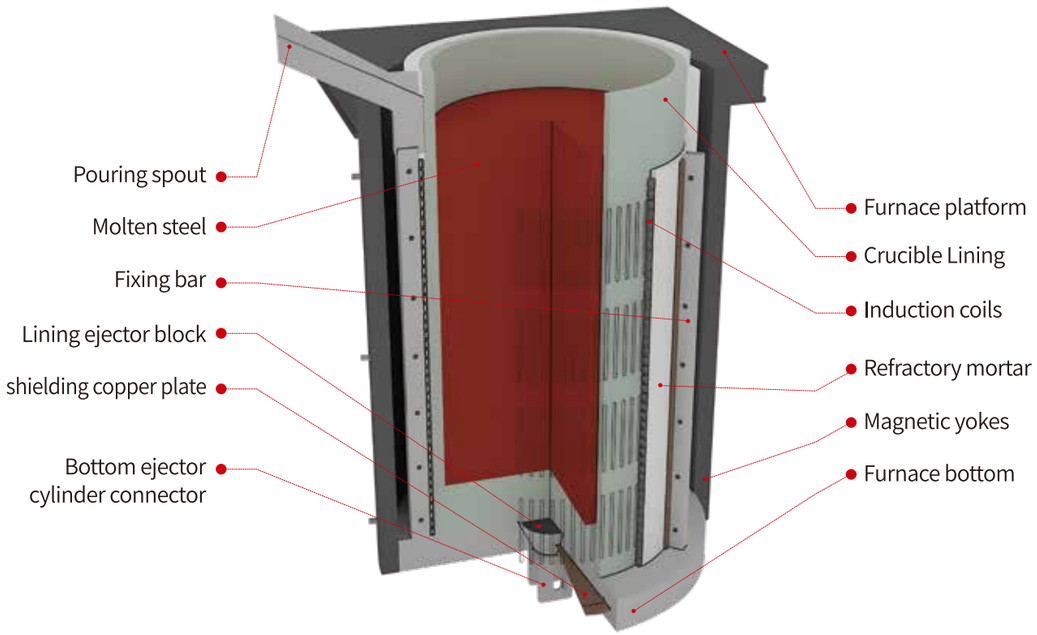
- Reduce equipment maintenance costs.
- Improve equipment maintenance efficiency.
- Reduce the probability of failure.
- Convenient for customers to master the operation of the equipment.
- Reduce the difficulty of diagnosis and troubleshooting.
- Database for providing a genuine service solution.

Customers can monitor real-time situation through the mobile APP

Energy-Saving Steel Shell Furnace

KeHua steel shell furnace is an equipment with high safety, strong structure, high efficiency and convenient for maintenance. This equipment consists of specially designed body frame, high quality steel shell, dust collection fume hood, induction coils, magnetic yokes, hydraulic tilting cylinders, stainless steel water distributor, casting body bottom alarming system, water cooling connection.

- Steel shell with more strength and durability to guarantee the cycle life of the furnace.
- Open design structure is for more stability and easier maintenance.
- Hydraulic cylinder makes the tilting angel maximum to 95 degree for pouring freely.
- TU1 oxygen free red copper brings 100% conductivity.
- Each cooling water circuit has flow rate, temperature protection and temperature display functions.



Dust collection fume hood

The dust cover and the connecting arm can be rotated separately, so it can stay in any position, which is convenient for the furnace worker to set an angle according to the requirement.

Protection guardrail system

During the furnace body tilting process, the anti-fall protection guardrail automatically rises up to form a protective fence to prevent operator l from falling and ensure the safety of the operator on the platform.

Side outlet design for water cooling cable and tubes

The water cooling cables and pipes are fixed with a bracket. When the furnace body is turning over, the cables and pipes behind the bracket will not move together with the furnace body, which reduces the abrasion.

Magnetic yokes

Adopt a high quality cold rolled oriented silicon steel sheet magnetic yoke, increasing the size of the magnetic yoke, which will greatly reduce the heat of the magnetic yoke. Waterless yokes reduce the furnace body water cooling circuit, simultaneously reduce equipment energy consumption.

Technical parameters

Rated capacity (T)	Rated power (KW)	Power input		Power output		Adaptive power transformer (KVA)
		Input voltage (V)	Input current (A)	Medium frequency voltage (V)	Rated frequency (HZ)	
0.5	400	380 (6P)	656	2000	1000	400
1	800	380 (6P)	1311	2200	700	800
1.5	1200	660 (6P)	1105	2800	500	1200
2	1600	660 (12P)	1474	2800	500	1600
3	2500	660 (12P)	2302	2800	300	2500
4	3000	660 (12P)	2763	3000	300	3150
5	3500	750 (12P)	2869	3000	300	3600
6	4000	750 (12P)	3279	3000	300	4000
7	4500	750 (12P)	3689	3300	300	4500
8	5000	575 (12P)	2732	4500	250	5000
10	6000	575 (24P)	3279	4500	250	6300
15	9000	575 (24P)	4918	4500	250	10000
20	12000	575 (24P)	6557	4500	200	12500
30	15000	575 (24P)	8196	4500	200	16000
40	20000	575 (24P)	10929	4500	200	20000
50	25000	575 (24P)	13661	4500	200	25000

Aluminum Shell Melting Furnace

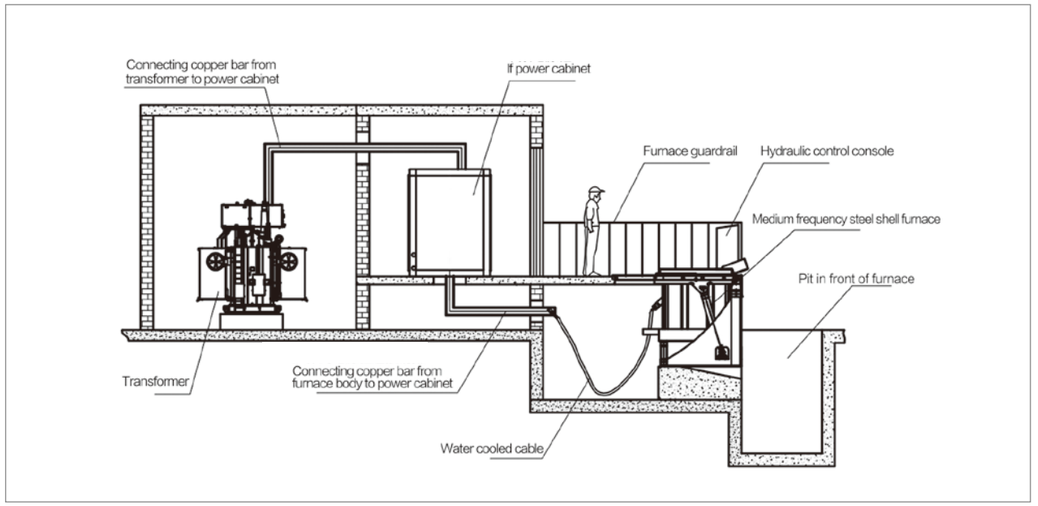
Characteristics & Advantages

- Lower cost investment without steel frame and magnetic yokes.
- Generally for small capacity melting furnace 0.5-1.0T.
- Reasonable structure with small size.
- Easy installation, simple maintenance, and low maintenance cost.

Installation Diagram Of Furnace System

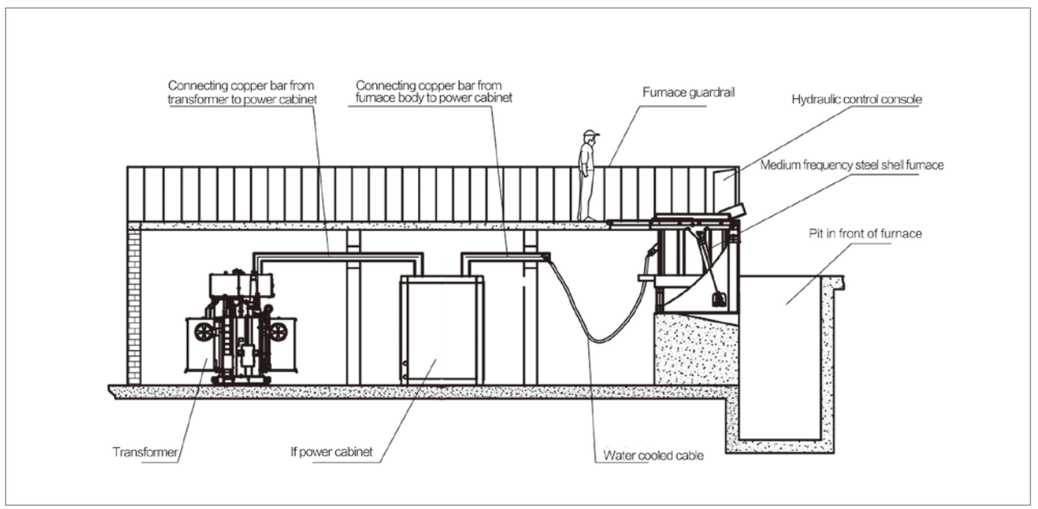
Dual-layer structure：

Power supply cabinet is located above the platform while furnace body is located under platform



Single-layer structure:

Power supply cabinet and furnace body are located above the platform



Energy-saving induction diathermy furnace

Characteristics & Advantages

- Power consumption can be significantly reduced comparing with general equipment.
- High automatical online production operation.
- Fast heating speed, less oxidation and decarburization,
- Precisely controlled for billets heating length, speed, temperature.
- Integrated design, each sensor design has a joint for quick change,
- Environmental protection, small pollution, reduce the labor intensity.

Mechatronic design for room saving and operation

Automatic feeding device

Diathermy equipment for precious nonferrous metals

Application of equipment

- **Pre-forging heating**: applied to the pre-forging heating process of gear, gear ring, half shaft connecting rod, bearing, shackle, rigging and similar products.
- **Online heating**: pipeline anti-corrosion spraying, bar blue crisp cutting, steel (wire) pipe online tempering and other processes.
- **Local heating**: U-bolt bending, roller hot assembly, steel pipe bending and other production heating processes.

main control console

Technical parameters

Rated capacity (KW)	Power input		Power output		Adaptive power transformer (KVA)
	Input voltage (V)	Input current (A)	Medium frequency voltage (V)	Rated frequency (KHZ)	
300	380×3P	492	1200	1.5~4	315
400	380×3P	656	1200	2~3	400
500	380×3P	820	1200	0.5~1.5	500
600	380×3P	984	1200	0.5~1	630
700	380×3P	1148	1200	0.5~1	700
800	380×3P	1311	1350	0.5~0.8	800
1000	660×3P	921	2000	0.3~0.5	1000
1500	660×3P	1381	2000	0.3~0.5	1500
2000	660×6P	921×2	2000	0.3~0.5	2000
2500	660×6P	1151×2	2000	0.25~0.3	2500

Energy Saving Induction Vacuum Furnace

Characteristics & Advantages

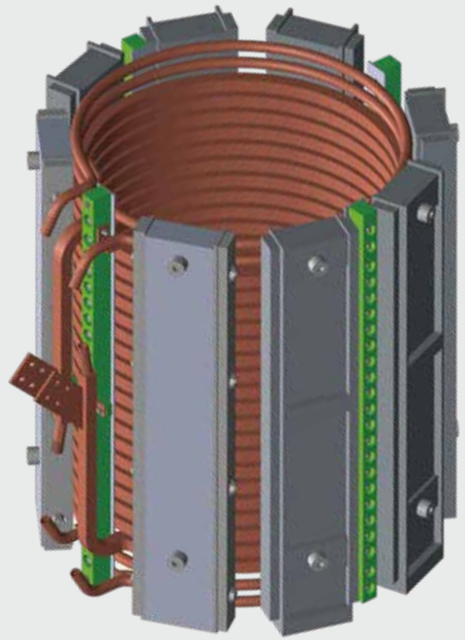
- **Fast heating speed, extremely less oxidation and decarburization.**
  Based on the principle of induction heating in medium frequency furnace is electromagnetic induction, the heat is generated by the workpiece itself, so that the heating method has a fast heating speed, little oxidation but high heating efficiency.
- **Good process repeatability.**
  The metal surface is only slightly decolorized, and a slight polishing can restore the surface to mirror brightness, thereby effectively obtaining constant and consistent material properties.
- **High degree of automation, which can improve labor productivity significantly.**

KEHUA INDUCTION FURNACE

Energy-saving Induction Coils

Characteristics & Advantages

- TU1 oxygen-free copper with 100% electric conductivity.
- The water-cooled coil and the active coil are wound in one piece by a copper tube without sections. Each adjacent copper tube of the induction coil is strictly insulated.
- After the coil is sprayed with insulating paint 5-7 times, it becomes a complete structure, pressed by same line structure in the furnace body, to make the overall structure strong without deformation.
- The number of coil turns are appropriately allocated to obtain the maximum electrical efficiency.
- The coils are evenly distributed with cooling water supplied by multiple waterways.
- High voltage test on induction coils of 10,000 volts is carried out before shipment.



FL Closed Internal Circulation Water Cooling System

The traditional method of cooling induction equipment is to excavate a pool or use an open cooling tower, which use hard water to cool directly will cause gradually reduction or even blockage of the circulating water flow, and finally equipment components will be damaged (for example: Vacuum tube, thyristor, reactor, capacitor, IGBT module, induction coil, etc.

During years of maintenance for induction heating equipment,we found that the equipment failure caused by water management accounts for about 80% of the equipment damage rate.

Based on this point, we have successfully developed FL type closed water cooling system for the above problems.

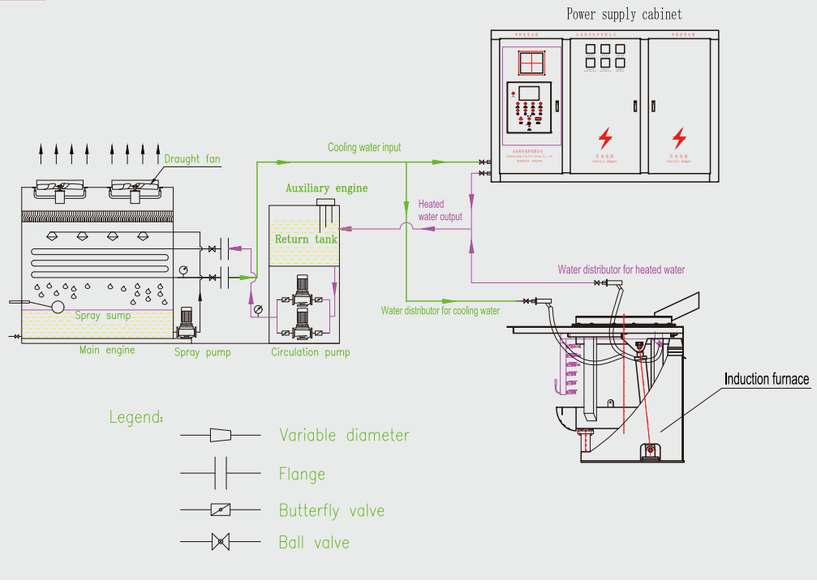
Characteristics & Advantages

- Fully closed circulation cooling, to prevent the blockage of the pipeline caused by debris.
- Using soft water circulation cooling, to prevent the power components from overheating damage which are caused by water scale.
- No need to dig pool, small footprint, easy to move,and cost-saving.
- Higher heat dissipation efficiency and lower operating cost.
- Environmental protection with energy saving water consumption.

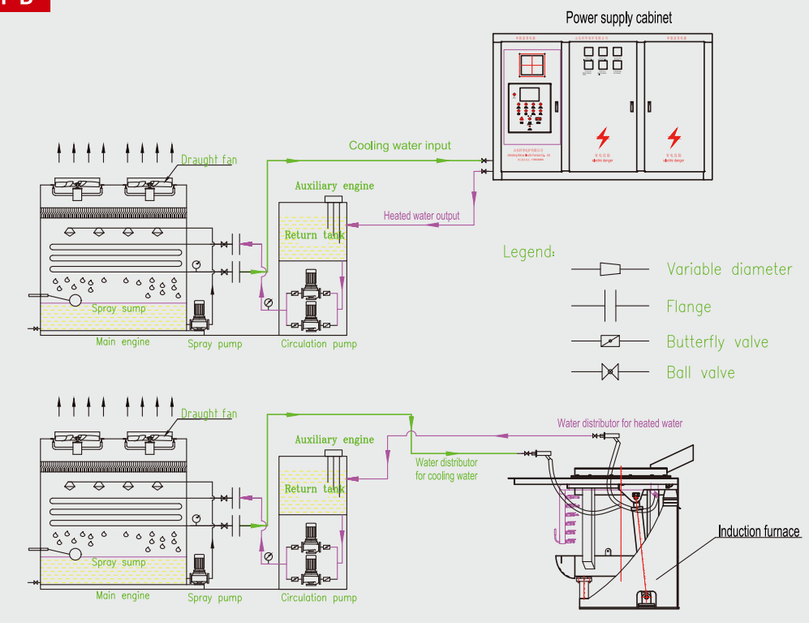
Technical parameters

Model	Cooling Capacity (Kcal/h)	Working Pressure (Mpa)	Working Flow (M3/h)	Inlet&Outlet pipe dia. (mm)	Circulation pump power (kw)	Spray pump power (kw)	Draught fan power (kw)	Dimensions L×W×H (mm)	Weight (kg)
FL-160	48160	0.15	12.5	DN50	2.2	1.1	0.75	2900×1000×2400	680
FL-250	75250	0.15	12.5	DN50	3	1.5	0.75	2900×1250×2400	820
FL-350	105000	0.15	25	DN65	4	1.5	0.75	2900×1250×2400	950
FL-500	150500	0.2	25	DN65	4	2.2	1.5	2800×1250×2430	1080
FL-600	180600	0.2	25	DN65	5.5	2.2	1.5	2800×1250×2430	1150
FL-750*2	228000	0.2	35	DN65	7.5	2.2	1.5	2800×1250×2730	1300
FL-1000	301000	0.2	50	DN80	7.5	2.2	3	3300×1500×2332	1520
FL-1250	352000	0.2	90	DN100	7.5	2.2	3	3300×1500×2332	1700
FL-1500	451500	0.25	100	DN100	11	4.4	3	3300×1500×2332	1980
FL-2000	602000	0.25	112	DN125	18.5	4.4	4.4	3300×2200×2352	2180
FL-2500	752500	0.25	130	DN125	18.5	4.4	4.4	3800×2200×2352	2410
FL-3000	903000	0.3	130	DN150	30	4.4	4.4	3800×2200×2352	2620
FL-4000	1204000	0.3	150	DN150	45	5.5	9	3800×2200×2552	3010
FL-5000	1505000	0.35	200	DN200	55	7.5	9	4850×2200×2552	3420
FL-6000	1806000	0.35	260	DN250	75	11	12	5850×2200×2552	4260

Plan A



Plan B



CUSTOMER USE SITE

In the process of designing products for users for many years, we have accumulated a large number of customers' use experience and saved some customers' use sites.

IGBT small capacity precious metal melting

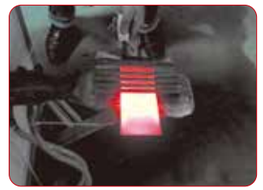
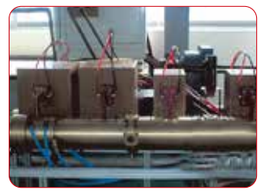


Plate spring end heating

Track joint quenching

Steel wire online heating for quenching and tempering

Steel tube quenching



stainless steel pipe heating for annealing

Small shaft quenching

Continuous heating of bar

Workpiece online heating

Roller lead screw heating for quenching

Guide wheel surface hardening

Rod heating

Double station heating at the same time

Gear inner teeth heating for quenching

Spline shaft heating for quenching

Inner hole quenching of special gear

ACCESSORIES SERIES


Operator console

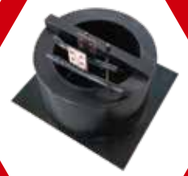

Induction coils


Thyristor


Furnace building machine


Electric capacitor


Intelligent circuit breaker


Coreless reactor

Water jacket


Hall sensor


Draught fan

Lining ejection device


Mainboard


Crucible mould


Leakage alarm board


One tow eight pulse board


New design pulse board

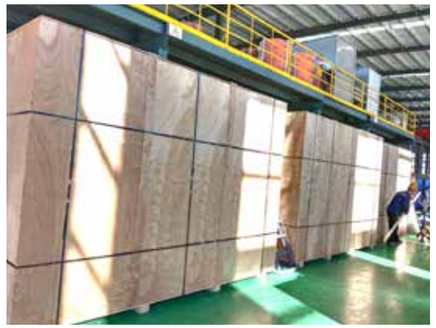

Flow meter


IGBT module


Thermometer


water cooling cable

DELIVERY

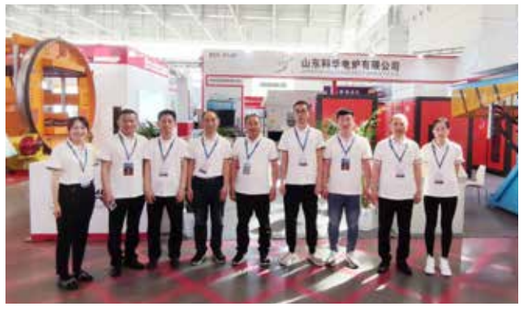


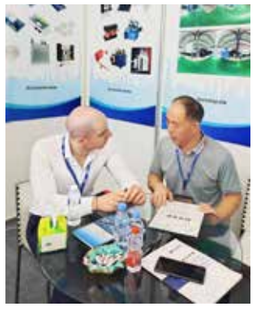


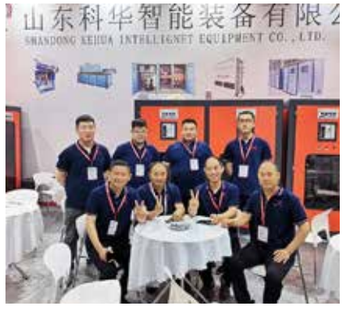


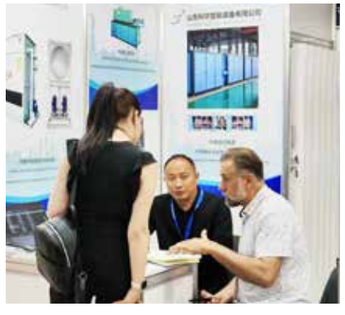

CUSTOMER VISITS

PARTICIPATE IN THE EXHIBITION SITE










COOPERATING CUSTOMERS

IPIAC SINCE 1855
CISRI 中国钢研
中央美術學院 CHINA CENTRAL ACADEMY OF FINE ARTS
中磁电科 ZHONG CI DIAN KE
魏橋創業 WEIQIAO PIONEERING
泰山钢铁 TAISHAN STEEL
boway 博威集团
中国航天 CASC CHINA AEROSPACE SCIENCE AND TECHNOLOGY CORPORATION
中孚实业 ZHONGFU INDUSTRIAL
北京市阀门总厂股份有限公司 Beijing Valve General Factory Co., Ltd.
SEMC 上海南洋电机成套设备有限公司 Shanghai Nanyang Electric Complete Equipment Co., Ltd
天翔集团 Tian Xiang Group
HOWNSEA 浩信
河北永天 HEBEI YONGTIAN
中车戚墅堰机车有限公司 CRRC QISHUYAN CO.,LTD.
山西龙成玛钢有限公司 SHAN XI LONG CHENG MA GANG CO.LTD.
永红机械集团 Yonghong Machinerv Group
东风精密铸造有限公司 DONGFENG INVESTMENT CASTING CO.,LTD
华宸高压容器集团 Huachen High Pressure Container Group
济南东方结晶器有限公司 JINAN EASTERN MOULD FOR CCM CO.,LTD.