



SHANGHAI COOLDO INDUSTRIAL CO., LTD.



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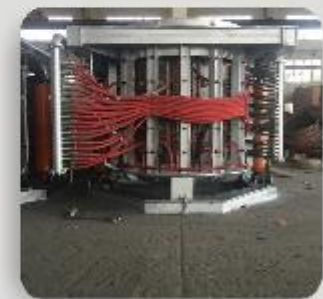
Website: <http://www.cdoinduction.com/>

Manufacture foundation in Shanghai

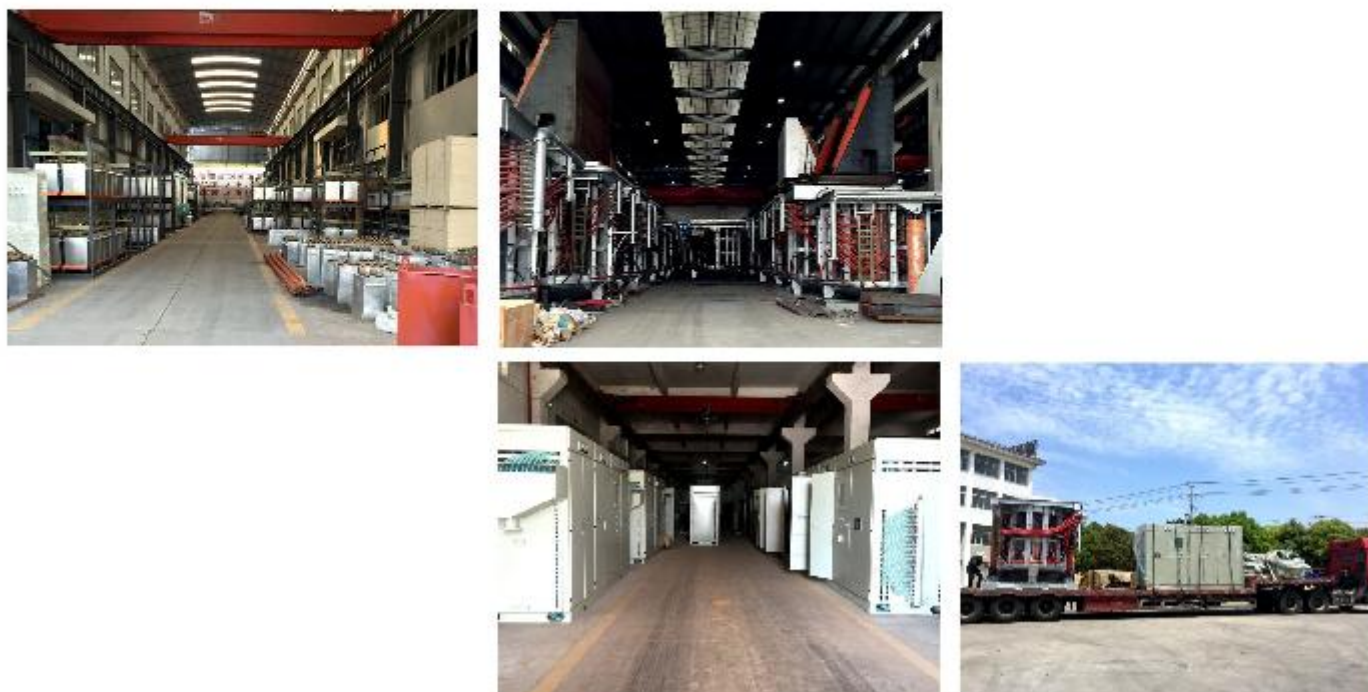
Address: Zhongmin industrial zone, Maogan, Songjiang
District, Shanghai City.

Manufacture foundation in Wenzhou

Address: Dongfeng industrial Zone, Liushi, Wenzhou,
Zhejiang Province.



Company Introduction



SHANGHAI COOLDO INDUSTRIAL CO., LTD.

Cooldo is a manufacturing and service enterprise, specialized in various induction melting and heating treatment equipment. Cooldo have established wide cooperation with science & technology institutes, both at home and abroad.

With medium frequency coreless induction furnace as our knockout product (capacity from 0.1 ton to 60 ton. Single machine power reaches up to 30000 kw), we are also specialized in the complete project solutions for metal melting, heating and casting workshop. Involved in the application are:

- Foundry
- Steel plant
 - 60 -150 square mm steel billet production line
 - 8 mm-32 mm Reinforcing bars production line
 - Steel wires production line
 - Steel ball production line
- Copper rod/wire production line

Cooldo is equipped with a complete set advanced equipment for production, inspecting and testing, and owned a whole team of technical personnel.

We persisted all along to meet the needs of market demand with top quality products, preferential price and super service.

We welcome domestic and abroad customers and would appreciate your advice with open arms.

SHANGHAI COOLDO INDUSTRIAL CO., LTD.



work shop view

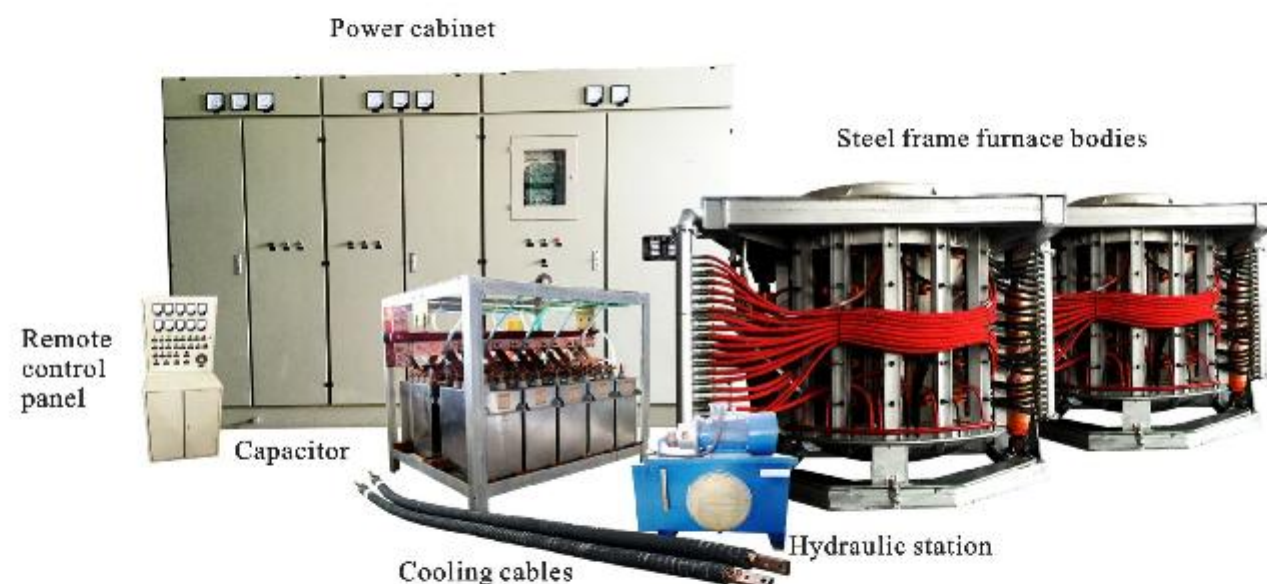


office view

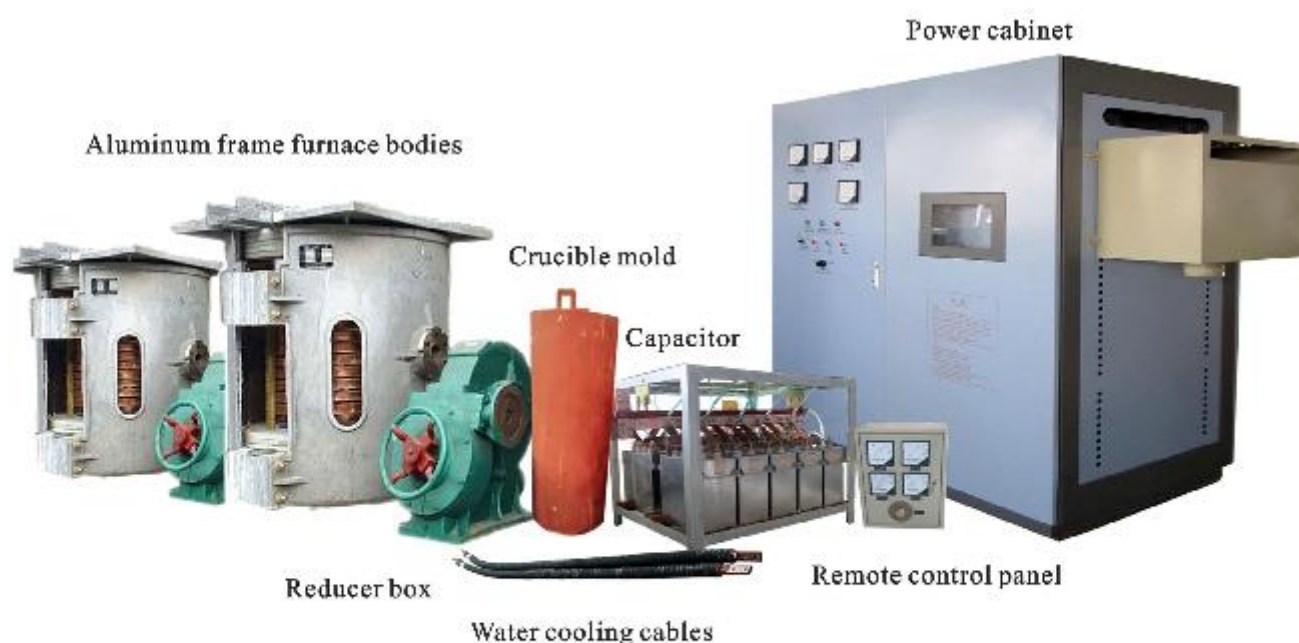


factory view

※ The whole set of Steel shell furnace



※ The whole set of aluminum shell furnace



※ IF DEVICE STRUCTURE

Complete set of IF equipment consists of: IF power supply, capacitor box, furnace body, tilting device, water-cooling cables etc. (all of the following pictures are for reference only, based on the actual production)

IF power supply

Consists of low voltage switch(circuit-breaker) , rectifier part , reactor, inverter part and other electronic components. The inverter and rectifier part are made of SCR (also known as the thyristor) and water cooling device. Because of SCR chip size, there is a certain pressure difference between water cooling device and SCR. At the appropriate pressure, cooling capacity will achieve the best results.



Safety protection function



- The main circuit short circuit protection
- SCR overvoltage protection
- Main circuit phase fault protection
- Cooling water temperature protection
- The main circuit phase loss protection
- Low water pressure protection
- SCR over-current protection
- Furnace leakage protection
- Intermediate frequency power failure protection
- Intermediate frequency electric furnace fault protection

※ KGPS Power Supply Feature



Features

- The cabinet adopts the GGD structure from Germany. That is convenient for installation, maintenance and debugging
- The power start-up way adopts frequency scanning zero-voltage soft start mode. The current impact on the SCR is small based on this mode. It can prolong the actual life of SCR. At the same time, the easy start whenever at light or heavy load conditions is also its obvious feature.
- The constant power control board which can monitor the variation of voltage and current automatically, always adjusts the output power in the max operation highly improve melting efficiency.
- There is only one turn on/off switch and one power adjustment knob for easy operation. After starting, just keep the power in the max position. The device will automatically adjust the power according to flexible quantity the material in the furnace.
- Power supply is designed with reliable circuit protection, the electrical components work in a safe range, decrease the damage rate and increase the life obviously.

※ The Main Component Advantage



The main components of the reactor

Our company uses water cooled reactor and dry type reactor. With the development the requirements of the reactor is also increased. At present, our company has launched new developed reactor, the failure rate is very low, save energy 2~3%.



Main components—silicon-controlled rectifier

We mainly adopt the silicon controlled from Hubei TECH Semiconductors Co., Ltd.(TECHSEM), Hangzhou Hanan Semiconductors Co., Ltd and Zhejiang Sifang Semiconductors Co., Ltd, they are China silicon manufacturing industry leaders, whose silicon are stable and have strong ability of anti-impact current, 20%-30% higher in price than similar.



Main components—the main control circuit board

Parallel SCR intermediate frequency power supply used in circuit board which is independent research, our engineers timely update and improve circuit board that guarantee the company in the industry leading level.



Main components—circuit breaker

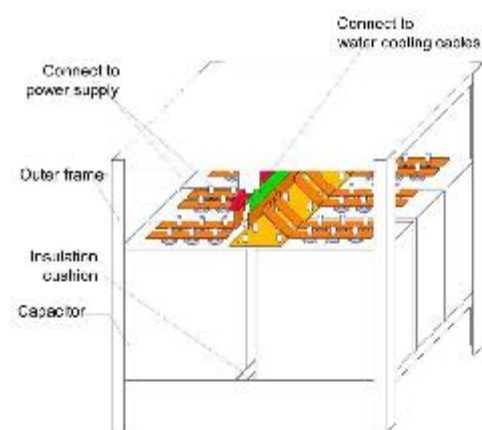
We mainly adopt the silicon controlled form Shanghai people Electric Appliance Switch Factory, it is the producer and seller of high and low voltage electrical appliances, instruments and meters, complete set of power transmission and distribution equipment.

❖ Coil



The core of melting furnace is the induction coil. The surface treatment of the coils which are made by T2 cold extrusion of giant brass sections of copper is made by electrostatic spraying to reach to H-class insulation. To protect its dielectric strength, the surface needs to be wrapped with mica and E-glass ribbons and painted with an insulating, moisture-proof enamel coating. Between the coils, some space must be left to allow a coating of refractory clay. When painting, the refractory clay should penetrate into the gaps to strengthen the clay's adhesion to coils.

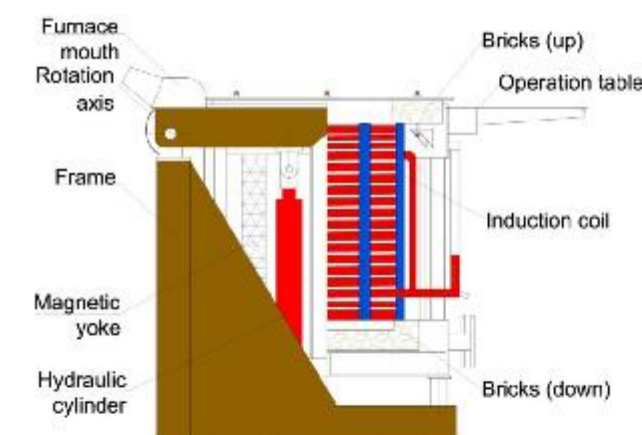
❖ Capacitor



Capacitor cabinet and the induction coil are connected in parallel to compensate inductive reactive power of the induction coil. After compensation, intermediate frequency power supply only needs provide required load active power and a small amount of reactive power, intermediate frequency power supply capacity can be reduced sharply.

❖ Steel shell furnace body

Mainly composed of a furnace body frame (steel structure), furnace mouth, operation table, hydraulic cylinder, induction coil, magnetic yoke, bricks, etc. See below.

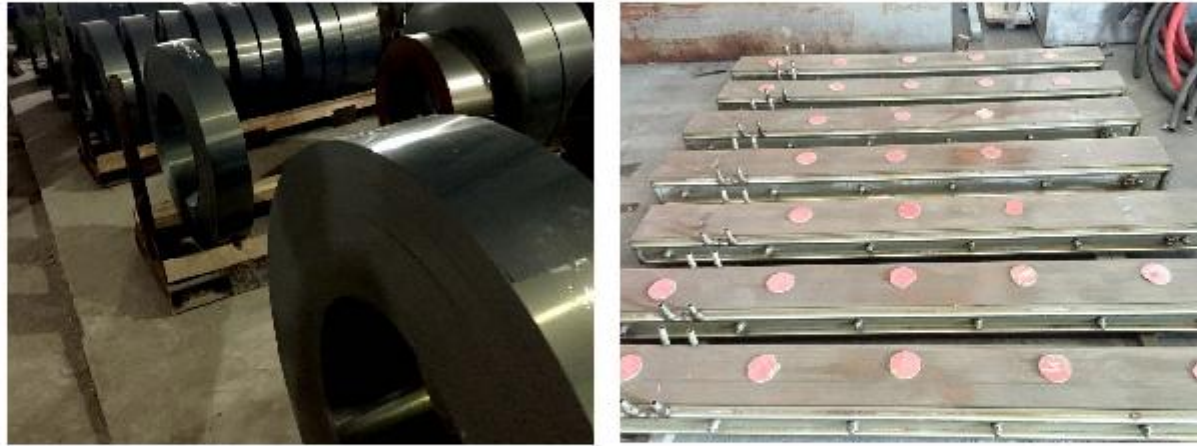


The melting capacity range is 1t-60t iron/steel

Furnace Structure Features

- The reasonable design of steel shell structure is convenient for daily maintenance. The large specific square steel tube based the whole steel structure of furnace; the whole structure is simple and strong. Max tilting angle is up to 95 degrees.
- The furnace platform with rammed refractory material will not be distorted. It is better for protecting furnace body.
- Welded steel structure with suitable steel clamp and supporting parts provides high strength in fixing the coil and magnetic yokes. The removable design of furnace top section make the replacement of coil easy.
- The coils are made by T2 cold extrusion of giant brass sections of copper. Some water-cooled stainless steel tubes are set at both ends of the coils to increase their overall rigidity and benefit heat dissipation.
- The magnetic yoke of the steel shell can concentrate the magnetic field around the coils to generate the great melting efficiency. The induction coil is also not easily deformed in the protection of the magnetic yoke.

※ Magnetic yoke



The new Z11 cold-rolled silicon steel sheet with high permeability shall be selected for manufacturing magnetic yoke. The silicon steel sheet thickness should be up to 0.3mm. Using a profiling structure, the intrados should be the same as the cylindrical curvature of the induction coil so that the yoke can be close to the outside of the induction coil. The divergence of the magnetic field lines around the coil should be in the maximum constraint.

※ Hydraulic System

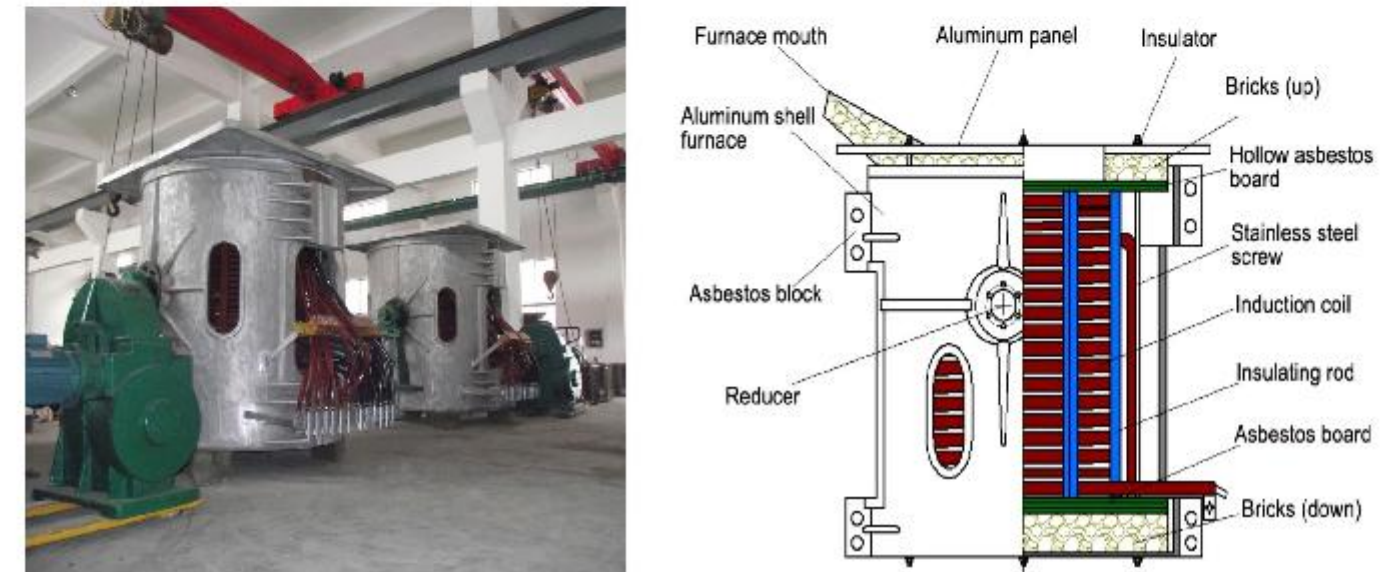


- Hydraulic system is composed of hydraulic station, hydraulic cylinder and hydraulic work station composition.
- Hydraulic station is with the box body, hydraulic pump, all kinds of valve and pressure gauge.
- The remote control can realize furnace body's tilting, stop and reset.
- Furnace body can tilt 95 degrees through the hydraulic cylinder to pour out all the metal liquid, and can be stopped at any position according to the needs in the process.

※ Aluminum shell furnace body

Mainly composed of aluminum shell furnace body, bricks (up), bricks (down), asbestos plate, induction coil, reducer box, stainless steel screw etc, see below:

The composition of the aluminum shell furnace body



The melting capacity range is 0.1t ~ 5t iron/steel

Furnace Structure Features:

- The furnace body is made by thick aluminum alloy shell to reduce the magnetic leakage and ensure furnace body strength
- The thick T2 standard copper tube is taken use for induction coil to provides high melting efficiency.
- Open type furnace hearth reduces moisture, and design cooling rings on the bottom, which extend the furnace lining life time.
- The tilting is controlled by reducer gear box. The remote control panel can set the furnace in any position when tilting. The max tilting angle is 95 degrees.

✧ The comparison between aluminum shell furnace and steel shell furnace

Model	Aluminium shell furnace	Steel shell furnace	Remark
Melting capacity	250 kg - 5 tons iron	1 ton - 60 tons iron	
Outer shell construction	It is constructed by 2 halves of thick aluminum alloy shells.	The whole shell is welded as an integrated one. The material is steel.	For long-term using, the steel shell has more advantage due to the firm shell.
Magnetic yoke	This type does not contain the magnetic yoke. The magnetic leakage is reduced based on the aluminum shell.	It combines with the magnetic yoke which can gather the magnetic around the sensors.	The magnetic yoke can improve the melting efficiency and save the electric consumption 5%-8% than the aluminum shell.
Tilting System	It is controlled by the reduction box as the both sides on the picture. The furnace body is fixed by the reduction box in the air.	It is controlled by the hydraulic system. The yellow part on the pic is the hydraulic cylinder to hold the furnace. The furnace body is put on the flat floor.	The hydraulic system has more precise tilting control with fixed pouring position.
Furnace lining consumption	Aluminum shell shape is easier to be affected by the temperature than the steel shell. The changing rate of furnace lining will be higher.	The strong shell will be less deformed by the temperature change.	The aluminum shell needs more furnace lining consumption. Lining changing rate normally Al shell 40 batches steel shell 60 batches
Price	It will save the investment budget than the steel shell.	The manufacture cost will be much higher due to the steel structure and magnetic yoke use.	Customers can make decision according to the budget.

✧ Auxiliary facilities(optional)



Furnace lining push out device

Once the lining of furnace cooling down to 400 °C, turn the furnace to 90 degrees, the crane hoists oil cylinder. Keep the oil cylinder connected to the bottom of furnace. Turn on the hydraulic pump to push out the furnace lining.



Remote control panel

It is used to operate and control melting system when power supply is set underneath platform. The operator can use remote panel to start, stop, reset, and adjust output power on the furnace platform.



Furnace lining detection device

Monitor the lining thickness by the leakage current shown in the device. Help the operator to watch out the furnace lining situation. Alarm the furnace lining break out.



Coil red daub grouting

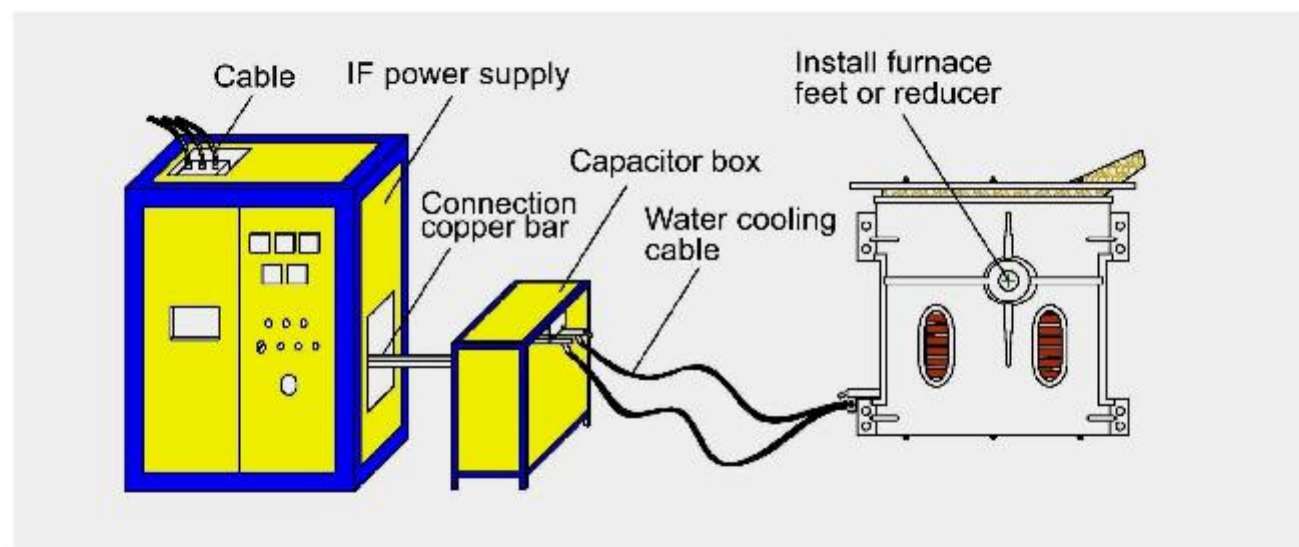
Coil red daub grouting is a kind of fused alumina painting material used for the inside face of coreless induction furnace coils to protect the coils. Brace the coils to avoid the deformation when we make and remove the furnace lining. The good insulation of the grouting can prevent the coil turn-to-turn short circuit to burn down the SCR.



Electric furnace lining making machine

When we make the furnace lining, the worker must take use of this tool to make sure the lining tight.

※ Circuit connection diagram



※ The melting on site



※ Induction through heating machine



Induction heating machine is a high-efficiency and energy-saving application in the forging industry.

Features

- Material heating: (magnetizer) mainly carbon steel, stainlessSteel, Alloy, Brass, Aluminum.
- Induction furnace adopts prestressed structures, high strength, long life, easy maintenance.
- Position Forging: Whole and Partial induction furnace forging for metal bar
- Work-piece hot forging and forming: Standard parts, fasteners, master pieces, small hardware, round bar and billet etc.
- Specific application for the induction forging heater: bolts and nuts forging and hot upsetting, pipe induction forging and forming, auto parts (connecting rod, crankshaft etc.), cast iron beam heating and continuous heating, oxygen bottle forging, rivet heating, long round, square and angle bar and billet heating etc.

Type	Power(Kw)	Frequency (KHZ)	Temperature (C)	Energy consumption (KwH/T)	Diameter of piece(mm)
GTR-50	50	10	900-1250	250-350	4-30
GTR-100	100	8-10	900-1250	250-350	19-41
GTR 150	150	6-8	900-1250	250-350	19-41
GTR-200	200	6-8	900-1250	250-350	24-51
GTR-250	250	6-8	900-1250	250-350	24-51
GTR 300	300	2-4	900-1250	250-350	29-61
GTR 350	350	2-4	900-1250	250-350	29-61
GTR-400	400	2-4	900-1250	250-350	29-81
GTR-500	500	2-4	900-1250	250-350	39-81
GTR 600	600	1-2	900-1250	250-350	49-101
GTR 750	750	1-2	900-1250	250-350	49-101
GTR-1000	1000	0.5-1	900-1250	250-350	59-121

※ production detail pictures



※ Closed type water cooling system



Main machine

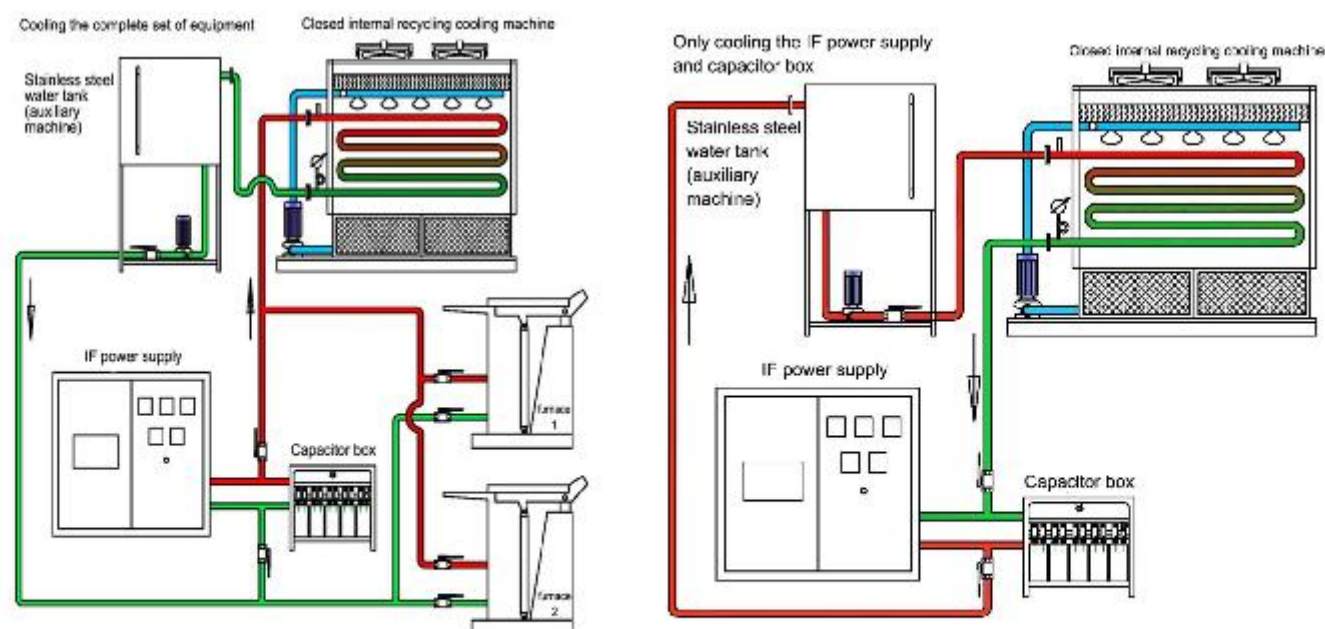
Integrated water cooling tower

Water tank

Closed water cooling tower advantage

- Use distilled water for circulation cooling. The whole system is isolated from air to avoid incrustation accumulation.
- The water collection device is installed in the spraying system. It can reduce the water loss.
- No need of water pool, small installed area. It can be set outside. Convenient for maintenance.
- Low rotation speed and low power motor.

Circuit connection diagram



Principle of work

Pure water in closed type cooling machine for copper coil within cycle, the working fluid heat flow through the coil by coil scattered into the water, at the same time units around the outside the normal temperature air from the air inlet grille into the chassis, and the water flow in the opposite direction, upward flow through the coil, a small portion of water evaporation and heat, saturated hot humid air from the top of the cooling tower fan discharge to the atmosphere, the remaining water into the bottom water disk, the water pump is recycled to the water distribution system and spraying to coil, in order to reduce the temperature of the fluid inside the pipe all kinds of. Hot air of water box not evaporation of the water is water retaining plate interception and through the PVC heat exchange layer, PVC heat exchange layer in which the water is flowing in the air cooling, temperature is decreased. Fall into the water by the water pump bottom plate, is recycled to the water distribution system, back to pour into the coil, so for circulating cooling. This equipment widely used in induction furnace cooling, cold rolling mill, continuous casting cooling, etc.

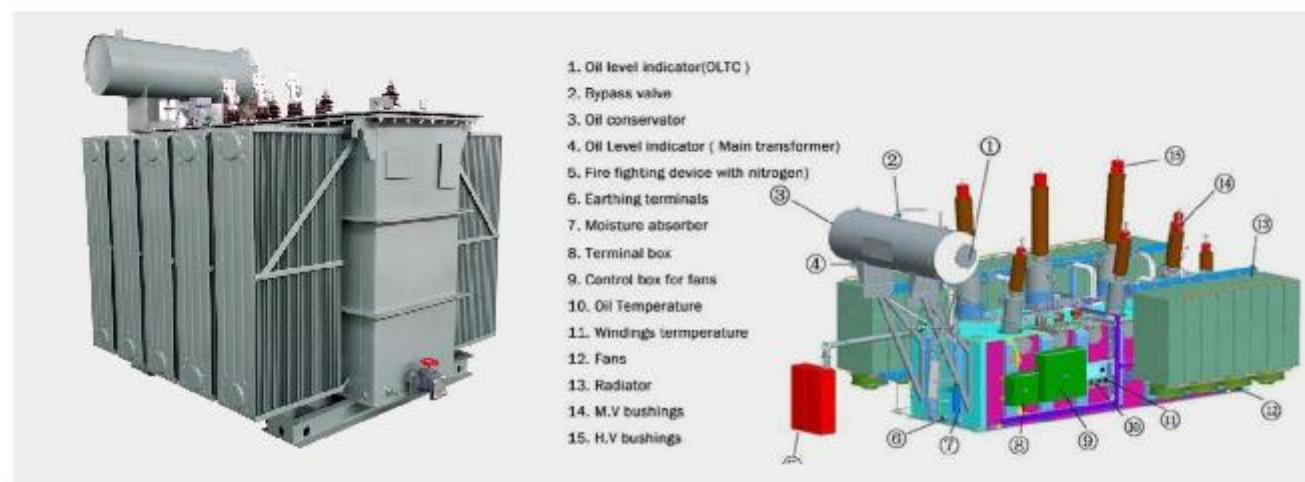
Technical parameter

Furnace (T)	Power (KW)	Cooling water flow(T)	Pump power (KW)	Pump head(M)	Inlet diameter (mm)	Outlet diameter (mm)	Water volume (m3)	Cooling water flow(T)	Pump power (KW)	Pump head (M)	Inlet diameter (mm)	Outlet diameter (mm)	Water volume (m3)
0.05	100	5	2.2	32	DN40	DN50	10	7	2.2	32	DN40	DN50	14
0.1	175	6	2.2	32	DN40	DN50	12	8	2.2	32	DN50	DN65	16
0.15	220	7	2.2	32	DN40	DN50	14	10	3	32	DN50	DN65	20
0.25	310	7.5	2.2	32	DN60	DN65	15	15	4	32	DN55	DN80	30
0.5	400	8	2.2	32	DN50	DN65	16	20	4	32	DN55	DN80	40
0.75	600	9	3	32	DN50	DN65	18	30	5.5	32	DN55	DN80	60
1	800	10	3	32	DN50	DN65	20	40	7.5	32	DN80	DN100	80
1.5	1200	15	4	32	DN65	DN80	30	60	11	32	DN80	DN100	120
2	1600	20	4	32	DN65	DN80	40	80	15	32	DN100	DN125	160
2.5	2000	25	5.5	32	DN65	DN80	50	100	15	32	DN100	DN125	200
3	2500	30	5.5	32	DN65	DN80	60	125	22	32	DN125	DN150	250

3T-60T IF specific cooling requirements please contact with our company, we will make the best scheme according to the actual situation.

Above parameters only for reference, the equipment changes according to the actual situation, please contact with the sales manager.

❖ Furnace transformer



Electric furnace transformers

Features

- Including load ratio voltage regulator type, no-load voltage regulator type, and built-in reactor type
- Furnace transformers cooling modes are self-cooling mode, forced water cooling mode.
- The operation environment and condition
- Low power consumption: The transformers have passed national energy saving certification and have remarkable energy saving effects.
- Zero purchase risk: Our products all have a 3-year warranty which is 3 times that of the common warranty period of the industry. For faults caused by quality defects of our products, we provide thorough after-sales services as described on the warranty card under the premise of normal service.

Rated capacity KVA	Voltage combination and tapping range			Connection symbol	Short-circuit impedance %	Standard value			Gauge (mm or inch) lengthwise mm
	High voltage KV	High voltage tap range%	Low voltage KV			No-load loss W	Load loss W	No-load current %	
50	5 6.3 10 15 20 25 30 35 40 50 60 80 100 125 160 200 250	±2~2.5	0.4	Dyn11 Yyn0 Yzn11	5.0	150	1050/1000	1.0	550×550
100						220	1800/1700	0.8	650×650
125						250	2100/2000	0.8	550×550
160						290	2600/2400	0.7	650×650
200						340	3050/2800	0.7	650×650
250						400	3600/3400	0.7	650×650
315						480	4300/4100	0.6	650×650
400						570	5150/4900	0.6	620×620
500						680	6100/5800	0.6	620×620
630						820	7000	0.6	620×620
800						880	8500	0.5	620×620
1000						1100	10800	0.5	620×620
1250						1350	12800	0.5	620×620
1600						1650	15500	0.5	620×620
2000						1940	18800	0.4	1070×1070
2500						2340	22000	0.4	1070×1070
REMARK						For rated capacity less than 300KVA, the load loss value is as the front one of the oblique line with Dyn11 or Yzn11 connection symbol. The back value of the oblique line is suitable for Yyn0.			

❖ Billet continuous casting machine



The billet continuous casting machine can be designed as curved and vertical-bend according to the users requirements. It can cast carbon steel, alloy steel and special steel, such as stainless steel. Automatic hydraulic control, automatic secondary cooling water distribution, compressed air-water cooling system.

Technical support, design, feasibility report, manufacturing, erection and commissioning, cooperate with special institution, and our own engineer team, we do not only export the machinery, but also run the factory.

CCM Technical parameter

1	Machine model	Fully arc continuous casting machine
2	Basic Radius	R3.5 m / R4 m / R5.25 m / R6 m
3	Strand quantity	1, 2, 3, 4, 5, 6, 7, 8
4	Strand spacing	1000 mm 1250 mm 1400 mm
5	Cast billet's cross section	60×60 mm ² ~150×150 mm ²
6	Cut-to-length;	3 m ~ 12 m
7	Casting method	Open type casting
8	Withdrawal straightening speed	0.4 - 4.5 m/min
9	Cutting method	Auto flame cutting / Hydraulic cutting
10	Billet out method	Hydraulic billet pusher +Fixed cooling bed
11	Billet annual output	100000 tons~150000 tons/strand

Hot rolling mill



We undertake turnkey projects for supply of complete rolling mills including design, manufacture, supply and construction & commissioning of the complete plant to produce reinforcement bar, wire rod, steel bar, steel angle, flat steel and strip steel. Plants can also be tailor-made as per specific requirements.

Our proposals are cost effective with reasonably short pay back & attractive ROI (return on investment), thus helping the rolling mills to attain better quality standards with higher productivity & reduced cost of production.

Warranty: 1 year
After sales service: Whole life
Spare parts supply: as per request of employer

Manufacturer of hot rolling mills



Section mill

TMT bar mill



Narrow strip

Wire rod mill



✧ Manufacture workshop glance



International Agent



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