

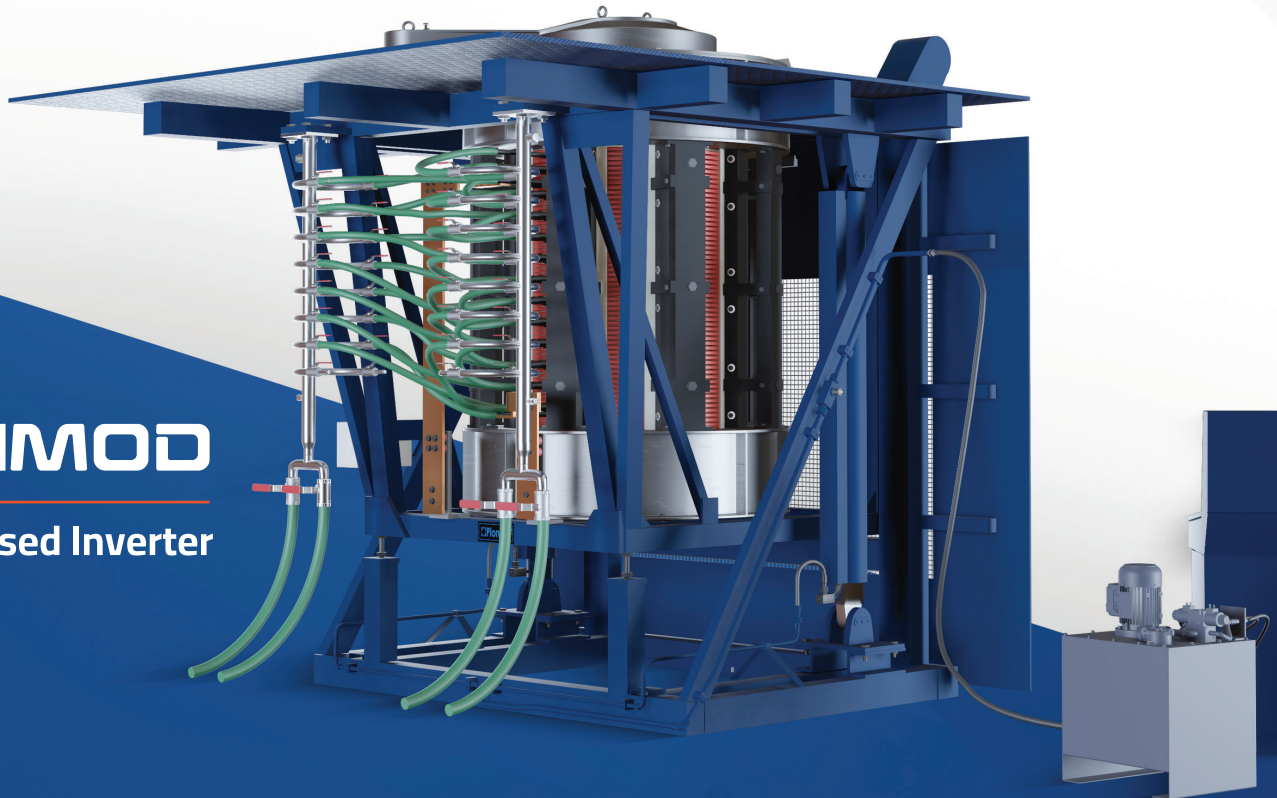
50+
Years of Legacy

CORELESS INDUCTION MELTING & HOLDING FURNACE

Mains and Low Frequency

Direct MOD

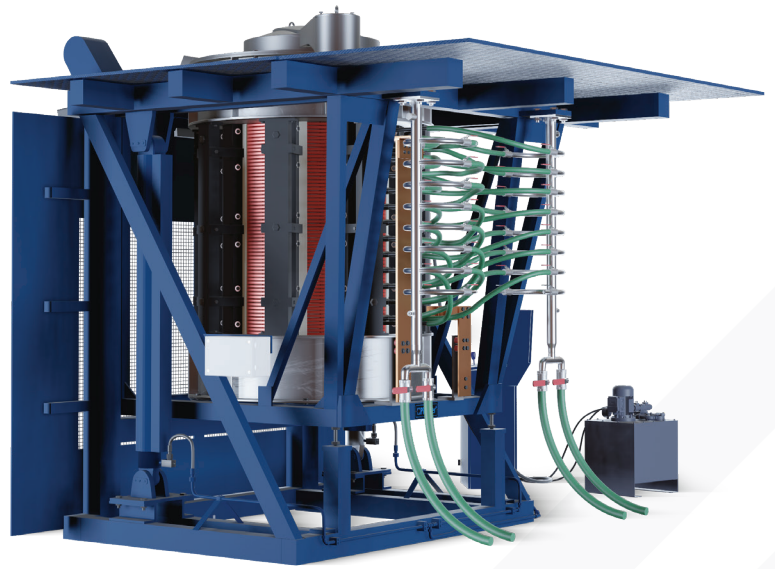
IGBT Based Inverter



Pioneer Furnaces is a trusted name in the field of induction melting and heating technology, designing and manufacturing advanced induction furnaces for the non-ferrous metal melting, heating, heat-treatment, and coating industries since 1972. With an engineering legacy spanning over five decades, Pioneer is recognized for delivering robust, energy-efficient and highly reliable furnace systems backed by prompt and committed service support. The company is ISO 9001:2015 certified, reflecting its strong process discipline, quality orientation and customer-centric approach.

Reliability | Precision | Performance

A coreless induction furnace works on the principle of Faraday's law of electromagnetic induction. The furnace uses an alternating magnetic field to heat the metallic charge, and eventually melts it without direct contact. This means that the furnace does not have a core made of iron or other magnetic materials, instead the furnace uses a coil to generate a magnetic field that induces an electrical current (eddy current) in the charge. The metal resists the flow of induced eddy current causing resistive (Joule) heating. The interaction between the eddy currents and magnetic field creates a Lorentz force, which causes the molten metal to stir automatically.



Mains Frequency

■ Advantages of Pioneer Coreless Induction Furnace:



Suitable for high melting point metals of non-ferrous metals and their alloys, especially for intermittent operations



No metal heel required, enabling complete pour-out of liquid metal, and quick change of metals / alloys to be melted in low frequency furnace



Faster melting, lower tap to tap time, higher productivity



High flexibility of charge mix



Available in wide range of batch size



Optimal frequency - mains or low (50 Hz to 250 Hz) is selected based on the material to be melted, form of the charge, power and furnace ratings, and required stirring in the bath

■ Capacity Range:

Tilting furnace with open spout

Power Rating:

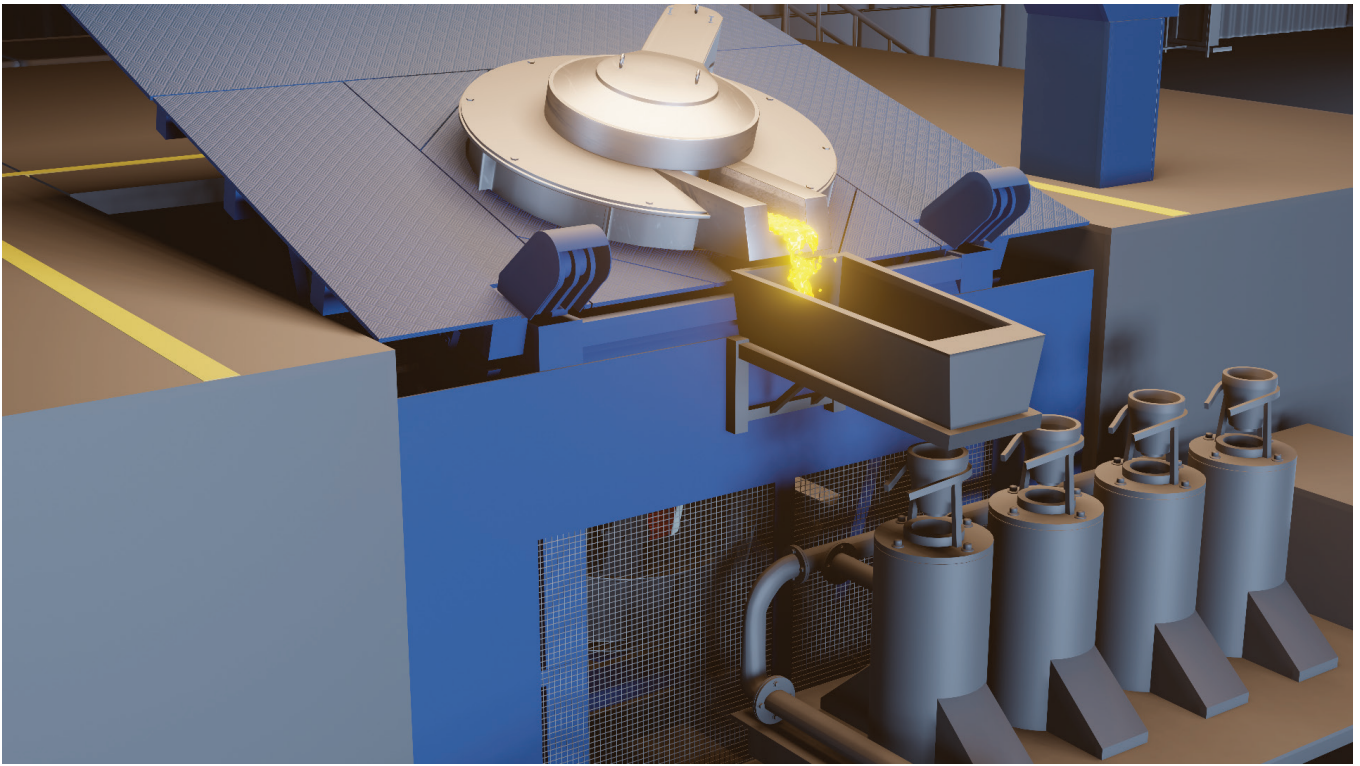
100 KW to 10000 KW

Frequency:

50 Hz to 250 Hz

Holding Capacity:

300 Kg to 40000 Kg



▪ Salient Features:

- ▶ Best suited for foundries who need small batch sizes and frequent change of alloy composition
- ▶ Flexible power density (KW to Kg ratio) depending on process requirements
- ▶ Flexible frequency range (50 Hz to 250 Hz) most suited for the materials to be melted (aluminium, copper, and copper alloys (like brass, bronze, etc.) and zinc & zinc alloys), from scrap (industrial scrap, cathode, ingot, foundry return, wire, punching, turning, boring, etc.)
- ▶ Dual and multi-track options for simultaneous and continuous melting, holding and casting applications
- ▶ Power supply unit with IGBT-based Pulse Width Modulation (PWM) technology for stepless and linear power control
- ▶ Highest electrical efficiency, lowest energy consumption, and highest power factor irrespective of load
- ▶ Low maintenance
- ▶ Option of high-level automation with PLC and SCADA for real-time data exchange, centralized supervision, and predictive maintenance through online analytics
- ▶ Controlled stirring ensuring homogenous temperature and composition of metal
- ▶ Sturdy steel frame furnace structure with lip pouring
- ▶ Optional features like exhaust hood, load cells, pit guard system, etc.



Product Portfolio:

- ▶ **Coreless & Channel Type Induction Melting and Holding Furnaces**
for aluminium, copper, and copper alloys (like brass, bronze, etc.) and zinc & zinc alloys
- ▶ **Custom-designed Induction Heating Systems**
specially for non-ferrous extrusion applications
- ▶ **Heat-treatment Furnaces**
for a wide spectrum of metallurgical applications
- ▶ **Coating Solutions**
Pre-melt furnaces
Launders
Pots with inductors for GI | GL | GA | ZAM | Al-Si | Galfan

Our Key Clientele:



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