

Typical melt rates, kg/hr

Kw	Steel 1600°C	Iron 1500°C	Aluminum 730°C	Copper 1100°C	kw	Steel 1600°C	Iron 1500°C
25	28	31	28	45	1500	2870	3150
50	60	65	60	95	2000	3830	4200
100	140	155	145	220	3000	5730	6300
150	225	245	230	350	3500	6690	7630
200	320	345	325	500	4000	7640	8400
250	440	480	445	685	5000	9550	10500
300	540	590	540	840	6000	11470	12600
350	635	695	640	985	8000	15280	16800
500	910	1000	920	1410	10000	19100	21000
750	1440	1580	1445	2230	12000	22920	25200
1000	1910	2100	1920	2960	15000	28650	31510
1250	2390	2630	2400	3700			

WORLDWIDE INSTALLATIONS

 Argentina
 Azerbaijan
 Bolivia
 Botswana
 Bhutan
 Bangladesh
 Brazil
 Cuba
 Egypt
 France
 Georgia
 Ghana
 India
 Iran
 Kuwait



 Kenya
 Malaysia
 Mexico
 Nepal
 Nigeria
 Pakistan
 Poland
 Saudi Arabia
 South Africa
 Sudan
 Tanzania
 Tunisia
 U.A.E
 Uganda
 Yemen



MEETING THERMAL CHALLENGES THROUGH INDUCTION

m megatherm

An ISO 9001:2000 company

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Induction Melting & Holding Furnaces

the company

We deal in Metal Heating & Melting and possess the strength to meet Thermal Challenges through Induction.

In 1989 as we sparked-off, we banked upon our troupe of Electro Thermal Processing experts and the capital of experience that we had gathered since the 70's. We made our presence felt across Steel, Foundry, Forging and various other Metal Working Sectors, surging forward with spirits held high and the fire burning within.

Today, Megatherm is recognized and preferred by its ever-extending list of domestic and international clientele. Our installations are spread over the globe in countries, such as Brazil, Argentina, Chile, Mexico in Latin America; South Africa, Nigeria, Egypt, Kenya in Africa; Georgia, Kazakhstan, Azerbaijan, Iran in Central Asia; Indian, Pakistan, Bangladesh, Malaysia in South Asia, Kuwait, Saudi Arabia, U.A. E., Yemen in Middle East Asia; Poland, France, Germany in Europe to name a few.

Megatherm is committed to customer delight and performance excellence. We have invested in progressive in-house R&D which in turn has yielded both profit and praise for the company. On an aggregate we have over 1500 satisfied customers of Electro Heating Equipment till date. Our systems are incorporated with the best contemporary technology that ensures optimum utility and comprehensive productivity.

Being certified as an ISO 9001-2000 Company, the name Megatherm today is synonymous to quality.

Foundry Applications

Induction furnaces are widely used for Ferrous and Non-Ferrous Foundries for Automobile castings, DI pipe castings, Manganese Steel castings, Heavy engineering castings, Railways component casting, Roll manufacturing, Steel shots making, Grinding media casting etc. We address to the following Ferrous & Non - Ferrous Foundry Sectors:

Iron & Steel Casting Units:

- Grey and Cast Iron Melting
- Steel and alloy steel melting
- Stainless steel castings
- Holding and Superheating

Non-Ferrous Casting Units:

- Aluminium Melting
- Copper melting
- Brass/Bronze melting

Special Applications:

- Precious metal like Gold, Silver etc melting
- Investment Casting
- Laboratory Application



750kW, 1000Hz, 750KG Iron Melting Furnace in operation at F.A.C., Chatelleraut, France

Induction Power Supply Unit

When it comes to Induction Melting Power Source Units, Megatherm has a commendable series to offer. These power units are fitted with the much trusted "Parallel resonant current Fed Technology" that ensures efficient & reliable melting. The capacity of these units range between 15 kW and 20 MW matched by similar gradation in operating frequency –100 Hz to 9600 Hz. The Power Semiconductor devices in the circuits are customized either with Fast Thyristors or IGBTs, depending on the power and the frequency.

With the purpose of controlling the frequent downward regulation of power, D.C Choppers are also utilized to maintain constant mains power factor under all operating conditions. Multi-Pulse and Multi-Rectifiers options are often deployed to limit Harmonic levels when the rating is above 1000 kW.

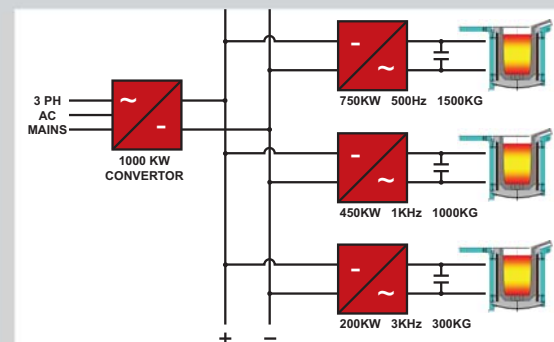
A lot many foundries are benefitted with the technically advanced and efficient Twin Power Supply of Megatherm. The list of features and benefits includes –

- Supreme productivity
- Optimum utilization of furnaces
- Sharing of rated power at any given ratio between two furnaces
- Parallel utilization of the twin crucibles for melting and holding/superheating as and when needed
- Explicitly controlled power sharing mechanism facilitating absolute energy utilization
- User friendly operation

Megatherm's Multi-share power supply has flexibility for Sharing of rated power at any given ratio between multiple furnaces of different operating frequencies. It also comes with the advantage of using different furnaces of melting individual metals or it can replace multiple Twin-share system.



Static Power Supply



Typical SLD of Multi Share Power Supply

Melting & Holding Furnaces

Coreless Steel Frame Furnaces:

If your operations desire unquestioned safety and competence coupled with high energy efficiency then Megatherm's Steel Frame Furnace is the solution for you. Designed suitably to perform the best in low to high power density, these steel frame furnaces are low on maintenance, high on shielding magnetic fluxes and offer extremely rugged construction.

Run on the latest Electromagnetic Software programs these furnaces certify safety and care for their human operators. Strong Faraday Rings & distributed Flux Guides prevent intense electromagnetic field to escape the crucible boundaries. An enhanced degree of electrical insulation shields from intense electro-magnetic fields. The software also facilitates optimal impedance to go with the power source as well as a rapid melting rate undeterred by the loose initial charges.

A steel frame furnace takes shape when a coil cradle assembly and tilting & supporting frame gets linked with a pair of hydraulic cylinders, aiding in lip axis pouring. The components in a coil cradle assembly are –

- electrolytic copper coils cooled in single or multi zone water
- silicon steel lamination yokes for shielding
- the top & the bottom refractory castables along with Faraday Ring and plate

The set up can easily be dismantled for maintenance purpose.

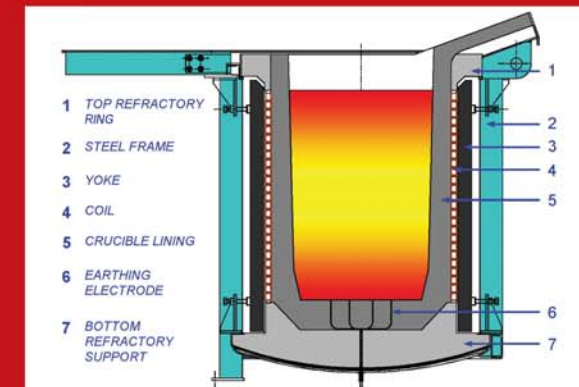
For both melting & holding applications of a given power & melt size, frequency & crucible geometries are appropriately selected to provide optimum stirring & lining life.



Steel Frame Furnace with lid and pit guard



Coil Cradle Assembly



Typical Crucible Section



Furnace Lid along with Fume Ring



Fume Hood



Pit Guard in Operation



Load Cell Arrangement

Additional Features

Furnace Lid, Fume Ring & Closed Capture Fume Hood:

Lift & Swing lid in addition to Stationery Fume Rings serves the dual purpose of energy preservation as well as pollution control. The lids are manually as well as hydraulically operated, whereas the end of the Fume ring is connected to duct of the plant's pollution exhaust system.

Hydraulically operated closed capture Fume Hoods are also available for large capacity furnaces. These are double acting & open on both sides to facilitate charging & pouring. The duct end is connected with plant's exhaust system through specially designed heat resistance & dust proof seal & bearing assembly for smooth hood motion.

QLR:

Megatherm is always a step ahead of its competitors in terms of convenience. It has released the furnace maintenance team from the hassle of manually removing the old lining. A specially crafted device comprising of some steel work and a block at the bottom of the crucible takes care of the job. A hydraulic cylinder is assigned to push the block and quickly extract the lining.

Back-Tilting:

It has often been noticed that the process of slag-removal is a laborious one in the conventional mode of larger furnaces. Thus the back-tilting facility introduced by Megatherm is an immensely popular and convenient arrangement of scraping out slag in the receiving trolley in lesser time.

Pit Guard:

Safety and convenience is yet again offered in the form of gas spring supported Pit Guard. These protective Back & Site Net Guards are programmed to shield the furnace pit as the furnace tilted to tap liquid metal. This mechanism wards off accidents.

Load Cell Arrangement:

The furnace operation is further integrated and automated with the continuous metal weighing system. This cutting-edge technology is in-built in the furnaces to digitally display the weight, uninterrupted. The central control processing unit is fed with the output from Load cell to facilitate centralized automated operation.

Pop-up Furnaces

This furnace is specially designed for small capacity non-ferrous melting for laboratory application or for precious metal casting application. Suitable crucibles are placed for melting metal. Whenever melt is ready, crucible (made of graphite, silicon carbide etc) containing liquid metal will be lifted out through pneumatic operation so that it can be easily carried out towards mould with the help of Hand tools. Maximum Capacity of the furnaces is 50 kg.



Automation

Auto Melt-control:

Megatherm's Auto-melt is most advanced technology to provide more ease in operation. It assists Furnace Operator to control key parameters during sintering/melting operation. Operator can program for sintering cycle/ melting cycle. It will show Furnace running Status as well as tripping status during entire operation. It also has facility to set a target kWh for complete melting before it starts. It will count down until it reaches zero. Then the system will be automatically switched to 'OFF' mode or to Holding power as decided. This is an excellent management tool which will ensure optimum utilization to achieve best productivity.

Melt Control+:

In addition to all Auto Melt-Control features, Melt Control + offers PC based user interface in respect of:

- Graphical presentation of Power, Frequency and other Electrical parameters, during melt cycle.
- Graphical presentation of Weight of Raw Materials charging in progress.
- Graphical presentation of weight of Alloy charging in progress.
- Graphical presentation of kWh consumption in progress.
- Display of Melt duration and kWh/Ton at the end of melt.
- Display of events in case of interruption or faults during melt.

There are provisions available for Data logging for all parameter for centralized control at local or through network connections.

