

Unitized Billet & Bar Heater for Forging



UBH Billet Series and Bar Heaters

Megatherm's medium frequency unitized billet heaters are used for heating of ferromagnetic and austenitic quality steel billets to the forging temperature of 1200 – 1250°C. They are also used for heating of non ferrous metals like aluminum, copper and its alloys like brass and bronze. The billets to be heated are cold sheared or sawn. They are then fed to the heater by a linear conveyor and a tractor drive system or by a controlled Billet pusher mechanics.

Feed speed and heater KW are infinitely variable and can be set to the respective production conditions.

The heated billets leave the coil in the desired production cycle through a motorized fast take off roller table / chain conveyor with a chute or they are removed from the last coil by a gripper with tongs and released on the exit chute for transfer to the forging press. Megatherm also supplies supplementary equipments like bin tipper, step loading feeder, inclined indexing loader, side transfer loader, hot billet extraction, pyrometric temperature detection and automatic billet rejection system. The billet heating plant is available in different designs and performance classes including dual power-frequency control and temperature feedback controls from 150 kw-2000 kW.

Features:

- Modular Induction Power Supply (SCR/IGBT)
- Positive drive mechanics for Billet /Bar Heating
- Epoxy Cast Coil Insulation embedded in refractory Cast Coil Assembly
- Fast Extractor with optional weld break mechanism
- Coil shuttle mechanics (optional)
- 2-way/3-way accept reject system actuated by temperature sensing.
- Billet Lost Motion/ Zero Billet sensor protection
- PLC/ SCADA for Billet Heating Control and Monitoring
- Constant Input Power factor of 0.95
- Non Contact 2 colour IR Pyrometer.

The advantages of Induction Heating at a glance:

- Uniform heating for all billets with very low scale formation/oxidation
- Environment friendly and low space requirement
- Matches easily with press or hammer
- Immediate start up
- No heat stress on operating personnel
- High efficiency electrical heating
- Automatic operation through PLC
- Exact temperature control, therefore high dimensional accuracy of forged parts and extremely good service life
- Power and transport feed speed smoothly adjustable to forging press requirement
- Short conversion time for coil changeover

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Megatherm – Meeting the needs of the Forging Industries with Unitized Billet & Bar Heaters

- Compactness:** Most forge shops have grown leaving just enough space between the pieces of forging equipment to permit placement of oil or gas fired heating furnaces. Thus space is very limited and compactness of an induction heater is of greater importance.

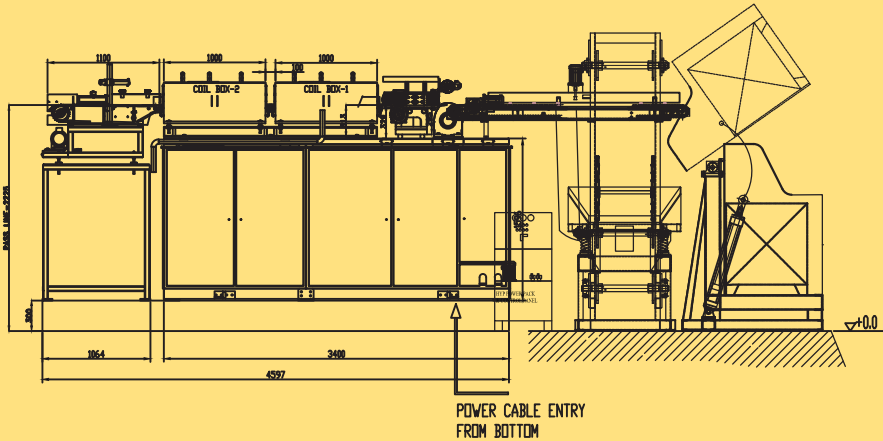
“UBH” is the most compact induction heater available. A complete 750 KW heater except for water recirculating and cooling equipment can be installed in a floor space of 5 sq. mt. and a 2000 KW unit in 7.5 sq. mt.

Cooling water equipments can be located remotely and operated from control desk near the heater.
- Portability:** If the Forging equipment like Press /Hammer is under breakdown or needs to be relocated to a different place, the UBH can also be relocated or moved to another forging line very easily.

A 600 KW basic UBH weighs less than 2.5 tonne and can be readily moved with a fork lift. Only power and water connections need to be made available at the new location.
- Low Installation Costs:** Together with ready portability, the complete interconnection of all components of “UBH” makes it the simplest to install by connecting the 3 phase power line and the plumbing line to the cooling system supplied by Megatherm.

- Quick Change Over:** Use of quick release couplings on the coil, quick disconnect system for power connection and a unique coil mounting design permits coil change-over in less than 20 minutes. Simple adjustments to the tractor drive and power settings complete the change-over.
- Reliability:** The power circuitry of “UBH” embodies the latest technology in Thyristors or IGBT.

The devices have been minimized and the most powerful devices have been used to insure maximum reliability. A coil design with over temperature tripping sensors had also been incorporated to insure coil reliability.
- Low Power Consumption:** The power factor of the “UBH” is a constant 0.95 through the entire heat cycle. This means that the input KVA requirement of the system is the absolute minimum, resulting in low electrical and demand costs and low electrical installation costs.
- Ease of Maintenance:** The door panels of the “UBH” comes with one key design and readily permit straight access to the power semiconductor assembly, the electronics, PU quick release water lines and the capacitors. UBH represents not only a significant advance in induction heating concept, but also a new approach to making such equipment available to the forging industry.



Modular Design with built-in Induction Power Supply

Specifications:

UBH-30 30kHz		
Power size (KW)	Billet Range (mm)	Production Rate (kg/hr)
100	8-13	235
200		470
300		680
100	13-25	268
200		550
300		800
100	25-32	270
200		552
300		820

UBH-10 10kHz		
Power size (KW)	Billet Range (mm)	Production Rate (kg/hr)
300	20-32	740
350		900
400		1030
500		1260
600		1540
300	32-50	780
350		960
400		1280
600		1550
300	50-65	812
350		015
500		1330
600		1610

UBH-3 3kHz		
Power size (KW)	Billet Range (mm)	Production Rate (kg/hr)
350	24-32	825
400		880
500		1100
750		1650
350	32-50	865
400		990
500		1240
750		1850
350	50-65	950
400		1075
500		1350
750		2020
350	65-85	990
400		1120
500		1385
750		2085

UBH-1 1kHz		
Power size (KW)	Billet Range (mm)	Production Rate (kg/hr)
300	60-85	865
600		1735
900		2600
300	75-100	860
600		1720
900		2570
300	85-120	810
600		1730
900		2590
300	100-150	NA
600		1730
900		2595

UBH-0.5 500Hz		
Power size (KW)	Billet Range (mm)	Production Rate (kg/hr)
600	90-125	1710
900		2600
1200		3450
600	110-180	1720
900		2574
1200		3420
600	160-220	1700
900		2560
1200		3400

UBH-0.25 250Hz		
Power size (KW)	Billet Range (mm)	Production Rate (kg/hr)
800	160-200	2320
1500		4350
2000		5800
800	200-300	2300
1500		4340
2000		5800
800	300-400	2270
1500		4300
2000		5710

Production rates refer to the steel billets of maximum 400 mm diameter and heating to maximum 1250 degree C and surface to core temp., difference would be for $\pm 50^\circ\text{C}$ at coil exit