

GST no. 06AQTPM9983F1ZZ



Maan Global Industries

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Quotation no. MA-1853125255

Date: 27th June 2023

Item Description	Qty.	Amount in Rs.
Electric Box Type Heating Furnace 600 Degree C Max. Temp	01	Rs. 12,28,000.00
		Total: Rs.12,28,000.00

Amount in Words: Twelve Lacs and Twenty-Eight Thousand Rupees Only.

Terms & Conditions:

Transportation: Extra

Payment Terms: 40% advance with PO, 50% before dispatch against Proforma Invoice. 10% after dispatch. Inspection can be done at our Factory.

Packing Charges: Extra

Delivery: 6 – 8 Weeks

Warranty: 1yr against any manufacturing defects only.

Installation: Rs. 45,000 Extra if required. Furnace comes in plug-n-play condition

DESCRIPTION ELECTRIC BOGIE HEARTH FURNACE

Batch Weight	500 – 700 kgs Max.
Furnace Chamber Width	1200 MM
Furnace Chamber Depth	1500 MM
Furnace Chamber Height	1200 MM

Furnace Temperature	600 Degree C Max. (Electronically Adjustable as per requirement)
Furnace Heat Source	Electric Heating Elements (KANTHAL A1)
Furnace Type	Electric Box Type Heating Furnace

ELECTRIC BOX TYPE FURNACE SPECIFICATIONS

- a) The furnace having shell and lined with Ceramic Fibre Modules lining 128kg/m³ density and base lined with Hot face refractory brick lining.
- b) Front Opening Door with Hinge Type arrangement and latch locking mechanism.
- c) Temperature indicating and controlling PID controllers
- d) Control panel with complete electrical switch gear.
- e) Cabling between furnace and control panel.

SPECIFICATIONS

- (a) Furnace Load capacity: 700 kg Max. Horizontal Position
- (b) Heat treatment temperature: Up to 600 deg C
- (c) Furnace max. working temperature: 550 deg C
- (d) Allowable variation of temp: +/- 5 deg C.
- (e) **PID Controllers for Temperature Control and Adjustment.**
- (f) **Thermocouple – K Type 2 Nos. fixed**

Heating elements

- a) Type: Strip/Coil Type
- b) Material : (KANTHAL A1)

- c) Cross section area: 12 mm x 1.8 mm
- d) Heating Power: 36 KW
- e) Scheme for type of power regulation: Thyristors will have 4 – 20 mA output to regulate the power input to the heaters through Thyristor power pack. Thyristor power pack is provided along with PID controllers to give precise power input to the heaters as per 4-20 mA signal.
- f) Number of phases: Three

DOOR

- a) Number of Doors: One, front only with Hinge type arrangement.
- b) Sealing details: Ceramic Fibre + White Castable setup on Door Frame

Power

- a) Control circuit voltage : 415V, AC, 50 Hz.
- b) Power: 3 Phase, 415V, AC, 50Hz.
- c) Power rating: 42 KW

STEEL FABRICATION

SHELL

The shell will be Rectangular in shape fabricated out of 5 mm thick rolled mild steel sheets and shall be suitably reinforced with rolled steel sections like angles and channels to make the structure robust. The construction of shell will be self-supporting type so that the shell can be placed on the shop floor directly. Outside of the shell MS rods will be welded diagonally for extra support to the structure.

FURNACE ROOF

Flat roof suitable for lining with ceramic fibre modules shall be provided. Roof construction shall be modular in 1 to 2 modules. Roof structure shall consist of large section rolled or fabricated steel beams spanning furnace width and attached to the side wall structure.

DOOR

The furnace door will be fabricated out of 6 mm thick mild steel plate and shall be reinforced with angles and channels. Angle support shall be provided at the centre for placing the motor on the lid. The inner cover of the door which comes in contact with working temperature of 900/1000 deg C will be reinforced with Ceramic Fibre Blocks or a similar material for minimum heat loss from the chamber. Ceramic Fibre and White Heat Castable sealing arrangement will be provided in the door to prevent heat loss. The door will be upward/downward movement driven by Motor Pulley Shaft Arrangement.

HEATING ELEMENTS

KANTHAL A1 minimum size of 10 mm width by 1.8 mm thick to with stand maximum temperature 1200 deg C accommodated along with inner periphery of height will be employed. The heating element will be designed to operate on direct supply voltage of 440 volts. The terminal of heating elements will be minimum thrice the cross section of the strip of the heating elements and will brought out on to heat cum electrical syndanio frame at the side of the furnace through sillimanite tubes.

AUTOMATIC TEMPERATURE INDICATOR AND CONTROLLER

The furnace will be provided with thermocouple on side wall. Apart from temperature controller, an over temperature protection will be provided in both the zones. The control equipment will be capable of maintaining the temperature accuracy within +/- 5 deg C of the set temperature. The temperature shall be measured and controlled by automatic digital indicating PID controller and safety controller will act in conjunction with the Cr-Al thermocouple sensors having range of 0 - 1200 deg C and will be complete with protective heat resisting sheath with junction head and adequate length of asbestos covered compensating cables. Thyristor power pack will be provided for precise accuracy and regulation of input power to the heater as per 4-20 mA output signal from PID controller.

CONTROL PANEL Thyristorized

The control panel should be a metal sheet cubical floor mounted type and the scope of supply should include 1 No. control panel with power supply and instrumentation panel. The control panel should be neatly wired and ferruled prior to dispatch. All

electrical controls for regulation of heating of the furnace instruments such as voltmeters, ammeters, signal lamps should be provided.

REFRACTORY AND INSULATION

Sides

The furnace chamber will be lined with energy saving ceramic fiber modules of 160Kg/m³ density backed with 25 mm thick ceramic fiber blanket of 128 Kg/m³ at the hearth is lined with 128kg/m³ density ceramic fibre modules 225mm thick. The total thickness of insulation will be such a way that the heat loss to the body is kept as minimum as possible (not more than 30 deg C above ambient)

PAINTING

The furnace shall be painted from the outside after two coats of red oxide and primer and the control panel will be painted with a suitable matching color.

The control panel will be housed with the following: -

- a) 1 No. Thyristor based Control Panel fully integrated with the Furnace.
- c) 3 Phase phase angle firing Thyristor along with semi conductor fuses
- d) Ammeters e) Voltmeters
- g) Over Load Relays h) On/Off Rotary Switches
- i) Indicating Lamps
- e) HRC Fuse base with links
- f) 1 No. Main switch

Make of the Components

Havells – Siemens – Schneider – Eurotherm – Honeywell – Murugappa – L&T - Rishab

Note: 1. All above dimensions are approximate and for User's Guidance only. The system's design may change at the time of detailed designing without affecting its rated capacity and performance of the system.

2. This Data furnished in this Offer is submitted upon your request for quotation. This shall not be passed outside of your organization and shall not be duplicated; used or disclosed whole or part for any purpose other than to evaluate the proposal. This applies to all pages and drawings of this proposal.

UTILITIES THAT SHALL BE ARRANGED AT YOUR SITE

Power : 3 Phases, 415 V, 50 Hz, AC.

Cabling : From the Main Electricity Supply to the

Equipment From Control Panel to the
Equipment, etc.,

Electric Hoist : Shall be arranged at your end. All utilities, Interconnection Power, Cables
and Wires

VENDOR LIST (RAW MATERIAL TO BE USED)



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Schneider
Electric



Eurotherm[®]

by **Schneider** Electric



HAVELLS

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VGN
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