



## **MASS ENGINEERS**

**Specialized Heating Equipments**

### Our Products

- > CONTINUOUS PUSHER TYPE HQT FURNACES.
- > BATCH TYPE RAPID QUENCHING FURNACES WITH MANIPULATOR.
- > BOGIE HEARTH FURNACES.
- > LADLE PRE HEATERS/ TUNDISH PRE HEATERS.
- > OVENS, CONTINUOUS SLAT TYPE, TROLLEY TYPE.
- > COMBUSTIONS & AGITATION SYSTEMS.
- > ELECTRICAL & AUTOMATION SYSTEMS.
- > BELL TYPE & BOX TYPE FURNACES.
- > BATCH/FIXED HEARTH FURNACE WITHOUT QUENCHING.
- > BIO MEDICAL WASTE INCINERATOR.

### Contact Us

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# CONTINUOUS HQT PLANT



**CONTINUOUS NORMALIZING, HARDENING, QUENCHING, TEMPERING, SOLUTION ANNEALING & ISO THERMAL ANNEALING.**

## Features:

- Operating temperature: 200 °C-1200 °C & Max temp 1250°C.
- Capacity from 150kg/Hr to 4000Kg/Hr .
- Heating source:-Electrical/Gas(LPG,PNG,CNG & LNG)/Oil(Diesel,LDO & FO)
- Electrical- Kanthal A1 sweden make/ Kanthal APM
- Combustions burners: Media-Gas,Oil & Dual etc.(High velocity short flame automatic ignition burners)
- Sturdy and rigid construction, plates reinforced by 'C'-Channel or 'T'-Beam.
- Refractory bricks with 35 to 90 Alu% content and bonding with thermotex for allowing it to hold high temp. without breaking down.
- Ceramic blanket density range 96 to 128 Kg/Cubic Meter with temperature range 960 to 1425 °C. Lining thickness depends upon process temperature(325 to 450mm)
- Tray movement through Rails & Rollers having grades HH,HK,HN & HU with minimum sliding friction.
- With automatic quenching provision media Water, Polymer & Oil . quenching delay 15 to 35 Sec.
- Temperature control with the PLC PID. Temp. uniformity  $\pm 5$  to  $\pm 14$  °C.
- Power control through solid state relays or thyristor units.
- Data acquisition through SCADA software.





# BATCH TYPE HT RAPID QUENCHING PLANT WITH XYZ MANIPULATOR



**BATCH NORMALIZING, HARDENING, QUENCHING, TEMPERING, ANNEALING, SOLUTION ANNEALING, STRESS RELIEVING & AGING.**

## Features:

- Operating temperature: 100 °C-1200 °C & Max temp 1250°C.
- Capacity from 500kg to 50000Kg Per batch.
- Heating source:-Electrical/Gas(LPG,PNG,CNG & LNG)/Oil(Diesel,LDO & FO)
- Furnace operation with low maintenance.
- In Gas & Oil furnace for fuel saving and to reduce scaling the automatic actuator comes with the combustion systems.
- For Gas & Oil Fired furnace recuperator installed to reduce the fuel consumption upto 5-15%.
- Refractory bricks with 35 to 90 Alu% content and bonding with thermotex for allowing it to hold high temp. without breaking down.
- Ceramic blanket density range 96 to 128 Kg/Cubic Meter with temperature range 960 to 1425 °C. Lining thickness depends upon process temperature(325 to 450mm)
- Manipulator movement through centralised hydraulic power pack (cylinder and hydro motors).
- With automatic quenching provision media Water, Polymer & Oil . quenching delay is 15 to 35 Sec.
- Temperature control with the PLC PID. temp. uniformity  $\pm 5$  to  $\pm 14$  °C.
- Power control through solid state relays or thyristor units.
- Data acquisition through SCADA software.





## BOGIE HEARTH BATCH TYPE FURNACE



**BATCH NORMALIZING, HARDENING, TEMPERING, ANNEALING, SOLUTION ANNEALING, STRESS RELIEVING & AGING.**

### Features:

- Operating temperature: 100 °C-1200 °C & Max temp 1250°C.
- Capacity from 500kg to 100000Kg Per batch.
- Heating source:-Electrical/Gas(LPG,PNG,CNG & LNG)/Oil(Diesel,LDO & FO)
- SS 310 Recirculation fans installed for better uniformity.
- In Gas & Oil furnace for fuel saving and to reduce scaling the automatic actuator comes with the combustion systems.
- For Gas & Oil fired furnace recuperator installed to reduce the fuel consumption upto 5-15%.
- Refractory bricks with 35 to 90 Alu% content and bonding with thermotex for allowing it to hold high temp. without breaking down.
- Ceramic blanket density range 96 to 128 Kg/Cubic meter with temperature range 960 to 1425 °C. Lining thickness depends upon process temperature(325 to 450mm)
- Bogie wheels material, forged EN-8 & EN-9 with anti-frictional bearing assembly
- Bogie drive comes with geared motor/hydraulic system.  
Bogie drive mechanism with rack & pinion, winch system & direct coupled.
- Temperature control with the PLC PID. temp. uniformity  $\pm 5$  to  $\pm 14$  °C.
- Power control through solid state relays or thyristor Units.
- Data acquisition through SCADA software.





## CORE OVEN CONTINUOUS AND BATCH TYPE



### CORE BAKING & DRYING

#### Features:

- Operating temperature: 100°C - 250°C & Max temp 300°C.
- Capacity from 100kg to 5000Kg Per batch/Hr.
- Heating source:-Electrical/Gas(LPG,PNG,CNG & LNG)/Oil(Diesel,LDO & FO)
- Bundle type heater installed for heat generation
- In Gas & Oil oven for fuel saving, automatic actuator comes with the combustion systems.
- SS 304 baffle plates to be installed for better hot air recirculation/distribution.
- In continuous type oven, air curtains installed at inlet and outlet side to avoid heat losses.
- Ceramic blanket density range 64 -96 Kg/Cubic meter with temperature range upto 300 °C.
- SS 304 recirculation fans installed for better uniformity.
- Temperature control with the PLC PID. Temp. uniformity  $\pm 5$  to  $\pm 14$  °C.
- Power control through solid state relays or Thyristor units.
- Data acquisition through SCADA software.





## LADLE PRE HEATER/TUNDISH PRE HEATER



### VERTICAL/HORIZONTAL TYPE LADLE PRE HEATER

#### Features:

- Operating temperature:1000°C & Max temp 1200°C.
- Temperature will reach from ambient to 1000°C in 30-60 minutes.
- Capacity from 100kg to 35000Kg.
- Heating Source:-Electrical/Gas(LPG,PNG,CNG & LNG)/Oil(Diesel,LDO & FO)
- In Gas & Oil furnace for fuel saving, automatic actuator comes with the combustion systems.
- Kanthal A1 heating element installed.
- For Gas & Oil Fired furnace recuperator installed to reduce the fuel consumption upto 5-15%.
- In gas train for safety purpose gas solenoid valve, Pressure relief valve & auto slam shut off valve to avoid any gas leakage accident.
- Ceramic blanket density 128 Kg/Cubic meter with temperature range 1260 °C. Lining thickness 325mm.
- Temperature control with the PLC PID. temp.
- Power control through solid state relays or thyristor units.
- Up down operation by hydraulic/pneumatic/geared motor and swing motion by hydraulic/pneumatic/geared motor.





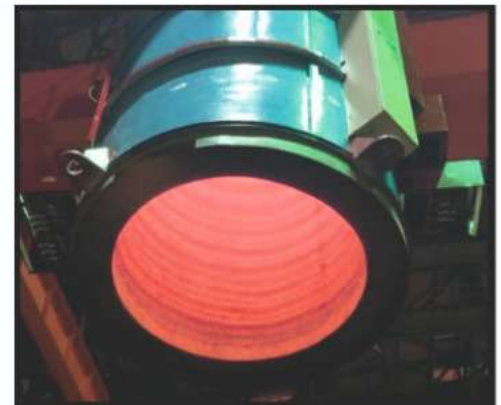
## BELL TYPE & BOX TYPE FURNACE



### BATCH NORMALIZING, TEMPERING & ANNEALING

#### Features:

- Operating temperature: 200 °C-1000 °C & Max temp 1000°C.
- Capacity from 500kg to 40000Kg Per batch.
- Heating source:-Electrical/Gas(LPG,PNG,CNG & LNG)/Oil(Diesel,LDO & FO)
- Kanthal A1 ROB Type coil(Circular and Strip type heating element) installed.
- In Gas & Oil furnace for fuel saving and to reduce scaling the automatic actuator comes with the combustion systems.
- For Gas & Oil Fired furnace recuperator installed to reduce the fuel consumption upto 5-15%.
- Refractory bricks with 35 to 40 Alu% content and bonding with thermotex for allowing it to hold high temp. without breaking down.
- Ceramic blanket density range 96 to 128 Kg/Cubic meter with temperature range 960 to 1425 °C. Lining thickness depends upon process temperature(325 to 450mm)
- SS 310 recirculation fans installed for better uniformity.
- Temperature control with the PLC PID. Temp. uniformity  $\pm 5$  to  $\pm 14$  °C.
- Power control through solid state relays or thyristor Units.
- Data acquisition through SCADA software.





# BATCH/FIXED HEARTH FURNACE WITHOUT QUENCHING



**NORMALIZING, TEMPERING, ANNEALING, STRESS RELIEVING, AGING**

## Features:

- Operating temperature: 100°C-950°C & Max temp 1000°C.
- Capacity from 500kg to 25000Kg Per batch.
- Heating source:-Electrical/Gas(LPG,PNG,CNG & LNG)/Oil(Diesel,LDO & FO)
- Electrical- Kanthal A1 Sweden make.
- Combustions burners: Media-Gas,Oil & Dual etc.(High velocity short flame automatic ignition burners)
- Sturdy and rigid construction, plates reinforced by 'C'-Channel or 'I'-Beam.
- Refractory bricks with 35 to 45 Alu% content and bonding with thermotex for allowing it to hold high temp. without breaking down.
- Ceramic blanket density range 96 to 128 Kg/Cubic Meter with temperature range 960 to 1260 °C. Lining thickness depends upon process temperature(250 to 325mm)
- Monolithic ceramic blanket lining to be provided to avoid heat penetration/heat transfer from furnace to outside.
- Controlled De-Ramping can be achieve by installing required capacity ID-Blower/ID-Fan
- Temperature control with the PLC PID. Temp. uniformity  $\pm 5$  to  $\pm 14$  °C.
- Power control through solid state relays or thyristor units.
- Data acquisition through SCADA software.





# COMBUSTION AND AGITATION SYSTEMS

## HIGH VELOCITY SHORT FLAME BURNER

### Features:

15-25 Kg/Hr 250kw.

5-15 Kg/Hr 150kw.

Smokeless burner.

Automatic ignition.

Fuel Control - Solenoid Valve.

Flame detection - Ionization rod/Photo Cell.

Combustion control- Electronic Sequence Control.

Body-Heat Resistance Cast Iron.

Air control-Butterfly Valve.

Fuel:-Gas(LPG,PNG,CNG & LNG)/Oil(Diesel,LDO & FO)



## PROPELLER BASED AIRLESS AGITATION SYSTEMS

- Control the heat-transfer rates from parts during the quenching process.
- Produce the desired hardness, strength, and toughness.
- Minimize distortion and residual stresses.
- Enhancing the quenching uniformity over the total surface of the part.

Submersible Agitator is a key equipment for quenching tank agitation in heat treatment process. The airless agitation with 0.5-2.0 m/sec.

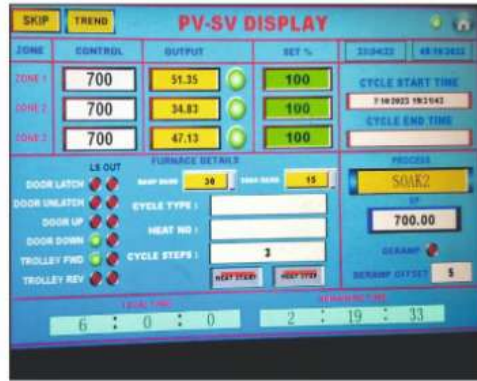
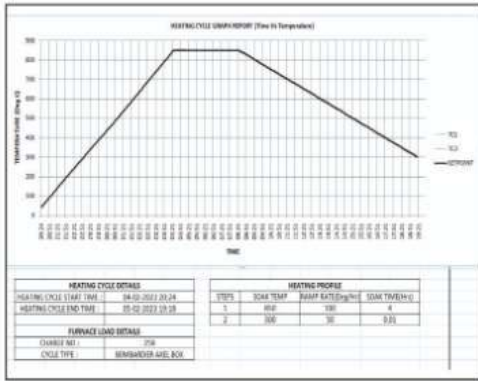
Available range of Submersible Agitator

1.0 hp, 3.0hp, 5.0hp, 7.5hp etc.





# ELECTRICAL AND AUTOMATION



- The furnace accuracy with  $\pm 5^{\circ}\text{C}$  using PLC PID & HMI.
- Large electrical industrial & automation projects.
- Foundry & Forgings plant automation control panels.
- PLC based fully automation control systems.
- Smart energy savings concept through AC drive control panels.
- Integral earthing switch with every panel.
- For customized requirements the panels are tailored manufactured to ensure for fitness for use.



## SPARES & SERVICES:

- Refractory and Lining Material
- Pneumatic/Hydraulics Spares.
- Combustion Systems Spares
- Agitation Systems and Spares
- Electrical Panel with Spares
- Heating Elements & Accessories
- Furnace Casting Materials
- HMI, PLC & Accessories
- RC Fan & Cooling Fan Systems
- Other Mechanical & Ele. Materials



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