

# SPECIFICATION FOR UPGRADATION AND REPAIRING OF FLUID BED HEAT TREATMENT FURNACE.

Furnace type: Fluidized bed (in side dia. 350 m.m. X 900 m.m. height --- 02 nos., Operating temperature 1000°C max.) make :FLUID THERM

Furnace type: fluidized bed (in state and in operation)														
Sl. No	Items name	Activities												
	End use	To carry out Heat treatment of various metals & alloys.												
01.	Detailed specification/ requirement	To repair and upgrade the existing fluid bed heat treatment furnace consists of following functionaries /application. 1. Repairing of all damaged Electrical and mechanical parts/accessories in all the four working zone of the Furnace i.e. Fluidized Bed,Oil and water cooling bath, and annealing furnace. 2. Renovation of existing gas line and oil cooling system mountings in the working zones. 3. Total Up gradation of control Unit (includes 02 nos. of control Panel and 01 nos. gas flow control unit) as a replacement of old one.												
2.0	Repairing or replacement of damaged Electrical and mechanical parts/accessories.	i. Existing damaged/damped and old insulations should be dismantled. ii. New high temperature blanket should be provided where ever necessary during repairing.. iii. Existing old damaged heating elements should be removed and new heating elements should be re- fixed for suitable application. iv. All damaged fire bricks should be replaced and refixed with new firebricks as per requirement. v. Furnace top asbestos robe should be provided to avoid heat loss. vi. Existing S.S. retoder should be replaced if necessary. vii. Elements, terminals,thermocouples should be linked properly and all connections should be done properly. viii. After burner for flue gases on the top of the fluidized bed to be furnished with LPG burner / spark type burner as a safety device.. ix. All the pumps,motors to be overhauled thoroughly. x. A new generation compressor with drier to be installed by the replacing the existing compressor and as per actual need of the system.. xi. The monorail EOT crane is to be service thoroughly for smooth functioning. xii. Total Furnace area should be painted with heat resistance Aluminium paint and protective paint to have a descent look after repairing. i. LPG , ammonia Hydro carbon gas and regulators etc. should be changed with new one. The scope of pipeline circuit is started from regulator to Fluidized bed furnace. ii. All hoses should be new for gas and pipelines.( as per pipeline design.) iii. All pipe lines ,ball valves and connectors should be redesigned for suitable operation of the furnace. iv. Shell should be fabricated using S.S. sheets (thickness 4 m.m or more ) and frames for insulation should be provided for loss of cooling compressor with puffing of copper lines. v. Inlet and outlet pipes with flanges should be provided. vi. Pipes should be connected properly to prevent leakage. vii. Existing Chiller should be overhauled as per requirement.												
3.0	Repairing and replacement of existing gas lines and oil cooling system,mountings													
4.0	Up gradation control Unit as a replacement of old one.	<table><tr><th>Sl. No.</th><th>Item</th><th>Description</th><th>Qty.</th></tr><tr><td>01.</td><td>Basic Features:</td><td>The Control unit to be designed in accordance with up-to date standards of fluidized bed Heat treatment systems and special care is to be taken to ensure ease of operation and maintenance, accuracy of heating, safety Complied with existing furnace.</td><td>N.A.</td></tr><tr><td>03.</td><td>Panel Description</td><td>comprising of MCCB, push buttons switches (on -off) each, for control of individual bed, load &amp; phase indicating lamps etc ( at least 09 nos.), alarm, necessary Contactors, Relays, Meters(Ammeter, voltmeter) , and indication lamps required for the designed electrical circuit . In the event of fault condition viz., over temperature</td><td>As required</td></tr></table>	Sl. No.	Item	Description	Qty.	01.	Basic Features:	The Control unit to be designed in accordance with up-to date standards of fluidized bed Heat treatment systems and special care is to be taken to ensure ease of operation and maintenance, accuracy of heating, safety Complied with existing furnace.	N.A.	03.	Panel Description	comprising of MCCB, push buttons switches (on -off) each, for control of individual bed, load & phase indicating lamps etc ( at least 09 nos.), alarm, necessary Contactors, Relays, Meters(Ammeter, voltmeter) , and indication lamps required for the designed electrical circuit . In the event of fault condition viz., over temperature	As required
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		<p>audio visual alarm communication system comprising hooter and indicating lamps will activate.</p> <ol style="list-style-type: none"> <li>Programmable temperature indicating controller.....02 Nos. ( min)</li> <li>The controllers will be controlled through a programmable software.</li> <li>The software should have a proper communication interface ( Rs 232 or equivalent) with the controller to monitor process parameters through a connected PC/Laptop (to be supplied along with the controller).</li> <li>Element controller.....04Nos. ( min)</li> <li>Connectors..... as required</li> <li>Blower connectors for oil quenching tank..... 02 nos. ( min)</li> <li>Blower connector for water quenching tank. .... 02 nos. ( min)</li> <li>LPG push button..... as required</li> <li>Rotary switch. .... as required</li> <li>Thermocouples for temperature measurement.....06 nos. ( min)</li> <li>New instruments and accessories may be fixed where ever necessary even outside the above list.</li> <li>New proper wirings should be done for synchronization of the above system</li> <li>Panel should be powder coated</li> </ol> <p>All the indicators/meters should be arranged in systematic order and marked properly. General layout and schematic diagram of the total system to be approved before manufacturing to be compatible with the existing system.</p>		
04.	Input Power Supply:	415 volt $\pm$ 10 %, 50 Hz, 3 phase, A.C.supply. and 2 phase power Supply will be provided from the nearest switch.	N.A.	
05.	Earthing	Earthings of Electrical panel may be done by connecting with existing earth pits.	As required	
09.	Heating rate control	$\pm$ 0.2 to 10 °C/min	N.A.	
10.	Cooling Rate control	$\pm$ 0.2 to 10 °C/min	N.A.	
11.	Thermo couple	K-Type ...	As required	
12.	Limit switch	For doors / covers of furnaces	As required	

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