



## **Tiruchirappalli Engineering and Technology Cluster**

### **TENDER FOR BOGIE TYPE DIESEL FIRED FURNACE**

**FOR TIRUCHIRAPPALLI ENGINEERING AND TECHNOLOGY CLUSTER (TREAT)**

**REFERENCE NO.: TREAT/CAP/2014-15/0016 dt.5.03.2015**

**Date and time of tender opening : 12/03/2015 at 3.00pm**

**Venue :**

**TIRUCHIRAPPALLI ENGINEERING AND TECHNOLOGY CLUSTER (TREAT)**

**SHED NO.A3-TREC STEP**

**NIT CAMPUS**

**THUVAKUDY**

**TRICHY – 620015**

**Tender opening can be attended by authorized personnel of the company. They should bring the signed copy of the letter from company's authorized signatory.**

Contact: No. A3, TREC-STEP Campus, Thuvakudi, Trichy 620 015 Tamilnadu, India  
Ph: 0431-2500606, Fax:0431-2500616.

### Bogie Type Diesel Fired Furnace

SL No	Description	Specification
01	Temperature Max	1100° C
02	Capacity	30 Ton
03	Working Size	5.5 Mtrs (L) X 5.5 Mtrs (W) 2.8 Mtrs (Ht)
04	Furnace Outer Size	5.8 Mtrs (L) X 6.1 Mtrs (W) X 3.4 Mtrs (Ht)
05	Number of Burner	8 Nos Fully automatic with valves
06	Consumption	10-12 Ltrs /Hr (Each Burner)
07	Combustion Blower	2 Nos, 30 HP
08	Diesel Pump	1 No, 0.75 HP
09	Power	40 HP, 400-440 V, 3 ph, AC,50 Hz
10	Casing	Fabricated out of MS channels, angles etc., thick sheets and plates: ➤ Furnace side 75 Channel, 75 L angle, 6mm Plate
11	<ul style="list-style-type: none"> <li>• Insulation</li> <li>• Hearth insulation</li> </ul>	<p>Ceramic Fiber 300 mm modules inside of furnace including door &amp; all sides of the furnace. The bottom side: insulation brick and fire brick.</p> <p>Skin temperature = ambient + 35° 450 mm</p>
12	Door	In front of the furnace vertical lifting with motorized.
	<ul style="list-style-type: none"> <li>• Door Clamping</li> </ul>	<ul style="list-style-type: none"> <li>• Pneumatic</li> </ul>
13	Bogie	1 No. motorized operated bogie, lined with insulation and fire brick 450mm (24 Nos CI Wheels)
14	Sidewall sealing	Double sand seal made of H R C1 castings
15	Door Sealing	Single sand seal with H R C1 casting dipper Plate All interconnecting cables included
16	Exhaust	To be Provided at the back side of the furnace bottom in the form of ports and connected outside common duct.
17	Control Panel	<p>Separate Panel with the following:-</p> <ol style="list-style-type: none"> <li>1. PID Temperature controller – 2 Nos</li> <li>2. 6 Point Recorder – 2 Nos</li> <li>3. Indicating lamps</li> <li>4. On/Off Switches</li> <li>5. 12 Nos Thermocouple</li> <li>6. Timer with really</li> <li>7. All motors are to be TREAT approved make.</li> </ol>
18	Combustion Package	Burner, Blower, Diesel Pump, Automatic Ignition, Sequential controller --- 'Continental' make

19	Diesel Supply	200 Ltrs Diesel Tank & 25 Mtrs Length pipe line with valve
20	Painting	Outside of furnace will be painted with 2coats of heat resistant Aluminum Paint and control panel with Siemens Grey Paint
21	All interconnecting cables are to be supplied	

**SCOPE OF SUPPLY :**

22	<b><u>Steel Construction</u></b>	Furnace shell or casing shall be fabricated from at least 6 mm thick m.s. plates adequately reinforced with structural steel sections of IS-2062 quality in the form of vertical backstays, horizontal binding members.
		Necessary steel work for the fabrication of burner operating platform, access platform for the operation of other control equipment which are mounted locally shall also be provided.
		Complete steel structural for the construction of furnace bogie shall be fabricated out of minimum 8 mm thick MS Plates in number of segments and shall be bolted/welded to form a single rigid structure. Bogie shall be fabricated from rolled steel sections with bogie base plate at least 8mm thickness. The bogie construction shall be robust and capable of withstanding static and impact load normally encountered during operation.
		Suitable number of rows of rails and sleepers shall be provided for bogie travel inside the furnace and extending outside the furnace to allow complete withdrawal of bogie on one side of furnace. Rails and sleepers shall be provided with end stoppers for limiting the bogie travel. Rail shall be flushed to the shop floor level.
		Door of the furnace shall be fabricated from 6 mm thick mild steel plates suitably reinforced with structural steel members.
23	<b><u>Castings</u></b>	Refractory retainer casting for bogie as well as fixed portion of furnace sidewall and the door periphery shall be made of suitable heat resistant alloy steel castings Confirming to <b>HK grade (IS 4522 Grade 9)</b> .
		<b>The Refractory Retainer Castings and Fixed Hearth Castings and Door Upper Periphery can Be of HRCI Grade.</b>
		Double row of sand sealing trough and dipper plates shall be provided. The top row of sand seal trough and dipper plate shall be of heat resistant cast iron material of <b>HRCI grade</b> whereas the bottom row of sand seal casting shall be made of graded cast iron.

		Similarly, top and bottom door sand seal with dipper plates shall be provided for heat-sealing between bogie and doors.
24	<b><u>Door and Door Drive</u></b>	The furnace shall be provided with Two (2) No. electro mechanically operated rise & fall type door. The door construction shall be similar to the furnace casing. Outer casing shall be fabricated from 6mm thick mild steel plate suitably reinforced with structural. The door shall be lined with ceramic fibre modules backed by ceramic fibre blankets of suitable thickness.
25	<b><u>Door Sealing</u></b>	Door lifting shall be achieved electro mechanically through electric motor, reduction gear box, wire rope, pulley etc. Electro magnetic brake and limit switches shall be provided with door drive arrangement. To reduce lifting efforts, the door shall be suitably counter weighted and the counterweights shall be placed in a separate enclosure. Interlock to prevent door lifting when clamped to be provided.
		The furnace front wall shall be provided with ceramic fibre rope on metallic groove for door sealing. The door shall also have taper roller type lowering arrangement with pneumatic clamps for proper sealing.
26	<b><u>Bogie</u></b>	The scope of supply shall include Two(1) no. bogie with required electro-mechanical drive arrangement. The bogie construction shall be robust and capable of withstanding static and impact load normally encountered during operation. The bogie base frame shall be supported on required number of wheels. Necessary rails for bogie movement shall also be supplied. The bogie can be withdrawn upto maximum <b>1.0M.</b> away from furnace door for loading / unloading purpose. Necessary metallic piers on the bogie to place the charge materials are to be <b>Optionally Offered.</b>
27	<b><u>Refractory</u></b>	Furnace shall be provided with complete refractory and insulation materials for lining of the furnace, bogie. However the refractory lining material for flue off takes, flue duct and portion of chimney will not be considered in our scope. We propose following lining configuration in various areas of the furnace, which may undergo revision during detailed engineering.
28	<b>Furnace Roof &amp; Door, Sidewalls and End wall</b>	325 mm. thick Ceramic Fiber Module lining of 160 Kgs./m3 density backed by 25 mm. thick ceramic fibre blanket 128 Kgs./m3 density, 1420 <sup>0</sup> C. grade

29	<b>LEVELING &amp; ANCHORING SYSTEM</b>	Complete anchoring system including foundation bolts, anchoring materials, fixtures, levelling blocks etc. shall be supplied for the Machine
30	<b>Painting</b>	All steel parts shall be painted with one coat primer and one finish coats before despatch in knocked down condition.
		All bought out components shall maintain standard supplier's finish.
31	<b>SAFETY ARRANGEMENTS:</b>	Machine should have adequate and reliable safety interlocks / devices to avoid damage to the machine, work piece and the operator due to the malfunctioning or mistakes.
32	<b>TOOLS FOR ERECTION, OPERATION &amp; MAINTENANCE</b>	The vendor shall bring special tools and equipment required for erection of the machine. Necessary tools like Torque Wrench, Spanners, Keys, grease guns etc. For operation & maintenance of the machine should be supplied. List of such tools shall be submitted with offer