

Bharat Heavy Electricals Limited
Ramachandrapuram : : Hyderabad – 502032
M&S - DIVISION

SCOPE OF WORK (ANNEXURE – I)

TENDER No.: M&S/P&C/2021/75, DT.:04.01.2022

NAME OF WORK: Fabrication of Raw water and Coil water Tanks for 2.5T Induction Furnace, 30T Core Drying Oven, Rotoclones (3 Nos.), Fabrication of Sand mixer in F&P 04, 05 Blocks.

S.No.	Description of Work	Unit	Qty.	Vendor's Acceptance
A: 2.5T Induction Furnace Water Tanks (204115, 1116, 1120) - 04 Block				
Raw Water Tank				
1	Dismantling the existing MS Raw water tank of size (5150mm X 2150mm X 1500mm) by gas cutting and also removal of all pipe lines at flange zone points (6 No.)	Lumpsum	1	
2	Fabrication of new MS tank with dimensions (5150mm X 2150mm X 1500mm - 44Sq.m.) for Raw water. The tank shall be fabricated in the pit where the existing tank is present. The Tank shall be open from the top. The Bottom plate and the Four sides of the tank shall be 12mm in thickness. The Tank shall be suitably reinforced from all sides with proper channel and angles to avoid any buckling. The bottom of the tank shall be provided with suitable resting arrangement. Tank Shall be leak proof. And the tank shall also have necessary pipe line connections, including drain discharge points & over flow points.	Ton	4.15	
3	Connecting and fixing of all necessary pipe lines and 9 flanges at 9 locations as decided by the shop executive.	Lumpsum	1	
4	Internal & external Painting of whole structures, tanks & pipelines with one coat of Epoxy Red Oxide Zinc Chrome primer and two coats of Epoxy paint. (Make - Asian Paints / Burger/ Jenson & Nicholson)	Sq. meter	88	
Coil Water Tank				
1	Dismantling of existing MS water tank of size (1900mmX 1900mm X 2500mm) by gas cutting and also removal of all pipe lines at flange zone points (3 nos.). This tank water is used for cooling the induction coil of the furnace.	Lumpsum	1	
2	Fabrication of new tank with the dimensions (1900mmX 1900mm X 2500mm - 26Sq.m.) for the above as at point no. 5 above at the available space. The Bottom plate, Top plate and the Four sides of the tank shall be 12mm in thickness. The Tank shall be suitably reinforced from all sides to avoid any buckling with proper channel and angles. The bottom of the tank shall be provided with suitable resting arrangement. Tank Shall be leak proof. The tank shall also have necessary pipeline connections, including drain discharge points, over flow points.	Ton	2.5	
3	Fixing and connecting of all necessary pipelines and flanges as decided by the shop executive. (Water level & Over flow line to be made)	Lumpsum	1	
4	Internal & external Painting of whole structures, tanks & pipelines with one coat of Epoxy Red Oxide Zinc Chrome primer and two coats of Epoxy paint. (of Reputed Make like Asian Paints / Burger)	Sq. Meter	52	
5	Any other fabrication works (10 Sq.m approx.) required to complete the Raw water Tank and Induction Coil cooling water Tanks setup to 2.5T induction furnace without any deviations. Any other works not indicated here and which are required to complete the total activity are to be taken up by the contractor.	Ton	0.95	

6	Any other painting work not mentioned above but required to carry out to complete the work shall be taken up by the contractor.	Sq. Meter	10	
7	Shifting of all scrapped MS structures, plates to designated location as directed by shop maintenance supervisor / incharge is in the contractor scope.	Ton	7.25	
B: 30T Core Drying Oven (204-1242) - 04 Block				
1	Dismantling of damaged L shaped Re-circulating air ducting (internal East side).	Ls	1	
2	Fabrication and fixing of L shaped Recirculating air ducting (Approx. - 0.45T) with 3.15mm MS sheet to internal East side of the oven. (Dimensions : 570x950x8000mm)	Sq. Meter	18	
3	Dismantling of damaged internal Roof sheet at entrance of both sides of the oven & outer/External roof sheet of the oven (on South side) alongwith ceramic fibre glass lining in between the damaged portions.	Ls	1	
4	Fabrication and fixing of 3.15mm thick MS sheet at required places of internal roof of the oven (Approx. 24 Sq.meters).	Sq. Meter	24	
5	Providing Ceramic fibre insulation of 150mm thick for the above mentioned work in Sl. No. 4.	Ls	1	
6	Fabricating and fixing of MS sheet of 3.15 mm to the roof (south side) for arresting the heat losses from south side roof hole (Approx. 0.125T).	Sq. Meter	5	
7	Dismantling of damaged inner front plate of the oven (south side).	Ls	1	
8	Fabrication and fixing of new 3.15mm thick MS plate to inside front plate of oven (0.15T)	Sq. Meter	6	
9	Providing Ceramic fibre insulation of 150mm thick (South side) to above mentioned work in Sl. No.8.	Ls	1	
10	Fabrication and fixing of downcomer ducts on East & West side of the chamber and connecting to main ducting line.	Sq. Meter	42	
11	Dismantling of damaged portion of outside oven body (south side)	Ls	1	
12	Fabrication and fixing of MS sheet (3.15mm thick x 5Sq.m) to Oven body as required.	Sq. Meter	5	
13	Providing Ceramic fibre insulation of 150mm thick for above mentioned work in Sl. No. 10	Ls	1	
14	Dismantling, Preparing as per requirement and fixing of 150mm insulation lining (with Ceramic fibre /Blanket with Mesh) to Re-circulating blower (East & West Side)	Sq. Meter	81	
15	Dismantling of damaged portion of the oven door on south side.	Ls	1	
16	Fabricating and fixing of South side door with 3.15mm thick MS sheet.	Sq. Meter	40	
17	Placing of 150mm thick insulation lining in between the sheets in the above mentioned work in Sl. No. 16.	Ls	1	
18	Burner base flange plates (02nos.) to be welded properly to the Main shell of combustion chamber	Lumpsum	1	
19	Removal of old insulation & Placing of new thermal wool insulation about 150mm thick surrounding Horizontal Exhaust Duct (2mx10m)	Sq. Meter	20	
20	Servicing of door movement entire system. There are two doors. One on the north side and the other on the South Side.	Lumpsum	1	
21	Removal of the old Producer Gas Line of 7" diameter.	RMT	12	
22	Provision of Belt guards & Safety covers (02nos. Each) for blowers.	Lumpsum	1	
23	Strengthening of working platform with 6mm thick MS Chequered plate on North side.	Ton	0.2	
24	Strip welding at leakage places. (Welding to be done at all leakage places on the whole external surface on East & West Side of the oven by placing sheet strips)	RMT	120	
25	Any other fabrication work which is not mentioned in the above scope but required to complete the structural repair works shall also be carried out by the contractor.	Sq. Meter	10	

26	Painting of internal surface with one coat of red-oxide & external surface of furnace with one coat of aluminum paint.	Sq. Meter	400	
27	Shifting of all scrapped MS structures, plates to the designated location as directed by shop maintenance supervisor / incharge is in the contractor scope.	Ton	2	
C: Rotoclones				
60HP X 2 Numbers (2041393 & 2041398) - 04 Block (Model RCN-24C & IAEC centrifugal Fan Model K-34)				
1	a) Dismantling of the dust collection water tank of the rotoclone alongwith gearbox assemblies. b) Removing the accumulated mud in the tank and cleaning it thoroughly.	Lumpsum	2	
2	Fabricating and welding of 3.15 mm SS sheet below level line of mud travelling zone at inside surface of tank (Each rotoclone 3 sqm X 2 Nos.)	Sq. Meter	6	
3	Welding of 3.15 thick M.S. sheet at water leakage points of water storage tank (Each rotoclone 10 sq.m.X 2 Nos.)	Sq. Meter	20	
4	Cleaning of Exhaust Duct including Impellers zone (Duct size : 800mmx400mmx50meters length) for 2 rotoclones	Lumpsum	1	
5	Cleaning of suction Ducts (Duct size : 400mmx300 mmx40meters length) each 20 meters X 2 numbers	Lumpsum	1	
6	External Painting of whole structures, tanks and suction & exhaust duct pipelines with two coats of enamel paint.	Sq. Meter	400	
7	Any other fabrication works (20Sq.m X3.15mm MS) not indicated here and which are required to complete the total repair activity of the Rotoclones are to be taken up by the contractor.	Sq. Meter	20	
8	Shifting of all scrapped MS structures, plates to designated location as directed by shop maintenance supervisor / incharge is in the contractor scope.	Ton	0.5	
90HP X 1 Number (2041391) - 04 Block (Model RCN-28C & IAEC Centrifugal Fan Model K-34)				
1	a) Dismantling of the dust collection water tank of the rotoclone alongwith gearbox assemblies. b) Removing the accumulated mud in the tank and cleaning it thoroughly.	Lumpsum	1	
2	Fabricating and welding of 3 mm SS sheet (approx 3 sq. meters) below level line of mud travelling zone at inside surface of tank	Sq. Meter	3	
3	Welding of 3.15 thick M.S. sheet (approx. 10Sq.meters) at water leakage points of water storage tank.	Sq. Meter	10	
4	Cleaning of Exhaust Duct including Impellers zone (Duct size : 1000mmx800mmx25Meters Length)	Lumpsum	1	
5	Cleaning of circular Suction duct (Duct size : Dia 600mmx30Meters Length)	Lumpsum	1	
6	External Painting of whole structures, tanks and suction & exhaust duct pipelines with two coats of enamel paint.	Sq. Meter	300	
7	Any other fabrication works (5 Sq.m x 3.15mm Sheet) not indicated here and which are required to complete the total repair activity of the 90HP Rotoclone is to be taken up by the contractor.	Sq. Meter	5	
8	Shifting of all scrapped MS structures, plates to designated location as directed by shop maintenance supervisor / incharge is in the contractor scope.	Ton	0.5	
D: Sand Mixer (2051035) - 05 Block				
1	a) The sand solid formed around the machine are to be removed and the area is to be cleaned. b) Cutting the platform supporting pillars and removing then from the RCC foundation.	Lumpsum	1	

2	Fabricating of structures a) Erection of supporting pillars including RCC breaking & concreting b) Fabricating Level-1 (operator level) platform, Stair case, Hand Rails at the level of Existing Height (2m height from ground). c) Fabricating Level-2 (Sand Bin unloading) platform, Stair case, Hand Rails. Platform 6mm at the level of Existing Height of 5.1 meters from the ground level, Stair case from level -1 to level-2, Hand Rails at level -2. d) Provision of supporting structures for hopper as per the site condition. e) The platform shall be made from 6mm thick MS Chequered Plate, Total approx. area - 40 Sq. Meters.	Ton	2.2	
3	Fabrication of bunker structures with M.S. materials for holding the Sand. Hopper /Bunker overall dimensions: 2500mm x 2000mm x 2000mm. The hopper should be fabricated from 6mm MS Sheet (30Sq.meters approx.) with connecting pipe of 6" between Hopper & Sand Mixer.	Ton	1.2	
4	A valve to be provided at the operator level for controlling the sand flow from hopper to mixer (Supply of valve is under contractor scope).	Lumpsum	1	
5	Painting of whole structures with one coat red oxide and two coats of enamel paint. (Mixer, Stair case, Hopper)	Sq. Meter	60	
6	Any other fabrication works not indicated here and which are required to complete the total activity is to be taken up by the contractor.	Ton	0.5	
7	Shifting of all scrapped MS structures, plates to designated location as directed by shop maintenance supervisor / incharge is in the contractor scope.	Ton	0.5	

Note:

1. Tools & tackles required for above fabrication works including welding machine are under Contractor's scope.
2. Supply of
 - a) Epoxy Red Oxide Zinc Chrome Primer, Epoxy Paints (Asian / Berger make/ Jenson & Nicholson make) required for Water Tanks
 - b) Red Oxide primer, Enamel Paint & Aluminium Paint required for 30T Oven, 60HP & 90HP Rotoclones & Sand Mixers
 - c) Sand controlling valve (6" dia., chain wheel driven type) for Sand Mixer is under the contractor's scope.
3. All the consumables like Welding Electrodes, Oxy-Acetylene gas, Fasteners, Flanges, valves, Structural like Angles, Channels, I Beams, strips & fabricating MS Sheets and Power source shall be supplied free from BHEL.