



BHARAT HEAVY ELECTRICALS LIMITED
CENTRAL FOUNDRY FORGE PLANT

10T/Hr CONTINUOUS SAND MIXER

SPECIFICATION FT/SP/46

1.0 DESCRIPTION

10T/hr Continuous Sand Mixer with relevant accessories.

2.0 OBJECTIVE

Sand Mixer shall deliver sand mixed with Resin and Catalyst at the rate of 10T per hour from start till the required quantity is drawn for use in preparing moulds/cores. The following ingredients are to be used in selectable ratios.

- 2.1 100% fresh or 100% Reclaimed High Silica Sand or both blended in predetermined variable ratios.
- 2.2 Catalyst : (Para Toluene Sulphonic Acid)
- 2.3 Resin: Phenol formaldehyde.

The mixer should be able to operate with various other two part resin-catalyst systems (e.g., furan, alkaline, etc.)

3.0 TECHNICAL SPECIFICATION

- 3.1 Sand Mixer shall have Double Arm to cover a radius of 6-7 metres in fully extended position. Both arms shall be capable of rotation through 250° to 300°. First arm shall have suitable sand conveying system to receive sand from hopper and deliver to the second arm. Second arm shall house mixing shaft with easy accessibility for cleaning purpose. The trough shall easily open out for cleaning and changing of blades. The mixing blades shall not rotate on the shaft. The hardened blades should have Tungsten Carbide tip, mounted on the mixing shaft. The blades should have interchangeability. The discharge gate shall be 1.65 M above ground level. The slewing motions shall be motorised.

- 3.2 The end of the mixing shaft should be supported by a heavy duty Bearing and protected by seals. The Bearing and the seals should be on the outside of Mixing Trough.
- 3.3 Catalyst Pump should be manually adjusted stroke piston pump with variable speed. The stroke adjustment should be digital. Catalyst shall be injected first followed by resin in the Mixer Arm Casing through Filter and Nozzles after arrival of first flow of dry sand. During mixing calibrated amounts of Resin and Catalyst shall flow through nozzles in atomised form.
- 3.4 Three-way calibration valves should be located at the mixing barrel to enable easy calibration of resin and catalyst.
- 3.5 The Resin and Catalyst tank should be rigid with cover, shut off valve and filter assembly.
- Resin Circuit is very similar to catalyst circuit. Resin Pump is gear pump driven by variable speed motor and the resin flow adjustment should be Digital control.
- 3.6 Mixer base shall be made of a steel structure with space for housing pumps etc. On the top of the base, First Arm shall be mounted on a slewing bearing.
- 3.7 Double oil seals shall be provided to take care of extreme dust conditions in the Foundry.
- 3.8 All gates of Sand flow should be non sticking type with electromagnetically controlled valves and pneumatic cylinders.
- 3.9 The resin pump, catalyst pump and solenoid valves for pneumatic and chemical flow should be so located to make it easy for maintenance. These should be on a platform minimum 500 mm height above ground level and should be covered and locked.
- 3.10 The power supply available at CFFP works is 415 Volt \pm 10 % AC, 50 Hz and the machine should be amenable for operation with the above power supply.
- 3.11 Design details of suitable sand storage hoppers required above the First Arm of the mixer for Fresh and Reclaimed High Silica Sand, shall be provided by the supplier. Controlling flow of sand, adjusting ratio of different Sands from storage hoppers by the machine shall be in the scope of supply.

4.0 GENERAL REQUIREMENTS

- 4.1 Spares required for minimum two years of trouble free operation after guarantee period are to be provided alongwith the Sand Mixer.

- 4.2 Tool kit to be provided
- 4.3 24 month Guarantee period for smooth and trouble free operation and prompt after sales service.
- 4.4 Erection and Commissioning of the Mixer to be done by the supplier at CFFP/ BHEL, Hardwar works and shall be quoted separately.
- 4.5 Documents as under shall be supplied in Hard Copy and electronic form.
 - 4.5.1 Operation and maintenance instruction/manual of machine and all bought out items.
 - 4.5.2 Assembly drawings, Electrical and Electronic circuit diagrams and General Arrangement drawings with placement of components alongwith make, rating and specification are to be provided.
 - 4.5.3 Complete spare part list with identification number alongwith prices and details of all bought out items with their specification and make.
 - 4.5.4 Test Certificate and Guarantee Certificate of the equipment as a whole and Test Certificate for all measuring indicating meters shall be provided by the supplier.

5.0 WORKING CONDITION

- 5.1 Ambient temperature : 3 to 50⁰ C
- 5.2 Relative humidity : 95 % RH max.
- 5.3 The Sand Mixer should be workable under conditions of heavy fumes & dust associated with a Steel Foundry.




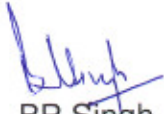
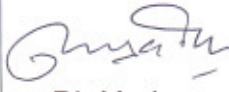
6.0 PACKING

The Mixer should be supplied in suitable packing to avoid any damage during handling, transit and storage.

7.0 NOTES

Offer should include technical literatures/photographs/spares list at the first instance. Additionally the following information shall also be provided.

- 7.1 Number of Motors, their Type, rating, class of insulation and protection etc.
- 7.2 Details of items like Oilseals, Bearings, Gearing (Type of Gear), Couplings etc.
- 7.3 Quantitative consumption of Air, Power and any other per hour basis
- 7.4 Foundation drawings with details shall be supplied
- 7.5 The offer should indicate applicable duties, Taxes, Transport, Insurance etc from Ex factory to destination CFFP/BHEL Hardwar.

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