



BHARAT HEAVY ELECTRICAL LIMITED
CENTRAL FOUNDRY FORGE PLANT

SPECIFICATION FOR HEAVY DUTY TUBULAR COOLING FAN
SPECIFICATION NO. FT/SP/65 REV 00

1.0 DESCRIPTION

The specification governs the requirement of Heavy Duty Tubular cooling fans.

2.0 OBJECTIVE

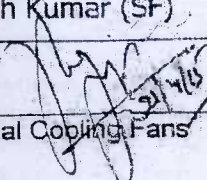
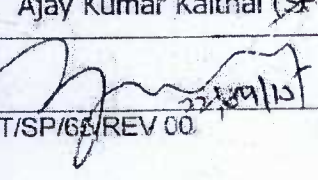
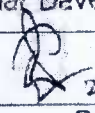
The furnace cooling fan shall be used for air quenching of steel castings (thickness upto 600 mm) during hardening operation of Heat Treatment. They shall be placed over stands and shall be started for directing cool air over the heated castings placed over furnace bogie.

3.0 SCOPE

Scope of supply includes design, manufacture, supply, erection and commissioning of the fans at CFFP. The stands are not in scope of supply. The technical and general requirements of the fans are given below. The supplier shall give guarantee for trouble free operation of fan for period of twelve months from the date of commissioning of the unit.

4.0 TECHNICAL REQUIREMENTS

- 4.1 **Size** – 900 mm. RPM – 1440.
- 4.2 **Air Delivery** – 32,000 Cubic Meter/Hr.
- 4.3 **Motor** – Marathon / ABB / Kirloskar / Siemens make, 15 HP, 4 pole, TEFC sq. cage induction foot mounted motor, suitable for operation on 415 Volts, 3 phase, 50 Hz A.C.
- 4.4 **Starter** – Suitable star delta starter SIEMENS / L&T / Legrand make. Starter to be fitted firmly on wall / column and not locally on fan.
- 4.5 Fan should have tilting arrangement for directing the flow of air upto 15 degrees above and below the horizontal axis.

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- 4.6 Blade to be protected from front side by mesh/net.
- 4.7 Proper lifting arrangement should be provided over the fan casing for shifting of fans using EOT cranes.
- 4.8 The fans should have inbuilt arrangement (e.g., pedestals) for placement over stands in the shop floor.

4.9 Material Construction:

- 4.9.1 **Casing:** Cast Steel 3 mm. minimum thickness.
- 4.9.2 **Blade:** Cast aluminum alloys.

5.0 GENERAL REQUIREMENTS

- 5.1 Commissioning and performance proving at BHEL/CFFP works is to be done by the supplier. Performance proving shall be done by using the fans during two numbers quenching cycles.
- 5.2 The furnace cooling fan should be supplied in suitable packing to avoid any damage during handling, transit and storage.

6.0 INSPECTION, DEVIATION AND REPLACEMENT

- 6.1 The equipment shall be inspected at CFFP, BHEL which will be binding on supplier. If the equipment received at CFFP is not found in accordance with the requirements, it shall be rejected.
- 6.2 BHEL reserves the right to inspect equipment at site before despatch. The supplier shall give prior intimation in such case. The supplier shall submit a copy of test certificate in advance of the equipment offered for inspection. However inspection at BHEL, CFFP shall be final. The supplier shall offer BHEL representative all reasonable test facilities without charge to satisfy the latter that the equipment is being furnished in accordance with this specification.
- 6.3 For any deviation from the specification demanded by the supplier, prior approval of BHEL must be obtained in writing.

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