

## **Specification for Air Jet Erosion Tester**

The Air Jet Erosion Tester is required for testing the erosion resistance of solid materials to a stream of gas containing abrasive particulate as per standard ASTM G 76. The test should be performed by propelling a stream of abrasive particulate gas through a small nozzle of known orifice diameter toward the test sample. Materials such as metals, ceramics, minerals, polymers, composites, abrasives, and coatings will be tested with this instrument. The tester should have provision for high temperature testing, varying the angle of incidence of the jet stream, abrasive particulate speed and flux density. The tester should be capable of using abrasive particles such as sand, flyash and coal.

### **A. The specification details are given below:**

- Particle / impact velocity – 30 m/s to 100 m/s or if lower velocities are possible the same may be indicated.
- Erodent or particle Feed rate – 1.0 to 5 gm/min. continuously variable or if higher feed rates are possible the same may be indicated.
- Nozzle Size: Suitable nozzle sizes to be offered and size of erodent that can be used to be indicated.
- Nozzle material : Carbide material or Alumina . Details to be provided
- Sample Size: 25mm x 25mm x 3mm thick. If other sizes possible the same to be indicated.
- Angle of Incidence: 15° to 90°, in steps of 15° (15°, 30°, 45°, 60°, 75°, 90°)
- Specimen Temperature: Ambient up to 800°C. Details of heating arrangement to be provided.
- Double disc arrangement to determine the velocity of air jet
- Vibrator arrangement for free flow of fine particles such as fly ash and coal dust.
- Fluid :
  - a) Temperature – 800 Deg C
  - b) Pressure – 6 to 8 bar.
  - c) Velocity – 300 m/s max.
  - d) Flow rate – up to 400 litre per minute
- Suitable thermocouples at various points for measurement and control of temperature of fluid and sample.
- Moisture and Dust Filters for Compressed Air supply
- Pressure Regulator and Gauge
- Particle collection in enclosed chamber.
- Hot air exhaust system.
- Sound and dust proof chambers.

- All hot zones are well insulated and wherever necessary air-cooling is provided.
- High temperature tubing for hot fluid movement. Details to be provided.
- Operating and Maintenance Manuals
- Calibration and Test Reports
- Supplier must be ISO 9001: 2001 certified and knowledge of above test systems.

**B. Option :** Suitable compressor for air supply to be quoted.

**C. Qualification Criteria & Other aspects:**

1. The vendor should have supplied similar equipment in India or elsewhere and details should be furnished.
2. Should have agents in India to provide after sales service and maintenance.
3. The equipment should be Guaranteed for a period of **2 years** from the date of commissioning. During warranty period, if there is any repair to be carried out at the suppliers works, transportation cost of equipment / component besides repair /replacement charges, if any, should be borne by the supplier.
4. Catalogue related to each and every item should be enclosed.
5. Installation & commissioning of the equipment to be carried out by supplier at site at Corporate R&D, BHEL, Hyderabad, India.
6. Commissioning charges, if any, to be indicated.
7. Training: Training/demonstration should be provided at BHEL, R&D, Hyderabad
8. Dimensions of equipment, weight and space requirements to be given
9. Pre-installation requirements should be furnished.
10. Compliance statement of specification to be submitted along with the offer. Without compliance statement, the offer is liable to be rejected. All tender Specifications to be compared with equipment offered line by line and Documentary evidence must be enclosed by the supplier along with quotation.
11. Two copies of operating manual to be provided after finalization of order.
12. The equipment is required for the Center for Nanotechnology. If the building is not ready and the equipment is installed in another building and later if it has to be shifted to new building, the supplier should agree for relocating and recommissioning the equipment within 9 months of first commissioning.

**For any Technical Clarification, please contact :**

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