



An ISO 9001  
Company

## Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirapalli – 620014, TAMIL NADU, INDIA

MATERIALS MANAGEMENT / CAPITAL EQUIPMENT

<b>ENQUIRY NOTICE INVITING TENDER</b>	Phone: +91 431 257 7653 Fax : +91 431 252 0031 Email : <a href="mailto:skaruna@bheltry.co.in">skaruna@bheltry.co.in</a> , Web : <a href="http://www.bhel.com">www.bhel.com</a>
---	---

<b>TWO PART BID</b> Tender to be submitted in Two Parts	<b>Enquiry Number:</b> <b>2731300007</b>	<b>Enquiry Date:</b> <b>dt.20.05.2013</b>	<b>Due date for submission of quotation</b> <b>dt.20.06.2013</b>
---	---	--	---

You are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order.

Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 Hrs on the date of tender opening

Item No.	Item Description	Quantity
10	Supply, Installation and commissioning Air Shower as per the Technical Specification & Commercial Conditions applicable (to be downloaded from web site <a href="http://www.bhel.com">www.bhel.com</a> or <a href="http://tenders.gov.in">http://tenders.gov.in</a> )	1 No.

Important Points to be taken care during the submission of offer:-

1. Bidder's Response Column in technical specification sheet to be duly filled in without fail. Additional details provided in the offer may be supported with documentary evidence.
2. Check list to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
3. The equipment shall be guaranteed for 18 months from the date of supply or 12 months from the date of commissioning whichever is earlier.

BHEL's General guidelines /instructions including bank guarantee formats and list of consortium banks, commercial terms checklist can be downloaded from BHEL web site <http://www.bhel.com> or from the government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) Tender Enquiry reference "2731300007"

Tenders should reach us before 14:00 hours on the due date Tenders will be opened at 14:30 hours on the due date Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present	Yours faithfully, For <b>BHARAT HEAVY ELECTRICALS LIMITED</b>  Engineer / MM / Capital Equipment
--	---

## **Qualification Criteria for “Air Shower”**

### **Qualification Criteria for Air Shower**

- 1.0 The supplier shall have minimum five years’ experience in manufacturing and supply of Air Shower applicable to clean room environment.
- 2.0 Offers from OEM (Original Equipment Manufacturer) only will be accepted. Offers from traders will not be considered for evaluation.
- 3.0 Supplier shall submit list of companies to whom they have supplied similar kind of Air Shower along with Name and postal address of the customer Phone number, Fax number and Email address of the contact person.
- 4.0 Along with the technical offer the vendor should submit one performance certificate from the customer for satisfactory performance of the equipment supplied to them.
- 5.0 BHEL reserve the rights right to verify the information provided by the vendor. In case the information provided by the vendor is found to be false or incorrect the offer will be rejected.
- 6.0 Details of Service after sales set up in INDIA including the addressof agents / service center in South India
- 7.0 The bidder / vendor shall submit the offer in TWO parts
  - 7.1 Technical offer including qualification criteria
  - 7.2 Price Bid
- 8.0 The technical offer shall contain a comparative statement of technical specification points along with technical supporting documents, product catalogue ...

**Qualification Criteria for "Air Shower"**

The performance certificate should be produced **on Customer's Letter Head.**

**PERFORMANCE CERTIFICATE**

1. Supplier of the equipment	
2. Make & Model of the equipment	
3. Month & Year of Commissioning	
4. Performance of the equipment (Strike off whichever is not applicable)	Satisfactory / Good / Average / Not Satisfactory
5. Any Other remarks	
Date: Signature & Seal of the Authority issuing the Performance Certificate	

## **Technical Specification for "AIR SHOWER" for Assembly Cabins**

### **Air Showers for Clean Room and Assembly Cabins.**

#### **1.0 Purpose:**

Clean Room Air Shower shall protect the cleanroom environment from unwanted contamination. Air showers blow off and remove much of this contamination preventing it from entering the clean space. Air Showers shall be a prefabricated enclosures needed for removing surface particles from personnel prior to entering a Cleanroom (ISO-class 8) work area. The clean room is used for fabrication and assembly of special type equipments.

#### **2.0 AIR SHOWER for SG assembly cabins:**

The air shower system shall be a high velocity, low pressure type, providing a normal entrance to and exit from a contamination controlled area. Airfluid velocity and the air pressure shall be comfortable to the persons passing through the Air shower system. The system shall be suitably designed and it shall not the harm or injure the persons passing through the air shower system. The system shall be suitably designed such that the shower will operate as and when the persons pass through the entrance. Entry to the clean room is to be planned through airshowers without change room at the working cabins kept inside the clean room.

An air shower shall be a self-contained unit that utilizes specialized, high efficiency air flow and other technologies to effectively remove all types of contaminants from the every individual. The system shall be completely self-contained unit, equipped with air filtration systems, blowers, motors, controls, interlocking doors, lighting, a pre-wired electrical panel, interlocking doors, and PLC Programmable Logic Controller and Emergency Stop buttons. The system shall be aesthetically designed to fit the general atmosphere of the cleanroom specifications. The suggested configuration shall be indicated.

Service to the mechanical equipment, blower, motor, HEPA filter and pre-filter is easily done from the inside of the air shower through a hinged access panel shall be located in the interior ceiling of the air shower such that maintenance of air shower components easily accessible. Exterior-mounted service panels would make maintenance difficult or impossible in those cases. All electrical control panel and control unit is conveniently mounted on the outside of the air shower and is serviced from outside the

### Technical Specification for “AIR SHOWER” for Assembly Cabins

air shower. The air shower shall be a knock-down design such that allows ease-of-installation and flexibility in use.

The supplier shall provide design and operation logic (interlocking) is to be clearly defined for sequential operation of the air shower system. Method of disposal of dust collected at the person/material entry sections.

#### 3.0 Scope of Supply:

The Scope of supply shall include supplying of Air Showers as per specification, installation, testing and commissioning to meet the requirements described vide 4.0.

#### 3.1 Quantity requirements:

The size and quantity shower system is indicated below.

Sl.No.	Description	Size	Quantity
1.0	Air shower at the assembly cabin entrance (Air shower systemsuitable for 1 to 2 persons) Air shower is to be housed entrance to the assembly cabin as shown in the sketch ATP-AIRSHOWER-002	1.5m (depth) x 1.5m (width) x 2.5m (Height) (Air Shower size shall match the above dimension)	1

#### 4.0 Specification requirements of Air Showers:

- 4.1 Material of Construction Inner surface of Air Shower: Stainless Steel SS304 or SS304L.
- 4.2 Top loaded High Efficiency Particulate Air (HEPA) UL 900 Filter, 99.99% efficient @ 0.3 micron in an anodized aluminum frame,
- 4.3 Tested to Institute of Environmental Sciences and Technology (IEST) Standards.
- 4.4 Versatile and ergonomic design
- 4.5 High Efficiency direct drive 230V- 3-Phase motor blowers. Motors/Blowers are standard type.
- 4.6 Adjustable air nozzles on walls and ceiling shall be white plastic construction sized and spaced to provide an average of 25 – 35 m/s air flow at the face of the nozzle.
- 4.7 Fluorescent lighting mounted in the interior ceiling with prismatic refractive lens cover.
- 4.8 Anodized aluminum entry and exit doors with push/pull hardware, hydraulic door closures and acrylic, polycarbonate or safety glass inserts.
- 4.9 Low sound, low watts and low operating costs.
- 4.10 Three speed switch features low, medium, and high settings; standard.
- 4.11 Solid-state speed control available.
- 4.12 Forward-inclined centrifugal-type fan.
- 4.13 Snap-in prefilter allows for easy replacement and maintenance.
- 4.14 A Programmable Logic Controller (PLC) shall be used to control the sequence of operation of the Air Shower.

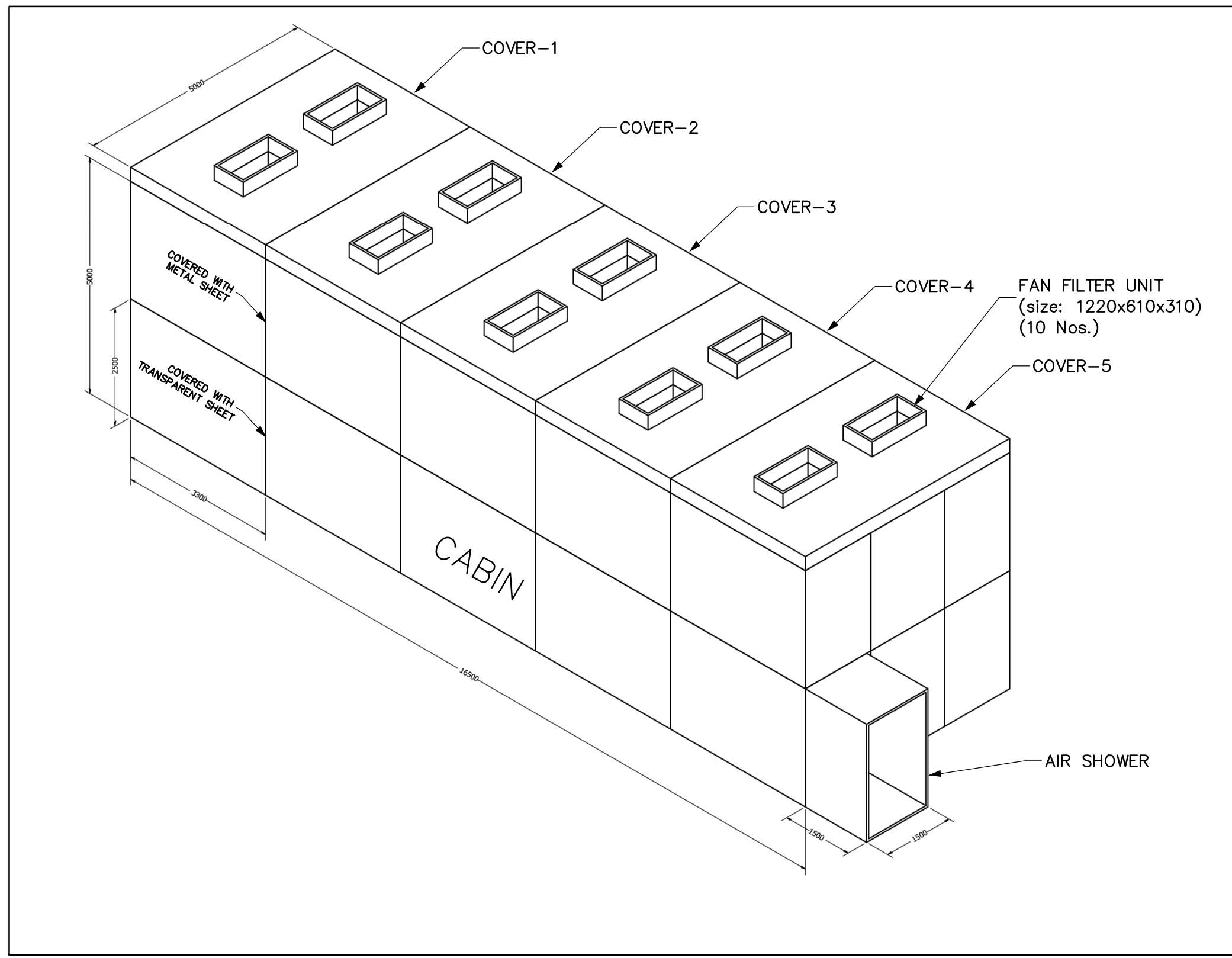
### **Technical Specification for "AIR SHOWER" for Assembly Cabins**

- 4.15 An Emergency Off button (EMO) shall be located inside and outside of the Air Shower in a conspicuous location.
- 4.16 Activating the EMO switch shall cause the cycle to immediately end, and release all interlocks. Lights shall remain on.
- 4.17 Door sensors shall be 24 volt DC magnetic reed switches. Door interlocks shall be 24 volt, located in the doorjamb.
- 4.18 All locks shall automatically release upon loss of power or when the (EMO) button is pressed.
- 4.19 The Air Shower shall be a high velocity, low pressure type system in accordance with Federal Standard 209E and Air Force Tech Order 00-25-203.
- 4.20 Guarantee for period of 18 months from the date of dispatch or 12 months from date of commissioning, whichever is earlier.

**5.0 Vendor has to specify the following values and submit the necessary documents along with the offer for technical evaluation:**

- 5.1 Size of each Air Showers (L x B x H)
  - 5.2 Testing criteria
  - 5.3 Temperature rating
  - 5.4 Flow capacity
  - 5.5 Air shower detail shall be matched the BHEL suggestive sketch
  - 5.6 Type of filter suggested class and its details, sealing arrangement and maintenance details
  - 5.7 Life and time period of the filters replacement
  - 5.8 Number of spare filters element needed for safe operation for a period 2 years
- 6.0 Delivery, Installation and Commissioning of Air filter unit shall be completed within **2 months** from the date of Purchase order.
- 7.0 Supplier shall submit supporting documents for supply of similar units applicable to industrial/fabrication industry.

CAUTION: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETERIMENTAL TO THE INTEREST OF THE COMPANY.



FAN FILTER UNIT  
(size: 1220x610x310)  
(10 Nos.)

AIR SHOWER

**NOTES: -**

1. ALL TOP COVERS ARE REMOVABLE TYPE.
2. FAN FILTER UNIT SHALL BE MOUNTED ON THE TOP COVER. (SUPPLIER SHALL PROVIDE THE FIXING ARRANGEMENT OF FFU TO THE TOP COVER WITH PROPER CEILING ARRANGEMENT)
3. AIR SHOWER SIZE SHALL BE SUITABLE TO THE TENTATIVE SIZE SUGGESTED IN THE DRAWING.



DRN	KR
CHD	DC
APPD	VR
DATE	300313

TITLE: ASSY CABIN

SK. NO.	REV
SK:3:MOD:002	00