

**General Note: BHARAT HEAVY ELECTRICALS LIMITED**

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( A Government of India Undertaking )  
 HIGH PRESSURE BOILER PLANT  
 PURCHASE DEPARTMENT - FOSSIL BOILERS  
 THIRUCHIRAPALLI - 620014  
 TAMILNADU (INDIA)

PHONE : 2577359  
 GRAMS : BHARATELEC  
 FAX NO: 2520719  
 E-mail :  
 Web :

429-002/A

<b>OFFICE COPY</b>	<b>Collective No.</b>	<b>Enquiry Date</b>	<b>Due Date For Quotation</b>
	1801501077	17.09.2015	19.10.2015
Please quote Enquiry No, Date and due date in all correspondences. This is only a request for quotation and not an order			

Item	Description	Unit	Quantity	Delivery Quantity	Schedule Date
10	L172014320002001  Self cleaning mechanical air filter (inertial type) with transition pieces and Number of cells = 15 as per specification MOU/TPBHEL/SEALAIRFILTER REV 00 for North Karanpura- NTPC Project	NO	6.000	2.00	31.05.16
				2.00	30.11.16
				2.00	31.05.17
20	L180614320002001  Self cleaning mechanical air filter (inertial type) with transition pieces and Number of cells = 16 as per specification MOU/TPBHEL/SEALAIRFILTER REV 00 for Darlipali- NTPC Project.	NO	4.000	2.00	30.07.16
				2.00	30.11.16
30	L181014320009001  Self cleaning mechanical air filter (inertial type) with transition pieces and Number of cells = 13 as per specification MOU/TPBHEL/SEALAIRFILTER REV 00 for Kothagudam Project.	NO	1.000	1.00	30.09.16

**General Note:**

1.The tender will be opened in two part bid basis and you are requested to submit your offers in seperate sealed covers Techno-commercial bid and Price bid.

2.You are requested to submit the offer on FOR/Respective Project site (North Karanpura/Jharkhand State,Darlipali/Odisha state & Kothaguam /AP

The offers should reach us 30 minutes before the time of opening of tenders.  
 The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening.Late and delayed offers are liable to be rejected.

Yours faithfully,  
 For BHARAT HEAVY ELECTRICALS LIMITED

*(Signature)*  
 MANAGER, PURCHASE  
 (FOSSIL BOILERS)

Materials Management 0001  
 BHEL, THIRUCHIRAPALLI - 620 014.



# BHARAT HEAVY ELECTRICALS LIMITED

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TAMILNADU (INDIA)

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State)

basis inclusive of P&F, freight and Insurance charges.

Enq No: 10 -- North Karanpura Project Site.

Enq No: 20 -- Darlipali

Enq No: 30 -- Kothakudam

Each project will be considered as package basis.

3.Kindly refer Annexure -A(Commercial terms and conditions Indigineous/Import whichever is applicable) which is to be filled and submitted along with Techno-commercial offer for evaluation.

4.You are requested to note our Loading terms-Annexure-B (Indigineous/Import whichever is applicable)and Annexure-C (Special provision for Micro and Small Enterprises)for finalizing the tender and the same will be taken for evaluation for arriving the L1 rate.

5.Vendors to note that their offer shall be in line with our specification requirement only. Any deviation will lead to rejection of the offer.

6).Annexure - I ( Special Terms & Conditions/Pre-Qualification requirement)is to filled with confirmation for all the points and to be submitted along with your offer for evaluation.

Deviation in the PQR - Annexure I will leads to rejection of your offer.

7) Projectwise datasheets to be filled in along with your offer.

You are requested to take care ( Bleed Line size, Bleed airline flange size and Transition piece size)

8)All the tenders may be addressed to the following address:

The Tender Opening Cell/MM  
Room No: 26, Building 24,Ground Floor  
Bharat Heavy Electricals Limited  
TIRUCHIRAPALLI 620014

In case personal delivery of the offer, it shall be dropped into the respective box kept in Room No: 26, after duly entering the data in the system.

Offers will be accepted only upto 14.00 Hrs on the due date. Therefore vendors shall ensure to submit the offers well before this time.All due date extension requirments should be addressed to the respective Purchase mail IDs. All the due date extension requested from

The offers should reach us 30 minutes before the time of opening of tenders. The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening.Late and delayed offers are liable to be rejected.

Yours faithfully,  
For BHARAT HEAVY ELECTRICALS LIMITED

  
MANAGER - PURCHASE  
(FOSSIL BOILERS)

Yours faithfully,

Date: 17/09/2015

BHEL, TIRUCHIRAPALLI - 620014



# BHARAT HEAVY ELECTRICALS LIMITED

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HIGH PRESSURE BOILER PLANT  
PURCHASE DEPARTMENT - FOSSIL BOILERS  
THIRUCHIRAPALLI - 620014  
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vendors will be considered only upto 48 hours before the due date and time.

Vendors are requested to avoid submission of offers through e -mail/fax. In case of any unavoidable situation, offers shall be sent through e mail to the following ID only.  
tender\_cell@bheltry.co.in.

As tenders are being opened by Common Tender Opening Cell, offer covers should be sealed with tenderer's distinctive seal and super scribed with correct Tender No. item of supply and due date of opening.

The offers will be opened at 14:30 hrs on the due date of the tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening. Late and delayed offers are liable to be rejected.

**Enclosures:**

- 01)Specification:MOU/TP/BHEL/SEAL AIR FILTER/REV 00
- 02)Data sheet: L172014320002001 North Karanpura 1,2&3
- 03)Data sheet: L180614320002001 Darlipali I&2
- 04)Data sheet: L181014320009001 Kothagudam-12
- 05)Special Terms & conditions/ Pre qualification requirement(PQR) (Annexure-I)
- 06)Annexure-A(Terms and conditions Indigeneous)
- 07)Annexure-B>Loading factors Indigeneous)
- 08)Annexure-A(Terms and conditions Import)
- 09)Annexure-B>Loading factors Import)
- 10)Annexure-C(Special provisions for Micro & Small Enterprises MSE)

**"LD clause has to be confirmed without fail."**

The bidder along with its associate / collaborators / sub-contractors / sub-vendors / consultants /service providers shall strictly adhere to BHEL fraud prevention policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.

**PR Links**

Material.	PR.No	PR.Item.	Quantity	Acc. Assign	Customer Number
L172014320002001	112224053	00010	2.000	U6/1720-LU-668-1-43-200	U6/1720
L172014320002001	112224054	00010	2.000	U6/1721-LU-668-1-43-200	U6/1721
L172014320002001	112224055	00010	2.000	U6/1722-LU-668-1-43-200	U6/1722

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Yours faithfully,  
For BHARAT HEAVY ELECTRICALS LIMITED

*R. S. Jadhav*  
MANAGER /PURCHASE  
(FOSSIL BOILERS)  
Yours faithfully,



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Material.	PR.No	PR.Item.	Quantity	Acc. Assign	Customer Number
L180614320002001	111690555	00010	2.000	U8/1806-LU-691-1-43-200	U8/1806
L180614320002001	111690556	00010	2.000	U8/1807-LU-691-1-43-200	U8/1807
L181014320009001	111930878	00010	1.000	U8/1810-LU-643-1-43-200	U8/1810

list of suppliers

RFQ-5200004310

Open Tender Dummy Code

The offers should reach us 30 minutes before the time of opening of tenders.  
The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening. Late and delayed offers are liable to be rejected.

Yours faithfully,  
For **BHARAT HEAVY ELECTRICALS LIMITED**

*P. Diabolu*  
MANAGER PURCHASE  
(FOSSIL BOILERS)  
Yours faithfully,  
BHEL, THIRUCHIRAPALLI - 620014

**SPECIFICATION FOR Self- Cleaning Mechanical Inertia Type Air filter (SEAL AIR FILTER) – MOU/TPBHEL/SEAL AIR FILTER REV 0**

## **Contents**

### **Standard Section**

- 1.0 General conditions
- 2.0 Technical requirements
- 3.0 Documentation requirements
- 4.0 Quality requirements

### **Project specific section**

- 5.0 Project requirements

# Specification for supplying Self- Cleaning Mechanical Inertia Type Air filter (SEAL AIR FILTER)

## 1.0 GENERAL:

- 1.1 Sections 1.0, 2.0, 3.0 and 4.0 are standard and Section 5.0 *alone* will be furnished along with enquiry to the vendors for their acceptance.
- 1.2 **In case of any difference between the details given in Section 5.0 and other sections, Section 5.0 shall be considered as final and binding and the vendors shall meet this requirement for that particular project.**
- 1.3 Pre commissioning spares (if applicable) with price break up as per the list (vide Section 5.0) shall be supplied along with the equipment.
- 1.4 Two years recommended Spares list(vide Section 5.0) with price break up, if required, shall be enclosed.
- 1.5 If any special or non-standard tools are required for installation, operation or maintenance, the same shall be supplied along with the equipment.
- 1.6 Trouble-free operation of the equipment shall be guaranteed for a period of 12 months from the date of commissioning OR 18 months from the date of dispatch whichever is earlier.
- 1.7 It is agreed the vendor will manufacture this item in their own works only and will not off-load the jobs to any other suppliers without the written approval by BHEL. All components shall be packed in such a way that they should not get damaged during transport.
- 1.8 BHEL and the Vendor shall have an involvement which will commence at bid stage and follow through the completion and acceptance, thus ensuring total conformity to Purchaser's requirements.

## 2.0 SPECIFICATIONS

### 2.1 **Scope**

This specification covers design, manufacture, inspection, testing, marking, Identification, packing and supply of **MECHANICAL (INERTIA)TYPE AIR FILTER ASSEMBLY** as per the sketch given. Technical parameters for equipment design are furnished in Section-1 to 4. For quantity, scope of supply and special requirements refer Section-5.

This is a general specification dealing with technical requirements as specified under scope. Contract requirements and special requirements (if any) for a particular project are specified in Section-5.

*The extent of supply stated herein is not necessarily exhaustive and shall not relieve the vendor from his responsibility to provide goods and services necessary to satisfy the performance criteria and guarantees specified.*

## 2.2 Codes & Standards:

The equipment shall be designed to meet the governing standards as applicable and also meet with the local standards where the equipment is installed. In case of any information not specified in this technical delivery conditions these standards will be binding.

## 2.3 Technical specification:

Inertial type self-cleaning air filter consisting of filter element assembly stacked in a rectangular box. The number of filter assemblies depends on air flow quantity. This filter assembly consists of a number of shaped pressed metal vane blades stacked one over other and built like a panel, which can be inserted and bolted on to the filter box. The axial outlet of this pair of assembly is connected to bleed air duct which collects the dust and discharges out. The dust-laden air after entering the filter bifurcates into two streams of clean air and dust carrying bleed air.

## 2.4 Design Parameters :

- a. Flow medium: Dust laden air at 1500 mmWC maximum and 50 deg.C.
- b. Total Air Flow :Nm<sup>3</sup>/Hr (to be specified by vendor in datasheet based on 2.4.d)
- c. Permitted maximum Air flow/ Cell : 4020 Nm<sup>3</sup>/Hr (2500 SCFM ) (Vendor to state actual value )
- d. No.of cells : Can vary from 4 cells to 16 cells. (Refer enquiry)
- e. Test dust is classified into the following  $\mu\text{m}$  particle size ranges in % by weight ( $\pm 3\%$ ).

PARTICLE SIZE, $\mu\text{m}$	COARSE DUST	FINE DUST
0-5	12%	39%
5-10	12%	18%
10-20	14%	16%
20-40	23%	18%
40-80	30%	9%
80-200	9%	-

- f. Maximum pressure drop across filter shall be less than 150 mm WC
- g. Efficiency --  
Fine Dust: 82%  
Coarse Dust: 96%

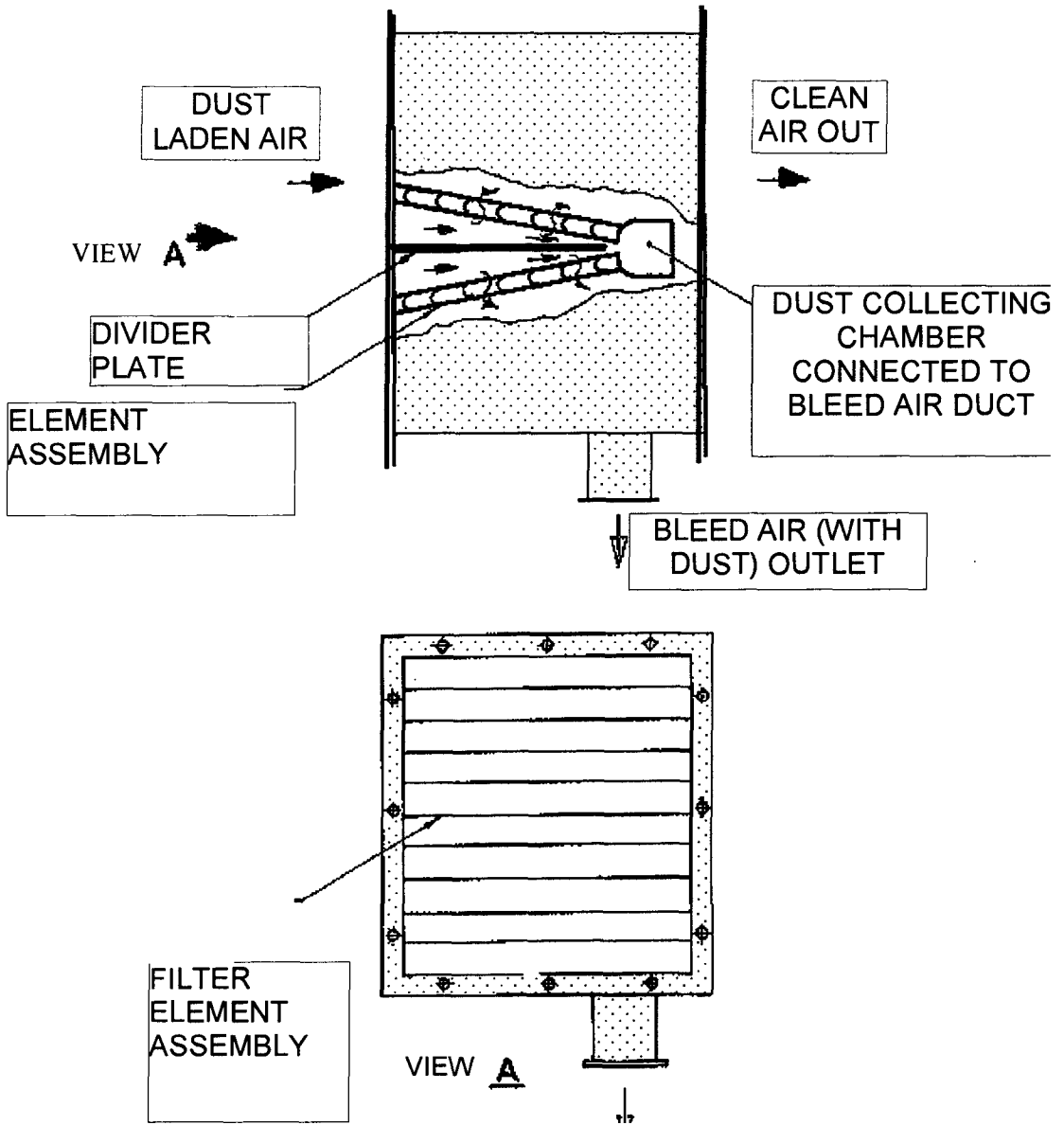
## 2.5 Material :

Body : Carbon steel.

Vane Blades : Corrosion resistant low alloy steel. Specify the material.

2.6 Sketch :

**MILL SEAL AIR FILTER  
(INERTIAL TYPE)**



## 2.7 Dimensional details:

Seal air filter shall be standard for a given Number of cells. The Seal air filter dimensions shall be governed by Number of cells. The table 2.7.1 provides the details of Bleed airline size and the flange size, Transition piece size on either side. Vendor shall ensure to match the sizes based on the Number of cells received in Enquiry.

**Table 2.7.1**

No. of cells	Bleed line size	Bleed airline flange size	Transition piece size
	OdxT mm	mm	OdxT mm
4	219.0x4.00	NB200 Cl. 150#	660x6.4
5	273.0x4.00	NB250 Cl.150#	711x12.7
6	273.0x4.00	NB250 Cl.150#	914x10.0
7	323.9x4.80	NB300 Cl.150#	914x10.0
8			
9	323.9x4.80	NB300 Cl.150#	1168x10.0
10	355.6x6.40	NB350 Cl.150#	1168x10.0
11			
12			
13	406.4x4.80	NB400 Cl.150#	1168x10.0
14	406.4x4.80	NB400 Cl.150#	1321x10.0
15			
16			

## 2.8 Transition Piece

Transition piece matching with Pipe size as mentioned in table 2.7.1 shall be assembled to Seal air filter at inlet and outlet sides and supplied as single assembly. The transition piece shall be smooth and each transition piece shall be of length 500mm. The end of transition piece in Filter side shall be connected by flanges to the filter. Open end of transition piece shall have edge preparation suitable for welding with matching pipe.

### **3.0 DOCUMENTS TO BE SUBMITTED**

#### **3.1 Along with Offer.**

- 3.1.1 Point wise compliance or deviations to the project specific requirements of section-5.
- 3.1.2 Overall dimensional assembly drawing .
- 3.1.3 Performance Curves.
- 3.1.4 Copies of standard Test methods.
- 3.1.5 Filled in data sheet given in Section 5 .
- 3.1.6 Vendor shall submit all the above said documents for the cells ( 15 Cells- North Karanpura, 16 cells- Darlipali and 13 Cells for North Karanpura Projects)

#### **3.2 After Placement of Order/Along with the supply.**

- 3.2.1 Following works TC's shall be submitted along with the supplies.
  - a. Dimensional certificate for overall dimensions and terminal flange connections
  - b. Material test certificates
- 3.2.2 Type test certificates for the filter efficiency & Pressure drop shall be provided..
- 3.2.3 Six numbers of Operation and Maintenance manuals covering all aspects of storage, preservation, installation, operation and maintenance shall form part of the supply. The O&M manual shall contain the complete part list, make and material specification of all the items with necessary sectional views. Soft copies of O&M Manual shall be provided within one month after placement of order.

## **4.0 TESTING, INSPECTION AND PACKING**

- 4.1 Purchaser's and End user's representative shall have access to the works of vendor at all reasonable times for the purpose of witnessing the purchased equipment being tested.
- 4.2 Check all the dimensions.
- 4.3 Verify main name plate & name tags.
- 4.4 Type Test for the filter efficiency and pressure drop.
- 4.5 All test certificates duly countersigned by BHEL/Authorized inspector shall be furnished.

### **4.6 Painting, Protection, Packing, Supply and Identification:**

#### **4.6.1 Surface Preparation**

Weld slag & spatter shall be removed and the surfaces to be coated shall be free from contamination. Surface defects shall be removed by suitable methods. Sharp edges shall be smoothed by grinding. Prior to surface preparation oil, grease, drilling emulsions, cutting emulsions and preservative agents shall be carefully removed by suitable solvents. The surface shall be carefully dried with clean clothes to prevent the dissolved impurities from spreading over the entire surface. The surface shall be cleaned by wire brush and shot blasting if required. Proper adhesiveness of paint to the surface shall be ensured.

#### **4.6.2 Painting**

Painting shall be done as per the manufacturer's standard procedure using epoxy paint. However the painting shall be done such that it protects the equipment during transport, storage, erection and commissioning. Also refer section 5 for painting requirements.

Vendor shall indicate the direction of erection of Seal air filter with Bleed airline facing down. The instruction shall be painted with "This side UP↑" in visible location on the body of the Seal air filter.

#### **4.6.3 Packing**

- 4.6.3.1 After completing painting and marking, Inlet and Outlet nozzles shall be properly capped to prevent ingress of water and dust and all the openings shall be firmly capped.
- 4.6.3.2 Assemblies shall be packed in wooden crate with sufficient struts and packing materials and with water proof under-cover.

## 5 PROJECT RELATED INFORMATIONS

- 5.1 Project Name :  
 5.2 Customer No. :  
 5.3. Data sheet

Sl. No.	BHEL REQUIREMENT		VENDOR CONFIRMATION
1.	Item :	Mill seal air filter	
2.	Specification :		
2.1	Style:	Self-cleaning Inertial type	
2.2	Filter Assy.	U-Shaped metal sheet	
3.0	Design parameters		
3.1	Flow medium	Dust laden air at 50 °C	
3.2	Total Air flow	Nm <sup>3</sup> /HR	
3.3	Air flow per cell	4020 Nm <sup>3</sup> /Hr (2500SCFM)	
3.4	No. of cells	Vendor to Specify	
3.5	Max. Drop across filter	mm WC	
3.6	Bleed airline size	(see 2.7.1) OdxT mm	
3.6.1	Bleed airline flange size (see 2.7.1)		
3.7	Transition piece Diameter (see 2.7.1) OdxT mm		
3.8	Efficiency :		
3.8.1	Fine dust:	82%	
3.8.2	Coarse dust:	96%	
4.0	Materials		
4.1	Body	Carbon steel	
4.2	Vane blades	Corrosion resistant low alloy steel- Specify matl spec.	
5.	Painting:	Epoxy	
6.	Packing:	Water proof in wooden box	
7.	Test certificates:		
7.1	Dimensional		
7.2	Material compliance.		
7.3	Type test for filter efficiency.		
7.4	Type test for pressure drop.		
8.0	Documents to submit :		
8.1	Performance curves		
8.2	Assembly drawing with dimensions – Drawing No.		
8.3	Copies of standard test methods.		
8.4	Minimum 6 copies O&M manuals:		

5.4 Recommended spares for 2 years trouble free operation:

5.5 Special requirements, if any.

DARLIPALI ( 2180614320002001 )

## 2.7 Dimensional details:

Seal air filter shall be standard for a given Number of cells. The Seal air filter dimensions shall be governed by Number of cells. The table 2.7.1 provides the details of Bleed airline size and the flange size, Transition piece size on either side. Vendor shall ensure to match the sizes based on the Number of cells received in Enquiry.

**Table 2.7.1**

No. of cells	Bleed line size	Bleed airline flange size	Transition piece size
	OdxT mm	mm	OdxT mm
4	219.0x4.00	NB200 Cl. 150#	660x6.4
5	273.0x4.00	NB250 Cl.150#	711x12.7
6	273.0x4.00	NB250 Cl.150#	914x10.0
7	323.9x4.80	NB300 Cl.150#	914x10.0
8			
9	323.9x4.80	NB300 Cl.150#	1168x10.0
10	355.6x6.40	NB350 Cl.150#	1168x10.0
11			
12			
13	406.4x4.80	NB400 Cl.150#	1168x10.0
14	406.4x4.80	NB400 Cl.150#	1321x10.0
15			
16			

## 2.8 Transition Piece

Transition piece matching with Pipe size as mentioned in table 2.7.1 shall be assembled to Seal air filter at inlet and outlet sides and supplied as single assembly. The transition piece shall be smooth and each transition piece shall be of length 500mm. The end of transition piece in Filter side shall be connected by flanges to the filter. Open end of transition piece shall have edge preparation suitable for welding with matching pipe.

**5 PROJECT RELATED INFORMATIONS**

5.1 Project Name : **DARLIPALI (2180614320002001)**  
 5.2 Customer No. :  
 5.3. Data sheet

Sl. No.	BHEL REQUIREMENT		VENDOR CONFIRMATION
1.	Item :	Mill seal air filter	
2.	Specification :		
2.1	Style:	Self-cleaning Inertial type	
2.2	Filter Assy.	U-Shaped metal sheet	
3.0	Design parameters		
3.1	Flow medium	Dust laden air at 50 °C	
3.2	Total Air flow	Nm <sup>3</sup> /HR	
3.3	Air flow per cell	4020 Nm <sup>3</sup> /Hr (2500SCFM)	
3.4	No. of cells	Vendor to Specify	
3.5	Max. Drop across filter	mm WC	
3.6	Bleed airline size	(see 2.7.1) OdxT mm	
3.6.1	Bleed airline flange size (see 2.7.1)		
3.7	Transition piece Diameter (see 2.7.1) OdxT mm		
3.8	Efficiency :		
3.8.1	Fine dust:	82%	
3.8.2	Coarse dust:	96%	
4.0	Materials		
4.1	Body	Carbon steel	
4.2	Vane blades	Corrosion resistant low alloy steel- Specify matl spec.	
5.	Painting:	Epoxy	
6.	Packing:	Water proof in wooden box	
7.	Test certificates:		
7.1	Dimensional		
7.2	Material compliance.		
7.3	Type test for filter efficiency.		
7.4	Type test for pressure drop.		
8.0	Documents to submit :		
8.1	Performance curves		
8.2	Assembly drawing with dimensions – Drawing No.		
8.3	Copies of standard test methods.		
8.4	Minimum 6 copies O&M manuals:		

5.4 Recommended spares for 2 years trouble free operation:

5.5 Special requirements, if any.

KOTHAKUDAM (L18014320009001)

## 2.7 Dimensional details:

Seal air filter shall be standard for a given Number of cells. The Seal air filter dimensions shall be governed by Number of cells. The table 2.7.1 provides the details of Bleed airline size and the flange size, Transition piece size on either side. Vendor shall ensure to match the sizes based on the Number of cells received in Enquiry.

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9	323.9x4.80	NB300 Cl.150#	1168x10.0
10	355.6x6.40	NB350 Cl.150#	1168x10.0
11			
12			
13	406.4x4.80	NB400 Cl.150#	1168x10.0
14	406.4x4.80	NB400 Cl.150#	1321x10.0
15			
16			

## 2.8 Transition Piece

Transition piece matching with Pipe size as mentioned in table 2.7.1 shall be assembled to Seal air filter at inlet and outlet sides and supplied as single assembly. The transition piece shall be smooth and each transition piece shall be of length 500mm. The end of transition piece in Filter side shall be connected by flanges to the filter. Open end of transition piece shall have edge preparation suitable for welding with matching pipe.

## 5 PROJECT RELATED INFORMATIONS

- 5.1 Project Name : KOTHA KUDAM (L1801014320009001)  
 5.2 Customer No. :  
 5.3. Data sheet

Sl. No.	BHEL REQUIREMENT		VENDOR CONFIRMATION
1.	Item :	Mill seal air filter	
2.	Specification :		
2.1	Style:	Self-cleaning Inertial type	
2.2	Filter Assy.	U-Shaped metal sheet	
3.0	Design parameters		
3.1	Flow medium	Dust laden air at 50 °C	
3.2	Total Air flow	Nm <sup>3</sup> /HR	
3.3	Air flow per cell	4020 Nm <sup>3</sup> /Hr (2500SCFM)	
3.4	No. of cells	Vendor to Specify	
3.5	Max. Drop across filter	mm WC	
3.6	Bleed airline size	(see 2.7.1) OdxT mm	
3.6.1	Bleed airline flange size (see 2.7.1)		
3.7	Transition piece Diameter (see 2.7.1) OdxT mm		
3.8	Efficiency :		
3.8.1	Fine dust:	82%	
3.8.2	Coarse dust:	96%	
4.0	Materials		
4.1	Body	Carbon steel	
4.2	Vane blades	Corrosion resistant low alloy steel- Specify matl spec.	
5.	Painting:	Epoxy	
6.	Packing:	Water proof in wooden box	
7.	Test certificates:		
7.1	Dimensional		
7.2	Material compliance.		
7.3	Type test for filter efficiency.		
7.4	Type test for pressure drop.		
8.0	Documents to submit :		
8.1	Performance curves		
8.2	Assembly drawing with dimensions – Drawing No.		
8.3	Copies of standard test methods.		
8.4	Minimum 6 copies O&M manuals:		

5.4 Recommended spares for 2 years trouble free operation:

5.5 Special requirements, if any.

# NORTH KARANPURA (L172014320002001)

## 2.7 Dimensional details:

Seal air filter shall be standard for a given Number of cells. The Seal air filter dimensions shall be governed by Number of cells. The table 2.7.1 provides the details of Bleed airline size and the flange size, Transition piece size on either side. Vendor shall ensure to match the sizes based on the Number of cells received in Enquiry.

**Table 2.7.1**

No. of cells	Bleed line size	Bleed airline flange size	Transition piece size
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5	273.0x4.00	NB250 Cl.150#	711x12.7
6	273.0x4.00	NB250 Cl.150#	914x10.0
7	323.9x4.80	NB300 Cl.150#	914x10.0
8			
9	323.9x4.80	NB300 Cl.150#	1168x10.0
10	355.6x6.40	NB350 Cl.150#	1168x10.0
11			
12			
13	406.4x4.80	NB400 Cl.150#	1168x10.0
14	406.4x4.80	NB400 Cl.150#	1321x10.0
15			
16			

## 2.8 Transition Piece

Transition piece matching with Pipe size as mentioned in table 2.7.1 shall be assembled to Seal air filter at inlet and outlet sides and supplied as single assembly. The transition piece shall be smooth and each transition piece shall be of length 500mm. The end of transition piece in Filter side shall be connected by flanges to the filter. Open end of transition piece shall have edge preparation suitable for welding with matching pipe.

**5 PROJECT RELATED INFORMATIONS**

- 5.1 Project Name
- 5.2 Customer No.
- 5.3 Data sheet

**NORTH KARANPURA (L172014320002001)**

Sl. No.	BHEL REQUIREMENT		VENDOR CONFIRMATION
1.	Item :	Mill seal air filter	
2.	Specification :		
2.1	Style:	Self-cleaning Inertial type	
2.2	Filter Assy.	U-Shaped metal sheet	
3.0	Design parameters		
3.1	Flow medium	Dust laden air at 50 °C	
3.2	Total Air flow	Nm <sup>3</sup> /HR	
3.3	Air flow per cell	4020 Nm <sup>3</sup> /Hr (2500SCFM)	
3.4	No. of cells	Vendor to Specify	
3.5	Max. Drop across filter	mm WC	
3.6	Bleed airline size	(see 2.7.1) OdxT mm	
3.6.1	Bleed airline flange size (see 2.7.1)		
3.7	Transition piece Diameter (see 2.7.1) OdxT mm		
3.8	Efficiency :		
3.8.1	Fine dust:	82%	
3.8.2	Coarse dust:	96%	
4.0	Materials		
4.1	Body	Carbon steel	
4.2	Vane blades	Corrosion resistant low alloy steel- Specify matl spec.	
5.	Painting:	Epoxy	
6.	Packing:	Water proof in wooden box	
7.	Test certificates:		
7.1	Dimensional		
7.2	Material compliance.		
7.3	Type test for filter efficiency.		
7.4	Type test for pressure drop.		
8.0	Documents to submit :		
8.1	Performance curves		
8.2	Assembly drawing with dimensions – Drawing No.		
8.3	Copies of standard test methods.		
8.4	Minimum 6 copies O&M manuals:		

5.4 Recommended spares for 2 years trouble free operation:

5.5 Special requirements, if any.

# **BHEL TRICHY**

## **MM/BOI**

### **ANNEXURE – I**

#### **SPECIAL Terms & CONDITIONS / Pre Qualification requirements (PQR)**

<b><u>Sl.NO</u></b>	<b><u>Description</u></b>	<b><u>Vendor Confirmation</u></b>
<b>1</b>	This tender is for the supply of self- cleaning mechanical inertia type air filter (Seal Air filter) as per technical specifications /Drawings attached and quantity mentioned in our enquiry.	
<b>2</b>	Offer of manufacturer only will be considered. The vendor shall have adequate experience in manufacturing and supply of these Items and shall produce credentials for the same without which their offer will not be considered.	
<b>3</b>	The vendor shall be an established self- cleaning mechanical inertia type air filter (Seal Air filter) manufacturer having adequate Engineering, Manufacturing and testing facilities.	
<b>4</b>	The self- cleaning mechanical inertia type air filter (Seal Air filter) model offered shall be from the existing regular manufacturing range of the supplier. Vendor shall provide the manufacturing catalogue and general reference list for the offered air filter along with the offer.	
<b>5</b>	The supplier shall have experience of having supplied self-cleaning air filters for dusty environment of power plant or for the application of similar severity and to meet the technical parameters of air flow and pressure as per the technical specification or high. Supplier shall submit the documents in proof of the same for the fullest satisfaction of BHEL.	
<b>6</b>	In addition to technical and commercial conditions, you have to submit all the documents duly filled in "Supplier Registration Forms" through online (available in <a href="http://www.bheltry.co.in/">http://www.bheltry.co.in/</a> - Online Vendor Registration- Material Management). Duly filled-in Supplier Registration Forms, along with all credentials and supporting documents, Certificate of Rating from D&B (Dun & Brad) sheet or equivalent agencies (For Foreign vendors), Financial Performance / Profit & Loss Account / Balance sheet for last three years etc. (With Techno-Commercial Bid). Availability of minimum manufacturing, handling, testing and measuring facilities, to be detailed are to be mentioned clearly. All the documents to be uploaded. Apart from Qualifying the Techno- Commercial requirements of the enquiry, BHEL has the right for spot assessment of the facilities for evaluation, approval and for registration.	
<b>7</b>	The offers will be considered for Price Bid opening/Ordering subject to evaluation & approval as per above point 6.0 and also approval by Customer/BHEL.	
<b>8</b>	<b>Risk Purchase clause:</b> "If the supplier fails to deliver the goods within the delivery specified in the purchase order, BHEL will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or despatch within the delivery period mentioned in the purchase order".	
<b>9</b>	Guarantee clause: 18 months from the date of supply or 12 months from the date of commissioning, whichever is earlier.	
<b>10</b>	BHEL may negotiate the L1 rate, if not meeting our budget/estimated cost.	
<b>11</b>	BHEL may re-float the tender opened, if L1 price is not the acceptable price to BHEL.	
<b>12</b>	Any deviation in specified commercial terms- Annexure A will lead to rejection of offer.	



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## Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli-620 014, Tamil Nadu, India

Dept : PURCHASE-MATERIALS MANAGEMENT/BOI

### ANNEXURE-A( Indigenous)

#### ACCEPTANCE OF TECHNO - COMMERCIAL TERMS AND CONDITIONS BY THE BIDDERS

(This techno-commercial sheet should be duly filled and signed, and should be the part of Bid part no-I)

<b>Description of the Items:</b>	Self- cleaning mechanical inertia type air filter	
<b>Enquiry Ref:</b>	1801501077/04 dated 17.09.15	
<b>SI No.</b>	<b>Description</b>	<b>Vendor's confirmation</b>
1	The tender will be operated in two part bid system. One part consisting of Technical bid with Commercial terms & conditions and other part is Price Bid. Techno-Commercial bid and Price bid are to be submitted in separate sealed covers. Based on the above and other conditions, as well as technical capability, vendors will be short-listed. Both these covers are to be put in a single cover duly super scribing the Enquiry Number. The Techno-commercial bid will be opened on the due date and based on the suitability of techno-commercial bid, the price Bid of the techno-commercial suitable qualified vendors will be considered and opened on a suitable date with due intimation	
2	<b>Technical:</b> Supply shall be as per BHEL's Specification MOU/TPBHEL/SEAL AIR FILTER/ REV 00 attached with the enquiry. Project wise datasheet to be submitted.	
3	<b>Firm Price:</b> The quoted/Finalised rates shall be Firm till execution of the supplies.	
4	<b>Price Basis:</b> The rates are to be quoted on FOR/Destination-Respective Site basis inclusive of Packing & Forwarding, Freight and Insurance to your account.	
5	<b>Payment terms:</b> Payment term is 100% direct payment against site acknowledged copy of LR/Delivery Challan after 45 days with 10 % PBG valid for the warranty period..	
6	<b>Liquidated damages:</b> Liquidated damages shall be 0.5% of the total order value per week or part thereof subject to a maximum of 10% of the total order value.	
7	<b>Delivery Period:</b> Bidder shall indicate the firm delivery period required for the delivery of the materials (FOR dispatching station), from the date of Purchase Order/date of document approval, required for delivery of the materials (FOR dispatching station).	
8	<b>Validity:</b> Price Validity of your offer shall be Minimum 120 days from the date of Techno-Commercial Bid opening.	
9	All applicable Taxes, duties and any other extra cost applicable shall be indicated clearly in the offer.	
10	Guarantee clause: 18 months from the date of supply or 12 months from the date of commissioning, whichever is earlier	
11	Please refer Annexure-B duly enclosed for the loading factors that will be considered for commercial terms deviations in arriving net cost to BHEL	
12	In addition to technical and commercial conditions, you have to submit all the documents duly filled in "Supplier Registration Forms" through online (available in <a href="http://www.bheltry.co.in/">http://www.bheltry.co.in/</a> - Online Vendor Registration- Material Management). Duly filled-in Supplier Registration Forms, along with all credentials and supporting documents, Certificate of Rating from D&B (Dun & Brad) sheet or equivalent agencies (For Foreign vendors), Financial Performance / Profit & Loss Account / Balance sheet for last three years etc. (With Techno-Commercial Bid). Availability of minimum manufacturing, handling, testing and measuring facilities, to be detailed are to be mentioned clearly. All the documents to be uploaded. Apart from Qualifying the Techno- Commercial requirements of the enquiry, BHEL has the right for spot assessment of the facilities for evaluation, approval and for registration.	

## ANNEXURE-B(Indigenous)

### Loading factors for the tender enquiry for requirement of self- cleaning mechanical inertia type air filter

SI No.	BHEL Commercial terms	Vendor Confirmation to BHEL Commercial terms	Loading Criteria for Deviations
1	<b>Payment terms:</b> Payment term is 100% direct payment against site acknowledged copy of LR/Delivery Challan after 45 days with 10% PBG valid for the warranty period.		Any deviation in the above payment term will attract loading as mentioned below. “Base rate of SBI (as applicable on the date of bid opening. Techno-commercial bid opening in case of two part bids) + 6% shall be considered for loading for the period of relaxation sought by bidders.
2	<b>Liquidated damages:</b> Liquidated damages shall be 0.5% of the total order value per week of delay or part thereof subject to a maximum of 10% of the total order value.		Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value).
3.	<b>Guarantee:</b> Guarantee clause 18 months from the date of supply or 12 months from the date commissioning, whichever is earlier.		No deviation permitted and the deviated offers are liable for rejection.
	<b><u>Important Note:</u></b> i) Payment through Bank is not preferred. In case of Payment through Bank is opted by Supplier, BHEL prefers documents submission through bank with copy of LR and door delivery of Goods to Stores with Consignee copy attached. In this case Loading will be 3% on the offered value. ii) BHEL will evaluate the offers and consider the ranking after the loading is applied as referred above wherever deviations are observed. iii) LC/Advance payment will not be operated for indigenous vendors. Offers of indigenous vendors with payment term as LC/Advance payment are liable for rejection.		



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## Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli-620 014, Tamil Nadu, India

Dept : PURCHASE-MATERIALS MANAGEMENT/BOI

### ANNEXURE-A(Import)

#### ACCEPTANCE OF TECHNO - COMMERCIAL TERMS AND CONDITIONS BY THE BIDDERS

(This techno-commercial sheet should be duly filled and signed, and should be the part of Bid part no-I)

<b>Description of the Items:</b>		Self- cleaning mechanical inertia type air filter
<b>Enquiry Ref:</b>		1801501077/4 dated 17.09.2015
SI No.	Description	Vendor's confirmation
1	The tender will be operated in two part bid system. One part consisting of Technical bid with Commercial terms & conditions and other part is Price Bid. Techno-Commercial bid and Price bid are to be submitted in separate sealed covers. Based on the above and other conditions, as well as technical capability, vendors will be short-listed. Both these covers are to be put in a single cover duly super scribing the Enquiry Number. The Techno-commercial bid will be opened on the due date and based on the suitability of techno-commercial bid, the price Bid of the techno-commercial suitable qualified vendors will be considered and opened on a suitable date with due intimation	
2	<b>Technical:</b> Supply shall be as per BHEL's Specification MOU/TPBHEL/SEAL AIR FILTER/ REV 00 attached with the enquiry. Project wise datasheet to be submitted.	
3	<b>Firm Price:</b> The quoted/Finalised rates shall be Firm till execution of the supplies.	
4	<b>Price Basis:</b> Bidders should submit their offer for CFR Chennai with freight break up details. If freight breakup details are not indicated, the offer may be liable for rejection. FOB rate will be arrived by subtracting the corresponding freight break up from the CFR rate. BHEL reserves the right to order on FOB or CFR basis.	
5	<b>Payment terms:</b> "100% payment on CAD basis after 45 days from the date of receipt of documents, specified in PO, at BHEL bank with 10% PBG valid for the warranty period. Respective bank charges to respective account."	
6	<b>Liquidated damages:</b> Liquidated damages shall be 0.5% of the total order value per week or part thereof subject to a maximum of 10% of the total order value.	
7	<b>Delivery Period:</b> Bidder shall indicate the firm delivery period required for the delivery of the materials (FOR dispatching station), from the date of Purchase Order/date of document approval, required for delivery of the materials (FOR dispatching station).	
8	<b>Validity:</b> Price Validity of your offer shall be Minimum 120 days from the date of Techno-Commercial Bid opening.	
9	<b>PORT OF LOADING &amp; PORT OF DISCHARGE SHOULD BE INDICATED WITHOUT FAIL. Weight of the Total Consignment shall be indicated in the offer.</b>	
10	Foreign Exchange rate prevailing on Techno – Commercial bid opening rate will be taken for calculation.	
11.	Please refer Annexure-B duly enclosed for the loading factors that will be considered for commercial terms deviations in arriving net cost to BHEL	
12.	Guarantee clause: 24 months from the date of supply or 18 months from the date of commissioning, whichever is earlier.	
13	In addition to technical and commercial conditions, you have to submit all the documents duly filled in "Supplier Registration Forms" through online (available in <a href="http://www.bheltry.co.in/">http://www.bheltry.co.in/</a> - Online Vendor Registration- Material Management). Duly filled-in Supplier Registration Forms, along with all credentials and supporting documents, Certificate of Rating from D&B (Dun & Brad) sheet or equivalent agencies (For Foreign vendors), Financial Performance / Profit & Loss Account / Balance sheet for last three years etc. (With Techno-Commercial Bid). Availability of minimum manufacturing, handling, testing and measuring facilities, to be detailed are to be mentioned clearly. All the documents to be uploaded. Apart from Qualifying the Techno- Commercial requirements of the enquiry, BHEL has the right for spot assessment of the facilities for evaluation, approval and for registration..	



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(High Pressure Boiler Plant)

Tiruchirappalli-620 014, Tamil Nadu, India

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### ANNEXURE-B (Import)

#### Loading factors for the tender enquiry for the requirement of Self- cleaning mechanical inertia type air filter

Sl No.	BHEL Commercial terms	Vendor Confirmation to BHEL Commercial terms	Loading Criteria for Deviations
1	<b>Payment terms:</b> BHEL Payment term is 100% payment on CAD basis after 45 days from the date of receipt of documents, specified in PO, at BHEL bank with 10% PBG. Respective bank charges to respective account.		Any deviation in the above payment term will attract loading as mentioned below. “Base rate of SBI (as applicable on the date of bid opening. Techno-commercial bid opening in case of two part bids) + 6% shall be considered for loading for the period of relaxation sought by bidders.
2	<b>Liquidated damages:</b> Liquidated damages shall be 0.5% of the total order value per week or part thereof subject to a maximum of 10% of the total order value.		Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value).
3.	<b>Guarantee:</b> Guarantee clause 18 months from the date of supply or 12 months from the date commissioning, whichever is earlier.		No deviation permitted and the deviated offers are liable for rejection.
	<b><u>Important Note:</u></b> i) In the case of Usance LCs the loading will be considered @ 1.5% on the offered Value. ii) For LC at sight the loading will be considered @ 3.5% on the offered Value. iii) Normally CAD at sight and Confirmed LCs are liable for rejection iv) BHEL will evaluate the offers and consider the ranking after the loading is applied as referred above wherever deviations are observed.		

## ANNEXURE-C

### **Clause: Special provisions for Micro & Small Enterprises (MSE)**

1. In case MSE vendor participating in the tender quotes within the price band of L1+15%, they will be allowed to supply the complete package requirement subject to acceptance of L1 price by MSE vendor.
2. In case of more than one such MSE, the counter offering will be to the lowest quoted MSE vendor subject to fulfillment of Point No.1
3. MSE suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either EM II certificate having deemed validity (Two years from the date of issue of acknowledgement in EM II) or valid NSIC certificate or EM II certificate along with CA certificate (Format enclosed) applicable for the year, certifying quantum of investment in plant and machinery within the permissible limit as per the act for relevant status (Micro or small) where the deemed validity of EM II is over. Date to be reckoned for determining the deemed validity will be the last date of technical bid submission. Non submission of such documents will lead to consideration of their bids at par with other bidders and MSE status of such suppliers shall be shifted to Non MSE supplier till the supplier submits these documents.