

Buyers Specific Additional Terms & Conditions in addition to GTC

Item Name: Vapour Exhauster with IE3 Motor

Projects: Talcher -III, 2x660 MW Project

A. SCOPE OF ENQUIRY

E-bids on GeM are invited from bidders for the supply of **Vapour Exhauster with IE3 Motor** for **Talcher 2x660 MW Project**, as per requirement mentioned below:

Sl. No.	Project	Material Code & Item Description	Total Quantity	LOT Quantity	Date for Supply Completion
1	Talcher -III, 2x660 MW Project	Material Code W96415003127 <u>Vapour Exhauster with IE3 Motor</u> SPEC: TG 60432 REV: 04	04 Nos.	02 Nos. (Lot-1)	05.11.2024
				02 Nos. (Lot-2)	07.03.2025

B. Project Detail

Project Name & Address	HEAD OF PROJECTS (NTPC LIMITED), TALCHER TPP, STAGE-III 2X660MW, PO TALCHER, DISTT- ANGUL STATE OF ODISHA, PIN 759101
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C. EARNEST MONEY DEPOSIT (EMD): NIL,

Annexure-A

Sl. No.	Terms	Description	Your confirmation
1.	Confirmation to compliance of GTC on GeM 4.0 (Ver- 1.11)	General terms and conditions on GeM 4.0 (Version 1.11) or subsequent rules/policies issued by GeM shall be applicable.	
2.	Documents Checklist:	Kindly confirm that the following documents have been submitted along with your offer: 1. Pre-Qualification Requirements (as defined in <u>Annexure-1</u>). 2. Any other document as specified in " <u>Buyers Specific ATC</u> ".	
3.	Pre-Qualification Requirements (PQR)	The Pre-Qualification Requirements have been compiled and placed at ANNEXURE-1. All the bidders should ensure submission of complete details and documents as called for in these requirements. The Offers submitted by the bidders would be scrutinized with respect to Pre-Qualification Requirements first. Techno-Commercial offer of only those bidders shall be evaluated who meet the Pre-Qualification Requirements.	
4.	Special Instruction of Technical requirement	Please confirm that material specification as per Spec TG60432 rev 04 only is followed for concerned items of the enquiry.	
		Test and Guarantee certificates are required to be submitted. Operation and maintenance manual copy to be send with each packing box.	
		Kindly confirm that quoted offer by you have been complied all technical requirements as given in tender documents and submit all documents to BHEL as per tender specifications and drawings without any deviations.	
		PAINTING – (1) Primer paint: epoxy based zinc rich primer paint (2 coats, each coat of 35 microns) 70 microns. (2) Intermediate paint: epoxy tio2 pigmented polyamide cured paint (1 coat 70 microns).	

		(3) Finish (final) paint: aliphatic acrylic 2 pack polyurethane finish paint (1 coat 60 microns), Total paint DFT - 200 microns (minimum) , paint shade is Grey RAL- 9002 as per IS-5 or equivalent.									
5.	Price basis	Prices should be quoted on F.O.R. Destination basis i.e. up to Talcher Project Site including freight, packing & forwarding charges, GST etc. Please mention here the applicable GST rate included in the price quoted by you. The evaluation currency for this tender shall be INR.									
6.	Evaluation criteria	Evaluation will be done on the basis of total landed cost to BHEL, with cost involved for delivery up to Talcher Project Site (considering ITC). Bidders to insure applicability of ITC on Gem portal.									
7.	Transit Insurance	Transit insurance shall be arranged by BHEL and not to be included in the prices.									
8.	Payment Terms	The payment term shall be done after issue of consignee receipt-cum acceptance certificate (CRAC) as per the below details: <table border="1" data-bbox="446 619 1347 808"> <thead> <tr> <th>Type of Bidder</th> <th>Payment Terms (Number of Days)</th> </tr> </thead> <tbody> <tr> <td>Micro & Small Enterprises (MSEs)</td> <td>45 days</td> </tr> <tr> <td>Medium Enterprises</td> <td>60 days</td> </tr> <tr> <td>Non MSME</td> <td>90 days</td> </tr> </tbody> </table>	Type of Bidder	Payment Terms (Number of Days)	Micro & Small Enterprises (MSEs)	45 days	Medium Enterprises	60 days	Non MSME	90 days	
Type of Bidder	Payment Terms (Number of Days)										
Micro & Small Enterprises (MSEs)	45 days										
Medium Enterprises	60 days										
Non MSME	90 days										
9.	MDCC clause	Material shall be dispatched only after issue of material dispatch clearance certificate (MDCC) by BHEL. All test certificates and relevant documents are to be sent to BHEL before dispatch of material for issue of MDCC, which will be issued after review of test certificates etc. MDCC will be issued within 07 days of receipt of these documents once found complete in all respects. In case of any delay on account of BHEL in issuing MDCC, delivery shall be extended by no. of days in excess of 7 days taken by BHEL in issuing MDCC and delays shall be dealt on merit basis. Material is to be dispatched within 07 days of receipt of MDCC from BHEL without waiting for PO amendment.									
10.	Quality Requirements	Inspection will be done by BHEL nominated Inspection agency 'M/s INTERTEK' as per BHEL and Customer approved QP (Quality Plan). Vendor to submit endorsed SQP "QA/BE/QP/306, rev-05"									
11.	Document submission for approval from BHEL	Drawings/Data sheets/Documents/Type Test/ Quality Plan etc. as called for in the specifications shall be submitted for approval to BHEL within 30 days of purchase order. Approved documents/QP are to be followed by the supplier without any price implication. Any delay in delivery on account of late submission of drawings/data sheets/QAP/documents shall be to vendors account. BHEL will arrange the approval of the drawings/data sheets/ documents within 30 days of their receipt provided those are complete in all respect. Delays in approval shall be dealt on merit basis.									
12.	Guarantee	Kindly confirm that all equipment shall be guaranteed for a minimum period of 18 months from the date of supply or 12 months from the date of commissioning, whichever is earlier. Buyer to submit guarantee certificate mentioning above guarantee period. Please note that offers with guarantee period lesser than above mentioned guarantee period may result in rejection of the offer.									
13.	Manufacturing Period	Kindly quote your minimum delivery period in no. of weeks/months 1. From the date of PO placement..... 2. From the date of Manufacturing Clearance..... BHEL reserve right to reject offer of the bidders not meeting BHEL's delivery requirement.									

14.	Manufacturing clearance	In case of ordering, vendor has to take manufacturing clearance from BHEL before starting manufacturing of material. No manufacturing is to be started without getting clearance from BHEL. Kindly confirm.	
15.	Liquidated Damages	If the Seller/Service Provider fails to deliver any or all of the Goods/Services within the original/re-fixed delivery period(s) specified in the contract, the Buyer will be entitled to deduct/recover the Liquidated Damages for the delay, unless covered under Force Majeure conditions aforesaid, @ 0.5% of the contract value of delayed quantity per week or part of the week of delayed period as pre-estimated damages not exceeding 10% of the contract value of delayed quantity without any controversy/dispute of any sort whatsoever. The date of LR (Lorry Receipt) would be treated as the date of delivery for penalty purposes.	
16.	Arbitration:	In case of any dispute arising out of as in connection with this contract, the same shall be referred to arbitration under Arbitration & Conciliation Act 1996 of a sole arbitrator who shall be appointed by mutual consent of the parties. The seat & venue of arbitration shall be Haridwar. The proceedings shall be conducted in English. The Governing law of contract shall be the substantive law of India.	
17.	Risk Purchase:	In case of abnormal delays (beyond the maximum late delivery period as per LD clause) in supplies / defective supplies or non-fulfilment of any other terms and conditions given in Purchase Order, BHEL may cancel the Purchase Order in full or part thereof, and may also make the purchase of such material from elsewhere / alternative source at the risk and cost of the supplier. BHEL will take all reasonable steps to get the material from alternate source at optimum cost. If bidder does not agree to the above Risk Purchase Clause, BHEL reserves the right to reject the offer. In case for compelling reasons BHEL accepts the offer without acceptance of this clause by the bidder and in the eventuality of Risk Purchase, appropriate action will be taken as per BHEL extant rules. This will be without prejudice to any other right of BHEL under the contract or under General Law.	
18.	Firm prices	Price will remain firm and fixed during entire execution of tender/supply.	
19.	Packing & QR code Instructions	QR code Instructions shall be complied as per below instructions - 1.Before shipment of material, vendor has to obtain QR code from BHEL and these QR codes (properly laminated) shall be affixed on packages/boxes/crates/bundles of material to be supplied. While packing the material following is to be ensured- 2.Material of unit-1, unit-2 and mandatory spares need to be packed in separate boxes. Loose items (if any) needs to be packed in boxes/crates or bundled together. For loose items one marker board needs to be send for each bundle for fixing this RFID Tag at site. QR code will be issued box wise/bundle wise. Vendor to ensure correct QR Code are affixed on the boxes/bundles. 3.Please confirm that each item in the box of spares items must be tagged with the same description as per packing list. Detail of each spare should be mentioned in the packing list. Please confirm.	
20.	Action against Bidders	In order to protect the commercial interests of BHEL, BHEL shall take action against supplies / contractors by way of suspension of business dealings, who either fail to perform or are in default without any reasonable cause, cause loss of business/ money/ reputation, indulge in malpractices, cheating, bribery, fraud or any other misconduct or formation of cartels so as to influence the bidding process or influence the price etc. Suspension of Business Dealings could be in the form of "Hold" or "Banning" a supplier/ contractor or a bidder and shall be as per "Guidelines for Suspension of Business Dealings with Suppliers/ Contractors" available at BHEL's website " https://www.bhel.com/guidelines-suspension-business-dealings-supplierscontractors "	
21.	Bidder Contact details	Contact details of your representative: Mobile no. & Email id (minimum 2 person) 1. 2.	

Mandatory Pre-Qualification requirements for Vapour Exhauster
(SPEC. TG60432)

Description

The Vapour Exhauster is required to handle mixture of turbine oil vapours, air & H₂ and for creating partial vacuum in generator bearing chamber & oil tanks of Tubogenerators. Vapour exhauster shall comprise of Centrifugal fan, Squirrel cage induction motor, base frame for mounting and motor terminal box.

Mandatory requirement for Pre-Qualification**1.0 Experience Requirement -**

The Vendor should be a regular manufacturer of such Vapour exhasuter & should source motor set from regular manufacturer. Vendor should have supplied at least Three (3) nos. of vapour exhauster with motor in last Seven (7) years (from the date of issuance of enquiry) with following technical details –

Si No.	Parameter	Value
(i)	Exhauster & Motor Type	Centrifugal fan with squirrel cage 3 phase induction motor
(ii)	Flow medium	Mixture of Oil, Gases and Air.
(iii)	Material	Carbon Steel or Stainless steel
(iv)	Discharge Pressure	96 mmWC & above
(v)	Discharge Capacity	100 M3/Hr & above
(vi)	Motor Rating	0.75 KW & above
(vii)	Rated Speed	2820 RPM (approx)
(viii)	Rated Voltage	415V AC

In support of above, vendor to furnish information, as per the following format for previous supplied Vapour exhasuter meeting the above technical requirement for the past Seven (7) years from the date of issuance of enquiry.

Si. No.	Purchase order reference no.	Purchase order issue date	QTY.	Motor KW rating	Discharge Pressure (mmWC)	Discharge Capacity (M3/Hr)

Vendor to submit the following documents as an evidence of acceptance of supplied Vapour exhasuter, for the above mentioned successfully executed order -

- Vendor to furnish copy of Un-Priced Purchase Orders executed for supply of at least Three (3) nos. of vapour exhauster with motor in last Seven (7) years (from the date of issuance of enquiry).
- Vendor to furnish the test certificate for Exhasuter fan & motor set as per relevant standard for any one of the PO submitted. The submitted test certificates should have co-relation with PO.
- Vendor to furnish supporting document for the evidence of final acceptance from End customer/Third Party of supplied vapour exhauster with motor for any one of the submitted PO's. Acceptance certificate should contain information like item details, Quantity accepted and should also have correlation with PO reference no.

2.0 Vendor shall submit the proof of manufacturer i.e. Factory license, NSIC certificate

Note - BHEL reserves the right to verify information submitted by vendor. In case the information is found to be false / incorrect, the offer shall be rejected.

कुणाल/28.10.22
निर्माणकर्ता
कुणाल मिश्रा
प्रबंधक/ ई. एम. ई.

Yogendra
जांचकर्ता
मंजू आजाद
उप महाप्रबंधक/ ई. एम. ई.

Signature
अनुमोदनकर्ता
नित्या नन्द रमण
अपर महाप्रबंधक/ ई. एम. ई.

08 MANUFACTURER'S NAME AND ADDRESS		STANDARD QUALITY PLAN					TO BE FILLED BY BHEL		TO BE FILLED BY BHEL			
BHEL	VENDOR'S NAME	ITEM	VAPOUR EXHAUSTER		QP NO.	QA/BE/QP/306						
					DATED & REV	08.06.2023 05						
		DRG. NO.	AS PER PO									
		SPEC.	TG 60432									
REV	04			Page 1 of 2								
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY			REMARKS
1	2	3	4	5	6	7	8	9	D	10		11

1.0	RAW MATERIAL												
1.1	CASING, IMPELLER, BLADES & BASE FRAME/ PLATE, SLEEVE, O-RING	CHEMICAL, MECHANICAL PROPERTIES & SIZE	MAJOR	TEST & MEASUREMENT	100%	BHEL APPD DWG	BHEL APPD DWG	LAB TEST REOPRT	✓	P	V	V	NOTE: Chem & mech tests shall be carried out at independent lab on the samples identified by vendor & shall be witnessed by vendor
1.2	NUTS & BOLTS	TRADE MARK & PRPERTY CLASS	MAJOR	VISUAL	100%	IS:1367	AS PER VENDOR'S PROCEDURE	IR/COC	✓	P	V	-	
1.3	AC INDUCTION MOTOR	ROUTINE & TYPE TESTS CERTIFICATE INCLUDING DEGREE OF PROTECTION AND EXPLOSION PROOFNESS	MAJOR	REVIEW	100%	BHEL SPECIFICATION	BHEL SPECIFICATION	TC	✓	P	V	V	
2.0	INPROCESS INSPECTION												
2.1	ALL WELDS	QUALITY OF WELDS	MAJOR	DPT	100%	ORDERING SPECIFICATION	ASME VIII	IR	✓	P	V	-	NOTE:1
2.2	IMPELLER	DIMENSIONS	MAJOR	MEASUREMENT	100%	ORDERING DWG	ORDERING DWG	IR	-	P	-	-	
		DIMENSIONS AFTER MACHINING	MAJOR	MEASUREMENT	100%	ORDERING DWG	ORDERING DWG	IR	-	P	-	-	
		DYNAMIC BALANCING	MAJOR	MEASUREMENT	100%	ISO:1940	ISO:1940 GR6.3	IR	✓	P	V	-	
2.3	ASSEMBLY OF FAN	INTERNAL CLEARANCE BETWEEN IMPELLER & CASING	MAJOR	MEASUREMENT	100%	BHEL APPD DWG	BHEL APPD DWG	IR	✓	P	V	-	
3.0	FINAL INSPECTION ON THE COMPLETE ASSEMBLY												
3.1		OVERALL DIMENSIONS	MAJOR	MEASUREMENT	100%	BHEL APPD DWG	BHEL APPD DWG	TC	✓	P	W	V	

MANUFACTURER/ SUBCONTRACTOR		LEGEND: RECORDS IDENTIFIED WITH '✓' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.	FOR CUSTOMER USE	APPROVED BY
		M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER INDICATE 'P' PERFORM 'W' WITNESS AND 'V' VERIFICATION		
		ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER		

08MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL				
BHEL	VENDOR'S NAME		ITEM		VAPOUR EXHAUSTER		QP NO.	QA/BE/QP/306					
							DATED & REV	08.06.2023 05					
			DRG. NO.		AS PER PO								
			SPEC.		TG 60432								
REV		04				Page 2 of 2							
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS		CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY		REMARKS
1	2	3		4	5	6	7	8	9	D	10		11

3.2		PERFORMANCE (INCLUDING AIR DELIVERY, PRESSURE & POWER CONSUMPTION)	MAJOR	PERFORMANCE	100%	ISO:5801	ISO:5801	TC	✓	P	W	V	
3.4		FAN SPEED, SMOOTH RUNNING, DIRECTION OF ROTATION	MAJOR	VISUAL	100%	ORDERING SPECIFICATION	ORDERING SPECIFICATION/ BHEL APPD DWG	IR	✓	P	W		
3.5		NOISE LEVEL	MAJOR	MEASUREMENT	100%	IEC:60034-9	TG60432	IR	✓	P	W		
3.6		VIBRATION	MAJOR	MEASUREMENT	100%	IEC:60034-14	TG60432	IR	✓	P	W		
3.7		APPEARANCE INCLUDING PAINT THICKNESS (DFT)	MAJOR	VISUAL & MEASUREMENT	100%	ORDERING SPECIFICATION	AS PER AGREED SCHEDULE	IR		P	V		
3.9		COMPLETION OF DOCUMENTS	MAJOR	PHYSICAL	100%	ORDERING SPECIFICATION/ BHEL APPD DWG/ QP/ PO	DOCUMENTS	DOCUMEN TS	✓	P	V		
4.0	PACKING												
4.1		SOUNDNESS OF PACKING AGAINST TRANSIT DAMAGE	MAJOR	PHYSICAL	100%	ORDERING SPECIFICATION/ VENDOR'S STD	ORDERING SPECIFICATION/ VENDOR'S STD	INTERNAL RECORDS		P	-	-	

NOTE:1 - Welding to be done by qualified welder as per ASME IX WPS and PQR to be checked by inspecting agency.

MANUFACTURER/ SUBCONTRACTOR	LEGEND: RECORDS IDENTIFIED WITH '✓' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER INDICATE 'P' PERFORM 'W' WITNESS AND 'V' VERIFICATION							FOR CUSTOMER USE		
	ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER									APPROVED BY

उत्पाद क्रय विनिर्देश

TG60432



PRODUCT PURCHASE SPECIFICATION

पृष्ठ 8 का 1

Page 1 of 8

Based on BHEL's own experience

VAPOUR EXHAUSTER

1.0 SCOPE AND APPLICATION:

This specification intended to cover design, manufacture, assembly testing & delivery of vapour exhauster, complete with motor, coupling, base plate and other accessories. The vapour exhauster is required to handle mixture of turbine oil vapours, air & H₂ and for creating partial vacuum in generator bearing chamber & oil tanks of Turbo-generators.

2.0 DESIGNATION:

The Vapour exhauster shall be designated as below: -

2.1 ON DRAWINGS INDENTS:

- | | | |
|-----------------------------------|---|------------------|
| (1) Material specification column | : | TG-60432 |
| (2) Description Column | : | Vapour Exhauster |
| (3) Material Code Column | : | W 96415000578 |

2.2 ON ENQUIRES AND PURCHASE ORDER:-

In addition to incorporating the above details, a copy of the standard shall be enclosed along with enquiry.

3.0 TECHNICAL REQUIREMENTS:

3.1 TECHINCAL DATA OF VAPOUR EXHAUSTER:

- | | | |
|--|---|-------------------------|
| (1) Continuous discharge capacity at operating point | : | 396 m ³ / hr |
| (2) Normal discharge pressure at operating point | : | 96 mmWC |
| (3) Operating temp. of the medium | : | 70°C |
| (4) Ambient temp. | : | 50°C |
| (5) Speed | : | 2820rpm |

दिनांक एवं हस्ताक्षर
 SIGN & DATE
 SUPERSEDES
 INVENTORY
 NO.
 माली सूची संख्या के अधिनियम द्वारा है
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 स्वलाधिकार एवं गोपनीय
 इस दस्तावेज में दी गई सूचना भारत हेवी एलेक्ट्रिकल्स की सम्पत्ति है इसका प्रयोग एवं प्रसारण अन्य किसी भी उद्देश्य के लिए बिना लिखित अनुमति के नहीं किया जा सकता।

TSX	D. CANGWAN	अनुवादक	TRANSLATED BY		नाम	NAME	दिनांक एवं हस्ताक्षर	SIGNATURE & DATE
PSC Member	R.K SHARMA	निर्माणकर्ता	WORKED BY	Kunal Mishra				
QAX	PREETI	जांचकर्ता	CHECKED BY	Manju Azad				
महत्वत विभाग		पर्यवेक्षणकर्ता	SUPERVISED BY	R. L. VYAS				
AGREED DEPT.	नाम	DATE & SIGNATURE						
SUPERSEDES							Gr. NO.	8.10
REV.NO.	04	APPROVED :	Rakesh Kumar (AGM/EME)			30-1-2018		
Date.	11.01.18	निर्माणकर्ता	PREPARED :	EME	जारीकर्ता	ISSUED :	TSX	दिनांक
CHANGE ADVICE NO.	TGE-18- 02							DATE : 09.09.92

4685-
3/2/18

SUPERSEDES INVENTORY
 भारतीय सूची संख्या में परिवर्तित नहीं है

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स्वत्वाधिकार एवं गोपनीय
 इस प्रलेख में दी गई सूचना भारत की एलईएचएल की सम्पत्ति है इसका प्रयुक्त एवं अप्रयुक्त रूप में किसी भी तरह प्रयोग और कि सम्पत्ती के हित में हानिकारक हो न सके


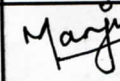
SIGN & DATE
 भारतीय सूची संख्या
 INVENTORY NO.

3.2 DESIGN AND CONSTRUCTION OF VAPOUR EXHAUSTER

- 3.2.1** The material of the exhauster shall be such as to resist corrosion and shall give long trouble free service.
- 3.2.2** The design shall be such as to keep the friction and wear minimum caused by end thrust. Wear in mechanical seals bearings shall be minimum. The rotor of the exhauster shall be dynamically balanced as per ISO 1940, so that vibration of the exhauster is not greater than 25 micron peak to peak as per IEC 60034-14. The noise level shall not be greater than 85dB when measured at a distance of 1 meter from the base of the equipment, measurement should be done as per IEC 60034-9.
- 3.2.3** Seals must comply with the following: -
 (a) Easy access for maintenance work.
 (b) No contamination of the medium from materials abraded from the seals.
 (c) No seepage of lubricants into the flow medium.
 (d) No leakage of gases outside in the atmosphere
 (e) No seepage of oil toward, motor and outside along with the shaft.
 (f) Shaft shall be sealed with grease lubricated axial seal as shown in the figure.
- 3.2.4** Exhauster bearing shall be designed so as to ensure 50000 hours of continuous service.
- 3.2.5** The exhauster shall be provided with a drain plug.
- 3.2.6** Fan impeller is to be directly mounted onto rotor shaft as shown in the figure at page 8.
- 3.2.7** The critical speed of the exhauster shall not lie within $\pm 30\%$ of the operating speed (2820 rpm) of the exhauster.
- 3.2.8** Minimum clearance between impeller & casing shall be 2mm to ensure that there is no rubbing.
- 3.2.9** The construction, mounting and base frame dimensions shall be generally as per figure at page 8.
- 3.2.10 Materials of Construction:-**
- | | | |
|----------------|---|-------------------------------------|
| (1) Casing | : | Carbon Steel as per IS:2062 E250 BR |
| (2) Impeller | : | Carbon Steel as per IS:2062 E250 BR |
| (3) Base Frame | : | Carbon Steel as per IS:2062 E250 BR |
| (4) Sleeve | : | Brass |
| (5) 'O' ring | : | Neoprene |

3.3 MOTOR SPECIFICATIONS

- 3.3.1** TYPE : TEFC squirrel cage induction motor to IEC 60034-1
- 3.3.2** KW rating : 0.75kW
- 3.3.3** Rated voltage : 415 Volts, 3 phase, 50Hz
- 3.3.4** Type of duty : S1 (Continuous) as per IEC 60034-1
- 3.3.5** Efficiency class : Refer Variant Table as below

भारतीय सूची संख्या INVENTORY NO.	REV. NO. 04		निर्माणकर्ता WORKED BY	Kunal Mishra		11/01/18
P-5094			जांचकर्ता CHECKED BY	Manju Azad		11/01/18

संख्या
SIGN & DATE



उत्पाद क्रय विनिर्देश

TG60432

पृष्ठ 8 का 3

PRODUCT PURCHASE SPECIFICATION

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SUPERSEDES
INVENTORY

सामग्री सूची संख्या को
अधिकारित करना है

MATERIAL CODE OF VAPOUR EXHASTER ASSEMBLY	EFFICIENCY CLASS OF MOTOR AS PER IEC-60034-30	STARTING CURRENT (IN % OF FULL LOAD CURRENT) + 20% (Tolerance as per IEC: 60034-1)
W96415000578	IE-2	650
W96415003127	IE-3	700

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स्वत्वधिकार एवं गोपनीय

संख्या
SIGN & DATE

- 3.3.6 Permissible voltage variation : ± 10%
- 3.3.7 Permissible Frequency variation : ± 5%
- 3.3.8 Combined voltage & frequency variation : + 10%
- 3.3.9 Min. voltage required under starting : 85%
- 3.3.10 Conditions to bring driven equipment to rated speed
- 3.3.11 Starting Torque : Min. 1.3 times the rated torque.
- 3.3.12 Breakdown torque : Min. 2 times the rated torque.
- 3.3.13 Starting : DOL
- 3.3.14 Acceleration time with full load connected: 3.5 + 0.5 sec.
- 3.3.15 Starting duty : 3 starts spread over on hour and 2 consecutive starts from hot
- 3.3.16 Condition without injurious heating to the winding.
- 3.3.17 Overload capacity : Motor shall be capable of running at full load with 80% of rated
- 3.3.18 Voltage for 10min. and 70% of rated voltage for 1 min.
- 3.3.19 Class of insulation : 'F' with temperature limited to Class B (70 °C)
- 3.3.20 Ventilation : Totally enclosed & fan cooled
- 3.3.21 Enclosure protection : IP 55 as per IEC 60034-5
- 3.3.22 Explosion proof : Group II T4 as per IEC 60079
- 3.3.23 Bearing : as per suppliers design. Life not less than 50000hrs.
- 3.3.24 Earthing : Suitable arrangement to be provided at 2 places.
- 3.3.25 Terminal box : Terminal box shall be explosion proof as per Group II T4 IEC 60079.
- 3.3.26 Cable gland also to be provided in terminal box for 3 core Aluminium cable.
- 3.3.27 Fault level : 50 KA for 1 sec.

4.0 PUMP DATA SHEET (TO BE FURNISHED ALONGWITH OFFER :

- 4.1 Capacity M3 / Sec. :
- 4.2 Head MWC :
- 4.3 Efficiency :
- 4.4 Rated speed :
- 4.5 Exhauster B.H.P. / kw at Rated Capacity :
- 4.6 Material: Casing Impeller base Frame 'o' ring :
- 4.7 Type of bearing used :
- 4.8 Type of coupling :
- 4.9 Type of Sealing :
- 4.10 Suction size :
- 4.11 Discharging size :

संख्या
SIGN & DATE

सामग्री सूची संख्या
INVENTORY NO.

REV. NO. 04

निर्माणकर्ता
WORKED BY

Kunal Mishra

Kunal

11/01/18



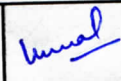
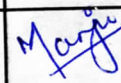
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CHECKED BY

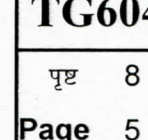
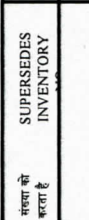
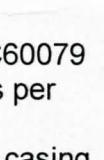
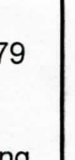
Manju Azad




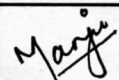
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ब. संख्या SIGN & DATE				उत्पाद क्रय विनिर्देश PRODUCT PURCHASE SPECIFICATION		TG60432 पृष्ठ 8 का 4 Page 4 of 8	
SUPERSEDES INVENTORY मामली सूची संख्या को अधिस्थित करता है		4.12 Wt. of exhauster with motors base frame 4.13 Wt. of exhauster 4.14 General assy. & cross sectionals drawing enclosed with offer 4.15 Capacity Vs discharge pressure curve enclosed 4.16 Power consumption Vs discharge pressure curve enclosed 4.17 Capacity Vs efficiency curve enclosed					
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.		5.0 MOTOR DATA SHEET (TO BE FURNISHED ALONG WITH OFFER) 5.1 Manufacturer 5.2 Type 5.3 Frame size 5.4 Power absorbed by exhauster at duty point (kW) 5.5 Rated power (kW) 5.6 Duty cycle 5.7 Rated voltage 5.8 No. of phase 5.9 Frequency 5.10 Allowable voltage variation 5.11 Allowable frequency variation 5.12 Allowable voltage & frequency variation 5.13 Current 5.14 Rated speed (RPM) 5.15 Full load efficiency 5.16 Full load power factor 5.17 Method of starting 5.18 Max. starting current 5.19 Class of insulation 5.20 Starting torque 5.21 Max. torque 5.22 Safe stall time a. Under hot condition b. Under cold condition 5.23 Type of enclosure 5.24 Enclosure protection 5.25 Frequency of starting 5.26 Temp. rise above 500C 5.27 By resistance method By thermometer method 5.28 Type & no. of terminals brought out 5.29 Type of connection during continuous running 5.30 Type and size of cable for when gland is provided in the terminal box. 5.31 Guaranteed min. voltage read at non terminals 5.32 System of earthing					
स्वत्वाधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की संपत्ति है, इसका प्रयोग एवं प्रकाशक रूप में किसी भी तरह से बिना अनुमति के किया जा सकता है, जो कि कंपनी के हित में हानिकारक हो सकता है।		दिनांक एवं संख्या SIGN & DATE 					
मामली सूची संख्या INVENTORY NO. P-5894		REV. NO. 04		निर्माणकर्ता WORKED BY Kunal Mishra		 11/01/18	
				जांचकर्ता CHECKED BY Manju Azad		 11/01/18	

नमूना संख्या INVENTORY NO. 25894	दिनांक SIGN & DATE 	मी एम डी एम 	उत्पाद क्रय विनिर्देश PRODUCT PURCHASE SPECIFICATION	TG60432	
				पृष्ठ 8 का 5 Page 5 of 8	
सामग्री सूची संख्या INVENTORY NO. 25894	सामग्री सूची संख्या को अधिनीचे दर्शाया है	5.33 Relevant standard : 5.34 Motor GD2 Valve : 5.35 Type of bearings (DE) : 5.36 Type of bearings (NDE) : 5.37 Type of lubricant : 5.38 Frequency of lubrication : 5.39 Wt. of motor : 5.40 Insulation class :			
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company		6.0 QUALITY ASSURANCE, INSPECTION AND TESTING. 6.1 The manufacture shall conduct all tests required to ensure that the exhauster conforms to the requirements of application codes and standards. 6.2 The bidder shall submit the particulars of proposed shop tests along with procedures for information. 6.3 The equipment shall be dispatched only after inspection and clearance by BHEL / owner. 6.4 The min. tests checks to be carried out on vapour exhauster, as envisaged by BHEL are given below:- 6.4.1 The material of Casing, Impeller, Base frame, Sleeve & O Ring shall be tested as per relevant standard for the chemical composition and mechanical properties. 6.4.2 TESTS DURING VARIOUS STAGE OF MANUFACTURING 1) Check for dimension and finish of the components. 2) D.P.T on all welding as per ASME section VIII. 3) Dynamic balancing of impeller as per ISO 1940 Gr. 6.3. 6.4.3 FINAL TESTS: - Following tests shall be carried out: - 1) Flow rate of air 2) Vibration test as per IEC 60034-14. 3) Noise : shall not be greater than 85dB when measured at a distance of 1 meter from the base of the equipment, measurement should be done as per IEC 60034-9 4) Speed 5) Dimensional check 6) Smooth running 7) Performance test as per ISO:5801 6.4.4 Type & Routine tests on motor as per IEC:60034-1 6.4.5 Vendor to furnish the test certificates for the following 1) Motor Enclosure certificate as per IP 55 as per IEC 60034-5 2) Explosion proof certificate for motor for Group II T4 as per IEC60079 3) Certificate for enclosure of Terminal box for explosion proof as per Group II T4 IEC 60079. 4) Certificate for minimum clearance of 2mm between impeller & casing.			
स्वत्वाधिकार एवं गोपनीय इस दस्तावेज में की गई सूचना भारत के विद्युत विभाग की संपत्ति है इसका प्रयोग एवं प्रसारण के बिना या किसी भी प्रकार के लिए न किया जाय।					
सामग्री सूची संख्या INVENTORY NO. 25894	REV. NO. 04		निर्माणकर्ता WORKED BY Kunal Mishra		11/01/18
			जांचकर्ता CHECKED BY Manju Azad		11/01/18


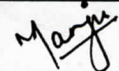
न हस्ताक्षर SIGN & DATE		उत्पाद क्रय विनिर्देश PRODUCT PURCHASE SPECIFICATION		TG60432 पृष्ठ 8 का 6 Page 6 of 8	
SUPERSEDES INVENTORY	<p>6.4.6 After testing the exhauster, all the surface and internal shall be thoroughly cleaned, dried and conserved. All the metallic surface except bright parts exposed to weather shall be given suitable primary coating.</p> <p>7.0 DOCUMENTS TO BE FURNISHED AT THE TIME OF OFFER</p> <p>7.1 Assembly drawings part list, nozzle size, their coordinates base plate details etc.</p> <p>7.2 Technical data sheet of pump as per clause 4.</p> <p>7.3 Technical data sheet of motor as per clause 5.</p> <p>7.4 Performance curves.</p> <p>7.5 Quality plan in BHEL format, incorporating checks/tests at material stages, in process & final testing.</p> <p>7.6 Clause wise confirmations of specification TG60432.</p> <p>8.0 DOCUMENT TO BE SUPPLIED</p> <p>8.1 AFTER PLACEMENT OF ORDER</p> <p>8.1.1 G.A. drawing with parts list & material details.</p> <p>8.1.2 Final quality plan.</p> <p>8.2 DOCUMENT FOR FINAL SUBMISSION</p> <p>8.2.1 Performance curves.</p> <p>8.2.2 Test certificates for all test checks in clause 6.4 shall be furnished.</p> <p>9.0 CLEANING, PAINTING, CONSERVATION AND PACKING</p> <p>The surface shall be cleaned and prepared for application of paint by shot blasting. The protective coating should be oil resistant. After testing the exhauster, its internals shall be thoroughly cleaned, dried and conserved before packing. The exhauster packing shall be strong enough to safeguard against any damage during transit. The exhauster shall be packed such that it is safe for at least 2 year of storage in damp atmosphere.</p> <p>10.0 GUARANTEE</p> <p>10.1 The supplier shall guarantee trouble free and satisfactory operation of the equipment for a period of 12 months after commissioning at site or 18 months from the date of dispatch, whichever is earlier.</p> <p>10.2 The supplier shall guarantee the tested capacity head and capacity of the exhauster.</p> <p>10.3 The supplier shall repair /replace the defective parts at his own cost during the guarantee period.</p>				
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स्वत्वाधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की संपत्ति है। इसका प्रयोग एवं प्रकाश अन्य किसी भी तरह से बिना भारत हेवी इलेक्ट्रिकल्स की लिखित अनुमति के बिना किया जा सकता है।					
न हस्ताक्षर SIGN & DATE					
सामग्री सूची संख्या INVENTORY NO. A5894	REV. NO. 04		निर्माणकर्ता WORKED BY Kunal Mishra		11/01/18
			जांचकर्ता CHECKED BY Manju Azad		11/01/18

सुपरसेडस INVENTORY	सामग्री सूची संख्या को अपिचिह्नित करना है	<p>11.0 IDENTIFICATION</p> <p>A name plate of stainless steel with following information engraved on it, shall be affixed to the equipment at appropriate location –</p> <ul style="list-style-type: none"> - Item description - Manufacturer's name - Year of manufacturing - Sl. No. - Main technical parameters i.e. Flow rate, Discharge pressure, Speed, Flow Medium, operating temperature, Motor KW Rating. - BHEL specification no. - BHEL material code. - BHEL P.O. No. 	
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स्वत्वाधिकार एवं गोपनीय <small>इस प्रलेख में दी गई सूचना भारत हेवी एलेक्ट्रिकल्स की संपत्ति है। इसका प्रयोग एवं अप्रत्यक्ष रूप से किसी भी तरह का प्रयोग जो कि कंपनी के हित में हानिकारक हो सके बिना न करें।</small>	
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ब्रह्मचर एवं दिनांक SIGN & DATE	
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सामग्री सूची संख्या INVENTORY NO.	REV. NO. 04		निर्माणकर्ता WORKED BY	Kunal Mishra		11/01/18
P-5894			जांचकर्ता CHECKED BY	Manju Azad		11/01/18

उत्पाद क्रय विनिर्देश

PRODUCT PURCHASE SPECIFICATION



संकेत
SIGN & DATE

SUPERSEDES
INVENTORY

सामग्री सूची संख्या को
अपडेट किया गया है

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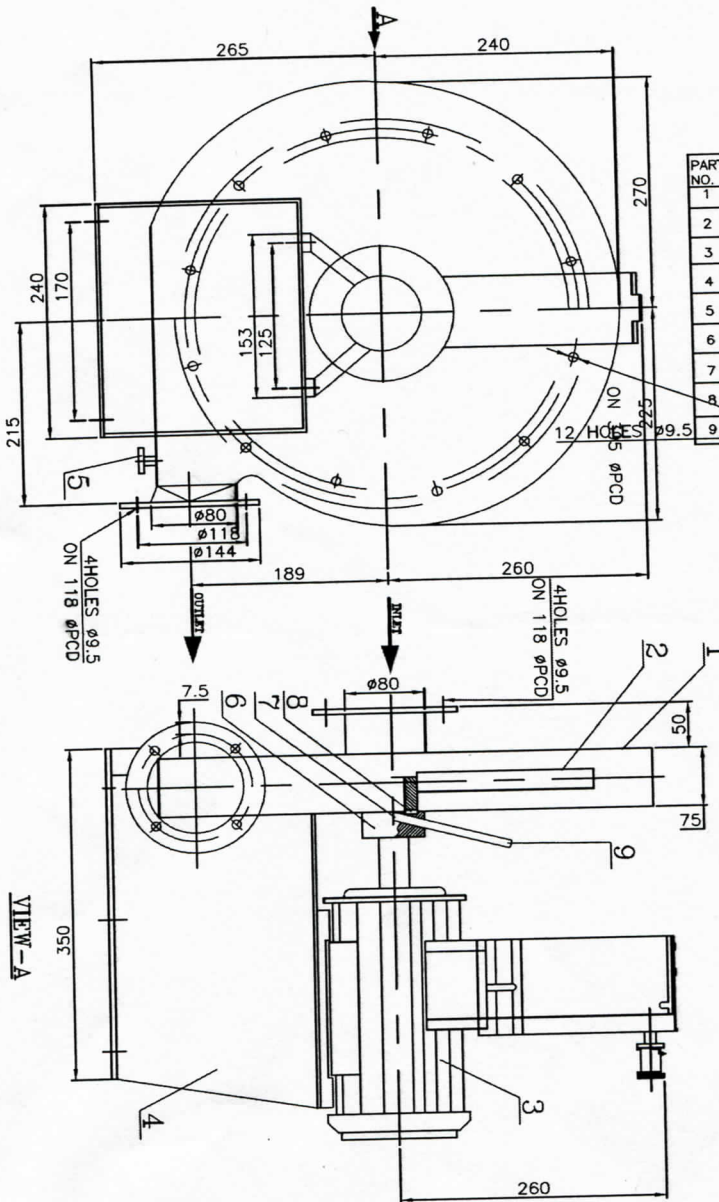
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स्वाधिकार एवं गोपनीय

इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है। इसका प्रयोग एवं अनुवाद बिना भारत हेवी इलेक्ट्रिकल्स की लिमिटेड की लिखित अनुमति के बिना न किया जाए।

संकेत एवं
SIGN & DATE

सामग्री सूची संख्या
INVENTORY NO.



PART NO.	DESCRIPTION
1	CASING
2	IMPELLER
3	MOTOR
4	MOTOR SUPPORTING BRACKET
5	DRAIN PLUG
6	STUFFING BOX
7	'O' RING OIL SEAL
8	SLEEVE
9	GREASE NIPPLE

REV. NO. 04

निर्माणकर्ता WORKED BY	Kunal Mishra	<i>Kunal</i>	11/01/18
जांचकर्ता CHECKED BY	Manju Azad	<i>Manju</i>	11/01/18

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11/01/18