



RD:DP:MPX:F-04
Ref: 441400621

BHARAT HEAVY ELECTRICALS LIMITED
CORPORATE RESEARCH & DEVELOPMENT DIVISION
VIKASNAGAR, HYDERABAD - 500 093, INDIA

PHONES:23774494 (EXT:9804)
FAX : 91 40 23770698

ENQUIRY

Date 15-07-2014

Enquiry for **Development of Die,core box and prototypes for Blower**

Enquiry No:441400621 Enquiry Date : 15-07-2014 Due Date: 14-08-2014 Indicative Delivery Date : 31-12-2014

Sl.No	Item Description	Unit	Qty
1	Die, core box and development for prototype manufacturing of Blower	SET	1
2	Prototype Blowers (Aluminium Alloy)	NO	11

Please submit your quotation for the above material in sealed cover superscribed with enquiry no, enquiry date and due date subject to our enclosed terms and conditions. The quotations shall reach us on or before the due date by 12 noon. The tenders can also be dropped in the tender box kept at the security gate,BHEL R&D. In case you are not in position to submit the offer,please send reply suitably specifying the reasons.

Sl.No	Description	Document Ref.
01	Enquiry, General Terms & Conditions, Commercial Terms & Conditions etc.	Volume - 1
02	Technical specifications, Scope of Supply etc.	Volume - 2

MKVH Sarma
Addl GM (MPX)
sarma_mkvh@bhelmd.co.in

	ENQUIRY & QUALIFYING CRITERIA	Volume - 1 Enquiry No 441400621
Development of Die,core box and prototypes for Blower		

1	Tendor inviting officer / Authority, Designation and Address	Additional General Manager(MM) BHEL R & D, Vikas Nagar (Near Balanagar), Hyderabad -500093
2	Item Description - Qty	1) Die, core box and development for prototype manufacturing of Blower - 1 SET 2) Prototype Blowers (Aluminium Alloy) - 11 NO
3	Enquiry Reference no.	441400621
4	Indicative Delivery Date	31-12-2014
5	Due date, Time and place for submission of tender	14-08-2014 upto 12 noon. Sealed Quotations shall be addressed to Additional General Manager (MM), Bharat Heavy Electricals limited Corporate Research and Development Division, Vikas Nagar (Near Balanagar), Hyderabad-500 093 Telangana, India. Quotations can also be deposited in the Tender box located at Security Gate of BHEL R & D BHEL shall not be responsible for any postal/courier delay.
6	Place, Date and time of Tech. Bid opening	Tender Opening Cell (Sangam) BHEL R & D Office. 14-08-2014 , 2 PM
7	Mode of Submission of Tender	Please submit your offer in one common sealed cover containing two parts in separate sealed covers as detailed below. 1. First cover shall contain: a. Technical & Commercial bid b. Filled in Commercial Compliance Statement (mandatory) c. Copy of price-bid with price(s) cells blank (un-priced price bid) 2. Second cover shall contain price bid. Price bid containing price quotes , shall be spelt out clearly taking into account total charges rather than quoting vaguely such as charges per man-day or charges per engineer per day etc. If the price bid was found later to be different from the un-priced price bid format in any way, the offer will be rejected summarily. The rates shall be quoted both in figures and in words. The offers can also be submitted through e-mail and have to be sent in PDF format to e-mail id: 'eoffers@bhelrnd.co.in' only. Copies should not be marked to anyone. If the copies are marked to anyone other than to eoffers, their offer will not be considered. The e-mail offers should have two attachments. One attachment shall contain a) Technical & Commercial bid b) Filled in Commercial Compliance Statement (mandatory) and c) Copy of price-bid with price(s) cells blank (un-priced price bid). The second attachment shall contain price bid. The subject of the e-mail should contain Enquiry No, Enquiry Date and Due date.

	GENERAL TERMS & CONDITIONS (GTC)	Volume - 1 Enquiry No 441400621
Development of Die,core box and prototypes for Blower		

SL.No.	Clause	BHEL REQUIREMENT
1	General	<p>a. All offers must include name of the contact person, phone no/mobile no, Fax no, email-id. Unsigned offers are liable for rejection.</p> <p>b. We, BHEL R&D, is registered with Department of Scientific and Industrial Research (DSIR) for the purpose of availing Central Excise Duty Exemption in terms of Government Notification No. 16/2007-Central Excise dated 01-Mar-2007 as amended from time to time. Hence suppliers are requested to submit their bids clearly stating applicable taxes/duties.</p> <p>c. Taxes & Duties quoted will be taken for cost evaluation & order placement and no change will be entertained later except in the case of changes made by the government. In case any Taxes/ Duties exempted, a self declaration for the same may be attached to the offer. Changes in taxes and duties because of the changes in turn over etc will be to supplier's account.</p> <p>d. Where ever vendor registration form and EFT details have been submitted earlier, the same need not be submitted again unless there is a change.</p> <p>e. BHEL R&D do not issue 'C' form .</p> <p>f. L1 status shall be decided on Cost to BHEL Basis.</p>
2	Late Tenders	Tenders received after due date/time(12:00hrs) will not be considered
3	Discrepancy in words and figures	<p>(a) If, in the price structure quoted for the required goods/ Services/ works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.</p> <p>(b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and</p> <p>(c). If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject of (a) and (b) above.</p> <p>(d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.</p>
4	Two Part bid clarifications	In the case of Two-part bid, the vendor should furnish technical and commercial clarifications, if any, within stipulated time mentioned, failing which, it will be construed that the vendor is not interested in the tender and BHEL shall not consider the offer for further evaluation.
5	Price Impacts	In the event of any bidder, after finalizing the technical specifications and scope of supply, opting to revise their original bid, they have to submit the Price-Impact only. The Original price bid along with Price-Impact bid shall be opened during price bid opening. Unsolicited price impacts will not be considered.
6	Price bid evaluation	All offers in price bid opening or reverse auction shall be evaluated in Indian currency based on unit price, packing & forwarding, taxes/duties, freight charges if any. Loading due to non-acceptance of our standard commercial terms will be evaluated as per the LOADING FACTORS form as enclosed along with the enquiry.
7	Packing	The supplier shall be responsible for the goods being properly and adequately packed so as to prevent any loss, damage or deterioration during transit.
8	Withdrawal	In case the supplier withdraws their offer before placement of order, BHEL reserves the right not to send next enquiry(ies). In case the supplier withdraws the quotation after its acceptance by BHEL or fails to supply the goods as per the terms and conditions of contract, or at any time repudiated the contract wholly or in part, BHEL shall be at liberty to cancel the Purchase Order and to recover from the supplier the extra cost and other loss, incidentals due to the breach of contract on the part of the supplier through risk purchase.

9	Risk Purchase	In case of default/late delivery, BHEL reserves the right to make alternate arrangement for procurement at supplier's risk and cost.
10	Banned List	The offers of the bidders who are in the banned list and the offers of the bidders who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL website www.bhel.com.
11	Over All L1	Order will be placed on overall L1 basis. Vendors should quote for all items, otherwise the offer will be rejected.
12	Additional Information	Suppliers are requested to visit our web site regularly for any updates and additional information, "All corrigenda, addenda, amendments, time extensions clarifications, etc. to the tender will be hosted on BHEL website only". The corrigendum will not be published in news paper.
13	Destination	Destination shall be Stores, BHEL R&D, Hyderabad.
14	Arbitration	Subject to the jurisdiction of Hyderabad/Secunderabad, Telangana ,India in respect of any suit or other legal proceedings relating this contract.
15	Inspection	On receipt, the goods shall be subjected to inspection and our decision regarding the acceptability of the goods shall be final and binding on the suppliers.
16	Micro Small Enterprises (MSEs)	<p>In case the supplier belongs to MSEs (Micro Small Enterprises), Registration copy in this respect shall be submitted along with the offer. Further if MSEs are owned by the Scheduled Caste or the Scheduled Tribe entrepreneurs the same may be intimated. The following are the benefits for the MSEs.</p> <p>1. MSEs are given tender documents free of cost and are exempted from payment of earnest money (EMD).</p> <p>2. In tender, participating MSEs quoting price within price band of L1+15% shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price is from someone other than a MSE and such MSE shall be allowed to supply up to 20% of total tendered value. In case of more than one such MSE, the supply shall be shared proportionately.</p> <p>MSE suppliers can avail the intended benefits only if they submit along with 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 as below) 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.</p> <p style="text-align: center;">Certificate by chartered Accountant on letter head</p> <p>This is to certify that M/s (hereinafter referred to as 'company') having its registered office at is registered under MSMED Act 2006, (Entrepreneur Memorandum No(Part-II) dtd:....., Category:.....(Micro/Small). (Copy enclosed). Further verified from the Books of Accounts that the investment of the company as on date..... as per MSMED Act 2006 is as follows :</p> <p>1. For manufacturing Enterprises : Investment in plant and machinery (i.e. Original cost excluding land and building and the items specified by the ministry of small Scale Industries vide its notification No.S.O.1722(E) dated October 5, 2006.</p> <p>2. For Service Enterprises : Investment in equipment (Original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:</p> <p>Rs..... Lacs</p> <p>The above investment of Rs..... Lacs is within permissible limit of Rs..... Lacs forMicro/Small (Strike off which is not applicable) Category under MSMED Act 2006.</p> <p>Date:</p> <p>(Signature) Name- Membership number – Seal of Chartered Accountant</p>

Signature of the bidder with Seal & Date

	COMMERCIAL TERMS & CONDITIONS (CTC)	Volume - 1 Enquiry No 441400621
Development of Die,core box and prototypes for Blower		

SL.No.	Clause	BHEL REQUIREMENT	SUPPLIERS ACCEPTANCE / REMARKS
1	Reverse Auction	<p>BHEL reserves the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.</p> <p>In case BHEL decides to go for Reverse Auction, only those bidders who have given their acceptance to participate in RA will be allowed to participate in the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit „online sealed bid“ in the Reverse Auction. Non-submission of „online sealed bid“ by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.</p>	
2	Validity of Offer	90 days from date of techno-commercial bid opening.	
3	Price basis	<p>The prices shall be firm for entire period of contract.</p> <p>The suppliers shall indicate packing and forwarding charges, if any, separately.</p> <p>All Suppliers shall quote the lowest prices on 'free delivery at BHEL R&D Stores or F.O.R destination' basis only.</p>	
4	Rate Contract	In case the goods enquired are on Rate Contract basis with any other unit of BHEL, such fact should be clearly indicated in the quotation giving full particulars of Rate Contract number, validity and price and also your willingness to comply with order if placed against such Rate Contract. A copy of Rate contract signed by the supplier should be sent with the quotation.	
5	LD Clause	Failure to supply the goods and/or carryout the services within the stipulated delivery date will attract a penalty of 0.5% per week or part thereof for the value of the undelivered portion of the purchase order subject to a maximum of 10% of the total order value. In case of non acceptance to this LD Clause, 10% of basic material cost will be loaded on the quoted prices while cost comparison.(Please refer the enclosed 'Loading Factors' sheet).	
6	Payment Terms	<p>a) For Indian Offers : BHEL standard payment term is "100% payment along with taxes by EFT/RTGS within 30 days of receipt and acceptance of material at BHEL R&D Stores, Hyderabad". For other payment terms there will be a loading on the offer as mentioned in our 'Loading Factors' sheet which is enclosed to this enquiry.</p> <p>For other payment terms there will be a loading on the offer as mentioned in our "Loading Factors" sheet which is enclosed to this enquiry.</p> <p>Bank charges for EFT/RTGS, if any, shall be to supplier's account.</p>	
7	Delivery Period	<p>=====</p> <p>Suppliers are requested to quote for the delivery mentioned in the enquiry. However, in case it is not possible to meet the delivery requirement of BHEL, they shall mention in the right column the best possible delivery period</p> <p>1) From date of Purchase order =====></p> <p>2) From receipt of material / input data / drawings etc. from BHEL=====> (if applicable)</p> <p>3) From receipt of approval of design documents / drawings etc. by BHEL=====> (if applicable)</p>	

		<p>4) Time from PDI to despatch =====> (if applicable)</p> <p>However BHEL shall inform the vendor about rejection of the offer before price bid opening in case of not meeting the delivery requirements of BHEL.</p> <p>=====</p>	
8	Taxes and duties	Suppliers shall clearly mention current sales tax/VAT, ED and Service Tax etc, if any, payable in addition to the quoted price and indicate applicable rates/percentage, item-wise clearly. The vendors should mention applicable Registration Number(s) specifically in their quotation. The suppliers are requested to submit their bids clearly stating applicable taxes and duties. The quoted taxes/duties will be taken for cost evaluation and order placement and no change will be entertained later except in the case of changes made by the government. In case of Service Tax, proof-of-payment of service tax is required to be submitted for reimbursement of the same.	
9	Weight and Packing Dimensions.	The Supplier shall indicate the shipping weight (Kgs) and dimensions (L x W x H in cm.) clearly along with offer.	

Note : All the clauses of the above format should be filled and submitted with the Techno Commercial Bid (Part-1). The filled in BHEL Commercial terms & Conditions format submitted with technical bid, responding to all the clauses duly signed with seal **only shall be considered**. Any other Commercial terms & conditions of bidders entered else where in their offer shall not be considered and are liable for rejection.

Signature of the bidder with Seal & Date

	ITEM SPECIFICATIONS	Volume - 2 Enquiry NO 441400621
---	----------------------------	---------------------------------------

Development of Die,core box and prototypes for Blower

SL.No.	Item		
1	Die, core box and development for prototype manufacturing of Blower		
sl no	Descriptions	BHEL Specifications	Vendor Specifications/ Deviations
1.0	Development of Die and core box for Blower	DIE and core box for prototype development of Blower as per specifications of the Blower as given under SL.No. 2.	
2.0	Casting simulation	Vendor should carry out the casting simulations prior to the trials, during the Die design phase to ensure the quality castings as per the specifications. Casting simulation details to be shared with BHEL, like tools used for simulations, parameters being monitored and results achieved through casting simulations etc.	
	Pre Dispatch Inspection	Inspection shall be carried out by BHEL. The Vendor shall give minimum of 7 days notice for inspection along with internal test certificates.	
	Manufactures Test Certificate	Manufacturer's Test Certificate required and shall be provided before dispatch.	
	Spares	Offer shall include all the spares required for normal operation of equipment.	
	Warranty	All supplied items to be provided with warranty for 12 months from the date of dispatch.	
	Accessories	Offer shall include all the accessories required for normal operation of equipment.	
2	Prototype Blowers (Aluminium Alloy)		
sl no	Descriptions	BHEL Specifications	Vendor Specifications/ Deviations
1.0	GENERAL :	Heat treatable Aluminum Alloy castings for blower of Material Grade Al Si10Mg-EN AC-43300 as per BHEL Standard HW19990M(As enclosed)	
2.0	CASTING PROCESS :	Low Pressure Die casting (LPDC).	
3.0	CONDITION OF DELIVERY:	Blowers shall be by Low Pressure die casting and delivered in T6 solution annealed and tempered	

		condition according to DIN EN1706. No welding is permitted.	
4.0	DIMENSION AND TOLERANCES :	The Dimensions and tolerances must be as per the ordering drawing no. 11430901034 and DIN 1688-1.	
5.0	MANUFACTURE :	<ul style="list-style-type: none"> • The blowers shall be imperviously cast without any surface cracks or internal separations. Castings must be free from any casting flaws such as segregations, impurities, pores or bubbles which may affect the mechanical properties. • The surface must be cleaned and sand blasted. • The condition of cast surface must enable unimpaired assessment of the non-destructive testing. Small surface irregularities such as indentations and wrinkles which do not affect the mechanical properties, must be ground out. • The order shall comprise a batch quantity of maximum 10 blowers. An additional blower must be made for each quantity ordered. The blowers (batch quantity + Additional blower) must be made from identical raw material. The entire batch as well as additional blower must also be given same heat treatment and tempering treatment. • After identical manufacturing, the additional blower made for each batch shall be subjected to destructive testing according to the sampling plan. • The blower subject to destructive Testing shall be cut in half along its diameter. The manufacturer and BHEL shall each be given one half for testing. 	
6.0	HEAT TREATMENT:	A uniform fine grain structure must be achieved by Heat Treatment. T6 Solution annealing and complete tempering shall be done as per DIN EN 1706. Welding is for bidden.	
7.0	CHEMICAL COMPOSITION:	As per 7.0 of BHEL Standard HW19990M	
8.0	MECHANICAL PROPERTIES:	As per 8.0 of BHEL Standard HW19990M	
9.0	NON DESTRUCTIVE TESTING (NDT):		
		<ul style="list-style-type: none"> a) Visual inspection of all internal and external surfaces, in particular all cross-section. Test for porosity at cut faces shall be carried out as per ISO 10049. b) 100% radiographic examination shall be done on the casting. The 	

<p>9.1 The following non-destructive test must be made on entire batch in delivery condition-</p>	<p>test report must be given for the type and size of flaws detected according to ATM E155 in at least 2 direction of irradiation. c) 100 % Dye penetrate testing shall be done for crack like indications as per DIN EN 571. The test report must be given along with the Test procedure followed during testing. The following tests are required for additionally manufactured blower which is tested destructively: d) Test a) , b),c) also apply to the additional blowers e) As stated in the Annexure I , sections and micro-sections are to be made at the positions indicated (refer II, A;II,B;II,C) (a micro-section to be made in the hub area, borehole diameter at the distance of upto 25 mm from the inner surface of the cylinder) , assessment as described in clause 9.2 of the specification HW19990M. f) According to DIN 50125 , 2 tangential sample must be taken from each of 3 marked points (I,A;I,B;I,C). The samples must be then subjected to a tensile test. The Mechanical properties stated in clause 8.0 shall be applied to tensile test pieces. Decision criteria must be as per clause 8.0. The non-destructive testing personnel must be trained according to EN 473.</p>	
<p>9.2 DECISION CRITERIA FOR NDT</p>	<p>a) For each order, the pore distribution and pore size shall be assessed at cut surfaces of the destructively tested blower by a visual inspection according to ISO 10049 level 2. b) Assessment of the volume test according to ASTM E155 Indications limited to the following are only acceptable: Gas bubbles and foreign-body occlusions up to level 2 at the radial transitions of the blower blades Gas bubbles and foreign-body occlusions up to level 2 in the hub area provided that they are more than 20 mm away from the inner surface of the cylinder. Gas bubbles and foreign body occlusions up to level 2 in the hub area, for the area of the inside diameter of the hub upto 20mm away from the inner surface of the cylinder. No cracks and cracks like indications. c) Assessment of the 100% surface crack examination according to standard DIN EN1371-1: Table 1 – Quality grades of the penetration Test – non-linear indications- individual (SP) or clustered (CP)</p>	

		according to quality grades SP03 and CP03. Table 2 – Quality grades of the penetration test - Indications which are linear (LP) and aligned in a row (AP) according to quality grades LP001 and AP001 (this means that linear and crack like indications are not acceptable)	
10.0	MARKING:	The marking of the material shall be such that Purchase Order Number, Size, Heat No., BHEL Specification number, material designation, Manufacturer identification are legible.	
11.0	DOCUMENTATION:	The supplier shall supply four copies of test certificates as per EN 10204, inspection certificate 3.1 B, unless otherwise stated in the order. The test certificates shall bear the following:	
	11.1 BHEL References: -	Specification no., Purchase orders no., Material designation	
	11.2 Suppliers references: -	Name, emblem, Melt no, Heat-treatment batch no.	
	11.3 Results of Testing:		
	a) Melting process, melt analysis-	Test certificates for chemical analysis from NABL/ISO labs to be provided in three stage: i. For the virgin material/alloy ii. Melt sample and iii. On blower casting	
	b) Mechanical properties:	All individual values shall be reported- Test certificates from NABL/ISO labs to be provided.	
	c) Dimensional results-	CMM report to be provided for each casting.	
	d) Complete information on all heat treatments performed-	Heat treatment cycle and temperature graphs to be provided.	
	e) NDE results:	RT, DPT and Visual Inspection - Test certificates from NABL/ISO labs to be provided.	
12.0	CLEARANCE FOR DELIVERY:	The total results of the tests carried out are the deciding factor for clearance for delivery. BHEL shall evaluate the total results taking into consideration the intended use of the material and examines accordingly the permissibility of deviation (if any) from the specified properties. The clearance however does not relieve the supplier of his responsibility for the hidden non-permissible defects, which are found later.	
	Pre Dispatch Inspection	Inspection shall be carried out by BHEL. The Vendor shall give minimum of 7 days notice for inspection along with internal test certificates.	

	Manufactures Test Certificate	Manufacturer's Test Certificate required and shall be provided before dispatch.	
	Spares	Offer shall include all the spares required for normal operation of equipment.	
	Accessories	Offer shall include all the accessories required for normal operation of equipment.	
G	General Specifications		
	sl no	Descriptions	Vendor Specifications/ Deviations
	1.0	Delivery period	ONLY INDIAN VENDORS WITH IN HOUSE CAPABILITY NEED APPLY 1st successful prototype by 3 months from the date of release of PO. Rest of the prototypes along with the die, corebox and drawings/3D models to be delivered within 3 months after approval of the first prototype.
	2.0	Technical Clarifications	The vendor can contact BHEL for any technical clarifications

* Vendors are advised to write specifications in detail and not to write like 'Complied/ Yes / No ' etc. in 'Vendor specifications column'.

Signature of the bidder with Seal & Date

BHEL R&D
RD:DP:MPX:F-22

LOADING FACTORS



NOTE : IN CASE OF DEVIATION TO BHEL TENDER SPECIFIED TERMS, LOADING FACTOR INDICATED IN FOLLOWING TABLE WILL BE APPLIED TO QUOTED PRICE WHILE EVALUATING THE LOWEST QUOTE

FOR INDIGENOUS PURCHASES					
SLNO	SCOPE	COMMERCIAL TERMS	BHEL STANDARD TERM	AS OFFERED	LOADING FACTOR FOR NON COMPLIANCE TO BHEL STANDARD TERMS
A.1	SUPPLY OF EQUIPMENT	PAYMENT TERMS	100% PAYMENT, WITH IN 30 DAYS FROM THE DATE OF RECEIPT AND ACCEPTANCE OF MATERIAL AT BHEL R&D	SAME	NIL
				PAYMENT AGAINST PROFORMA INVOICE / DESPATCH DOCUMENTS	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON THE TOTAL PO VALUE FOR ONE MONTH
				FULL ADVANCE PAYMENT WITH BANK GUARANTEE	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON THE TOTAL PO VALUE FOR THE DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH
				PART ADVANCE (X%) PAYMENT WITH BANK GUARANTEE AND BALANCE PAYMENT WITH IN 30 DAYS FROM THE DATE OF RECEIPT AND ACCEPTANCE OF THE MATERIAL	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON PART ADVANCE AMOUNT (X%) FOR THE DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH
				PART ADVANCE (X%) PAYMENT WITH BANK GUARANTEE AND BALANCE PAYMENT ON RECEIPT AND ACCEPTANCE OF MATERIAL	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON PART ADVANCE AMOUNT (X%) FOR THE DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH AND LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON BALANCE AMOUNT FOR ONE MONTH
A.2	SUPPLY OF EQUIPMENT INCLUDING ERECTION AND COMMISSIONING (E&C)	PAYMENT TERMS	90% PAYMENT, WITH IN 30 DAYS FROM THE DATE OF RECEIPT AND ACCEPTANCE OF MATERIAL AND BALANCE 10% WITH IN 30 DAYS OF COMPLETION OF E&C.	SAME	NIL
				100% PAYMENT WITH IN 30 DAYS AFTER COMPLETION OF SUPPLIES AND E&C	NIL
				90% PAYMENT AGAINST PROFORMA INVOICE/ DESPATCH DOCUMENT AND BALANCE 10% WITH IN 30 DAYS AFTER COMPLETION OF E&C.	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON 90% OF THE VALUE OF PO FOR ONE MONTH
				90% PAYMENT AGAINST PROFORMA / DESPATCH DOCUMENT AND BALANCE 10% AFTER COMPLETION OF E&C	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON TOTAL VALUE OF THE PO FOR ONE MONTH
				90% ADVANCE PAYMENT WITH BANK GUARANTEE AND BALANCE 10% PAYMENT WITH IN 30 DAYS AFTER COMPLETION OF E&C	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON 90% OF THE PO VALUE FOR DELIVERY PERIOD (ROUNDED OFF TO THE NEAREST MONTH) + 1 MONTH
				PART ADVANCE (X%) PAYMENT WITH BANK GUARANTEE AND (90 - X) % PAYMENT ON RECEIPT AND ACCEPTANCE OF THE MATERIAL AND 10% PAYMENT WITH IN 30 DAYS AFTER COMPLETION OF E&C	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON THE PART ADVANCE AMOUNT (X%) FOR THE DELIVERY PERIOD (ROUNDED OFF TO THE NEAREST MONTH)+ 1 MONTH AND LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON BALANCE (90-X)% AMOUNT FOR ONE MONTH
				PART ADVANCE (X%) PAYMENT WITH BANK GUARANTEE AND BALANCE (90 - X) % PAYMENT AFTER RECEIPT AND ACCEPTANCE OF THE MATERIAL AND 10% PAYMENT AFTER COMPLETION OF E&C	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON THE PART ADVANCE AMOUNT (X%) FOR THE DELIVERY PERIOD (ROUNDED OFF TO THE NEAREST MONTH)+ 1 MONTH AND LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON BALANCE AMOUNT (100-X)% FOR ONE MONTH

PENALTY FOR DELAYED DELIVERY				
SLNO	COMMERCIAL TERMS	BHEL STANDARD TERM	AS OFFERED	LOADING FACTOR FOR NON COMPLIANCE TO BHEL STANDARD TERMS
C	LD CLAUSE	IN THE EVENT OF DELAY IN AGREED CONTRACTUAL DELIVERY, PENALTY OF 0.5% (HALF PERCENT) PER WEEK BUT LIMITED TO A MAX OF 10% OF TOTAL ORDER VALUE WILL BE APPLICABLE	AGREED	NIL
			F NOT AGREED	LOADING @ 10% OF THE BASIC MATERIAL COST
			F AGREED FOR X%	LOADING @ (10-X)% OF THE BASIC MATERIAL COST
GUARANTEE/WARRANTY PERIOD (COMMON FOR INDIGENOUS AND IMPORTS)				
SLNO	COMMERCIAL TERMS	BHEL STANDARD TERM	AS OFFERED	LOADING FACTOR FOR NON COMPLIANCE TO BHEL STANDARD TERMS
D	GUARANTEE/WARRANTY PERIOD	STIPULATED OR REQUIRED GUARANTEE/ WARRANTY PERIOD (X)	AGREED	NIL
		MINIMUM ACCEPTABLE GUARANTEE / WARRANTY PERIOD (Y)	NOT AGREED FOR STIPULATED BUT AGREED FOR MINIMUM GUARANTEE/WARRANTY	LOADING @ 10 % OF THE ORDER VALUE PER ANNUM FOR THE REDUCED GUARANTEE PERIOD (X-Y)

BHEL R&D

Terms & Conditions of Reverse Auction

Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit „online sealed bid? in the Reverse Auction. Non-submission of „online sealed bid? by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
6. Bidders have to fax the Compliance form (annexure IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
8. Reverse auction will be conducted on scheduled date & time.
9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (Annexure VII) as provided on case-to-case basis to Service provider within two working days of Auction without fail.
11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.
12. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the „Business Rules of Reverse Auction?, which will be communicated before the Reverse Auction.
13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
15. In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

AUTHORISATION LETTER FOR E-PAYMENT/ NEFT / RTGS
(PLEASE FILL UP THE FORM COMPLETELY IN CAPITAL LETTERS ON YOUR COMPANY LETTERHEAD ONLY)

Vendor Code (to be filled by BHEL)

Type of Request (Tick one)	NEW	CHANGE
1 Company Name		
2 Address		
3 City with PIN Code		
4 State		
5 PAN Number		
6 TIN/ VAT No.		
7 CST No.		
8 Service Tax No.		
9 Name of Contact Person		
10 Mobile number		
11 Ph. no. with STD Code		
12 Fax No. with STD Code		
13 Email ID		
14 Website (URL)		

BANK DETAILS FOR EFT / RTGS

1	Bank Name	
2	Branch	
3	Branch Code	
4	Branch Address	
5	Branch Phone No	
6	Account No.	
7	Account Type: SB/ Current/ other (Specify)	
8	MICR Code	
9	IFSC Code	

I, as an authorized representative / owner of the above named company, hereby state as under:

1. Enclosed here with a cancelled cheque in support of our company's bank details.
2. Authorize BHEL R&D Hyderabad, to electronically make payments to the designated bank account with bank charges, if any, to our account.
3. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transferring Bank responsible.
4. I hereby certify that the particulars given above are true, complete and correct.
5. This authority remains in full force until BHEL receives and acknowledge written notification requesting change or cancellation.

Date :
Company
Seal

Authorised Signatory
Designation :

Bharat Heavy Electricals LimitedCorp. R&D DIVISION
VIKAS NAGAR,

RD:MPX:F-13

HYDERABAD- 500 093 (INDIA)

Ph: 040 - 23772704, Fax: 040 - 23770698, email: mpx@bhelrnd.co.in

VENDOR REGISTRATION FORM

(Indigenous supplier)

[FORM TO BE SUBMITTED* BY THE BIDDER ALONG WITH TECHNICAL-BID]

Before filling, please refer to instructions on page-4

1.0 VENDOR PROFILE:

1.1 Name and address of the vendor:

Phone Nos.:Fax No.:Email: 1.

2.

1.2 Local representative name & address in Hyderabad/Secundrabad :

Phone Nos.:Fax No.:Email:Contact Person:Mobile No:**2.0 TYPE OF ORGANISATION:**

PROPRIETORSHIP	Company:	Sister Concern (mention vendor registration number of main organization)	
Partnership	CORPORATION	Small Scale Industry	ANY OTHER(Please specify)

In case of SSI unit, copy of registration to be enclosed. It is requested that MSME registration certificate to be enclosed

3.0 ANNUAL TURN OVER:

#	Year	Turn-Over, Rs.
1	Current Year(budgeted)	
2	Previous year (200 - 0)	
3	Prior Year (200 - 0)	

4.0 NAME AND ADDRESS OF THE BANKER:

4.1 Bank Name

4.2 Branch name

4.3 Account number

4.4 Account Type

4.5 MICR Code:

4.6 IFSC Code(RTGS/NEFT):

4.7 Bank Phone number(s),

Blank cheque, duly cancelled, to be enclosed.

Please note that all payments shall be made through Electronic clearance services to your above account against the orders executed, if any.

5.0 REGISTRATION PARTICULARS(relevant copies to be enclosed)

- 5.1 IT Permanent Account No.(PAN):
 5.2 State Sales Tax/VAT Registration No:
 5.3 Central Sales Tax Registration No:
 5.4 ED Registration No:
 5.5 Service Tax Registration No:
 5.6 PF Account No:
 5.7 Labour Licence No:
 5.8 ESI Account No:

6.0 CONTACT PERSON: S/Sri:

Designation:

Phone / Mobile No:

7.0 TOTAL NUMBER OF EMPLOYEES:

Graduates (Engr/Scientists/Mgmt/Fin.)	Consultants	Workers		
		Sup./Skilled	Semiskilled	Unskilled

8.0 LIST OF PRODUCTS/ SERVICES OFFERED:

#	Products/ Services	Capacity
1		
2		
3		
4		
5		
6		

9.0 REFERENCE LIST :

(Only recognized public and private sector companies, attach if printed copy available)

#	Customer	Volume / Year
1		
2		
3		
4		
5		
6		
7		

10.0 INFRASTRUCTURE / FACILITIES:

#	Facility (with specifications)	Age/ Year procured
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

11.0 REGISTRATION WITH OTHER BHEL UNIT/UNITS:

#	Unit	Registration No	Year
1			
2			
3			
4			

12.0 ANY OTHER INFORMATION :

DECLARATION:

The information furnished above is true and authentic.

(CEO / PROPRIETOR)

SEAL:

DATE:

Note:

1. Registered bidders, having BHEL (R&D) registration no. or have submitted this format for registration, need not furnish this information again.
2. The competent authority reserves the right to accept or reject the registration.
3. Vendors approved for registration will be informed by mail / email, as convenient. A separate communication will be sent in case of non-registration also, citing reasons thereof.
4. BHEL reserves the right to take penal action as deemed fit if any of the information provided by the vendor(s) is found to be incorrect.
5. AGM, Head (MM) may be contacted for clarification/additional information on registration.

Instructions

1. Fill all items. Please mention "N.A." for items/ clauses not applicable.
2. Use A4 sheets for this document and the enclosures. Use of additional sheets is permitted if space provided is not adequate.
3. Attach copies of latest documents in respect of items 5.0 (Registration no.s)
4. Photographs of registered office and the chief executive/proprietor shall be furnished.

Annexure to enquiry# 441400621 dated 15-Jul-2014

BHEL Standard HW19990M

HEAT TREATABLE ALUMINUM ALLOY CASTINGS FOR
BLOWERS G-Al Si10Mgwa

1.0 GENERAL :

Heat treatable Aluminum Alloy castings for blower of Material Grade Al Si10Mg-EN AC-43300 as per BHEL Standard HW19990M(As enclosed)

2.0 CASTING PROCESS :

Low Pressure Die casting (LPDC).

3.0 CONDITION OF DELIVERY:

Blowers shall be by Low Pressure die casting and delivered in T6 solution annealed and tempered condition according to DIN EN1706. No welding is permitted.

4.0 DIMENSION AND TOLERANCES :

The Dimensions and tolerances must be as per the ordering drawing no. 11430901034 and DIN 1688-1.

5.0 MANUFACTURE :

- The blowers shall be imperviously cast without any surface cracks or internal separations. Castings must be free from any casting flaws such as segregations, impurities, pores or bubbles which may affect the mechanical properties.
- The surface must be cleaned and sand blasted.
- The condition of cast surface must enable unimpaired assessment of the non-destructive testing. Small surface irregularities such as indentations and wrinkles which do not affect the mechanical properties, must be ground out.
- The order shall comprise a batch quantity of maximum 10 blowers. An additional blower must be made for each quantity ordered. The blowers (batch quantity + Additional blower) must be made from identical raw material. The entire batch as well as additional blower must also be given same heat treatment and tempering treatment.
- After identical manufacturing, the additional blower made for each batch shall be subjected to destructive testing according to the sampling plan.
- The blower subject to destructive Testing shall be cut in half along its diameter. The manufacturer and BHEL shall each be given one half for testing.

6.0 HEAT TREATMENT:

A uniform fine grain structure must be achieved by Heat Treatment.

T6 Solution annealing and complete tempering shall be done as per DIN EN 1706. Welding is forbidden.

7.0 CHEMICAL COMPOSITION:

Heat analysis according to EN AC-43300 in weight %

Si	Mg	Mn	Cu	Fe	Ti
9.0 – 10.0	0.30 – 0.45	< 0.10	< 0.03	< 0.15	< 0.15
Ni	Zn	Sn	Pb	Al	
0	< 0.10	< 0.05	0	remainder	

8.0 MECHANICAL PROPERTIES:

The following properties shall be achieved at room temperature:

Properties Samples	0.2 % Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation (l ₀ = 5d) (%)	Brinell Hardness (HB 5/250)
Test Samples	≥ 180	≥ 200	≥ 4	≥ 75
Additional Blower	≥ 180	≥ 200	≥ 4	≥ 75

The Mechanical properties of 2 test coupons from each individual blower of the batch must be determined. Manufacturer shall submit the Test samples size and position sketch to BHEL for approval. The cross-section of test coupons must correspond to wall thickness of the outer ring and be adjacent to it.

The mechanical properties of the destructively tested blower (not for the test coupon) must not fall below the required values mentioned above in clause 8.0. The reduced value for yield strength and tensile strength stated in DIN EN 1706 under subsection 7.3.3.2 are not applicable to the manufacturer cast Blower, the applicable values are as per clause 8.0 of the specification HW19990. BHEL may reject the entire batch if the destructively tested blower does not fulfill the requirements of HW19990M.

9.0 NON DESTRUCTIVE TESTING (NDT):

9.1 The following non-destructive test must be made on entire batch in delivery condition-

- Visual inspection of all internal and external surfaces, in particular all cross-section. Test for porosity at cut faces shall be carried out as per ISO 10049.
- 100% radiographic examination shall be done on the casting. The test report must be given for the type and size of flaws detected according to ATM E155 in at least 2 direction of irradiation.
- 100 % Dye penetrate testing shall be done for crack like indications as per DIN EN 571. The test report must be given along with the Test procedure followed during testing.

The following tests are required for additionally manufactured blower which is tested destructively:

- Test a) , b),c) also apply to the additional blowers
- As stated in the Annexure I , sections and micro-sections are to be made at the positions indicated (refer II, A;II,B;II,C) (a micro-section to be made in the hub area, borehole diameter at the distance of upto 25 mm from the inner surface of the cylinder) , assessment as described in clause 9.2 of the specification HW19990M.
- According to DIN 50125 , 2 tangential sample must be taken from each of 3 marked points (I,A;I,B;I,C). The samples must be then subjected to a tensile test. The Mechanical

properties stated in clause 8.0 shall be applied to tensile test pieces. Decision criteria must be as per clause 8.0.

The non-destructive testing personnel must be trained according to EN 473.

9.2 DECISION CRITERIA FOR NDT:

a) For each order, the pore distribution and pore size shall be assessed at cut surfaces of the destructively tested blower by a visual inspection according to ISO 10049 level 2.

b) Assessment of the volume test according to ASTM E155

Indication caused by the following is acceptable:

Gas bubbles and foreign-body occlusions up to **level 2** at the radial transitions of the blower blades are acceptable.

Gas bubbles and foreign-body occlusions up to **level 2** in the hub area provided that they are more than 20 mm away from the inner surface of the cylinder are acceptable.

Gas bubbles and foreign body occlusions up to **level 2** in the hub area, for the area of the inside diameter of the hub upto 20mm away from the inner surface of the cylinder are acceptable.

Cracks and cracks like indications are not acceptable.

c) Assessment of the 100% surface crack examination according to standard DIN EN1371-1:

Table 1 – Quality grades of the penetration Test – non-linear indications- individual (SP) or clustered (CP) according to quality grades SP03 and CP03.

Table 2 – Quality grades of the penetration test -Indications which are linear (LP) and aligned in a row (AP) according to quality grades LP001 and AP001 (this means that linear and crack like indications are not acceptable)

10.0 MARKING:

The marking of the material shall be such that Purchase Order Number, Size, Heat No., BHEL Specification number, material designation, Manufacturer identification are legible.

11.0 DOCUMENTATION:

The supplier shall supply four copies of test certificates as per EN 10204, inspection certificate 3.1 B, unless otherwise stated in the order. The test certificates shall bear the following:

11.1 BHEL References: -

Specification no., Purchase orders no., Material designation

11.2 Suppliers references: -

Name, emblem, Melt no, Heat-treatment batch no.

11.3 Results of Testing:

a) Melting process, melt analysis- **Test certificates for chemical analysis from NABL/ISO labs to be provided in three stage:**

- i. **For the virgin material/alloy**
- ii. **Melt sample and**
- iii. **On blower casting**

b) Mechanical properties: All individual values shall be reported- **Test certificates from NABL/ISO labs to be provided.**

c) Dimensional results- **CMM report to be provided for each casting.**

d) Complete information on all heat treatments performed- **Heat treatment cycle and temperature graphs to be provided,**

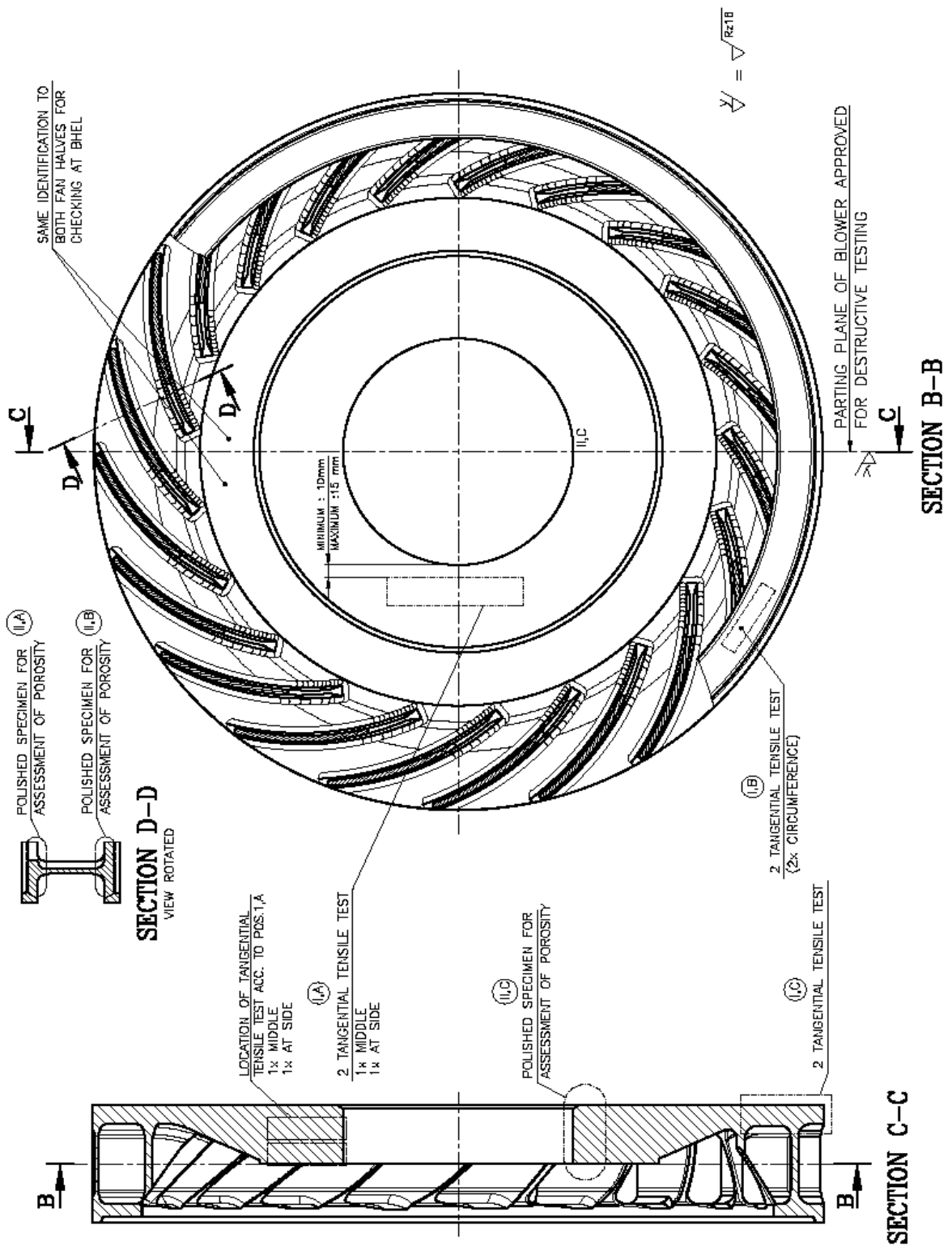
e) NDE results: RT, DPT and Visual Inspection - **Test certificates from NABL/ISO labs to be provided.**

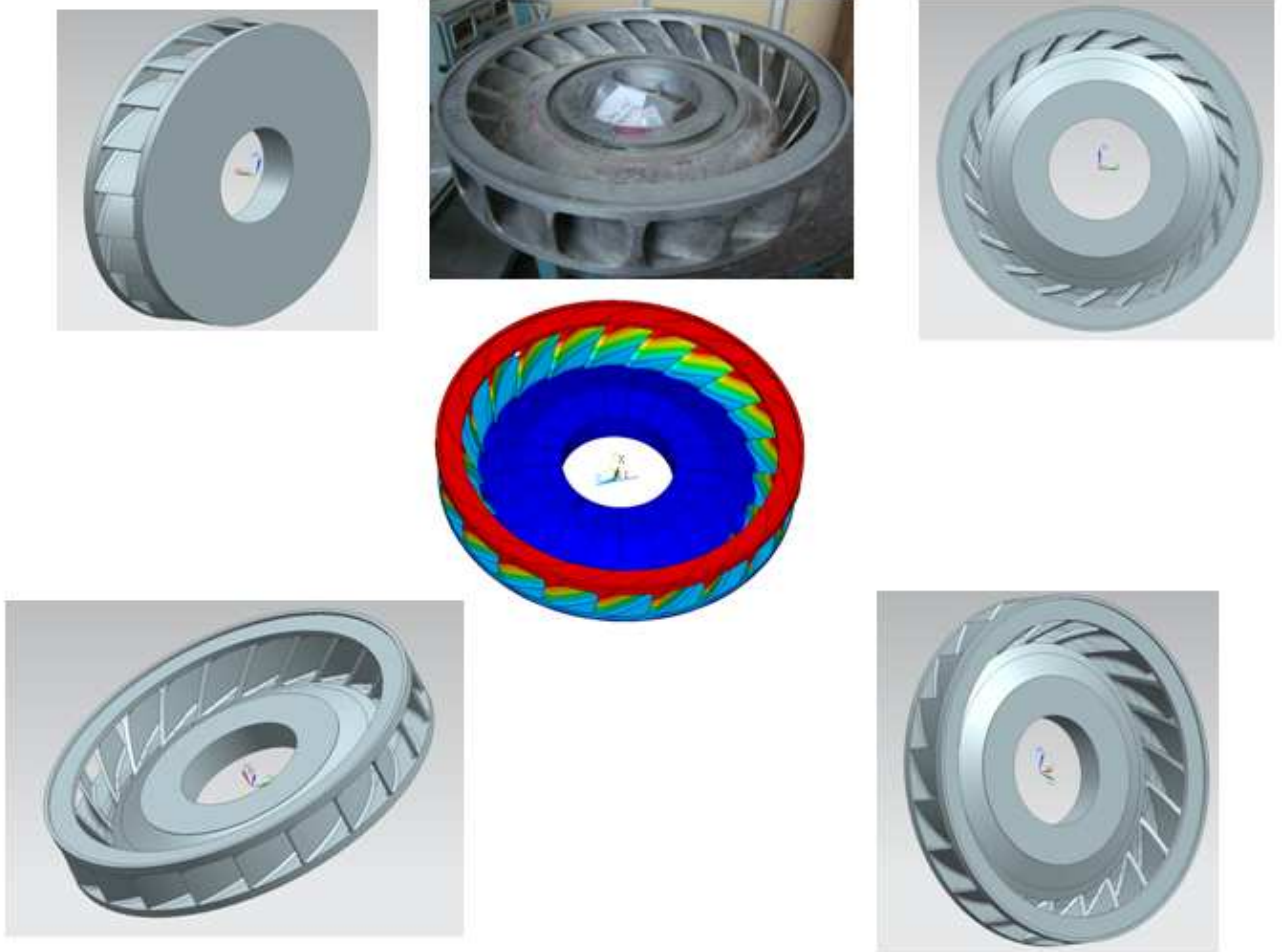
12.0 CLEARANCE FOR DELIVERY:

The total results of the tests carried out are the deciding factor for clearance for delivery. BHEL shall evaluate the total results taking into consideration the intended use of the material and examines accordingly the permissibility of deviation (if any) from the specified properties. The clearance however does not relieve the supplier of his responsibility for the hidden non-permissible defects, which are found later.

13.0 CROSS REFERRED STANDARDS:

DIN EN 1706 , ISO 10049 , DIN 50125 ,ASTM E 155 , DIN 16881, DIN EN1371-1, EN 473, EN 10204





Snapshots of Blower 3D model and picture