



BHEL, R.C.PURAM, HYDERABAD.  
PUMPS PURCHASE  
ENQUIRY

ENQUIRY FOR BFP IMPELLERS\_KHURJA

Supplier confirmations in each page to be filled in by the vendor and the document is to be submitted duly signed and stamped.

Enquiry no: F5A2U98654	NAME OF THE SUPPLIER		SUPPLIER OFFER NO
	CONTACT PERSON		
	E-MAIL ID		OFFER DATE
	PHONE NO:		

BHEL - Requirements

SUPPLIER CONFIRMATION

Enq Sl no.	Material Code	Item Description	BHEL Spec- Var	BHEL Drg No- Var	Qty	Vendor confirmation to supply as per BHEL spec as applicable (YES/NO)
1	FP9219324563	IMPELLER 1ST STAGE, CASTING-MDG346	HY19593	01804024610-00, REV.02	2	
2	FP9219324571	IMPELLER,VAR. 01,2ND STAGE,CW-MDG346	HY19593	01804024611-01, REV.01	2	
3	FP9219324580	IMPELLER,VAR. 02,3RD STAGE,CW-MDG346	HY19593	01804024611-02, REV.01	2	
4	FP9219324598	IMPELLER,VAR.03,4TH&5TH STAGE,CCW-MDG346	HY19593	01804024611-03, REV.01	4	
5	FP9219324601	IMPELLER,VAR. 04,6TH STAGE,CCW-MDG346	HY19593	01804024611-04, REV.01	2	
6	FP9219324814	IMPELLER 1ST STAGE,CASTING,MDG406	HY19593	01804024677-00, REV.00	4	
7	FP9219324822	IMPELLER 2ND STAGE,CASTING,MDG406	HY19593	01804024678-01, REV.00	4	
8	FP9219324830	IMPELLER 3RD STAGE,CASTING,MDG406	HY19593	01804024678-02, REV.00	4	
9	FP9219324849	IMPELLER 4TH&5TH STAGE,CASTING,MDG406	HY19593	01804024678-03, REV.00	8	
10	FP9219324857	IMPELLER 6TH STAGE,CASTING,MDG406	HY19593	01804024678-04, REV.00	4	

- Note:**
- Item shall be supplied as per BHEL drawings & Specifications.
  - The evaluation of the tender shall be set - wise L1.
  - Indigenous Vendor:** Please quote for FOR BHEL Hyderabad basis. **Foreign Vendor:** Please quote for CIP Chennai seaport basis.
  - The drawings / quality plans as applicable shall be submitted within 7 days from Purchase Order date.
  - Quoted Price shall be inclusive of pattern cost, if any.
  - Vendor to submit all the documents asked as per the Technical Pre-qualification requirements acceptance criteria. Non-submission of the same will lead to vendor disqualification.
  - In case of the offers of non-customer approved vendors, the credentials of technical suitable suppliers only will be sent to customer for their acceptance. The price bids of those vendors approved by customer shall be opened and price bids of those vendors not approved by customer shall not be opened
  - Vendor to accept the delivery period as stipulated by BHEL in the delivery requirement document.
  - This is a Global tender enquiry. The offers of all suppliers (except land sharing countries) are eligible for evaluation. However, suppliers from land sharing countries shall be eligible for evaluation of their offers only if they possess valid registration certificate with the competent authority of Govt of India.
  - BHEL shall be resorting to reverse auction (RA) for this tender. RA shall be conducted among all the techno-commercially qualified bidders shall be opened and shall be considered as intal bidders in RA. In case, any bidder does not participate in online reverse auction, their sealed envelop price bid along with applicable loading, if any shall be considered for ranking.

Signature	
Name	
Stamp /Seal	

**DELIVERY REQUIREMENT DOCUMENT**

S.NO	MAT CODE	DESCRIPTION	SPEC	DRG	QTY	Delivery Period from PO Date (In number of days)
1	FP9219324563	IMPELLER 1ST STAGE, CASTING-MDG346	HY19593	01804024610-00	1	90
2	FP9219324571	IMPELLER,VAR. 01,2ND STAGE,CW-MDG346	HY19593	01804024611-01	1	90
3	FP9219324580	IMPELLER,VAR. 02,3RD STAGE,CW-MDG346	HY19593	01804024611-02	1	90
4	FP9219324598	IMPELLER,VAR.03,4TH&5TH STAGE,CCW-MDG346	HY19593	01804024611-03	2	90
5	FP9219324601	IMPELLER,VAR. 04,6TH STAGE,CCW-MDG346	HY19593	01804024611-04	1	90
6	FP9219324563	IMPELLER 1ST STAGE, CASTING-MDG346	HY19593	01804024610-00	1	120
7	FP9219324571	IMPELLER,VAR. 01,2ND STAGE,CW-MDG346	HY19593	01804024611-01	1	120
8	FP9219324580	IMPELLER,VAR. 02,3RD STAGE,CW-MDG346	HY19593	01804024611-02	1	120
9	FP9219324598	IMPELLER,VAR.03,4TH&5TH STAGE,CCW-MDG346	HY19593	01804024611-03	2	120
10	FP9219324601	IMPELLER,VAR. 04,6TH STAGE,CCW-MDG346	HY19593	01804024611-04	1	120
11	FP9219324814	IMPELLER 1ST STAGE,CASTING,MDG406	HY19593	01804024677-00	1	90
12	FP9219324822	IMPELLER 2ND STAGE,CASTING,MDG406	HY19593	01804024678-01	1	90
13	FP9219324830	IMPELLER 3RD STAGE,CASTING,MDG406	HY19593	01804024678-02	1	90
14	FP9219324849	IMPELLER 4TH&5TH STAGE,CASTING,MDG406	HY19593	01804024678-03	2	90
15	FP9219324857	IMPELLER 6TH STAGE,CASTING,MDG406	HY19593	01804024678-04	1	90
16	FP9219324814	IMPELLER 1ST STAGE,CASTING,MDG406	HY19593	01804024677-00	1	120
17	FP9219324822	IMPELLER 2ND STAGE,CASTING,MDG406	HY19593	01804024678-01	1	120
18	FP9219324830	IMPELLER 3RD STAGE,CASTING,MDG406	HY19593	01804024678-02	1	120
19	FP9219324849	IMPELLER 4TH&5TH STAGE,CASTING,MDG406	HY19593	01804024678-03	2	120
20	FP9219324857	IMPELLER 6TH STAGE,CASTING,MDG406	HY19593	01804024678-04	1	120
21	FP9219324814	IMPELLER 1ST STAGE,CASTING,MDG406	HY19593	01804024677-00	1	150
22	FP9219324822	IMPELLER 2ND STAGE,CASTING,MDG406	HY19593	01804024678-01	1	150
23	FP9219324830	IMPELLER 3RD STAGE,CASTING,MDG406	HY19593	01804024678-02	1	150
24	FP9219324849	IMPELLER 4TH&5TH STAGE,CASTING,MDG406	HY19593	01804024678-03	2	150
25	FP9219324857	IMPELLER 6TH STAGE,CASTING,MDG406	HY19593	01804024678-04	1	150
26	FP9219324814	IMPELLER 1ST STAGE,CASTING,MDG406	HY19593	01804024677-00	1	180
27	FP9219324822	IMPELLER 2ND STAGE,CASTING,MDG406	HY19593	01804024678-01	1	180
28	FP9219324830	IMPELLER 3RD STAGE,CASTING,MDG406	HY19593	01804024678-02	1	180
29	FP9219324849	IMPELLER 4TH&5TH STAGE,CASTING,MDG406	HY19593	01804024678-03	2	180
30	FP9219324857	IMPELLER 6TH STAGE,CASTING,MDG406	HY19593	01804024678-04	1	180



**BHARAT HEAVY ELECTRICALS LIMITED**  
**RAMACHANDRAPURAM:: HYDERABAD-502032**

**PUMPS ENGINEERING DEPARTMENT**

**TECHINCAL PRE-QUALIFICATION REQUIREMENTS**  
**ACCEPTANCE CRITERIA**

Item: Pump casting items:

SL. NO.	REQUIREMENT	ACCEPTANCE	REMARKS
1.	Material specifications of earlier supplied castings	BHEL specification or equivalent national or international standard.	Un-priced Purchase order indicating the material specification shall be furnished
2.	End users of the earlier produced castings	At least 1 pump manufacturer to whom the casting is supplied	Un-priced Purchase Order be furnished
3.	Shape and geometrical construction of earlier produced castings	At least one similar casting should have been supplied	Drawings of castings produced shall be furnished
4.	Weight of single piece casting supplied earlier	More than or equal to the required casting weight	Documents shall be furnished
5.	Size of single piece casting supplied earlier (LxBxH/Dia)	More than or equal to the required size of castings	Documents shall be furnished
6.	Pattern / Die design and manufacture	Shall be available in-house or tie-up with a third party having experience in similar work	Documents shall be furnished in case of tie-up with third party
7.	Heat treatment facilities	Shall have in-house or tie-up with third party for required heat treatment processes like hardening, tempering and stress relieving etc. for the required size of the casting. The HT furnaces shall have facility to generate HT charts on auto.	Documents for in-house or tie-up shall be furnished.
8.	Power back up for main furnaces, for melting and pouring	Shall have Power back up for the main furnace to ensure uninterrupted melting/pouring of required size of the casting (OR) Protections/precautions taken to ensure the casting properties in the event of power failure	Documents / Technical details shall be furnished
9.	Power back up for HT furnaces	Power back for the HT furnace required for the size of the casting. (OR) Protections/precautions taken to ensure the casting properties in the event of power failure	Documents / Technical details shall be furnished
10.	Machining facilities	Shall have in-house machining facilities or tie-up with a third party having required machinery for machining the castings as per drawing dimensions/PO requirement	Details of machinery in-house /or at the tied up party shall be furnished

*Kulddeep*  
(Kulddeep Kumar)

*ABJ*

अविनाश एस. जॉन कुजूर  
Avinash S John Kujur  
उप महाप्रबंधक / पम्पस अभियांत्रिकी  
Dy. General Manager / Pumps Engineering  
बी.एच.ई.एल. हैदराबाद, BHEL, HYD-32

11.	Quality Assurance facilities	Vendor must have quality assurance facilities / systems to check for conformance of its job work and raw materials with BHEL specification and standards.	Quality documents of past procurements to be furnished.
12.	a) Mechanical & Chemical testing facilities b) NDT facilities	Shall have in-house facilities Or tie-up with a third party having experience in similar jobs	Details of in house facilities/facilities at the tied up party including the certified inspectors shall be furnished
13.	Inspection agencies for earlier supplies	Lloyds / TUV/NTPC / BHEL or BHEL TPIA	Copies of certificates shall be furnished

### PROCEDURE FOR EVALUATION OF OFFERS

The offers will be submitted as two part bid system i.e., Techno –commercial offer including PQR and price offer. Initially, only techno – commercial offer will be opened for scrutiny.

Offers will be evaluated as follows:

#### **(A) Techno – commercial offer:**


- 1) The offers will be reviewed with respect to the Technical Pre-Qualification Requirements. The offers which do not meet the requirement will be disqualified and will not be processed further. The technically qualified offers will only be processed further.
- 2) The filled up Supplier Registration Forms of the technically qualified Suppliers will be evaluated as per the procedure stipulated in 'Supplier Evaluation, Approval & Review Procedure.
- 3) Technical scrutiny of Offers:

The offers meeting the PQR requirements are only considered for technical evaluation.

#### **(B) Price offer:**

- a) The price bids shall be opened of those vendors only who will be approved by BHEL as per above point (A) 3.

Kuldeep  
(Kuldeep Kumar)

  
अविनाश एस. जॉन कुजूर  
Avinash S John Kujur  
उप महाप्रबंधक / पम्पस अभियांत्रिकी  
Dy. General Manager / Pumps Engineering  
बी.एच.ई.एल. हैदराबाद, BHEL, HYD-37

Annexure-I			
Major Activity timelines shall be considered for indigenous purchases			
S No	Activity	Agency	Timeline
1	PO acknowledgement	Vendor	_____ days from PO
2	Submission of Drawings and QP	Vendor	_____ days from PO
3	Approval of Drawings and QP	BHEL/Customer	_____ days from PO
4	Raising of Inspection Call	Vendor	_____ days from PO
5	Inspection completion	Self/BHEL/Third party inspection agency	_____ days from inspection call date
6	Despatch Instructions	BHEL	_____ days from inspection report
7	Receipt of Material	Vendor	_____ days from Despatch instructions

Above is illustrative only. Purchase department can add more activities depending on nature of product/contracts

However absence of this annexure in NIT will entail non processing of delivery extension cases in case of delay in supplies of goods owing to reason attributable to BHEL.

(To be executed on Non- Judicial Stamp Paper for an appropriate value.  
To be stamped as an agreement)

(For Suppliers on Unit's / Division's PMD)

**ANNEXURE-II**

**Framework Confidentiality Agreement Cum Undertaking**

This Agreement made on this the \_\_\_\_\_ day of (month) \_\_\_\_\_ 20 \_\_\_\_ (“Effective Date”) by and between M/s. BHARAT HEAVY ELECTRICALS LIMITED, having registered office at “BHEL House”, Siri Fort, New Delhi – 110049 (India), acting through its \_\_\_\_\_ Unit (hereinafter may be referred to as “BHEL” or “the company”).

And

M/s. \_\_\_\_\_ (address) \_\_\_\_\_  
represented by authorized representative Sri \_\_\_\_\_ (herein after referred to as the “Supplier”).

The supplier and the company may, unless the context otherwise requires, hereinafter be collectively referred to as “Parties” or singly as the “Party”.

**RECITALS**

Whereas, BHEL is engaged in the design, engineering, manufacturing, construction, testing, commissioning and servicing of a wide range of products, systems and services for the core sectors of the economy, viz. Power, Transmission, Industry, Transportation, Renewable energy, Oil & Gas and Defence and providing associated services to varied customers in relation to which BHEL / its affiliates own valuable information of a secret and confidential nature.

Whereas the Company may, in connection with contract(s) (as defined hereunder) placed or to be placed upon the supplier, or otherwise, from time to time, make available, Technical Information as is defined hereunder.

And Whereas BHEL is willing to provide such Technical Information to the Supplier from time to time and the Supplier understands and acknowledges that such Technical Information is valuable for the Company and as such is willing to protect confidentiality of such information, subject to the terms and conditions set out hereunder.

Now therefore, in view of the foregoing premises and in consideration of the mutual covenants and agreements hereinafter set forth, the parties agree as under:

**1. Definitions:**

Unless the context so requires, in this Agreement, the following terms will bear the meaning ascribed to the said term in this clause.

- A. **“Contract”** means the contract entered into with a supplier and includes a Purchase Order, or a Work Order for procurement of any goods or for provision of any services.
- B. **“Effective Date”** means the date of this Agreement as mentioned in the preamble of this Agreement.
- C. **“Supplier”** includes a Contractor or a Vendor of the Company whether for supplying of goods or for providing any services under a Contract or both.
- D. **“Technical Information”** includes Drawings, and / or Product Standards and / or Specifications and / or Corporate / Plant Specifications and / or Technological Process Sheets and / or Technical Data Sheets and / or Jigs & Fixtures and / or Pattern & Dies and / or Special Gauges and / or Tools etc. Belonging to or wherein the Company has acquired from a third party a right of user and includes any improvement thereto from time to time whether carried out by the Company or by the Suppliers.
- E. **“Intended Purpose”** means the purpose for which the Technical Information is provided to the supplier under or in connection with a contract.
- F. **“Improvement”** includes any modification made to, or adaptation of, the Technical Information which enhances or is calculated to enhance the performance (Whether in terms of effectiveness or in terms of efficiency or both) of the product and / or the service to be provided by the Supplier under a Contract.

2. This Agreement shall come into force / deemed to have come into force, as the case may be, on the Effective Date; or, on the first date when the Technical Information or any part thereof is provided by BHEL to the supplier; whichever is earlier.

3. **Agreement deemed to be incorporated in each contract:** Unless and to the extent otherwise stipulated in the Contract, the conditions of this Agreement are deemed to be incorporated in all Contracts which may be entered into between the Company and the Supplier. Further, unless otherwise stipulated, the obligations under this Agreement are and will be independent of the obligations under the Contracts and such obligations of the Supplier hereunder will remain of full effect and validity notwithstanding that the period of validity of the Contract has expired by efflux of time stipulated therein; or, the contract has been discharged by performance or breach; or, the termination of the Contracts for any reason whatsoever.

#### 4. **Ownership:**

4.1 The Company may, from time to time, make available to the Supplier, Technical Information on a non-exclusive basis by way of loan.

4.2 The Supplier acknowledges and agrees that all Technical Information and copies thereof that are or may be provided by the Company to the Supplier, are and shall remain the property of

BHEL or that of the concerned entity from whom BHEL has obtained the Technical Information and such Technical Information are and shall constitute trade secrets of the BHEL. Nothing in this Agreement or in any disclosures made hereunder by or on behalf of the Company shall be construed as granting upon the Supplier any patent, copyright or design or any other intellectual property rights of whatsoever description that subsists or may hereinafter exist in the Technical Information. Furthermore, nothing in this Agreement or in any disclosures made hereunder by or on behalf of the Company shall be construed as granting upon the supplier any license or right of use of such patent, copyright or design or any other intellectual property rights of whatsoever description which may now or hereafter exist in the Technical Information except for use of the Technical Information strictly in accordance with this Agreement and the contract and / or as directed in writing by the Company, solely for the Intended Purpose under the Contract.

4.3 Neither party is obligated by or under this Agreement to purchase from or provide to the other party any service or product and that any such purchase / sale of any product and / or service by one party to the other party will be governed by the Contract if any, that may be entered into by and between the Company and the Supplier.

4.4 The Supplier is / has been made well aware and acknowledges that the Technical Information being / which may be shared with it by the Company has been either generated by the Company by incurring huge investment and cost or obtained from foreign collaborators under Technical Collaboration Agreement (TCA) with stringent confidentiality conditions.

4.5 The supplier agrees and undertakes to adhere to confidentiality requirements as applicable to BHEL under a TCA and also ensure that the confidentiality requirements are adhered to by all its concerned employees or sub-contractors /suppliers (where permitted to be engaged by BHEL). Any damages, losses, expenses of any description whatsoever, arising out of or in connection with a breach of the confidentiality requirements under a TCA owing to any act or omission on the part of the supplier or its employees or sub-contractors / suppliers that is claimed by a foreign collaborator from the Company shall be wholly borne by the Supplier and it shall keep BHEL fully indemnified in this behalf. The demand by the Company shall be conclusive upon the Supplier who shall thereupon forthwith pay to the Company without demur, dispute or delay the amount as demanded without demanding any further proof thereof.

4.6 The Supplier agrees and undertakes that unless so decided and advised by the Company in writing all rights / title to any Improvement to the Technical Information shall vest in the Company. The Supplier undertakes and agrees to inform forthwith to the Company of any such Improvement made to the Technical Information and transfer all drawings / documents or other materials connected with such Improvement to the Company and also agrees to fully cooperate with the Company for protecting the Company's interests in such Improvements

in the Technical Information including but not limited to obtaining necessary protection for the intellectual property rights in such improvement, if so desired by the Company. If a question arises whether a modification amounts to improvement to the Technical Information, the same shall be decided by the Company and such decision shall be final and binding upon the supplier.

## **5. Use and Non – Disclosure:**

5.1 Unless otherwise stipulated by the Company, all Technical Information made available to the supplier, by the Company shall be treated as Confidential irrespective of whether the same is marked or otherwise denoted to be Confidential or not.

5.2 The Supplier undertakes and agrees that the Technical Information in its possession shall be held in strict confidence and will be used strictly in accordance with this Agreement and solely for the Intended Purpose under the Contract. Use of the Technical Information for any other purpose other than Intended Purpose is prohibited.

5.3 In particular, the Supplier shall not use Technical Information or any Improvement in its possession for the manufacture or procurement of the product(s) or components or parts thereof or use the Technical Information or any portion thereof or any modification or adaptation thereof in any form to provide any product and / or service to any third party, without the prior written consent of the Company.

5.4 The Supplier shall not disclose any of such Technical Information to any third party without the prior written consent of the Company. The Supplier agrees that without prior written consent of the Company, the supplier shall not disclose to a third party about the existence of this Agreement, or of the fact that it is / was in possession of or has experience in the use of any Technical Information nor shall the Supplier share in any manner whatsoever, with a third party, the name or details of any Contract(s) awarded by the Company to it or performed by the Supplier or the scope of work thereof or share any document or correspondence by and between the Company and the supplier in or in connection with this Agreement or such Contract(s). Notwithstanding what is stated elsewhere, the overall responsibility of any breach of the confidentiality provisions under this Agreement shall rest with the Supplier.

5.5 This Supplier undertakes and agrees not to make copies or extracts of and not to disclose to other any or all of the Technical Information in its possession, except as follows:

(a) The Supplier may disclose the Technical Information to such of its officers and employees strictly to the extent as is necessary for such officer or employee for the Intended Purpose, provided that the Confidential Information (or copies thereof) disclosed shall be marked

clearly as the confidential and proprietary information of Company and that such officers and employees shall similarly be bound by undertakings of confidence, restricted use and non-disclosure in respect of the Technical Information. The Supplier shall be responsible for any breach of such confidentiality provisions by such officers and employees.

- (b) With the prior written consent of Company, the supplier may disclose for the Intended Purpose such Technical Information as is provided for in such consent to such of its professional advisers: consultants, insurers and subcontractors who shall be similarly bound by undertakings of confidence, restricted use and non-disclosure in respect of such Technical Information.
- (c) The Supplier shall not be prevented to make any disclosure required by (i) order of a court of competent jurisdiction or (ii) any competent regulatory authority or agency where such disclosure is required by law, provided that where the supplier intends to make such disclosure, it shall first consult Company and take all reasonable steps requested by it to minimize the extent of the Technical Information disclosed and to make such disclosure in confidence and also shall cooperate with the Company in seeking any protective order or any other remedy from proper authority in this matter.

## **6. Exceptions:**

The Obligations of the Supplier pursuant to the provisions of this agreement shall not apply to any Confidential Information that:

- a) was / is known to, or in the possession of the Supplier prior to disclosure thereof by the Company;
- b) is or becomes publicly known, otherwise than as a result of a breach of this agreement by the Supplier.
- c) is developed independently of the Disclosing party by the Supplier in circumstances that do not amount to a breach of the provisions of this Agreement or the Contract;
- d) is received from a third party in circumstances that do not result in a breach of the provisions of this Agreement.

- 7. The Obligation of maintaining confidentiality of the Technical Information on each occasion, shall subsist for the entire duration during which the Technical Information / equipment is in possession of the Supplier and shall thereafter subsist for a further period of \_\_\_\_\_ years from the date when the complete Technical Information has been returned in portions on different dates, the period of \_\_\_\_ years will be reckoned from the date when the last portion of the Technical Information has been returned. Notwithstanding the expiry of the confidentiality obligation, the obligation of the Supplier under clause 5.4 shall continue to subsist for a further period of \_\_\_\_\_ years.

## **8. Warranties & Undertakings:**

- a) The Supplier undertakes to ensure the due observance of the undertakings of confidence, restricted use and non-disclosure by its persons to whom it discloses or releases copies or extracts of the Technical Information.
- b) The Supplier shall keep the Technical Information or improvement made therein properly segregated and not mix up the same with any other material / documents belonging to him / it or to any other third party.
- c) The Supplier further undertakes that he / it shall not hypothecate or give on lease or otherwise alienate or do away with any of the Technical Information and / or equipment of the Company, made available to him / it, and undertakes that he / it shall hold the same as a trustee, in capacity of custodian thereof and use / utilise the same solely for the purpose of executing the contract awarded by the Company.
- d) The Supplier further undertakes that he / it shall return all the equipment and / or Technical Information as far as practicable in the same condition in which the same was made available to him / it by the Company together with any Improvement thereon and the documents connected with such Improvement, to the Company forthwith upon completion of the scope of work or contract for which such Technical Information was provided by the Company to it or as directed by the Company together with a confirmation by way of an affidavit or in such manner as directed by the Company that it has not retained any equipment and / or Technical Information / improvement thereof. In case any such equipment and / or Technical Information or thereof shall remain in his possession or is not capable of being returned, the retention and use of such Technical Information or improvement thereto shall continue to be governed by this Agreement.
- e) The Supplier undertakes to indemnify the Company for all the direct, indirect and / or consequential losses, damages, expenses whatsoever including any consequential loss of business, profits suffered by the Company owing to breach by the Supplier of its obligations under this Agreement and / or the confidentiality requirements, if any, contained in the Contract and that the Supplier hereby agrees that the decision of the Company in all such or any such matter/s shall be final and binding on the Supplier. On mere written demand of the Company, the Supplier shall forthwith and without demur or delay pay to the Company any such sum as determined by the Company as the amount of loss or damage or expense which has been suffered by the Company. The Supplier agrees that the Company shall be entitled to withhold and appropriate any amount payable to the Supplier under any Contract then existing between the Company and the Supplier, in case the Supplier fails to make payment, in terms of the written demand, within 7 days thereof. Without prejudice to the forgoing actions, in respect to any breach of this Agreement, the Company shall be entitled to take

any other action against the Supplier as per applicable laws, the Contract, Company's applicable policies, guidelines rules, procedures, etc.

9. Without prejudice to any other mode of recovery as may be available to the Company for recovery of the amount determined as due as per Clause 9 (f) hereinabove, the Company shall have a right to withhold, recovery and appropriate the amount due towards such losses, damages, expenses, from any amount due to the Supplier in respect of any other Contract (s) placed on him / it by any department / office / unit/ division of the said Company.

#### **10. Arbitration & Conciliation:**

1. Except as provided elsewhere in this contract, in case amicable settlement is not reached between the parties, in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the contract; or, the respective rights and liabilities of the parties; or, in relation to interpretation of any provision of the contract; or, in any manner touching upon the contract, then, either party may, by a notice in writing to the other party refer such dispute or difference to the sole arbitration of an arbitrator appointed by head of the BHEL unit issuing the contract.

The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the parties.

Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause, the seat of arbitration shall be at Hyderabad.

The cost of arbitration shall be borne as per the award of the Arbitrator.

Subject to the arbitration in terms of clause 55, the courts at Sangareddy, Telangana State shall have exclusive jurisdiction over any matter arising out of or in connection with this contract.

Notwithstanding the existence or any dispute or differences and / or reference for the arbitration, the contractor shall proceed with and continue without hindrance the performance of its obligations under this contract with due diligence and expedition in a professional manner except where the contract has been terminated by either party in terms of this contract.

#### **In case of contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable:**

In the event of any dispute or difference relating to the interpretation and application of the provisions of the contract, such dispute or difference shall be referred by either party for arbitration to the sole arbitrator in the Department of Public Enterprises to be nominated by the secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law and

justice, Government of India. Upon such reference the dispute shall be decided by the Law secretary or the special Secretary or Additional secretary when so authorized by the Law secretary, whose decision shall bind the parties hereto finally and conclusively. The parties to the dispute will share equally the cost of arbitration as intimated by the arbitrator.

2. INTEREST CLAUSE:

In order to bring uniformity in all the contracts / agreements entered between BHEL and its contractors / vendors / suppliers / service providers etc., it is hereby advised to incorporate the following clause in all tenders and agreements.

**“No interest shall be payable by BHEL on earnest money or security deposit or any money due to the contractor by BHEL.”**

**11. Governing Law & Jurisdiction:**

This agreement shall be construed and interpreted in accordance with the laws of India and shall have exclusive jurisdiction of Sangareddy/Hyderabad courts, Telangana, India.

**SIGNATURE**

**WITNESSES**

**1**

**Name:**

**Address:**

**2**

**Name:**

**Address:**

### Annexure - III

**Proforma for self-certification by Supplier for minimum local content on their letter head for tender value less than Rs 10 Crore**

"We \_\_\_\_\_ (Name of Manufacturer) undertake that we meet the mandatory minimum Local Content (LC) requirement i.e. \_\_\_\_\_ (to be filled as notified in the policy) for claiming Purchase Preference linked with Local Contents under the Govt. policy against tender no. \_\_\_\_\_."

**Auditor's certification with respect to minimum local content on the letter head of Statutory Auditor for tender value above Rs.10 crore**

"We \_\_\_\_\_ the statutory auditor of M/s \_\_\_\_\_ (name of the bidder) hereby certify that M/s \_\_\_\_\_ (name of manufacturer) meet the mandatory Local Content requirements of the Goods and/or Services i.e. \_\_\_\_\_ (to be filled as notified in the policy) quoted vide offer No. \_\_\_\_\_ dated \_\_\_\_\_ against BHEL's tender No. \_\_\_\_\_ by M/s \_\_\_\_\_ (Name of the bidder)."

## Annexure - IV

### **Proforma for self-certification by Supplier for Compliance to Clause No 20 (B)**

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and I certify that M/s.... (Name of firm) is **not from such a country/is from such a country** (delete whichever is NOT applicable) and has been duly registered with the Competent authority (delete if NOT applicable) . I hereby certify M/s ..... fulfills all requirements in this regard and is eligible to be considered . ( where applicable , valid registration by the competent authority shall be attached )

Sd/-

Authorised Signatory with Stamp



( Attachment to Enquiry No. XXXXXXXXXX Due on Date XX.XX.XXXX for submission by 11.00 hrs to open from 14.00 hrs.)			
<b>INSTRUCTIONS TO BIDDER (ITB)</b>			
<b>NOTE: Bidder to confirm in affirmative by typing "YES" or "Applicable Data" in the response column. Deviations , if any shall be recorded in deviations/comments column (Separate sheet can be attached if needed). Non deviatable clauses are indicated as "NON DEVIATABLE".</b>			
Sl. No.	DETAILED TERMS & CONDITIONS	VENDOR RESPONSE (YES/NO)	DEVIATIONS / COMMENT
<b>1</b>	<b>SCOPE OF SUPPLY:</b>		
	Signed & Sealed offers are invited for the Scope of Supply of goods and Services or both as detailed in the enquiry. Relevant enclosures/supporting documents / catalogue, if any shall be enclosed to the technical offer. Bidder can also submit offer through email at their own risk. The offer is to be submitted in two parts. Technical offer to be submitted to mail ID <a href="mailto:technicalbid_hyd@bhel.in">technicalbid_hyd@bhel.in</a> , and price bid to be submitted to mail ID <a href="mailto:pricebid_hyd@bhel.in">pricebid_hyd@bhel.in</a> as an attachment only. Interchanging the information in the mails may lead to rejection of the offer. Supplier shall have no claim on e-mail offers sent on any other e-mail ID. In case of e-mail offers, the mail subject should contain Enquiry No. Due date and Supplier name, Supplier address including contact details shall be mentioned in the content of the mail. Without these details offer is liable for rejection.		
<b>2</b>	<b>GENERAL INSTRUCTIONS:</b>		
A	The quotation should be neatly typed and free from over writing/ erasures. Any correction or addition must be authenticated. The offer including annexures and brochures should be submitted in English / Hindi. All Pages of Techno Commercial Bids (Main Pages), ITB should be signed and Stamped. If there is a conflict in case of bilingual submission, the submission in English will be final.		<b>Non Deviatable</b>
B	In case of Single-Part bid Tender, the complete bid shall be submitted in a single sealed cover super subscribing the Tender number and due date. Incomplete offers are liable for rejection. E mail bids shall be sent to mail ID <a href="mailto:pricebid_hyd@bhel.in">pricebid_hyd@bhel.in</a> as an attachment only.		<b>Non Deviatable</b>
C	Bidders to please note that the Terms & conditions contained in this document and Special conditions, if any, are to be read fully before submission of quotations.		<b>Non Deviatable</b>
D	Vendors are advised to comply with specific conditions of the enquiry, Should there be any deviations (where deviations are permitted), it shall be entered in the deviation column. BHEL reserves the right to reject such offers or load the bid suitably for evaluation.		<b>Non Deviatable</b>
E	Offers shall be submitted directly, only by the vendor or by their authorized representative / agent and the offer should be in line with the regulatory guidelines (i.e A valid Agency agreement between principal vendor and agent / representative shall be attached and the agreement shall cover the scope of services rendered by Agent, Agency Commission and any other information called for as per the regulatory guidelines). OEM / Mill details shall be provided if supplier is not a manufacturer. Bid envelopes shall bear the name of Supplier. In case of submission through authorized representative/agent, the name of representative/agent should also be mentioned apart from supplier name.		<b>Non Deviatable</b>
F	Offer received after the specified time and date of submission shall be rejected. No further correspondence shall be entertained.		<b>Non Deviatable</b>
G	Unsolicited offers shall not be considered.		<b>Non Deviatable</b>
<b>3</b>	<b>OTHER PARTICULARS (Please indicate applicable data)</b>		
A	Name of the Bid currency (freely tradable foreign currency for imports and Indian Rupees for indigenous purchase).		
B	Name of the Port of loading and Port of Discharge (applicable to imports).		
<b>4</b>	<b>BID SUBMISSION PROCEDURE:</b>		
A.	<b>For Single Part Bids:</b> Offers addressed to DGM/CMM, Vendor Complex, BHEL, Hyderabad must be sent in a sealed cover on which tender enquiry number and the due date shall be super subscribed and sent by appropriate mode to above address or dropped in tender box located at vendor complex on or before the specified time and date of submission of offers, preferably in the bidder's envelope. For e-mail offers please follow the procedure mentioned in 2 (B).		<b>Non Deviatable</b>
B.	<b>For two-Part Bids:</b>		

i	<p>Two part bid consisting of</p> <p>i) Techno-commercial Bid - ( Part-I), with all technical specification &amp; scope including bill of material etc., EMD (where applicable) and unpriced bid with all applicable Commercial Terms and Conditions, rates of agency commission , duties, taxes and other charges, <u>except the price.</u> super scribing enquiry No. (Techno-Commercial Bid) and due date Signed and Stamped ITB and special conditions of contract, if any is required to be attached along with Techno-commercial Bid - (Part-1) AND</p> <p>ii) Price Bid (Part-II), containing ONLY the price (including agency commission, if any) and the applicable duties/taxes/other charges shall be kept in a separate sealed cover super subscribing Enquiry no. (Price bid) &amp; due date. Both these covers shall be kept in a Third cover super subscribing Enquiry no. &amp; due date. All techno commercial terms &amp; conditions mutually agreed prior to price bid opening shall prevail and supersede any terms and conditions specified otherwise in price bid.</p>		<b>Non Deviatable</b>
ii	Techno-commercial Bid will be opened on the assigned date .Only the price bids of vendors whose techno commercial bids are accepted will be opened later on a specified date.		<b>Non Deviatable</b>
iii	The bidders whose bids are techno commercially not accepted will be informed & EMD (Earnest Money Deposit) shall be returned wherever submitted.		
iv	Bidders will be allowed to submit the impact on their quoted prices due to changes in technical scope, specifications, and commercial terms/conditions as specified in NIT which in the opinion of BHEL warrant changes in prices.		<b>Non Deviatable</b>
v	Bids shall be opened on due time and date in the presence of bidders who may like to be present. Only one representative of each bidder shall be permitted to attend the bid opening.		<b>Non Deviatable</b>
<b>5</b>	<b>Delivery Instructions</b>		
A	Indigenous Purchase		
	Goods shall be delivered on FOR Destination basis to the named destination(s) or as specified in the enquiry, Insurance in the scope of supplier.		
B.	Imports		
	The goods shall be delivered on CIP-basis to port of discharge as mentioned in the purchase order.		
<b>6</b>	<b>Documentation:</b>		
A	Indigenous Purchase		
	<p>Seller shall arrange to send to BHEL, Hyderabad along with all the required documents as detailed in Purchase Order, such as, Tax Invoice (Original for Recipient, Duplicate for Transporter), consignee copy of LR, Packing list , Pre-dispatch Inspection report, Test/ Guarantee/ Warranty certificate/ O&amp;M manuals (as applicable) etc. immediately on dispatch of the goods. Any addition/ exclusion to such documents shall be as specified in the Purchase Order.</p> <p>In case of dispatches from vendor works to site, material receipt certified by site office / Customer shall be provided.</p> <p>Softcopies of the above documents shall be uploaded in Pradan portal <a href="https://web.bhelhyd.co.in/mm/">https://web.bhelhyd.co.in/mm/</a> immediately after dispatch of the material</p>		<b>Non Deviatable</b>
B	Imports		
	<p>i) Seller shall inform the purchaser the readiness of material along with packing details well in 30 days advance from the date of delivery. Seller shall also upload soft copy of the dispatch documents consisting of BL / AWB, Invoice, Shipping list &amp; Test certificates and other documents as specifically indicated in the Purchase Order in PRADAN Portal (<a href="https://web.bhelhyd.co.in/mm/">https://web.bhelhyd.co.in/mm/</a>) within 3 days from the B/L date for sea shipment and 1 day from AWB date for Air shipment.</p> <p>ii) In case of CIP shipments, seller shall also inform purchaser the information about discharge port agent details and ship arrival information within 7 working days from the date of Shipment.</p> <p>iii) In case the material shipped in Full Containers(FCL), Seller shall ensure that the Bill of Lading should clearly spell out the following</p> <ol style="list-style-type: none"> <li>1. Port of discharge -- "Nhavaseva"/chennai</li> <li>2. Place of Delivery / Final Destination - "ICD Sanath Nagar".</li> <li>3. For air consignment the port of discharge will be Hyderabad, India and consignee shall be BHEL.</li> </ol>		
	iv) In case of Air shipment, the following dimensions of single package may be noted.		
a).	Dimension of the cargo(ODC) -- > 125" x 88" x 63"		

b).Weight of the cargo -- >3.5 MT.

If any package dimension or weight crosses the above set limits, it will be treated as Over Dimension Cargo (ODC) or Over Weight Cargo and seller shall inform BHEL well in advance of 20 days prior to the delivery date to enable BHEL to finalize the freight forwarder

(v). Recovery charges for non-submission of documents : -

Seller shall submit all the required documents to BHEL as prescribed in the Purchase order and NIT.

If BHEL incurs any charges such as Penalty, demurrage, container detention, wharf age, storage, Ground rent etc., due to non - compliance / non - submission of documents prescribed in Purchase Order/Tender Document/Letter of credit , the same shall be recovered from the seller as under:

1. EUROPE/USA/Black Sea/ Far East/Middle East/South East sector

A. For EX-WORKS / FCA/ FAS / FOB Sea Consignments:-

Penalty for late submission / negotiation of documents beyond 14 days shall be as under:

Sl. no	Period (From Date of Bill of Lading)	Recoverable Charges	Recoverable Charges per day per container	
		LCL per week/ Break bulk cargo per day	20FT Container	40FT Container
i	Upto 14th day	Nil	Nil	Nil
ii	15th day onward	USD 10	USD 50	USD 105

B. For CIF / CFR / CIP / CPT Sea Shipments:-

For CIF / CFR / CIP / CPT Sea Shipments, Vendor shall provide rates for detention charges after free period at the time of offer itself in case of engagement of 20FT Container and 40FT category. In case of late presentation of documents to the bank recovery will be effected from the Vendor as per the rates quoted by the Vendor at the time of offer in this regard.

In case of Break bulk cargo and LCL Demurrage/storage charges shall be recovered at rate of USD 10 per day and storage charges rate of USD 10 per week respectively shall be charged as late presentation charges.

(vi) Description of items in invoice, packing list, BL / AWB or LR shall be same as PO item description. Vendors shall ensure that invoice shall contain PAN nos. of both seller and buyer along with other tax related numbers. BHEL PAN AAACB4146P and BHEL TAN HYDB00086C

Any other additional documents sought by the statutory authorities, the same shall be produced by the seller on priority basis.

(vii) Seller shall provide package details including number of packages, gross weight, net weight etc.

(viii) The seller shall provide the following documents at the time of submission of offer :-

- a) No Business Connection in India declaration issued by the seller as per the format specified. (or)
- b) (i) No Permanent Establishment in India declaration issued by the seller as per the format specified.  
(ii) Tax Residence Certificate issued by the seller's tax authorities.  
(iii) Form 10F issued by the supplier.
- c) In case the seller has a Business Connection in India as per Section 9 of Income Tax Act or

Permanent Establishment in India as per Article 5 of Double Taxation Avoidance Agreement between India and the seller's country, the seller shall provide a withholding tax order issued by the Indian Income Tax authority for recovery of applicable tax.

7	Delivery Schedule		
A	<p>The tendered goods shall be delivered within the period stipulated in PO . Delivery <b>at BHEL</b> can be accepted at the earliest, 30 days prior to delivery date as mentioned in the Purchase order. Delivery <b>earlier than 30</b> days of contractual delivery date may be accepted with the written permission of BHEL -Purchase department.</p> <p>Goods arriving after the delivery date will be accepted only with the prior written permission of BHEL otherwise they will not be allowed inside the factory. BHEL reserves the right to reject the material, if not delivered by scheduled Purchase Order Delivery Date.</p> <p>(In case of imports , the final entry date of Import General Manifest (IGM) will be reckoned as delivery completion date )</p>		<b>Non Deviated</b>
B	<p>Documents such as TC,GCs Inspection reports are to be submitted within 10 days of dispatch of these materials. C note date or Date of submission of documents whichever is later shall be considered as delivery date incase documents are not submitted within 10 days from the dispatch of the material. Supply of plant/ equipment/ stores shall not be considered complete until they have been inspected and accepted at the place and destination specified for delivery by the time stipulated under the terms &amp; conditions of the Order/ Contract. Mere payment by itself shall not constitute acceptance of the goods or materials in any manner, whatsoever.</p>		
8	<b>Pricing Terms</b>		
	Prices once quoted shall remain firm and valid during the execution of PO. Offers with PVC will be rejected outright except in cases where specifically called for in the NIT.		<b>Non Deviated</b>
9	<b>PRICE VALIDITY :</b>		
	<p>Unless otherwise specified, offer shall be valid for a period of 90 days from the date of bid opening (Technical bid /part-I in case of two part bid).</p> <p>However the prices quoted for spare parts of the Main equipment shall be kept valid for a period of 1 year from the date of Placement of PO for the main equipment.</p>		
10	<b>Taxes &amp; Duties (RATE TO BE INDICATED by the bidder against the space provided )</b>		
A	Indigenous Purchase		
	The Taxes as applicable shall be quoted in the following manner.		
i	Vendor to indicate HSN of Goods or SAC of Services.		
ii	IGST/CGST/SGST/UTGST: Rate of Tax to be quoted as extra in %		
	<p>NOTE: Bidders to ensure correct applicability of IGST/CGST/SGST/UTGST based on the Inter / Intra state movement of goods.</p> <p>Taxes prevalent on the contractual delivery date or the actual delivery date (in case of delay) which ever is lower shall be applicable paid. In case Bidder has opted for GST Composition Scheme, the same may be stated explicitly both in their technical and price bids.</p>		
iii	Any other taxes & duties not covered anywhere above may be indicated separately.		
iv	<p>Taxes deducted at source:</p> <p>TDS as per the extant statute shall be recovered. In case vendor does not provide PAN details/concessional certificates, the TDS deduction shall be at the maximum percentage stipulated as per the provisions of Income Tax Act.</p>		<b>Non Deviated</b>
B.	Foreign Purchase ( Imports )		
i	The offered price shall be inclusive of all the Taxes and duties as applicable in country of bidder / country of dispatch for the quoted CIP price.		<b>Non Deviated</b>
ii	<p>Taxes deducted at source:</p> <p>TDS as per the extant statute shall be recovered. In case vendor does not provide PAN details/concessional certificates, the TDS deduction shall be at the maximum percentage stipulated as per the provisions of Income Tax Act.</p>		<b>Non Deviated</b>
11	<b>Payment Terms: Unless otherwise specified in Special Conditions, following shall be the terms of Payment.</b>		

A	<p><b>Indigenous:</b>                  100% payment along with taxes, freight &amp; insurance will be made within 75 days from the date of receipt of complete documentation as per PO. However payment would be done only after receipt of original documents, including site/ Customer acknowledgement on LR (MRC - Material Receipt Certificate at site) / GR clearance at BHEL Stores.                  For MSEs (covered under MSME Act) which are registered and periodically renewed with BHEL, this period will be 45 days* as prescribed in the relevant act.                  Adherence to the above time schedule of payment is contingent upon Vendor complying with GST provisions and availment of Input Tax Credit by BHEL before the date of payment.                  *The taxes and duties that are reimbursed would be the ones applicable as on the contractual Purchase Order delivery date or the amount actually paid whichever is less.                  In case GST credit is delayed/ denied to BHEL, due to non/delayed receipt of goods and/or tax invoice or expiry of timeline prescribed in GST Law for availing such ITC, or any other reason not attributable to BHEL, GST amount shall be recoverable from Vendor along with interest levied/ leviable on BHEL.</p>		
B	<p><b>Imports:-</b>                  i) 100% payment (less Indian Agency Commission, if any) shall be paid <b>through "Usance Letter of Credit / Cash Against Documents (CAD) / Wire Transfer" with a credit period of 60 days</b>                  ii) LC will be opened after successful completion of pre dispatch inspection prior to the scheduled / agreed delivery date <b>LC will be opened within 7 working days from the date of request.</b></p>		
C	<p>Note:                  1) No advance payment is acceptable. However, in exceptional/rare cases, BHEL at its discretion, may consider advance payment against Bank Guarantee valid up to receipt of material at BHEL for 110% of advance amount issued / confirmed by any of the BHEL consortium banks.                  2) Wherever EMD (Earnest Money Deposit) is applicable, it may be noted that no interest will be paid on EMD and the EMD will be paid back to unsuccessful bidders within <b>fifteen days</b> after award of the contract. Successful bidder's EMD will be converted to SD (Security Deposit).  <b>Tender Cost wherever applicable is not refundable.</b></p>		<b>Non Deviatable</b>
D	<p>No interest shall be payable by BHEL on earnest money or security deposit or any money due to the contractor by BHEL.</p>		
12	<p><b>Penalty clause:</b>                  In the event of delay in supply of goods, penalty of 0.5% per week or part there of shall be levied on the undelivered portion subject to a maximum of 10% of the order value. Penalty amount so determined along with applicable GST thereon shall be recovered.</p>		
13	<p><b>Excess materials</b> supplied beyond tolerance limit as specified in PO, will not be accounted for.</p>		<b>Non Deviatable</b>
14	<p><b>Rejected materials</b>, if any, shall be collected by the vendor within 90 days of such communication to the vendor .Beyond 90 days a ground rent of 0.25 %of the value of the material per week will be levied for a maximum period of two weeks.. Beyond this period the supplier forfeits their right to the materials.</p>		<b>Non Deviatable</b>
15	<p><b>Guarantee / Warranty Period :</b>                  (Deviation to this clause is not acceptable.)                  Wherever required, and so provided in the specifications/Purchase Order, the seller shall guarantee that the goods supplied shall comply with the specifications laid down, for materials, workmanship and performance. If within the guarantee period, the delivery is found to be non-complaint, the seller shall on his own account, replace repair, or re-execute the delivery at Purchaser's discretion on the purchaser's first request or within the mutually agreed period, without prejudice to Purchaser's other legal rights. If the seller continues to default on their obligations, purchaser has the right to proceed to replace, repair or re- execute the order at the seller's expense, with or without help from third parties. Purchaser shall notify the seller of the exercise of this right in advance where ever possible.                  Unless otherwise specified, guarantee period shall be 12 months from the date of commissioning or 18 months from the date of supply/replacement whichever is earlier. For bought out packages which are intended to be incorporated in installations or systems the guarantee period shall not start until the time the installations or systems are commissioned, provided always that the period ends not later than 30 months after the date of supply of the goods.  <b>The guarantee period shall be extended by the period during which the goods are not in compliance. A guarantee period as described above shall apply afresh to replaced, repaired or re-executed parts of a delivery.</b></p>		<b>Non Deviatable</b>

**NOTE: Deviations (Commercial as well as Technical) from the tender specifications and conditions are generally not acceptable. However, deviation if any, shall be brought out clearly with proper justification in the offer. The deviation, if considered by BHEL, shall be loaded for comparison, while evaluating the offer. If a bidder unconditionally withdraws any deviation before price bid opening, the same shall not be loaded. Loading criteria in respect of major commercial conditions where deviations if any are accepted shall be as per clause No.16.**

**The Vendors may specifically note the following.**

<b>16</b>	<b>Evaluation and Loading Criteria:</b>
A	Evaluation of prices shall be done item-wise unless otherwise specified in the enquiry. Evaluation shall be on the basis of delivered cost, i.e. "total cost to BHEL" w.r.t the finalized technical scope and commercial conditions (after considering incidence of applicable taxes and duties and loading). For evaluation, exchange rate (TT selling rate of State Bank of India) as on the date of bid opening (Part-I, in case of two-part bids) shall be considered. If the relevant day happens to be a bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken.
B	In case of foreign bidders, the quoted CIP price shall be loaded by the following factors to arrive at the Delivered Cost:
i	- Import duty as applicable at the time of <b>Technical/ Part-I bid opening</b> .
ii	- Port handling/ clearing charges & inland freight and insurance: @ 5% of CIP value (10% for plates, pipes & structurals).
iii	In other cases subject to acceptance by BHEL, loading for various factors (in addition to above) as the case may be will be done as follows: 0.5% for unloading at Port of Destination Marine Freight 4% and Marine Insurance 1% (9% and 1% towards Freight and Insurance respectively for Plates, Pipes, Rounds & Structurals)
C	In case of Indigenous Bidders, Ex-works offers received (as against FOR Destination mentioned in enquiry) shall be loaded by 4% of Ex-works value (9% for plates, pipes, rounds & structurals) unless otherwise mentioned in enquiry.
D	Deviated Penalty: Any loading on penalty clause shall be 10% or to the extent to which the vendor has opted for deviation.
E	Deviated Payment Terms: Terms: In case BHEL considers any deviation in payment terms, the bids shall be loaded with 18% interest per annum to the extent of deviation.
<b>17</b>	Procurement directly from the manufacturers/ suppliers shall be preferred. However, no agent shall be allowed to represent more than one manufacturer/ supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer/ supplier or the manufacturer / supplier could bid directly but not both. In case bids are received from both from the manufacturer/ supplier and the agent, bid received from the agent shall be ignored.
<b>18</b>	<b>RIGHT OF REJECTION /NON- PLACEMENT OF PO:</b> BHEL reserves the right to accept or reject any or all bid/s in full or part without assigning any reason whatsoever.
<b>19</b>	<b>INTEGRITY PACT</b> Vendors shall have to enter into Integrity Pact with BHEL as per attachment - for order value of rupees five crores and above and shall be signed by the competent authority before the issue of purchase order, failing which vendor's offer will be rejected.
<b>20</b>	<b>Public Procurement</b>
<b>A</b>	<b>Make in India</b> For this Procurement , the local content to categorize a supplier as a Class I local supplier / Class II local supplier / Non-Local supplier and purchase preference to Class I local supplier , is as defined in Public Procurement ( Preference to Make in India ) , Oct 2017 dated 04.06.2020 issued by DPIIT . In case of subsequent orders issued by the nodal ministry , changing the definition of local content for the items of the NIT , the same shall be applicable even if issued after issue of this NIT , but before opening of Part – II bids against this NIT Proforma for self certification for minimum local content and auditor's certification is given in Annexure III .
<b>B</b>	Any Bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with competent authority . <a href="https://www.mea.gov.in/">https://www.mea.gov.in/</a> to be referred for latest details of competent authority and exemptions . Proforma for self certification for compliance is given in Annexure IV
<b>21</b>	<b>Benefits earmarked for Purchase from Micro &amp; Small Enterprises (MSEs) – Indigenous Purchase</b>
<b>21</b>	All Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy are exempt from Paying earnest money deposit .
<b>A</b>	NSIC registered unit bidders shall submit NSIC Certificate along with bid documents. Date to be reckoned for determining the deemed validity will be the last date of Technical bid submission. Non- submission of such document will lead to consideration of their bid, at par with other bidders and MSE status of such bidders shall be shifted to Non- MSE Category till the supplier submits these documents
<b>21</b>	In tender,if 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 25% of total tendered value. In case of more than one such MSE, the supply shall be shared proportionately. Out of these 25% minimum 3% shall be earmarked for MSEs owned by women and 6.25% for MSEs owned by SC/STs who submit the bid along with relevant documents . This is applicable in case of item-level evaluation tenders and divisible tenders .
<b>21</b>	If an enterprise falling under MSME category as defined in the Act, graduates to a higher category from its original category or beyond the purview of the Act, it shall continue to avail all non-tax benefits of its original category notified by the Ministry of Micro, Small and Medium Enterprise for a period of three years from the date of such graduation to the higher category.
<b>21</b>	BHEL HPEP is registered with RXIL (TReDS) platform. MSE bidders are requested to get registered with RXIL (TReDS) platform to avail the facility as per the GOI guidelines
<b>D</b>	



22	Startups : For Startups Medium Enterprises, Condition of prior turnover and prior experience in Public Procurement may be relaxed subject to meeting of Quality and Technical Specifications . Startups are exempt from paying earnest money deposit.
23	For Claiming Payments <b>for goods</b> received at BHEL works / Site from Vendors' Works) a. Original of Invoice marked as ORIGINAL FOR RECIPIENT b. Duplicate of Invoice marked as DUPLICATE FOR TRANSPORTER c. Packing List - clearly showing number of packages, gross weight and net weight. d. Warranty/Guarantee certificates (If applicable as per PO terms) e. Insurance certificate f. Third Party Inspection Certificates. g. LR Copy signed & stamped by Site incharge / Customer for site deliveries) (For material received at BHEL payment will be made against GR for accepted quantity)
24	Inspection Measuring and Test Equipment (IMTE) whether used by the Seller/ Contractor or sub-contractor shall be calibrated, maintained and controlled. Calibration shall be valid and IMTE maintained in sound condition during usage.
25	ISO-9001, ISO14001 and OHSAS 18001 shall be complied
26	Applicable Conditions :These General conditions of Contract for Purchase apply to all enquiries, tenders, request for quotations, orders and agreements concerning the supply of goods and the rendering of related services (hereinafter referred to as "deliverables") to Bharat Heavy Electricals Limited, Ramachandrapuram , Hyderabad (hereinafter referred to as "BHEL" or the Purchaser) or its projects/customers. Any deviations from or additions to these General conditions of contract for Purchase' require Purchaser's express written consent. The general terms of business or sale of the Seller shall not apply to Purchaser. Orders, agreements and amendments thereto shall be binding if made or confirmed by the Purchaser in writing. Only the Purchasing department of the Purchaser is authorized to issue the Purchase order or any amendment thereof.
27	Being PMD Vendor, if you are not quoting against this tender enquiry, please send your regret letter positively for our reference with valid reasons for not participating in the tender enquiry. Repeated lack of response on the part of bidder may lead to deletion such PMD vendor from BHEL's approved vendor list Vendor shall ensure that PAN details are available/updated with BHEL, else Vendor shall attach PAN details with enquiry failing which offer shall be liable for rejection.
28	Kindly quote your prices in figures and words both. In case of any discrepancy in value, the prices quoted in words shall be considered for evaluation and establishing L1 Status
29	Any discount / revised offer / bids submitted by a bidder on its own shall be considered, provided it is received on or before the due date and time of offer / bid submission (Part-1). Conditional discounts shall not be considered for evaluation of tenders.
30	The bidder whose bid is technically not accepted will be informed & EMD wherever submitted shall be returned after finalization of contract. EMD shall be forfeited in the event of bidder opting out after tender opening.
31	In case of abnormal delays (beyond the maximum late delivery period as per Penalty clause) in supplies / defective supplies or non-fulfillment 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 / equivalent market price 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. Nonperformance of contract attracts penal provisions inline with BHEL's Suspension of Business dealings.
32	Any other terms and conditions of the bidder attached / referred against the tender enquiry will not be considered.
33	All drawings as also all patterns and tool supplied by BHEL or made at BHEL's expense are BHEL's property. These cannot be used or referred to any other party and must only be used in the execution of BHEL's orders.
34	Any amount payable by the consignor / supplier under any of the condition of this contract shall be liable to be adjusted against any amount payable to the consignor / supplier under any other work / contract awarded to him. This is without prejudice to any other action as may be deemed fit by BHEL.
35	The bids of the bidders who are on the banned list and also the bids of the bidders, who engage the services of the banned firms, shall be rejected. The list of firms banned by BHEL is available on BHEL web site www.bhel.com
36	Definitions
Throughout these conditions and in the specifications, the following terms shall have the meanings assigned to them, unless the subject matter or the context requires otherwise.	
36 A	Purchaser' means BHEL-HPEP, Ramachandrapuram, Hyderabad-502 032 of Bharat Heavy Electricals Limited (A Govt. of India Undertaking) incorporated under the companies Act having its registered office at BHEL House, Siri fort, New Delhi-110049, India and shall be deemed to include its successors and assigns. It may also be referred to as BHEL.
36 B	'The seller' means the persons, firm, company or organization on whom the Purchase order is placed and shall be deemed to include the seller's successors, representatives, heirs, executors and administrator as the case may be. It may also be referred to as Contractor, supplier or vendor.



36 c	<p>'Contract' shall mean and include the Purchase order incorporating various documents viz., tender/offer, letter of intent/acceptance, the General Conditions of contract and special conditions of contract for Purchase, specifications, inspection/quality plan, schedule of prices and quantities, drawings, if any enclosed are to be provided by the Purchaser or his authorized nominee and the samples or patterns if any to be provided under the provision of the contract.</p> <p>In case of any inconsistency or contradiction between any of the documents, the order of precedence shall be Purchase Order, LOI/LOA followed by specific conditions, special conditions of contract and general conditions of contract for commercial conditions; and specific agreement on technical conditions, special technical conditions and general technical conditions, tender/offer.</p>
37	<p>'Parties to the contract' shall mean the seller and the purchaser as named in the main body of the Purchase Order.</p>
38	<p>Ordering and confirmation of order</p>
	<p>The seller shall send the order acceptance in Toto within one week from the date of LOI/Purchase order or such other period as specified/agreed by the Purchaser. Purchaser reserves the right to revoke the order placed if the order confirmation differs from the original order placed. Purchaser shall only be legally bound if agreed explicitly in writing to be in agreement with the deviation. The acceptance of deliverables or supplies by Purchaser as well as payments made in this regard shall not imply acceptance of any deviations.</p> <p>The Purchaser order will be deemed to have been accepted if no communication to the contrary is received within one week (or the time limit as specified /agreed by the Purchaser) from the date of P.O.</p> <p>Purchaser, is at liberty to send signed P.O. through electronic media such as e-mail and the receipt of which shall be treated as receipt of order.</p>
39	<p>Execution</p>
	<p>The whole contract is to be executed in the most workman like manner, substantial and approved as per the contracted terms.</p>
40	<p>Progress Report</p>
	<p>The seller shall render such report as to the progress of work and in such form as may be called for by the Purchaser from time to time. The submission and acceptance of such reports shall not prejudice the rights of the purchaser in any manner. Seller shall communicate to BHEL immediately, change of address, ownership, contact person(s), the mobile numbers and e-mail of the dealing person concerned.</p> <p>Milestones shall be periodically updated by vendor/subcontractor through PRADAN Portal (<a href="https://web.bhelhyd.co.in/mm/">https://web.bhelhyd.co.in/mm/</a> ). Non update will adversely affect service rating of vendor performance.</p>
41	<p>Product information, Drawings and documents / Non-disclosure and Information Obligations</p>
	<p>Drawings, technical documents or other technical information received by one party shall not without the consent of the other party, be used for any other purpose than that for which they were provided. They may not, without the consent of the submitting party, otherwise be used or copied, reproduced, transmitted or communicated to third parties. All information and data contained in general product documentation, whether in electronic or any other form, are confidential and binding only to the extent that they are by reference expressly included in the contract.</p> <p>The seller shall, as per agreed date/s but not later than the date of delivery, provide free of charge any information and/or drawings which are necessary to permit the Purchaser to erect, commission, operate and maintain the product. Such information and drawings shall be supplied in the number of copies agreed upon or at least three copies of each.</p> <p>All intellectual properties, including designs, drawings and product information etc. exchanged during the formation and execution of the contract shall continue to be the property of the submitting party.</p> <p>The seller shall provide Purchaser with all information pertaining to the delivery in so far as it could be of importance to Purchaser. The seller shall not reveal confidential information to its own employees not involved with the tender/contract and its execution and delivery or to third parties, unless Purchaser has agreed to this in writing beforehand. The seller shall not be entitled to use the Purchaser's name in advertisements and other commercial publications including website without prior written permission from Purchaser.</p> <p>In the event of violation of the confidentiality as agreed, BHEL will take legal action as deemed fit. Non disclosure agreement to be entered as per <b>Annexure- II</b> wherever applicable.</p>
42	<p>Inspection and Testing</p>
42 A	<p>The goods and stores shall be manufactured by approved quality system and each part/component may be inspected and tested by the Purchaser prior to shipment and shall fully comply with relevant requirements of Purchaser.</p> <p>Purchaser has the right to inspect at any stage during manufacture/ delivery. In the event of rejection, Purchaser shall inform the seller accordingly and Purchaser shall be entitled to replacement or repair at his discretion or may proceed to terminate or cancel the agreement. All this, does not affect Purchaser's right to recover compensation.</p>

<b>42 B</b>	<p>Purchaser or his authorized representative shall be entitled at all reasonable times during execution to inspect, examine and test at the seller's premises the material and workmanship of all stores to be supplied under the contract, and if the part of the stores are being manufactured at other premises, the seller shall obtain for purchaser or his authorized representative permission to inspect, examine and test as if the said stores are being manufactured at the seller's premises. Such inspection, examination and testing, if made shall not release the seller from any obligation under the contract.</p> <p>For indigenous suppliers all costs related to first inspection request shall be borne by the purchaser and the cost of subsequent inspections due to non-readiness of material/rework/ rejections shall be borne by the seller. In case of imports all inspection charges including third party inspections if any shall be borne by the seller. The cost of inspection staff/third party specified by the Purchaser shall be borne by seller unless otherwise specifically agreed. Whether the contract provides for tests on the premises of the seller or any of his sub-contractor/s, seller shall be responsible to provide such assistance, labor, materials, electricity, fuels, stores, apparatus, instruments as may be required and as may be reasonably demanded to carry out such tests efficiently.</p> <p>Cost of any type test or such other special tests shall be borne by the seller unless otherwise specifically agreed in the contract. The Seller shall give the authorized representative of the purchaser reasonable notice in writing of the date on and the place at which any stores will be ready for inspection/ testing as provided in the Contract. Annexure - I may be strictly be complied with for the time lines. Any delay in submission of the documents by the vendor will not alter the delivery date.</p>
<b>43</b>	<b>Quality and Condition of the Deliverables</b>
	The seller shall be responsible for compliance with applicable technical, safety, quality, environmental requirements and other regulations in relation to his products, packaging and raw and ancillary materials.
<b>44</b>	<b>Packaging and Dispatch</b>
	<p>The seller shall package the deliverables safely and carefully and pack them suitably in all respects considering the peculiarity of the material for normal safe transport by sea/air/rail/road to its destination suitably protected against loss, damage, corrosion in transit and the effect or tropical salt laden atmosphere. The packages shall be provided with fixtures/hooks and sling marks as may be required for easy and safe handling by mechanical means. Special packaging conditions/ environmental conditions as defined in the enquiry shall be fully complied.</p> <p>Each package must be marked with consignee name, P.O. number Package No. gross weight &amp; net weight, dimensions (LxBxH) and seller's name. The packing shall allow for easy removal and checking of goods on receipt and comply with carrier's conditions of packing or established trade practices. Packing list of goods inside each package with P.O. item No. &amp; quantity must also be fixed securely outside the box to indicate the contents. If any consignment needs special handling instruction, the same shall be clearly marked with standard symbols/instructions. Hazardous material should be notified as such and their packing, transportation and other protection must conform to relevant regulations.</p>
<b>45</b>	<b>Delivery:</b>
	Except as otherwise indicated in the Purchase order, delivery shall be FOR (Destination) for indigenous orders and CIP for imported orders. The delivery date (s) or delivery period (s) as stipulated in the agreement shall be firm and binding and shall apply to the entire delivery for each P.O. item. Partial shipments may however, be permitted by the purchaser on prior intimation from the Seller. Unless specifically agreed otherwise, transit insurance coverage will only be within India for imported consignments by BHEL. Accordingly, the seller shall send an intimation to the Purchase officer/Manager giving Purchase Order No., shipping particulars, Invoice value etc., immediately on dispatch of goods.
<b>46</b>	<b>Penalty</b>
	<p>The time or period of delivery as stipulated in the schedule of delivery shall be deemed to be the essence of the contract. Should circumstances arise whereby the deadline for an agreed delivery date(s) or period(s) is expected to be exceeded, the seller shall inform Purchaser hereof without delay. If delay in delivery is caused by any of the circumstances mentioned in clause 54 (Force Majeure) or which are caused exclusively by the acts of Purchaser, the Purchaser shall extend the time for delivery by a period which is reasonable having regard to all the circumstances in the case.</p> <p>If the Seller delays beyond any agreed delivery date(s) or period(s), Purchaser shall levy penalty for such delay @ 0.5% per week (7 days) or part thereof on delayed portion of the order value subject to a maximum of 10% of the value of the Purchase Order. However, penalty for delayed delivery will be calculated on 100% of the purchase order value if the material supplied cannot be put to intended use.</p> <p>The penalty will be charged on the value of the purchase order excluding statutory levies, freight and insurance wherever not included in the price. Penalty amount so determined along with applicable GST thereon shall be recovered.</p> <p>Imposition, recovery or settlement of this penalty shall not affect Purchaser's right to performance, compensation and termination of the agreement.</p> <p>For delay analysis, period referred in Annexure-I will be considered as standard time lines for various major activities.</p>
<b>47</b>	<b>Transfer of Ownership and Risk</b>
	The risk for the delivery remains with the seller until the goods are delivered at the agreed place. However ownership shall get transferred as per terms of purchase order in line with INCOTERMS.
<b>48</b>	<b>Price, invoicing and payment</b>
	<p>The agreed prices are fixed prices in the currency as specified in the Purchase Order. They shall include packing, forwarding , loading and carriage to the place specified by the purchaser and are exclusive of all applicable taxes, duties etc., except for those specifically agreed by the Purchaser. Invoices shall be submitted bearing the Purchase Order number &amp; date, item number/s and supporting documents as called for in the Purchaser order.</p> <p>The direct payments (including LC/documents through Bank on collection basis), shall be made by E-payment mode and not by cheque /bank drafts except in special circumstances. Vendors shall furnish the E-payment particulars in the prescribed formats duly authenticated by their respective Bankers, If not got registered earlier with the Buyer.</p> <p>- Invoice has to be raised quoting HSN Code of Goods or Accounting Code of Services. Invoice should mention BHEL-HPEP-HYDERABAD GSTIN: 36AAACB4146P1ZG or GSTIN of BHEL Nodal Agency as mentioned in PO.</p>

	<p>Indian Agency commission if payable and so specified in the Purchase order shall be paid in Indian Rupees, considering the SBI TT selling exchange rate prevailing on the date of tender opening (part 1 in case of two part bid), after successful completion of the contract.</p> <p>If so stipulated in the order, the seller shall furnish, on receipt of the Purchase Order or along with order acknowledgement, the billing break-up of prices (BBU) for approval by the purchaser in respect of the major items/components going into the equipment. This BBU is required by the Purchaser for admitting the claims of the seller if part shipments are contemplated and also to facilitate custom clearance after payment of duties in case of imports.</p> <p>In case of delay in receipt of supporting document details, consequential demurrage/wharf age /detention charges shall be to the account of the seller.</p> <p>Payment does not imply in any respect whatsoever a waiver of Purchaser's right to performance of the agreement. Purchaser is entitled to set off claimable debts against claimable liabilities with the seller by means of a setoff Note.</p>
<b>49</b>	<p>Contract variations; Increase or decrease in the scope of supply</p>
	<p>Purchaser may vary the contracted scope during execution due to exigencies of project requirement.</p> <p>If the seller is of the opinion that the variation has an effect on the agreed price or delivery period, Purchaser shall be informed of this immediately in writing along with technical details, and in the event of additional work, submit a quotation with regards to the price and period involved, as well as the effect this additional work will have on the other work to be performed by the seller. Provided, that if unit rates are available in the contract, the same shall be applied to such additional work. The seller shall not perform additional work before purchaser has issued written instructions/amendment to the purchase order to that effect. The work which the seller should have or could have anticipated in terms of delivering the service (s) and functionality (ies) as described in this agreement should be executed by the vendor without any price implication.</p>
<b>50</b>	<p>Short shipments/ warranty/guarantee replacements</p>
	<p>In case of any short shipment during initial supply which is subsequently dispatched by the seller or any guarantee / warranty replacements shall be dispatched on "DDP-Delivered duty paid BHEL stores" basis for imported items and "FOR-BHEL Stores/designated destination" basis for indigenous items. Taxes, if any paid by indigenous vendor for short supply, guarantee /warranty replacement, repair activity shall be to vendor's account only. Vendor has to raise a credit note for short supplied quantity as per GST provisions.</p>
<b>51</b>	<p>Rejection/Replacement</p>
	<p>The seller shall arrange replacement / repair under its obligation under the contract within one month from the date of intimation or mutually agreed period. The rejected goods shall be taken away by the seller and replaced on DDP/FOR-BHEL Stores/designated destination basis within such period. In the event of the seller's failure to comply. Purchaser may take appropriate action including disposal of rejections, at the cost and risk of the seller. Vendor has to raise a credit note for rejected quantity as per GST provisions.</p> <p>In case defects attributable to seller are detected during processing of the goods at purchaser's / his subcontractor works, the seller shall be responsible for replacement /repair of the goods as required by the purchaser at seller's cost.</p>
<b>52</b>	<p>Export Administration Regulations</p>
	<p>If a delivery includes such technology and / or supply that is subjected to the export regulations the seller shall obtain due permissions, approvals, license etc.</p>
<b>53</b>	<p>Cancellation / Termination of contract and risk purchase</p>
	<p>Purchaser shall have the right to completely or partially terminate the agreement by means of written notice to that effect without prejudicing their other rights in the event that :</p> <ul style="list-style-type: none"> <li>-The seller is declared bankrupt, its business has been shut down or liquidated, a substantial part of its assets have been attached/destroyed, or the business has been transferred to a third party.</li> <li>-Any misrepresentation or hiding of material fact if detected at a later stage.</li> <li>-The delivery is rejected after inspection or re-inspection.</li> <li>-In the event of termination, the risk of the items already delivered but not of use to Purchaser, as determined by purchaser, remains with the seller. The items shall then be at the seller's disposal and they are to be collected by the seller. The seller shall refund any payments made by purchaser in terms of the terminated agreement immediately, not later than 30 days,</li> <li>- In the event of Cancellation/ termination of contract, BHEL reserves the right to procure the items which are not delivered as per PO and charge the excess cost from the defaulting seller. Incase the excess cost is not repaid by or recovered from the defaulting seller within 30 days, apart from legal recourse for effecting such recoveries, Penal action in line with BHEL's Suspension of Business dealings will be taken.</li> </ul>
<b>54</b>	<p><b>Force Majeure</b></p>
	<p>The supplier shall not be considered in default if delay occurs due to causes beyond their control such as Acts of God, Natural calamities, Fire, Frost, Flood, Civil War, civil commotion, riot, Government Restrictions.</p> <p>Only those causes that have duration of more than seven days shall be considered cause of force majeure. Notification to this effect duly certified by local chamber of commerce/statutory authorities with supporting documents shall be given by the supplier to BHEL by registered letter/courier service immediately without loss of time.</p> <p>In the event of delay due to such causes the delivery schedule shall be extended for a length of time equal to the period of Force Majeure or at the option of BHEL the order may be cancelled. Such cancellation would be without any liability whatsoever on the part of BHEL.</p> <p>In the event of such cancellation the supplier shall refund any amount advanced or paid to the supplier by BHEL and deliver back any material issued to him by BHEL and release facilities, if any provided by BHEL.</p>
<b>55</b>	<p>Non-waiver of Defaults</p>
	<p>If any individual provision of the contract is invalid, the other provisions shall not be affected.</p>

<b>56</b>	<b>Settlement of Disputes</b>
	<p>(i) Except as otherwise specifically provided in the contract, all disputes concerning questions of the facts arising under the contract, shall be decided by the Purchaser, subject to written appeal by the seller to the purchaser, whose decision shall be final.</p> <p>(ii) Any disputes of differences shall to the extent possible be settled amicably between the parties thereto, failing which the disputed issues shall be settled through arbitration</p> <p>(iii) The seller shall continue to perform the contract, pending settlement of disputes(s).</p>
<b>57</b>	<b>Conciliation clause</b>
	<p>CONCILIATION CLAUSE FOR CONDUCTING CONCILIATION PROCEEDINGS UNDER THE BHEL CONCILIATION SCHEME, 2018: The Parties agree that if at any time (whether before, during or after the arbitral or judicial proceedings), any Disputes (which term shall mean and include any dispute, difference, question or disagreement arising in connection with construction, meaning, operation, effect, interpretation or breach of the agreement, contract or the Memorandum of Understanding, penalty deduction, time extension), which the Parties are unable to settle mutually, arise inter-se the Parties, the same may, be referred by either party to Conciliation to be conducted through Independent Experts Committee to be appointed by competent authority of BHEL from the BHEL Panel of Conciliators.</p> <p>The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in Procedure in <a href="http://www.bhel.com/index.php/story_details?story=2454">http://www.bhel.com/index.php/story_details?story=2454</a> . The Procedure together with its Formats will be treated as if the same is part and parcel hereof and shall be as effectual as if set out herein in this ITB</p>
	<b>ARBITRATION (WITH SOLE ARBITRATOR)</b>
	<p>Except as provided elsewhere in this Contract, in case amicable settlement is not reached between the Parties, in respect of any dispute or difference; arising out of the formation, breach, termination, penalty deduction, validity or execution of the Contract; time extension, or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract, then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the sole arbitration . Sole arbitrator to be appointed by Head of the Unit - BHEL , HPEP .</p>
	The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the Parties.
	<p>Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause.</p> <p>The seat of arbitration shall be Sangareddy / Hyderabad, Telangana. The language of arbitration shall be English and the documents shall be submitted in English.</p>
	The cost of arbitration shall initially be borne equally by the Parties subject to the final apportionment of the cost of the arbitration in the award of the Arbitrator.
	<p>Subject to the arbitration in terms of clause 57, the courts at Sangareddy, Telangana State shall have exclusive jurisdiction over any matter arising out of or in connection with this contract.</p> <p>Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the Contractor shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and expedition in a professional manner except where the Contract has been terminated by either Party in terms of this Contract.</p>
	<b>ARBITRATION FOR CONTRACT WITH PUBLIC SECTOR ENTERPRISE (PSE) OR A GOVERNMENT DEPARTMENT</b>
	In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs/ Port Trusts inter se and also between CPSEs and Government Departments/Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), such dispute or difference shall be taken up by either party for resolution through AMRCD as mentioned in DPE 0M No 4(1)/2013-DPE(GM/FTS 1835 dated 22-05-2018
<b>58</b>	<b>Applicable Laws and jurisdiction of Courts</b>
	This agreement shall be construed and interpreted in accordance with the laws of India and shall have exclusive jurisdiction of Sangareddy/Hyderabad courts, Telangana, India.
<b>59</b>	<b>BHEL-Fraud prevention policy shall be adhered to.</b>
	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 <a href="http://www.bhel.com">http://www.bhel.com</a> and shall immediately bring to the notice of BHEL management about any fraud or suspected fraud as soon as it comes to their notice.
	Fraud prevention policy and list of nodal officers is hosted on BHEL Hyderabad website <a href="http://web.bhelhyd.co.in">web.bhelhyd.co.in</a>
<b>60</b>	<b>Suspected Cartel Formation</b>
	The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding , whether formal or informal with other Bidder(s) . This applies in particular to prices , specifications ,certifications ,subsidiary contracts,submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case , the Bidder is found having indulged in above activities , suitable action shall be taken by BHEL as per extant policies / guidelines .

Note: Purchase officer has to fill Annexure-I while sending enquiry

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COUP. SIDE

END SIDE

VIEW C

VIEW A

SECTION "BB"

OUTLET

INLET

BLADE DEVELOPMENT

RADIUS RADIAL COORDINATE (AT THE FRONT SIDE OF THE BLADE)

$\theta$	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
$a-a'$	141.5	131.5	124.3	117.9	113.1	108.7	104.4	100.7	97.4	94.8	91.8	89.4
$b-b'$	141.5	131.5	123.5	116	110.5	105.5	101	97	93.5	90	86.5	84
$c-c'$	141.5	131.5	123	115	108.5	103.5	98.5	94	90	86.5	82.5	79

ROTATION

ANGLE 120/20

59°40'

63°10'

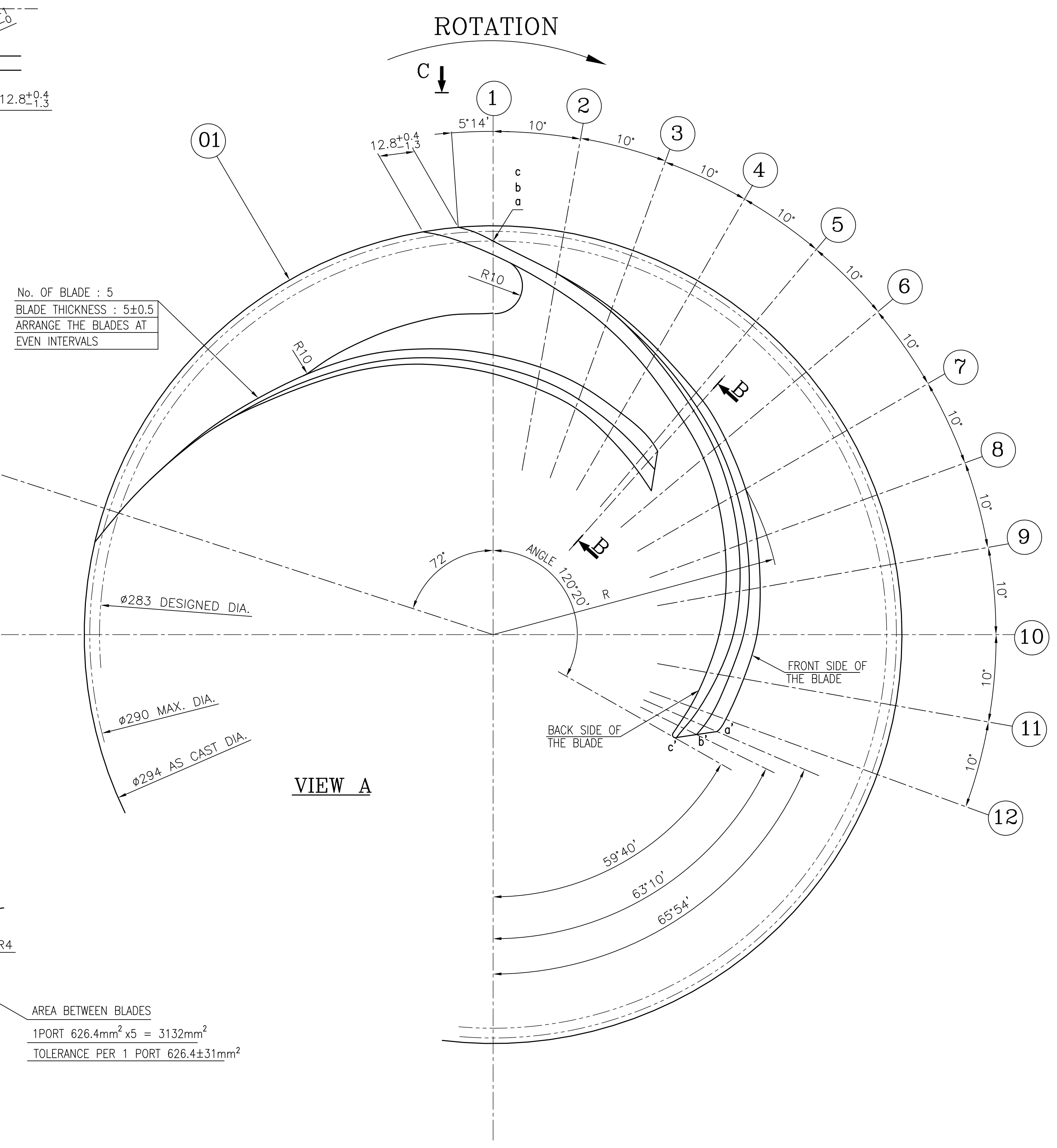
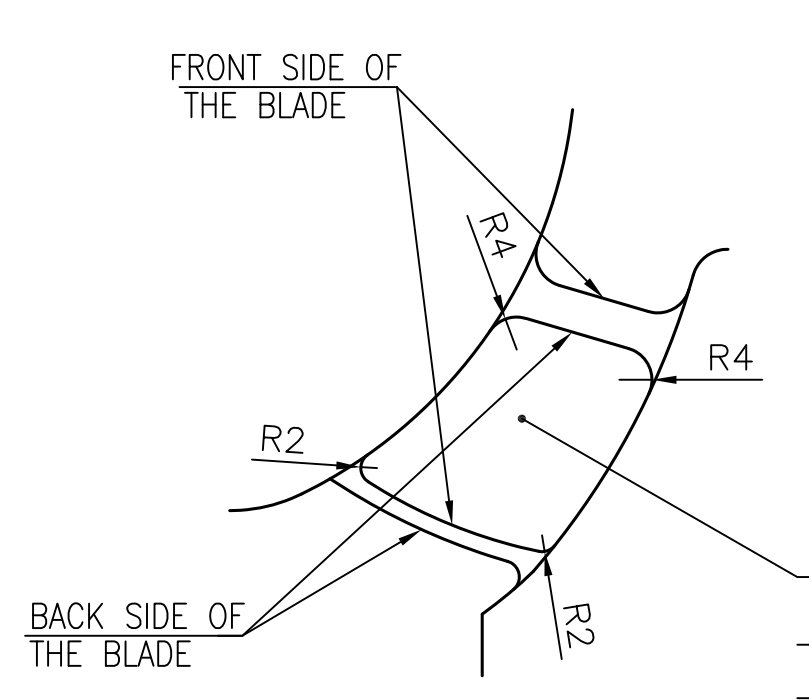
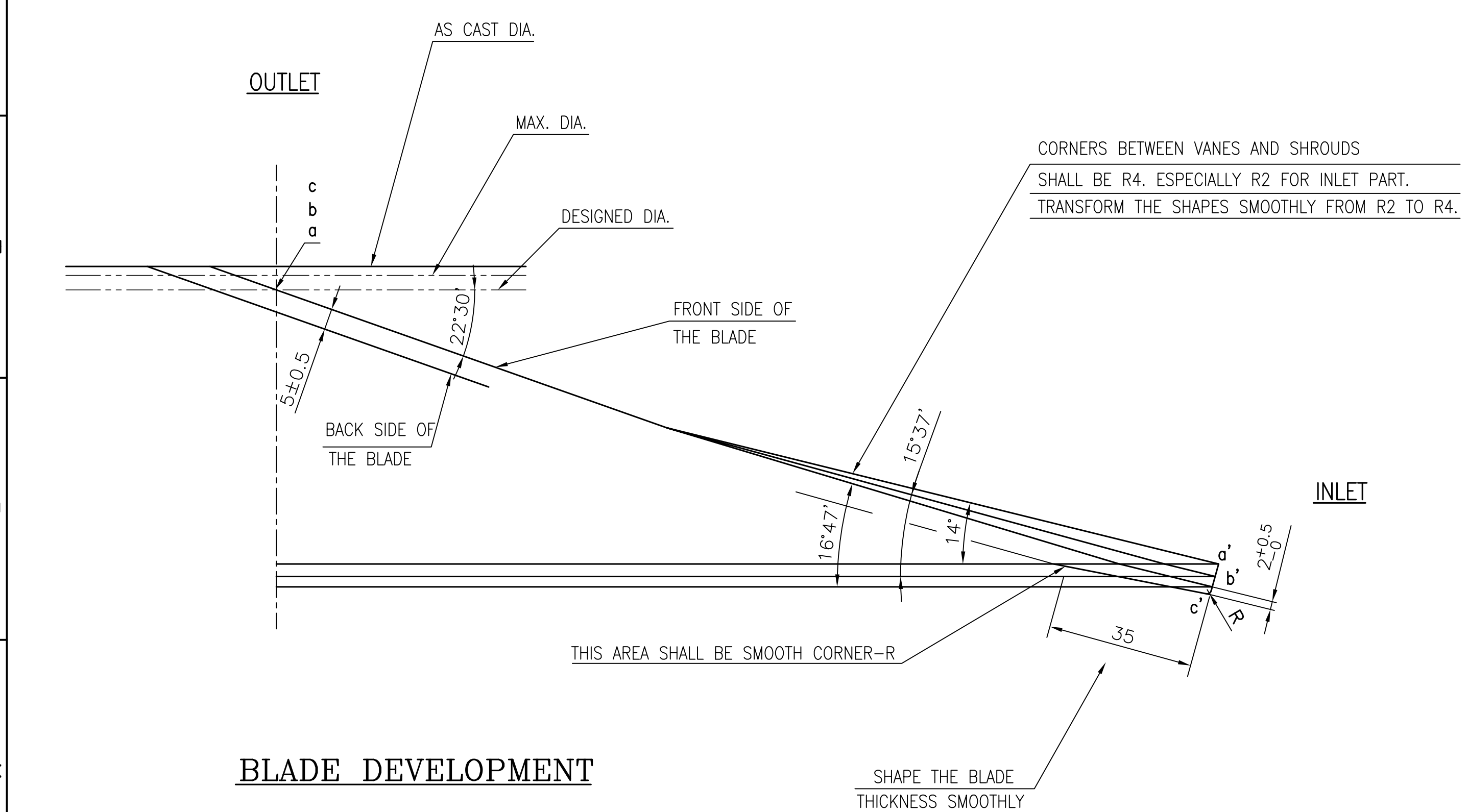
65°54'

NOTE:-

- THIS DRAWING INDICATES THE AS CAST DIMENSIONS. REFER TO 01804014613 FOR THE DIMENSIONS TO BE MACHINED.
- THE CHAIN DOUBLE-DASHED LINE INDICATES THE FINAL DIMENSIONS TO BE MACHINED. THE FINISHING ALLOWANCE IS ABOUT 2MM.
- THE SURFACE ROUGHNESS SHALL BE NOT OVER  $\sqrt{}$  BUT THE INTERIOR SURFACE MAY BE NOT OVER  $\sqrt{}$ .
- BEWARE OF THE MISALIGNMENT OF THE BLADE PITCH AND DIMENSIONS AND CAST THE IMPELLER SO THAT THE CENTER OF MASS SHALL BE CLOSE TO THE CENTER OF FIGURE, IN ORDER TO MAKE THE RESIDUAL UNBALANCE SMALLER.

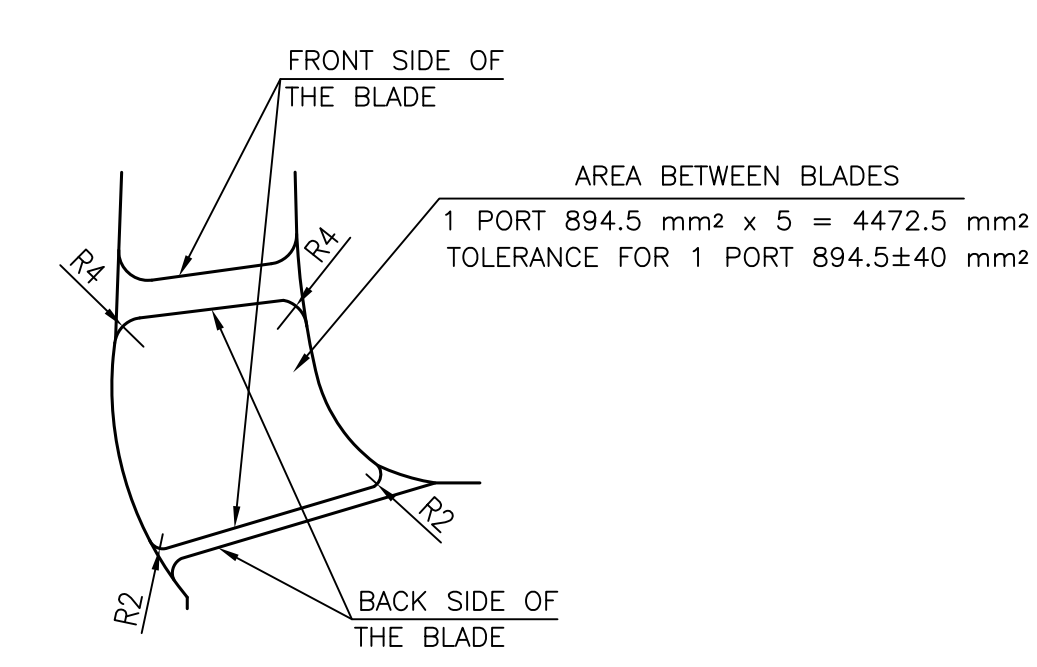
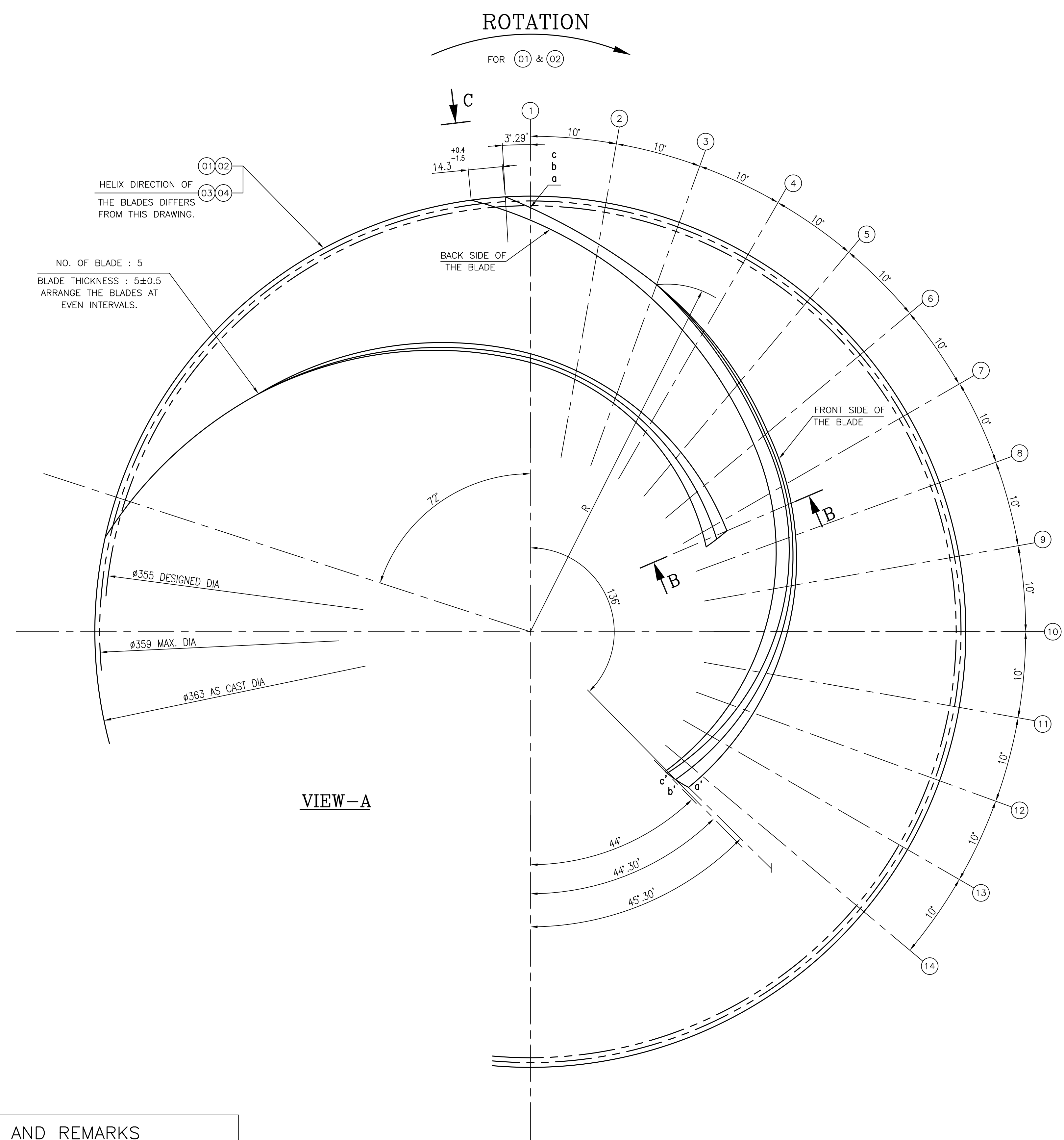
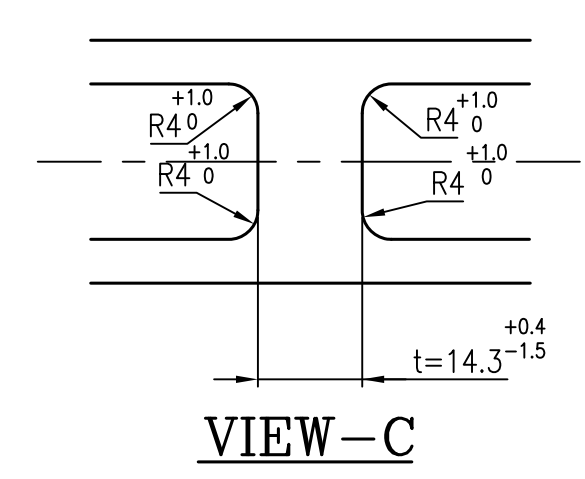
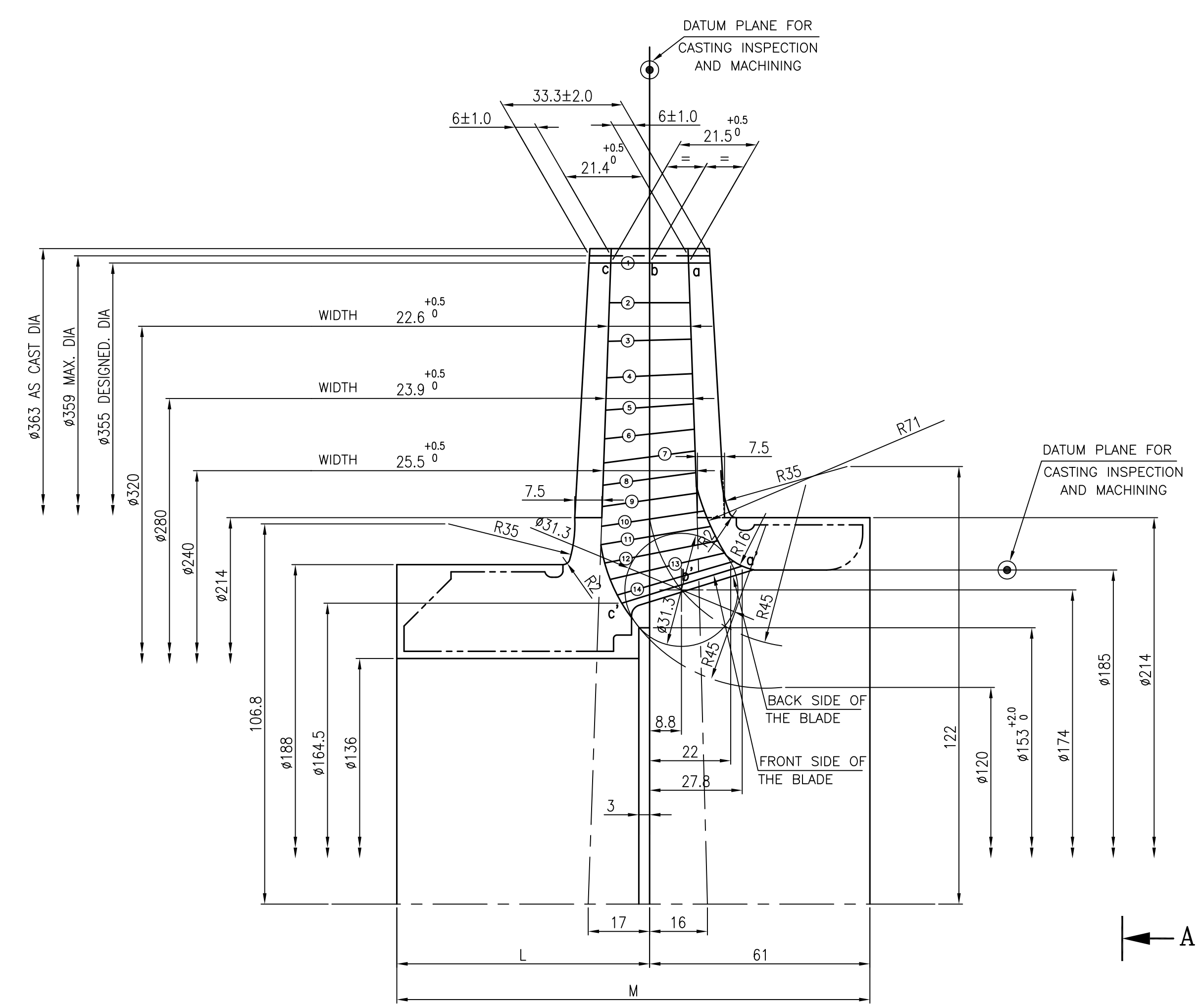
No. OF BLADE : 5  
 BLADE THICKNESS : 5±0.5  
 ARRANGE THE BLADES AT EVEN INTERVALS

AREA BETWEEN BLADES  
 1PORT 626.4mm<sup>2</sup> x 5 = 3132mm<sup>2</sup>  
 TOLERANCE PER 1 PORT 626.4±31mm<sup>2</sup>



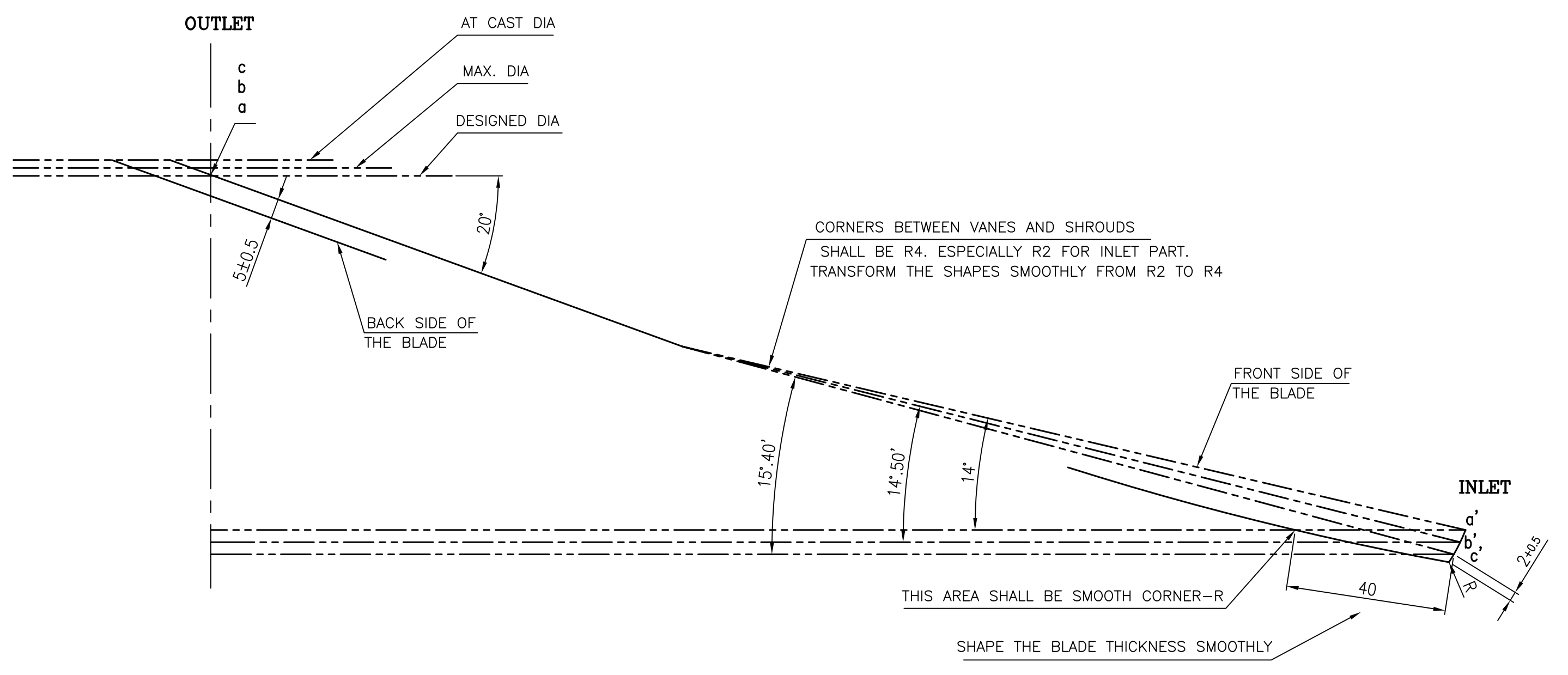
01				FP9219324563	15.4	16.0
ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT. (GROSS WT.)
						QUANTITY
THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED				TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		
1. REF TO HY0230261 FOR UNS TOLERANCES.				MDC346		
2. CHAMFER W/CD SHARP EDGE 1.2 TO 1.0 AT 45°				BHARAT HEAVY ELECTRICALS LTD. HYDERABAD DEPT. PUMPS CODE 410		
3. INTERNAL W/CD CORNER RADIUS 1 TO 0.7.				SCALE 1:1 WEIGHT (KG) 15.4 REF. TO ASSY DRG. --NA-- ITEM NO. --NA-- NO. OF ITEMS --NA--		
4. THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.				TITLE IMPELLER MATERIAL DRAWING (DOUBLE SUCTION) DRAWING NO. 0 180 40 2 4610 SHEET NO. 01 NO OF SHEETS 01		

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DIMENSIONS TABLE AND REMARKS				
VAR NO.	L	M	ROT. DIRECTION (VIEWED FROM THE SUC. NOZZLE)	NO. OF STG.
①	70	131	C.W	2ND. STAGE
②	110	171	C.W	3RD. STAGE
③	70	131	C.C.W	4,5TH. STAGE
④	110	171	C.C.W	6TH. STAGE

- NOTE-**
- THIS DRAWING INDICATES THE AS CAST DIMENSIONS. REFER TO THE OTHER DRAWING FOR THE DIMENSIONS TO BE MACHINED.
  - THE CHAIN-DOUBLE DASHED LINE INDICATES THE FINAL DIMENSIONS TO BE MACHINED. THE FINISHING ALLOWANCE IS ABOUT 2MM.
  - THE SURFACE ROUGHNESS SHALL BE NOT OVER  $R\sqrt{3}$  BUT THE INTERIOR SURFACE MAY BE NOT OVER  $R\sqrt{2}$
  - BEWARE OF THE MISALIGNMENT OF THE BLADE PITCH AND DIMENSIONS AND CAST THE IMPELLER SO THAT THE CENTER OF MASS SHALL BE CLOSE TO THE CENTER OF FIGURE, IN ORDER TO MAKE THE RESIDUAL UNBALANCE SMALLER.



**RADIUS** RADIAL COORDINATE (AT THE FRONT SIDE OF THE BLADE)

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
$\theta$	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°	130°
a-d'	177.5	166.2	156	146.2	137.8	130.6	124.6	118.6	113	107.9	103.5	99.5	96.3	94.1
b-b'	177.5	166.2	155.7	145.7	137	129.4	123	116.8	111	105.6	101	96.4	92.4	89
c-c'	177.5	166.2	155.4	145	136	128	121.2	115	109	103.5	98.5	93.3	88.8	84.5

ITEM NO	DESCRIPTION	DRAWING NO.	VAR. NO.	RAW MATERIAL SIZE OR CASTING DRG.NO. OR FORGING DRG.NO.	MATERIAL CODE	NET WT.	GROSS WT.
	6TH. STAGE		04	STAINLESS STEEL CASTING	FP9219324601	23.7	24.0
	4,5TH. STAGE		03	STAINLESS STEEL CASTING	FP9219324598	19.5	39.0
					HY19593	2	
	3RD. STAGE		02	STAINLESS STEEL CASTING	FP9219324580	23.7	24.0
	2ND. STAGE		01	STAINLESS STEEL CASTING	FP9219324571	19.5	39.0
					HY19593	1	

THE FOLLOWING CONDITIONS APPLY EXCEPT OTHERWISE STATED...

- REF. TO HY0230261 FOR UNSPECIFIED TOLERANCES.
- CHAMFER M/CD SHARP EDGES 1.2 TO 1.0 AT 45°.
- INTERNAL M/CD CORNER RADII 1 TO 0.7.
- THE SURFACE ROUGHNESS WHEREVER NOT SHOWN SHALL BE TAKEN FROM THE SURFACE ROUGHNESS SHOWN OUT SIDE BACK SLASHES GIVEN AT THE TOP MOST RIGHT CORNER OF THE DRG.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: **MDG346**

DEPT. PUMPS | SCALE NTS | WEIGHT (KG) NA | REF. TO ASSY DRG. NA | ITEM NO. NA | NO. OF ITEMS NA

TITLE: **IMPELLER MATERIAL DRAWING (SINGLE SUCTION)**

DRAWING NO. 0 180 40 2 4611 | REV. 01

SHEET NO. 01 | NO OF SHEETS 01

REV.	DATE	ALTERED CHECKED	APPD.	REV.	DATE	ALTERED CHECKED	APPD.	REV.	DATE	ALTERED CHECKED	APPD.	REV.	DATE	ALTERED CHECKED	APPD.	REV.	DATE	ALTERED CHECKED	APPD.	REV.	DATE	ALTERED CHECKED	APPD.







# CORPORATE STANDARD

AA 085 01 33

Rev. No. 02

PAGE 1 OF 7

## PROCEDURE FOR MAGNETIC PARTICLE EXAMINATION

### 1.0 SCOPE:

- 1.1 This standard outlines the procedure for magnetic particle examination of ferro-magnetic materials.
- 1.2 Typical surface and subsurface discontinuities detectable by this method are cracks, seams, laps, cold shut, inclusions, etc.
- 1.3 This shall be applied to all forms of ferromagnetic material as formed and semifinished as well as, finished state, such as welds, forgings, castings, etc.
- 1.4 This standard is generally based on ASTM E 709.

### 2.0 PERSONNEL REQUIREMENT:

Personnel performing non-destructive examination and evaluation shall be qualified to the recommended practice SNT-TC-1A or any other recognised practice.

### 3.0 TEST METHOD:

Finely divided magnetic particles are applied to the surface of a part which has been suitably magnetised. The particles are attracted to regions of magnetic non-uniformity associated with defects and discontinuities, thus producing indications which are observed visually. The magnetic particle is applied either as dry powder or in a wet suspension in a liquid medium.

### 4.0 SURFACE CONDITION/PREPARATION:

The surface being inspected shall be clean and dry. It shall be free from dirt, oil, grease, sand, rust or loose scale. As cast or as welded surfaces are generally satisfactory if clean. A pressure blast is useful for this purpose. Thin paint does not interfere with the formation of indications but must be removed at points where electrical contact is to be made. If the surface is unusually rough, such as with burned in sand or very rough weld bead, interpretation may be difficult because the particle is being trapped mechanically. In case of doubt, light grinding may be necessary to determine if actual indications are present.

#### Revision:

Cl 12.8.8 of MOM of WG-NDT

#### Approved:

INTERPLANT STANDARDIZATION  
COMMITTEE - (WG-NDT)

Rev. No. 02

Amd.No.

Reaffirmed

Prepared

Issued

Dt. of 1st Issue

Dt. 15-12-97

Dt.

Year:

HYDERABAD

CORP. R&D

Sept. '79



## 5.0 SEQUENCE OF OPERATION:

### 5.1 Method Of Examination:

Examination shall be generally carried out by the continuous method, i.e., the magnetising current remains on, while the examination medium is being applied and excess being removed.

### 5.2 Magnetisation:

Any suitable and appropriate means for establishing the necessary magnetic flux may be employed, such as passing current through the material (e.g. 'Prod' method) using magnetic yoke, or wrapping the part with a coil through which a magnetising current is passed.

### 5.3 Examination Medium:

5.3.1 The finely divided ferromagnetic particles used for detection of discontinuities shall be of fine grain and the same shall be of high permeability and low retentivity. It shall be of dry powders (Fluorescent and nonfluorescent) ready for use, as supplied or powder concentrates (Fluorescent and non-fluorescent) for dispersion in water or suspending light petroleum distillates.

#### 5.3.2 Dry Particles:

When dry particles are used, they shall be sprayed either by a low pressure pneumatic instrument or hand operated bulb blower. Colour of the powder shall be such as to provide adequate visual contrast with the back ground of the surface being examined. The temperature of the surface of the part under examination shall not exceed 315°C (600°F). Adequate lighting should be provided for easy observation of the indication. Some coloured organic coatings applied to dry particles to improve contrast lose their colour at higher temperatures. Fluorescent dry particles shall not be used at this high temperature. Manufacturer's recommendations for temperature limitation shall be followed.

#### 5.3.3 Wet Particles:

When wet particles are used, the solid magnetic particles shall be suspended in a suitable liquid medium. The concentration of the particles in the liquid medium shall be 0.2 to 0.4 ml in a 100ml sample for fluorescent particles and from 1.2 to 2.4 ml in a 100 ml for non-fluorescent particles unless otherwise specified by the particle manufacturer.

#### 5.3.4 Fluorescent Particles:

5.3.4.1 The fluorescent particle examination shall be performed using a black light in a darkened area.

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DATE

BY



5.3.4.2 The black light used for fluorescent particle testing shall be capable of developing the wave length of 365nm., in any case the wave length should be in the range of 330 to 390nm. with an intensity of not less than 1000 uw/cm<sup>2</sup> on the surface of the part.

5.3.4.3 The black light shall be allowed to warm up for a minimum of 5 min. prior to its use or measurement of the intensity of the ultraviolet light emission.

5.3.4.4 The examiner shall be in the darkened area for atleast 5 min. prior to examining the parts using black light so that his eyes will adopt to dark viewing. Photochromic or permanently tinted lenses shall not be worn during examination.

5.3.4.5 The black light intensity shall be measured with a black light meter at least once every 8 hours and whenever the work station is changed.

#### 5.4 Orientation of Discontinuities And Examination Coverage:

Examination shall be conducted with sufficient overlap to ensure cent percent coverage at established test sensivity. To ensure most effective detection of discontinuities each area shall be examined at least twice with the lines of flux approximately perpendicular to each other.

#### 5.5 Demagnetisation:

Demagnetisation following examination shall be carried out where residual magnetism can interfere with subsequent process or usage. Demagnetisation is not normally required on the type of parts where the dry powder Prod magnetisation is used.

#### 6.0 METHODS OF MAGNETISATION:

##### 6.1 Prod Method:

##### 6.1.1 Magnetising Technique:

6.1.1.1 Magnetisation shall be accomplished by portable Prod type electrical contacts pressed against the surface in the area to be examined. To avoid arcing, a remote control switch may be provided to permit the current to be turned on after the prods have been properly positioned and turned off before they are removed.

##### 6.1.2 Prod Spacing:

Prod Spacing shall be maximum of 200 mm. Shorter spacing may be used to meet the limitation of geometry or dimensions of the area being examined, or to increase the sensitivity, but prod spacing less than 75 mm usually is not recommended owing to banding of the particles around the prods.



### 6.1.3 Magnetising Current:

Alternating, direct or rectified magnetising current shall be used. The current shall be 90 to 110 A per 25mm. of prod spacing for sections less than 19mm. thick and 110 to 125 A per 25mm. prod spacing for sections 19mm. and greater.

6.1.4 Prod shall be kept free of iron pick up by frequent filing. Local areas of metal being tested which have been subjected to arcing shall be ground to clean metal wherever necessary.

### 6.2 Coil Method:

#### 6.2.1 Magnetising Technique:

Magnetisation shall be accomplished by pressing current through a multiturn coil looped around the part or section of the part to be examined to produce a magnetic field parallel to the axis of the coil.

#### 6.2.2 Magnetising Current:

##### 6.2.2.1 Encircling Coils:

There are four empirical longitudinal magnetization formulas for using encircling coils, the formula to be used depending on the fill factor.

##### 6.2.2.1.1 Low Fill Factor Coils:

In this case, the cross sectional area of the fixed encircling coil greatly exceed the cross sectional area of the part (Less than 10% coil inside diameter). The part shall be placed well within the coils and close to the inside wall of the coil. For parts with length over diameter ratio (L/D) between 3 and 15 is calculated from the following equations.

- (1) Parts with low fill factor positioned closed to the inside wall of the coil:

$$= \frac{45,000}{L/D} \text{ Ampere Turns } (\pm 10\%)$$

- (2) Parts with a low fill factor positioned in the center of the coil:

$$= \frac{43,000 \times R}{(6 L/D) - 5} \text{ Ampere Turns } (\pm 10\%)$$



6.2.2.1.2 Intermediate Fill Factor Coils:

When the cross section of the coil is greater than twice and less than ten times the cross section of part being examined.  
$$= (NI)_{hf} (10-4) + (NI)_{lf} (4-2)/8$$

Where

$$NI_{hf} = \text{Value calculated for high fill factor coils using} \\ \frac{35000}{(L/D) + 2} \quad (10\%)$$

$$NI_{lf} = \text{Value Calculated for low fill factor coils using} \\ \frac{43,000 \times R}{(L/D) - 5} \quad (10\%)$$

Where R = Coil Radius

Y = Ratio of the cross sectional area of the coil to the cross section of the part.

For example if the coil has an inside diameter of 24 cm. and part ( a bar) has outside diameter of 12 cm.

$$Y = \frac{n(12)^2}{n(6)^2} = 4$$

6.2.2.1.3 High Fill Factor Coils:

In this case, when fixed coils or cable wraps used and the cross sectional area of the coil is less than twice the cross sectional area (Including hollow portions) of the part, the coil has a high fill factor.

For parts with in a high fill factor positional coil and for parts with L/D ratio equal or greater than 3.

$$= \frac{35,000}{(L/D)+2} \quad \text{Ampere turns } (\pm 10\%)$$

L/D ratio for a hollow piece: When calculating L/D ratio for a hollow piece, D shall be replaced with an effective diameter Deff. Calculated using.

$$Deff. = [(At - Ah)/n]^{\frac{1}{2}}$$

Where

At = Total cross section area of part

Ah = Cross sectional area of hollow portion(s) of the part.

For a cylindrical piece this is equivalent to

$$Deff. = [(OD)^2 - (ID)^2]^{\frac{1}{2}}$$

Where

OD = Outside diameter of cylinder

ID = Inside diameter of cylinder.

**6.2.2.2 Through Coils:**

For through coils the current specified in para 6.3.2 divided by number of turns shall be used.

**6.3 Direct Contact Method:****6.3.1 Magnetising Technique:**

Magnetising shall be accomplished by passing current end to end through the part to be tested to produce a circular magnetic field perpendicular to the current flow through the part.

**6.3.2 Magnetising Current:**

Direct or rectified current shall be used at 280 to 360 amperes per centimeter of part for diameter upto 125 mm; 200 to 280 amperes per centimeter of part for diameter grater than 250mm.

(Note: A different means of magnetising shall be used for the second examination to fulfil the requirements specified in Cl.5.4).

**6.4 Yoke Method:****6.4.1 Application:**

This method shall be used only to detect surface discontinuities which actually come to the surface.

**6.4.2 Magnetising Technique:**

6.4.2.1 Alternating current electromagnetic yoke shall be used to magnetise, provided the yoke has a lifting power of at least 4.5 Kg and a pole spacing of 75 to 150 mm.

6.4.2.2 Alternatively direct current electromagnetic or permanent magnetic yoke shall be used to magnetise, provided the yoke has a lifting power of at least 18 kg and a pole spacing of 75 to 150 mm.

**6.5 Threading Bar and Coil Technique:**

6.5.1 If the part is hollow, flaws in a longitudinal direction may be detected by passing the magnetising current through a bar or cable held within the bore of the part. Alternatively a threading coil may be used.

6.5.2 The current strength shall be equivalent to not less than 10500 ampere turns (a.c; r.m.s value) or 15000 ampere turns (d.c.) per metre of the maximum distance of the bar cable from the surface of the bore of the part.



6.5.3 Because of limitations of the equipment, it may be necessary to magnetise the part at several positions within the bore, with the bar or cable lying on the bore surface, in which case the distance between spacing of the conductor or coil for successive checks shall not be greater than 100 mm.

Note: Magnetising particle field indicator shall be used to establish adequacy of the magnetic field.

**7.0 CALIBRATION:**

Calibration of the ammeter shall be done as per BHEL Standard AA 085 01 59.

**8.0 EVALUATION OF INDICATIONS & INTERPRETATION:**

8.1 If the indication is caused by the surface discontinuity the particles are usually tightly held to the surface by a relatively strong magnetic leakage field. The line of particles will be sharp and well defined.

8.2 If the indication is caused by surface discontinuity, the particles are held in a broad fuzzy accumulation rather than being sharp and well-defined.

8.3 Non-relevant indications are caused by distortion of magnetic field resulting from magnetic writing, cold working, hard and soft spots, boundaries of heat affected zone, abrupt change of section, etc. Care shall be taken to identify and eliminate them as they may mask the actual defect.

8.4 Relevant indications are those which result from mechanical discontinuities. Linear indications are those in which the length is more than three times the width. Rounded indications are indications in which are circular or elliptical with the length less than three times the width.

**9.0 REFERRED STANDARDS (Latest Publication Including Amendments):**

1. ASTM E 70

2. BHEL CS AA 085 01 59



EVALUATION AND ACCEPTANCE STANDARD FOR MAGNETIC PARTICLE EXAMINATION OF CASTINGS

1.0 SCOPE:

1.1 This standard is applicable for Magnetic Particle Examination of Castings.

1.2 The procedure adopted for this examination is as per Corporate Standard AA 085 01 33

2.0 DEFINITION OF INDICATIONS:

2.1 Circular indications are those more or less elliptical with major axis not more than three times the minor axis.

2.2 Linear indications are those having length in excess of three times average width.

2.3 In-line indications are those in group of three or more indications aligned side by side in line with intervening gaps of less than 2mm measured edge to edge.

3.0 EVALUATION OF INDICATIONS:

3.1 Discontinuities and defects will be indicated by the retention of magnetic particles. All such indications are not necessarily defects, since exclusive surface roughness, magnetic permeability variations and machining marks may also produce similar indications.

3.2 Any indication suspected to be non-relevant is to be considered relevant till it is proved otherwise.

3.3 Broad areas of particle accumulation which could mask indications or discontinuities are unacceptable and those areas shall be cleaned and re-examined.

3.4 Relevant indications are those which results from unacceptable mechanical discontinuities.

4.0 ACCEPTANCE STANDARD:

5.1 Castings are classified into four levels as detailed below according to the size and number of flaws permissible.

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Revised

Approved: INTERPIANT NON-DESTRUCTIVE TESTING COMMITTEE

Prepared: Corp. R&D, Issued: COMP: R&D, Date: 10 SEPT 79



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Level	No. & size of acceptable indications per 100 sq. cm. area and length not exceeding 25 cm.	Unacceptable indications.
1	2 Nos. of 3mm long indication.	Cracks & hot tears.
2	3 Nos. of 3mm long indication. One of 5mm long indication.	-do-
3	3 Nos. of 3mm long indication. 2 Nos. of 4mm long indication. One of 6mm long indication. One in line indication of - (10mm Max. lgth. )	-do-
4	4 Nos. of 3mm long indication. 3 Nos. of 4mm long indication. 2 Nos. of 8mm long indication. One in line indication of - (15mm Max. lgth. )	-do-

Note: The minimum permissible distance between any two or more acceptable individual flaws shall not be less than the major dimension of the larger flaw.



# PRODUCT STANDARD PUMPS HYDERABAD

FP60288

Rev No. 00

Page 1 of 4

## ADDL QUALITY REQUIREMENTS - IMPELLERS MHI DESIGN BFPs, BPs & CEPs

### 1.0 SCOPE:

This standard specifies additional quality requirements apart from the Plant Purchasing specification HY19593-R03. These additional quality requirements are as per purchase specifications of the Collaborator M/s.MHI, Japan.

### 2.0 IMPELLER CASTINGS COVERED UNDER THIS STANDARD:

PUMP TYPE	CASTING	MATL CODE	DRG.NO.-VAR NO	JIS / MHI SPECN
MDG455	Impeller 1 <sup>st</sup> stage	FP9219324504	01804024603-00	SCS6T1
MDG455	Impeller inter stage	FP9219324512 FP9219324520 FP9219324539 FP9219324547	01804024605-01 01804024605-02 01804024605-03 01804024605-04	SCS6T1
MDG405	Impeller 1 <sup>st</sup> stage	FP9219306042	01804024595-00	SCS6T1
MDG405	Impeller inter stage	FP9219306052 FP9219306069 FP9219306077 FP9219306085	01804024600-01 01804024600-02 01804024600-03 01804024600-04	SCS6T1
MDG366	Impeller 1 <sup>st</sup> stage	FP9219324636	01804024633-00	SCS6T1
MDG366	Impeller inter stage	FP9219324644 FP9219324652 FP9219324660 FP9219324679	01804024634-01 01804024634-02 01804024634-03 01804024634-04	SCS6T1
MDG346	Impeller 1 <sup>st</sup> stage	FP9219324563	01804024610-00	SCS6T1
MDG346	Impeller inter stage	FP9219324571 FP9219324580 FP9219324598 FP9219324601	01804024611-01 01804024611-02 01804024611-03 01804024611-04	SCS6T1
MLC450	Impeller	FP9219324610	01891223440-00	SCS6T2
MLC400	Impeller	FP9219324490	01891223435-00	SCS6T2
144RND	Impeller inter stage	FP9219324482	01811224434-00	SCS6T2
144RND	Impeller 1 <sup>st</sup> stage	FP9218224026	01811224452-00	SCS13

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Ref. Doc

Revisions :

Refer to record of revisions :

Prepared :


M.S.RAM

Approved :


K.H.R.K

Date :

15.02.16

TD-106-1 Rev No.5 Form No.		<b>PRODUCT STANDARD</b> <b>PUMPS</b> <b>HYDERABAD</b>	<b>FP60288</b> Rev No. 00 Page 2 of 4
<b>COPYRIGHT AND CONFIDENTIAL</b> The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.	<p><b>3.0 ADDL.REQUIREMENTS FOR CASTINGS WITH JIS SPECN <u>SCS6T1</u>:</b></p> <p><b>3.1 HEAT TREATMENT:</b></p> <p>Against Clause 6.0 of Specification HY19593-R03, Casting shall be heat treated as mentioned below</p> <p>Quenching (Air cool): <math>950 \pm 20</math> deg.C</p> <p>Tempering (Air cool or furnace cool): <math>630 \pm 15</math> deg.C          Hold time: 1Hr/Max thickness 25mm</p> <p><b>3.2 MECHANICAL PROPERTIES:</b></p> <p>Over and above specification requirement of Clause 10.0 of HY19593-R03, Casting shall confirm the following</p> <p>Impact test Charpy 2mm U-notch &gt; 78 J/sq.cm</p> <p>Tensile test for reduction of area &gt; 35%</p> <p>Hardness <math>\geq 230</math> BHN</p> <p><b>4.0 ADDL.REQUIREMENTS FOR CASTINGS WITH JIS SPECN <u>SCS6T2</u>:</b></p> <p><b>4.1 HEAT TREATMENT:</b></p> <p>Against Clause 6.0 of Specification HY19593-R03, Casting shall be heat treated as mentioned below</p> <p>Quenching (Air cool): <math>950 \pm 20</math> deg.C</p> <p>Tempering (Air cool or furnace cool): <math>575 \pm 15</math> deg.C          Hold time: 1Hr/Max thickness 25mm</p> <p><b>4.2 MECHANICAL PROPERTIES:</b></p> <p>Over and above specification requirement of Clause 10.0 of HY19593-R03, Casting shall confirm the following</p> <p>Impact test Charpy 2mm U-notch &gt; 29 J/sq.cm</p> <p>Tensile test for reduction of area &gt; 35%</p> <p>Hardness = 264 - 311 BHN</p>		
Ref. Doc			



TD-106-1 Rev No.5	Form No.	 <b>HYDERABAD</b>	<b>PRODUCT STANDARD</b> <b>PUMPS</b> <b>HYDERABAD</b>	<b>FP60288</b> Rev No. 00 Page 3 of 4
<b>COPYRIGHT AND CONFIDENTIAL</b> The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.		<p><b>5.0 ADDL.REQUIREMENTS FOR CASTINGS WITH JIS SPECN <u>SCS13</u>:</b></p> <p>- NIL -</p> <p><b>6.0 LIQUID PENETRANT TEST FOR ALL IMPELLER CASTINGS:</b></p> <p>Test shall be conducted as per BHEL standard AA0850131.</p> <p>Acceptance standards:</p> <ol style="list-style-type: none"> <li>The size of linear indication shall not exceed 2 mm (As per GPC-0279-R04)</li> <li>3 no. of 3 mm dia circular indications per unit rectangular area of 100 sq.cm. The maximum length of side of rectangle shall be 25cm. (As per AA0850132)</li> </ol> <p><b>7.0 DIMENSIONAL CHECK FOR ALL IMPELLER CASTINGS:</b></p> <p>All the impellers castings shall be dimensionally checked as per the following applicable Formats, in addition to the dimensional check as per casting drawing.</p> <p><b>7.1 FOR IMPELLERS OF PUMP TYPES MDG455, MDG405, MDG366 &amp; MDG346:</b></p> <p>Applicable Format Nos.: 1.1, 1.7, 2.1, 2.4, 3.1, 3.4, 4.1, 4.4, 5.1, 5.4, 6.1, 6.2, 7.1, 7.2, 12.1, 13.1, 14.1, 14.4.  (separate attachment, file name : FP60288-Formats-BFP.pdf)</p> <p><b>7.2 FOR IMPELLERS OF PUMP TYPES MLC450 &amp; MLC400:</b></p> <p>Applicable Format Nos.: 1.7, 2.4, 3.4, 4.4, 5.4, 6.2, 7.2, 13.2, 14.4.  (separate attachment, file name : FP60288-Formats-BP.pdf)</p> <p><b>7.3 FOR IMPELLERS OF PUMP TYPE 144RND:</b></p> <p>Applicable Format Nos.: 1.5, 1.9, 2.3, 2.5 3.3, 3.5, 4.3, 4.5, 5.3, 5.5, 6.1, 6.2, 7.1, 7.2, 12.3, 12.4 13.3, 13.4, 14.3, 14.5.  (separate attachment, file name : FP60288-Formats-CEP.pdf)</p>		
Ref. Doc				



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	Rev. No.	Date	Revision Details	Revised By	Approved By
Ref. Doc.					





TD 219  
Rev 00

**PLANT PURCHASING  
SPECIFICATION  
HYDERABAD**

**HY 195 93**

Rev. No. 04

Page 1 of 12

**STAINLESS STEEL CASTINGS (Gr. X4CrNi13-4)**

**1.0 GENERAL:**

This specification governs the quality requirements of 12 Chromium-4 Nickel Stainless Steel Castings.

**2.0 APPLICATION:**

These castings are required for pumps components like Impellers, diffusers etc.

**3.0 CONDITION OF DELIVERY:**

These castings shall be supplied in hardened & tempered, rough machined and finally stress relieved condition, unless otherwise specified in the drawing or purchase order.

**4.0 COMPLIANCE WITH NATIONAL STANDARD:**

The castings shall comply with EN10213 Gr. X4CrNi13-4 (in general) and all the additional requirements of this specification.

**5.0 MANUFACTURE:**

**5.1** The steel shall be made by electric arc or induction furnace process. Any other process of steel making shall be referred to BHEL for approval.

**5.2** The steel castings shall be made from fully killed steel.

**5.3** Depending on the surface finish requirements as per the ordering drawing, components like impellers and diffusers, etc. shall be made by investment casting process. Other castings can be manufactured by sand casting process.

**5.4** The castings shall not be peened, plugged or impregnated to stop leaks etc.

**5.5 Manufacturing Process Plan (MPP):**

Unless waive off for submission of MPP is provided by BHEL (in writing), the manufacturer shall submit a MPP for review & approval for each drawing.

The MPP shall include stage wise details of the process controls during manufacturing with the details of the facilities used for steel melting and refining and heat treatment, inspection sequence and testing plan for destructive and non- destructive testing (including NDT scan plans for UT, MPI etc.) as per the specification and ordering drawing.

This approved MPP can be used till there are no changes in the manufacturing process and the facilities used for the manufacture of the castings.

<b>Revision:</b> Modified Cl. 6.0, 7.2 and QAP.			<b>Issued :</b> <b>STANDARDS ENGINEERING &amp; IPR COORDINATION DEPARTMENT</b>		
<b>Rev. No. 04</b>	<b>Amd. No.</b>	<b>Reaffirmed:</b>	<b>Prepared:</b>	<b>Approved:</b>	<b>Date of 1<sup>st</sup> issue:</b>
Dt. 25-11-2020	Dt.	Year:	Sr.ENGINEER, (MATLS ENGG.)	AGM (R&D and EC)	DEC. 1983

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RESTRICTED USE



**6.0 HEAT TREATMENT:**

The castings shall be hardened & tempered as per EN10213 to achieve the mechanical properties as per Cl.10.0 of this specification. Subsequently after rough machining stress relieving shall be done at a temperature at least 20°C below tempering temperature. Actual heat treatment cycles followed shall be reported in test certificate.

All mechanical and NDT tests shall be carried out after rough machining in final dispatch condition.

**7.0 Quality of Castings :****7.1 For Sand Casting:**

Dimensions & Tolerances: The enclosed drawings are finish machined ones (unless otherwise specified). The castings shall be supplied in rough machined condition with an allowance of 4 to 6mm on the surfaces where machining symbols have been shown on the drawing. Small grooves, steps etc., up to 50 mm (width or size), need not be rough machined.

Finish: The castings shall be cleaned and fettled thoroughly ensuring complete removal of sand, slag, fins and scales from both internal and external surfaces.

Freedom from defects: Foundry defects like blow holes, shrinkage cavities porosity, non-metallic inclusions etc. appearing on the surfaces to be machined shall be opened out and smoothly ground provided the depth of any of these defects, when so ground, doesn't exceed 2/3 of the machining allowances. All as cast surfaces shall be free from harmful foundry defects like slag inclusions, sand spots, cold shuts, shrinkage, scabs etc.

**7.2 For Investment casting:**

Dimensions & tolerances: The dimensions and tolerances shall be as specified in the ordering drawing/ product standard. Additionally, shroud thickness at various locations for impeller castings at eye side and neck side shall be checked and reported in Dimensional Inspection Report.

Finish: The surface of the casting shall be free of adhering ceramic, scale, and hot tears. The surface finish of the casting shall be as per the ordering drawing.

Freedom from defects: Cracks are not permitted on any surface of the casting.

**7.3** In case where pressure tightness is called for (though the test may be required to be conducted at BHEL) the requisite quality must be ensured to guarantee the same.

**8.0 CHEMICAL COMPOSITION:**

The chemical analysis of the steel supplied shall confirm to the following chemical composition:

Elements (% wt)		C	Si	Mn	Cr	Ni	Mo	S	P
X4CrNi13-4*	Min.	-	-	-	12.0	3.50	-	-	-
	Max.	0.06	1.00	1.00	13.5	5.00	0.70	0.025	0.035

\*V- 0.08 max; Cu- 0.30 max



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**9.0 TEST SAMPLES:**

Unless otherwise specified in the drawing, the mechanical properties shall be determined on one separately cast test coupon for each heat and heat treatment batch (if the casting weight is less than or equal to 500 kg) or on one integral test coupon (castings having weight more than 500 kg) for each casting.

The size of the test coupon shall be selected as appropriate to the thickness of the actual castings and the extent of testing and to carryout repeat tests if required. After casting, the test coupons shall receive a stamp indicating the heat number. It is mandatory to keep the separately cast test coupon along with the castings from same heat during each subsequent heat treatments of the casting. The integral test piece shall not be removed prior to complete heat treatment and shall be suitably stamped & identified by BHEL representative before detaching it from the casting.

**10.0 MECHANICAL PROPERTIES:**

The mechanical properties tested on test coupons shall be as follows:

Tensile Strength N/mm <sup>2</sup> min.	0.2% Proof Stress, N/mm <sup>2</sup> min.	Elongation % L = 5.65 √So min.	Charpy Impact Strength (ISO-V) J min.	Hardness (BHN) (on casting)
760-960	550	15	27	235-285

**10.1** The tensile test shall be conducted as per IS: 1608 or any reputed National or International Standard.

**10.2** The impact test specimen shall be 10mm x 10mm 55mm with a 2mm ISO V-notch. The test shall be conducted as per IS: 1757 or any other reputed National or International Standard.

The minimum impact strength specified above is the average of three samples at the same location. Only one value can be lower than the minimum specified average value, but in no case lower than 2/3rd of the same. All the three values shall be reported.

**10.3** The Brinell hardness shall be tested on each casting after heat treatment. A minimum of 3 hardness values shall be taken at different locations as far as possible from each other (preferably of opposite faces of the casting) on each casting. The variation in the minimum and the maximum hardness values obtained on the casting shall not be more than 25BHN.

**10.4** The hardness values shall also be tested on the repair welded areas and the hardness variation of weldment to the parent material shall not be more than 35 BHN.

**11.0 HYDRAULIC TEST:**

The hydraulic test shall be carried out at BHEL if mentioned in the drawing. In case the supplier needs to carry out the test the same will be indicated in the drawing/order. The test pressure shall be maintained for a minimum of 30 minutes (unless otherwise mentioned) without leakage.

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**12.0 NON-DESTRUCTIVE TESTS :**

The following non-destructive tests shall be performed in the final delivery condition of the casting:

**12.1 Visual Inspection:**

- a. **For Sand casting:** The visual inspection on all the un-machined surfaces shall be as per MSS SP-55.
- b. **For investment castings:** The visual examination shall be carried out as per the requirements of ordering drawing.

**12.2 Magnetic Particle Inspection:**

Unless otherwise specified in the drawing, all the areas of the castings (or as per the approved MPP) shall be tested by magnetic particle test as per AA 0850133 and the acceptance norms (if not specified in the drawing) shall be as per AA 0850134, level-2.

**12.3 Ultrasonic Test (For Sand Casting):**

Unless otherwise specified in the drawing, ultrasonic examination shall be conducted on 100% volume of the castings (or as per the approved MPP) as per AA 085 01 04 and acceptance norms (if not specified in the drawing) shall be level 2 as per the AA0850104.

**13.0 ADDITIONAL TESTS:**

**13.1 Ultrasonic Test (For investment casting):** If specified in the drawing / product Standard, Ultrasonic Examination shall be conducted on the casting as per the drawing requirement.

**13.2 Radiographic Test:** If specified in the drawing / product Standard, Radiographic Examination shall be conducted on the casting as per the drawing requirement.

**13.3 Liquid Penetrant Examination:** If specified in the drawing / product Standard, LPI shall be conducted on the casting as per the drawing requirement.

**14.0 REPAIR WELDING:**

Before weld repair, all the defects in the castings shall be reported to BHEL by sending defectograms & repair welding procedure for the written approval by BHEL.

**15.0 FIRST PIECE QUALIFICATION TESTS:**

Whenever the supplies are made for the first time to BHEL for each and every ordering drawing, additional requirements for the supplies will be applicable. Depending on the past experience and references available to BHEL, supplier will be asked to carry out additional tests which will be duly incorporated in the manufacturing process plan (MPP)/ Quality plan, before placement of order for the first time supplies.

Note: In case of first time supplies of pump impeller and diffuser casting, RT on cut piece castings will be applicable as a mandatory requirement, for the first lot. This requirement will be incorporated in the MPP.

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**16.0 QUALITY PLAN:**

- 16.1** The supplier shall follow the quality plan Ref. BHEL/QP/HY 19593 Rev.04 as per annexure A, unless the conditions stipulated in Cl. 16.2 & 16.3 are applicable.
- 16.2** In case customer/project related additional requirements are applicable in the enquiry/tender, vendor may be asked to submit a separate QP including such requirements.
- 16.3** In case of new vendors or first time supplies according to drawings mentioned in BHEL enquiry, QP shall be submitted for approval by BHEL. The attached QAP will not be applicable.

**17.0 INSPECTION AT SUPPLIER'S WORKS:**

- 17.1** BHEL representative shall have free entry and access to all areas where the manufacture of castings ordered is carried out. All reasonable facilities shall be provided to him including labour where necessary.
- 17.2** BHEL representative shall be given sufficient advance intimation to witness the various processes, tests etc. Punching and identification shall be done in the presence of BHEL representative.

**18.0 TEST CERTIFICATE:**

- 18.1** The supplier shall furnish five copies of certificates (in English) to BHEL. Each copy shall contain the following details.

- 1) HY19593 / Rev.04
- 2) BHEL Order No.
- 3) Item description and Drawing No. of the Casting.
- 4) Supplier's Name
- 5) Melt No. & Heat treatment Cycle
- 6) Casting Serial No. per melt.
- 7) Details of manufacturing process like sand or investment casting
- 8) Heat treatment charts/ details
- 9) Defectogram & Welding repair procedure (in case of weld repair)
- 10) Results of all tests as per this specification (including FPQ requirement as per order)
- 11) Dimensional inspection report including shroud thickness value at various locations
- 12) Copy of BHEL approved MPP (if applicable)

- 18.2** The certificate shall be attested by the chief of Inspection / Chief Metallurgist of the supplier and attested by BHEL Representative.

**19.0 MARKING & PACKING:**

- 19.1** The following details shall be hard punched clearly on the castings:

1. HY 19593 Rev.04
2. Melt No.
3. Drawing No.
4. BHEL Inspector's stamp
5. Supplier's mark

- 19.2** The castings shall be suitably packed and protected from damage and corrosion during transit.

<b>HY 195 93</b>	<b>PLANT PURCHASING SPECIFICATION HYDERABAD</b>	TJD 219 Rev 00	
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**20.0 REJECTION AND REPLACEMENT:**


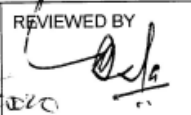

The final decision regarding acceptance or rejection rests with BHEL if the casting is not found as per this specification at any time during further operations on the castings. The supplier shall replace the rejected casting at his own cost and the rejected casting shall be returned after all commercial terms and conditions are satisfied.

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BHARAT HEAVY ELECTRICALS LIMITED R.C.PURAM, HYDERABAD		STANDARD QUALITY PLAN FOR VENDOR ITEMS						QP. NO: HYQA/PMP/SQP/079 REV. NO.: 01 DATE: 26-11-2020 VALID UPTO: 25-11-2022					
		ITEM: STAINLESS STEEL CASTINGS(GR. X4CrNi13-4) BHEL SPEC: HY19593 R04						PAGE 1 OF 6					
SI No	Component & Operations	Characteristics	Class	Type Of Check	Quantum Of Check	Ref Document	Acceptance Norms	Format Of Record	*	Agency			Remarks
										D	P	W	
<b>1.0 RAW MATERIAL STAGE</b>													
1.0	Incoming Material Inspection	Incoming Material Inspection	Major	As per Mfr practice	One Per GRIM	Mfr Internal Records	Mfr Internal Records	Inward Material Report	-	2			
<b>2.0 IN-PROCESS INSPECTION</b>													
2.1	Pattern / Die Inspection	Visual, Dimensional inspection	Major	Visual Measrt.	100%	Mfr Internal Records	Mfr Internal Records	Pattern Inspection Report		2		1	Verification of Pattern by TPIA to be reported in CQIR
2.2	Moulding	Visual, Dimensional inspection of Moulds & Cores	Major	Visual	100%	Mfr Internal Records	Mfr Internal Records	Moulding Records	√	2		1	
2.3	Melting & Pouring	Chemical composition.	Major	Chemical	Every Melt	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	Test Certificate	√	2		1	Verification of melting log sheets

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	<p>ISSUED BY QUALITY ASSURANCE DEPARTMENT</p>		

Format no. : HYQA/QP/VSQP Rev.02

Addl. General Manager / QA (Head)  
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 Addl. General Manager / QA (Head)

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SI No	Component & Operations	Characteristics	Class	Type Of Check	Quantum Of Check	Ref Document	Acceptance Norms	Format Of Record	* D	Agency			Remarks
										P	W	V	
2.4	Heat Treatment	Time & Temperature	Major	Time & Temp.	100%	HY 19593 Rev.04	HY 19593 Rev.04	HT Chart, TC	√	2		1	TPIA shall verify HT charts, furnace calibration certificates, temperature recorders, measuring instruments
2.5	Keel Block/ Test Piece Identification	Physical	Major	Physical	Each Heat/HT batch (≤ 500 Kg) or Test Piece/ Each Casting (> 500 Kg)	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	Identification Report	√	2	1		
2.6a	WPS/PQR for repair welding, if any	Record review	Major	Review	100%	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	Defectogram, WPS/PQR, Welding records	√	2		1	Defectogram shall be submitted to BHEL for written permission for any weld repair.
2.6b	Welder qualification records	Record review	Major	Review	100%	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	Welding qualification records	√	2		1	

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PREPARED BY: *[Signature]* 26/11/2020  
REVIEWED BY: *[Signature]*  
APPROVED BY: *[Signature]*

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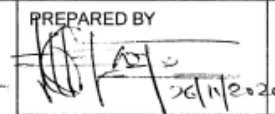
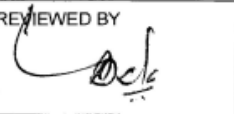
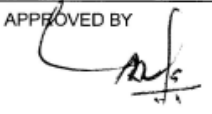
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BHEL-HYD

SI No		Component & Operations	Characteristics	Class	Type Of Check	Quantum Of Check	Ref Document	Acceptance Norms	Format Of Record	* D	Agency			Remarks
											P	W	V	
2.7		Stress Relieving after Rough machining	Record review	Major	Review	100%	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	SR Chart, TC	√	2		1	
3.0		<b>FINAL INSPECTION &amp; TESTING</b>												
3.1a		Test Sample	Mechanical Properties. (checked on test samples identified/stamped by TPIA)	Major	Mech. Properties	As per SI No 1.5 above	HY19593 Rev04 & BHEL Drg.	HY19593 Rev03 & BHEL Drg.	Test Certificate	√	2	1		
3.1b		Test sample & casting	Hardness	Major	Hardness	Weld Repaired areas, casting & test coupon	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	Test Report	√	2	1		Hardness values shall be reported for both on casting, test coupon & weld repaired areas
3.2		Casting	Final Dimension	Critical	Dimn. Measure	100%	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	Dimn. Report	√	2	1		Shroud Thickness at Various locations for impeller casting at eye side and neck side shall be checked and reported in DIR (Dim. Inspection Report)

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SI No	Component & Operations	Characteristics	Class	Type Of Check	Quantum Of Check	Ref Document	Acceptance Norms	Format Of Record	* D	Agency			Remarks
										P	W	V	
3.3	NDT on Final Delivery Condition of Casting	Surface finish, cleaning of internal surfaces, holes, opening etc.	Critical	Visual	Each Casting	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	Inspection report	√	2	1		
		Soundness of Casting	Critical	MPI	BHEL Drg./ Spec/ approved MPP	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	MPI Report	√	2	1	1	
			Critical	LPI	BHEL Drg./ Spec/ approved MPP	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	LPI Report	√	2	1	1	
			Critical	UT	BHEL Drg./ Spec/ approved MPP	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	UT Report	√	2	1	1	
4.0	Marking & Stamping	Visual Inspection	Major	Visual	Each Casting	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	Inspection Report	√	2	1	1	Marking by hard stamp method
5.0	Documentation & Certification	Verification	Major	Verify.	Each Casting	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	Inspection Report	√	2		1	

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 \* D: RECORDS IDENTIFIED WITH TICK (√) SHALL BE ESSENTIALLY INCLUDED IN QA DOCUMENTATION.

PREPARED BY

REVIEWED BY

APPROVED BY

*[Signature]*  
26/11/2020

*[Signature]*

*[Signature]*

ISSUED BY QUALITY ASSURANCE DEPARTMENT

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Goutam Sethi


General Manager / QA (Head)

General Manager / QA (Head)

General Manager / QA (Head)


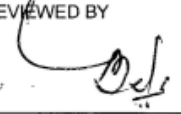
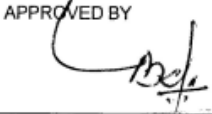
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 <b>BHARAT HEAVY ELECTRICALS LIMITED</b> R.C.PURAM, HYDERABAD		<b>STANDARD QUALITY PLAN FOR VENDOR ITEMS</b>						QP. NO: HYQA/PMP/SQP/079 REV. NO.: 01 DATE: 26-11-2020 VALID UPTO: 25-11-2022					
		ITEM: STAINLESS STEEL CASTINGS(GR. X4CrNi13-4) BHEL SPEC: HY19593 R04						PAGE 5 OF 6					
SI No	Component & Operations	Characteristics	Class	Type Of Check	Quantum Of Check	Ref Document	Acceptance Norms	Format Of Record	* D	Agency			Remarks
										P	W	V	
6.0	Preservation & Despatch	Visual Inspection	Major	Visual	Each Casting	HY19593 Rev04 & BHEL Drg.	HY19593 Rev04 & BHEL Drg.	Test Report	√	2		1	

**NOTES:**

- 1) BHEL specification and drawing shall prevail over quality plan in case of any mismatch.
- 2) This QAP is not applicable for vendors supplying these castings for the first time to BHEL
- 3) This QAP is not applicable in case of NTPC projects
- 4) This QAP is also not applicable for projects where customer approval of QP is involved
- 5) Vendor/Purchase shall consult QA for clarity on involvement of customer during QP approval and prior providing despatch clearance to vendors
- 6) PO specified version of standards/drawings /tolerances etc. to be mentioned in Quality Plan/Drawing
- 7) BHEL reserves the right for conducting repeat test, if required
- 8) BHEL approved inspection engineers to be deployed for inspection
- 9) Inspection to be offered only after ensuring that all documents (Quality Plan, Drawings, Data Sheet, Purchase Specifications, etc.) are available as per Purchase Order
- 10) Vendor to offer Original Test Certificates issued by Third Party Laboratories or Suppliers
- 11) Vendor to ensure with TPIA that a note ' Compared with Original Test Certificate. Reviewed, Verified and found in order ' shall contain with every Inspection Report
- 12) Only valid and calibrated measuring instruments and equipment shall be used
- 13) Vendor to ensure that Material Test Certificate & Traceability Records are available for use of correct material
- 14) Vendor to ensure that all certificates are endorsed by TPIA with comments (Witnessed or Verified), as applicable per quality plan
- 15) Vendor shall ensure to offer log sheets containing actual measured values instead of saying OK/Not OK to TPIA
- 16) Vendor shall submit complete Inspection and test documentation whichever is identified with (√) under column D of approved quality plan shall be enclosed with the Inspection Report
- 17) Vendor shall submit Original copies of all inspection and test documents authenticated by TPIA


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 General Manager / QA (Head)  
 HY19593, Rev. 04 (Pg. 11 of 12)


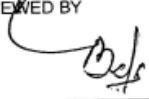
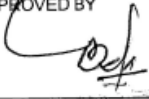
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	BHARAT HEAVY ELECTRICALS LIMITED R.C.PURAM, HYDERABAD	STANDARD QUALITY PLAN FOR VENDOR ITEMS					QP. NO: HYQA/PMP/SQP/079 REV. NO.: 01 DATE: 26-11-2020 VALID UPTO: 25-11-2022						
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Sl No	Component & Operations	Characteristics	Class	Type Of Check	Quantum Of Check	Ref Document	Acceptance Norms	Format Of Record	* D	Agency			Remarks
										P	W	V	

**HISTORY OF REVISIONS:**

Sl. No	Revision details	Date of Revision	Prepared By	Reviewed By	Approved By
00	SQP prepared in line with procurement requirement	11.11.2014	ML RAJAM	KSN MURTHY	KSN MURTHY
01	'Measurement of Shroud thickness at various locations added for Impellers' added under CI 3.2	26.11.2020	ML RAJAM	G BALA	G BALA

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**PLANT STANDARD  
HYDERABAD**

**HY0230261**

**REV. NO. 03**

**PAGE 1 OF 2**

**LIST OF APPLICABLE STANDARDS ON LIMITS, FITS AND TOLERANCES**

**1.0 SCOPE:**

The standard covers the list of applicable standards on Limits, Fits and Tolerances. These standards are applicable unless or otherwise specified.

**2.0 LIST OF APPLICABLE STANDARDS:**

SL. NO.	STANDARD NO.	TITLE
1.	AA0230201	Limits and Fits (Tolerance grade, Position and Class).
2.	AA0230202	Limits and sizes for commercial bolts and nuts.
3.	AA0230204	Guide for selection of Fits.
4.	AA0230206	Standard limits for Shafts (upto 500 mm).
5.	AA0230207	Standard limits for Shafts (above 500 mm and upto 3150 mm).
6.	AA0230208	Allowable deviations for dimensions without specified tolerances (linear and angular).
7.	AA0230402	Permissible deviations for untoleranced dimensions of castings.
8.	AA0230403	Tolerancing system ISO Metric Screw Threads
9.	AA0621101	Tolerances and Machining allowances for Flame cutting.
10.	AA0621104	General tolerances for welding constructions for length and angles.
11.	AA0621105	General tolerances for welded structures – form and position.

**Revisions:**

**Issued :**

**Withdrawn standards deleted (2 Nos.).**

**STANDARDS ENGINEERING DEPARTMENT**

**Rev. No. 03**

**Amd. No.**

**Reaffirmed:**

**Prepared:  
MANAGER  
(STDS. ENGG.)**

**Approved:**

**Date of 1<sup>st</sup> issue:**

**Dt. OCT. 06**

**Dt.**

**Year:**

**AGM (E&CC)**

**MAY, 1992**

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**HY0230261**

**REV. NO. 03**

**PAGE 2 OF 2**

**PLANT STANDARD  
HYDERABAD**



NOTE:

1) AA 023 02 08

Medium class of deviation is applicable, if the same is not mentioned on the drgs./specs.

2) AA 023 04 02

Tolerance class 5 is applicable, if the same is not mentioned on the drgs./specs.

3) AA 062 11 04

Accuracy class A is applicable if the same is not mentioned on the drgs.

4) AA 062 11 05

Accuracy class E is applicable, if the same is not applicable on drgs.

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It must not be used directly or indirectly in any way detrimental to the interest of the company.

RESTRICTED USE



(On Company Letter Head)

FORM NO. 10F

[See sub-rule (1) of rule 21AB]

Information to be provided under sub-section (5) of section 90 or sub-section (5) of section 90A of the Income-tax Act, 1961

I..... son/daughter of Mr ..... in the capacity of.....  
(Designation) do provide the following information, relevant to the previous year 2019-20 in case of ..... for the purposes of sub-section (5) of section 90/section 90A:-

Sl.No.	Nature of information	Details
(i)	Status (individual; company, firm etc.) of the assessee	Company
(ii)	Permanent Account Number (PAN) of the assessee if allotted	
(iii)	Nationality (in the case of an individual) or Country or specified territory of incorporation or registration (in the case of others)	.....
(iv)	Assessee's tax identification number in the country or specified territory of residence and if there is no such number, then, a unique number on the basis of which the person is identified by the Government of the country or the specified territory of which the assessee claims to be a resident	.....

(v)	Period for which the residential status as mentioned in the certificate referred to in sub-section (4) of section 90 or sub-section (4) of section 90A is applicable	2019-20
(vi)	Address of the assessee in the country or territory outside India during the period for which the certificate, mentioned in (v) above, is applicable	..... ..... .....

I have obtained a certificate to in sub-section (4) of section 90 of sub-section (4) of section 90A from the Government of..... (name of country or specified territory outside India)

Signature:.....  
Name:.....  
Address:.....  
Email ID:.....  
Contact Number.....  
Permanent Account Number:.....

Verification

I..... do hereby declare that to the best of my knowledge and belief what is stated above is correct complete and is truly stated. Verified today the..... day of.....

Signature of the person providing the information

Place:.....

(On Company Letter Head)

No Business Connection or Permanent Establishment Certificate

Date

To

Bharat Heavy Electricals Limited  
Ramachandrapuram, Hyderabad  
India - 502032

Sir,

Sub: No Business Connection or Permanent Establishment declaration for FY 2019-20

This is to certify that ..... (Name of the supplier) is a company incorporated in .....(country ) and does not have any business connection in India as per the provision of Section 9 of the Income Tax Act 1961 or any Permanent Establishment as defined in Article 5 of the India and .....(country) DTAA.

We hereby certify that we will notify BHEL in case of any change in the status as certified above.

For .....

Authorised Signatory


*(Note – Please refer definition of the Business Connection on reverse and Permanent Establishment in the relevant DTAA)*

"Business connection" as defined in Section 9 of the Income Tax Act shall include any business activity carried out through a person who, acting on behalf of the non-resident,—



- (a) has and habitually exercises in India, an authority to conclude contracts on behalf of the non-resident, unless his activities are limited to the purchase of goods or merchandise for the non-resident; or
- (b) has no such authority, but habitually maintains in India a stock of goods or merchandise from which he regularly delivers goods or merchandise on behalf of the non-resident; or
- (c) habitually secures orders in India, mainly or wholly for the non-resident or for that non-resident and other non-residents controlling, controlled by, or subject to the same common control, as that non-resident:


Provided that such business connection shall not include any business activity carried out through a broker, general commission agent or any other agent having an independent status, if such broker, general commission agent or any other agent having an independent status is acting in the ordinary course of his business :

Provided further that where such broker, general commission agent or any other agent works mainly or wholly on behalf of a non-resident (hereafter in this proviso referred to as the principal non-resident) or on behalf of such non-resident and other non-residents which are controlled by the principal non-resident or have a controlling interest in the principal non-resident or are subject to the same common control as the principal non-resident, he shall not be deemed to be a broker, general commission agent or an agent of an independent status

MANUFACTURING QUALITY PLAN											
 Manufacturer's Name & Address: BHEL Hyderabad-32		Item : MD BFP IMPELLER (HY19593)		QP : HYQAMQP/PMP/BFP/547/982 REV. 02		PROJECT: KHURJA SUPER THERMAL POWER PROJECT (2X660 MW) MAIN CONTRACTOR: BHEL - HYDERABAD PACKAGE: TG PACKAGE CONTRACT NO : THDC/RKSH/CC-9915-371		REFERENCE DOCUMENT DATE : 08.10.2021 PAGE 12 OF 32			
				CLASS		TYPE OF CHECK				QUANTUM OF CHECK M C/N	
Sl. No.	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY	REMARKS

1.0 RAW MATERIAL & BOUGHT OUT ITEMS												
1.1	Pattern/Die Inspection	Visual & Dimensional Inspection	Major	Visual, Measrt	100%	Mfg. Internal Record	Mfg. Internal Record	Pattern Inspection Report		P	V	-
1.2	Moulding	Visual & Dimensional Inspection of Mould & core	Major	Visual	100%	Mfg. Internal Record	Mfg. Internal Record	Moulding Records	✓	P	V	-
1.3	Melting & Pouring	Chemical Composition	Major	Chemical Analysis	Each Melt	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Test Certificate	✓	P	V	V
1.4	Heat Treatment	Time & Temperature	Major	HT Cycle Review	100%	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Test Certificate	✓	P	V	V
1.5	Keel Block/Test Piece Identification	Physical	Major	Physical Stamping	Each Casting as per HY19593 & BHEL Drg	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Identification Record	✓	P	W	TPIA shall identify and stamp the test piece

 MANUFACTURER / SUB-SUPPLIER		MAIN SUPPLIER		SIGNATURE				FOR NTPC USE		DOC.NO. 9915-371-110-HYD-QVM-Q-001 REV.02 CAT - I	
						LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION, M.MANUFACTURER/SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC, INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION AS APPROPRIATE. "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"		REVIEWED BY		APPROVED BY	


		<b>MANUFACTURING QUALITY PLAN</b>		PROJECT: KHURJA SUPER THERMAL POWER PROJECT (2X660 MW) MAIN CONTRACTOR: BHEL - HYDERABAD PACKAGE: TG PACKAGE CONTRACT NO : THDC/RKSH/CC-9915-371			
				Manufacturer's Name & Address: BHEL Hyderabad-32	Item : MD BFP IMPELLER (HY19593)	QP : HYQAMQP/PMP/BFP/547/982 DATE : 08.10.2021	REV. 02 PAGE 13 OF 32



Sl. No.	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
					M	C/N					M	C	N	
1.6	Rough Machining	Dimensional Inspection (Rough Casting)	Major	Measrt	100%	100%	Ordering Drawing	Ordering Drawing	Dimension Report	✓		P	V	
1.7	WPS/PQR/Welder qualification record for repair welding (Based on internal NDT)	Record Review	Major	Record Review	100%	100%	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Welding Records	✓		P	V	Defectogram shall be submitted to BHEL for written permission for weld repair
1.8	Stress relieving followed by blasting	Record Review	Major	Review	100%	100%	HY19593 & BHEL Drg	HY19593 & BHEL Drg	SR Chart	✓		P	V	


**2.0 FINAL INSPECTION AND TESTING**

2.1	Mechanical Tests	Mechanical Properties (checked on test samples identified by TPIA)	Major	Mech. Properties as per specn	Each Casting	Each Casting	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Test Certificate	✓		P	W	W
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 MANUFACTURER / SUB-SUPPLIER	MAIN SUPPLIER	LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M.MANUFACTURER/SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC, INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION AS APPROPRIATE. "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"			FOR NTPC USE	DOC.NO. 9915-371-110-HYD-QVM-Q-001 REV.02 CAT - I
		SIGNATURE	APPROVED BY	REVIEWED BY	APPROVAL SEAL	

MANUFACTURING QUALITY PLAN																
 Manufacturer's Name & Address: BHEL Hyderabad-32		Item : MD BFP IMPELLER (HY19593)		QP : HYQA/MQP/PMP/BFP/547/982 DATE : 08.10.2021		REV. 02 PAGE 14 OF 32		PROJECT: KHURJA SUPER THERMAL POWER PROJECT (2X660 MW) MAIN CONTRACTOR: BHEL - HYDERABAD PACKAGE: TG PACKAGE CONTRACT NO : THDC/RKSH/CC-9915-371								
				Sl. No.	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY	
						M	C/N					M	C	N		
2.2	Hardness Test	Hardness	Major	Hardness	Weld Repair areas, casting & test coupon	Weld Repair areas, casting & test coupon		HY19593 & BHEL Drg	HY19593 & BHEL Drg	Test Certificate	✓	P	W	W		
2.3	Final Dimensions	Dimensional checkup after proof machining	Critical	Measrt	100%	100%		BHEL Drawing	BHEL Drawing	Dimension report	✓	P	W	W		
2.4	Visual Inspection	Visual Inspection, Surface roughness for internal holes	Major	Visual	100%	100%		HY19593	HY19593	Inspection Report	✓	P	W	W		
2.5	Soundness of material	Surface Quality	Major	LPI	100% Machined Area	100% Machined Area		HY19593	HY19593	DP Report	✓	P	W	W		
		Sub Surface Quality	Major	MPI	100%	100%		HY19593	HY19593	MPI Report	✓	P	W	W		

 MANUFACTURER / SUB-SUPPLIER		 FOR NTPC USE		DOC.NO. 9915-371-110-HYD-QVM-Q-001 REV.02 CAT - I	
				LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M.MANUFACTURER/SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION AS APPROPRIATE. "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"	
SIGNATURE		APPROVED BY		APPROVAL SEAL	

		<b>MANUFACTURING QUALITY PLAN</b>				PROJECT: KHURJA SUPER THERMAL POWER PROJECT (2X660 MW) MAIN CONTRACTOR: BHEL - HYDERABAD PACKAGE: TG PACKAGE CONTRACT NO : THDC/RKSH/CC-9915-371			
		Manufacturer's Name & Address: BHEL Hyderabad-32		Item : MD BFP IMPELLER (HY19593)		QP : HYQA/MQP/PMP/BFP/547/982 DATE : 08.10.2021		REV. 02 PAGE 15 OF 32	



Sl. No.	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	*	AGENCY			REMARKS
					M	C/N					D	M	C	
2.6	Marking and Punching	Internal Soundness Marking & Stamping	Major	RT Visual	100%	100%	HY19593 & BHEL Drg HY19593 & BHEL Drg	HY19593 & BHEL Drg HY19593 & BHEL Drg	RT Report/ RT Film Inspection Report	✓ ✓	P P	V W	V V	Film review Marking by hard stamp method


**3.0 PACKING & PRESERVATION**

3.1	Pump Impeller	Preservation and Despatch (Seaworthy packing in case of imported sources)	Major	Visual	100%	100%	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Records	-	P	-	-	
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**NOTES:**


- 1) Repair of the castings shall not be carried out without prior permission from BHEL
- 2) In case of differing requirements, anomalies, any, specification/drawing shall prevail over quality plan
- 3) This QP is applicable for the main and subsequent spares supplies of the project
- 4) This QP is applicable only for the approved vendors as per LOA list for THDC, Khurja project

 MANUFACTURER / SUB-SUPPLIER		 FOR NTPC USE		LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M.MANUFACTURER/SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION AS APPROPRIATE. "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"		DOC.NO. 9915-371-110-HYD-QVM-Q-001 REV.02 CAT - I	
				SIGNATURE		APPROVED BY	

MANUFACTURING QUALITY PLAN														
 Manufacturer's Name & Address: BHEL Hyderabad-32		Item : TD BFP IMPELLER (HY19593)		QP : HYQA/MQP/PMP/BFP/547/983 REV. 02		PROJECT: KHURJA SUPER THERMAL POWER PROJECT (2X660 MW) MAIN CONTRACTOR: BHEL - HYDERABAD PACKAGE: TG PACKAGE CONTRACT NO : THDC/RKSH/CC-9915-371								
				DATE : 08.10.2021 PAGE 22 OF 37										
Sl. No.	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
					M	C/N					M	C	N	

1.0 RAW MATERIAL & BOUGHT OUT ITEMS														
1.1	Pattern/Die Inspection	Visual & Dimensional Inspection	Major	Visual, Measrt	100%	-	Mfg. Internal Record	Mfg. Internal Record	Pattern Inspection Report		P	V	-	
1.2	Moulding	Visual & Dimensional Inspection of Mould & core	Major	Visual	100%	-	Mfg. Internal Record	Mfg. Internal Record	Moulding Records	✓	P	V	-	
1.3	Melting & Pouring	Chemical Composition	Major	Chemical Analysis	Each Melt	Each Melt	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Test Certificate	✓	P	V	V	Verification of melting log sheet
1.4	Heat Treatment	Time & Temperature	Major	HT Cycle Review	100%	100%	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Test Certificate	✓	P	V	V	
1.5	Keel Block/Test Piece Identification	Physical	Major	Physical Stamping	Each Casting as per HY19593 & BHEL Drg	Each Casting as per HY19593 & BHEL Drg	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Identification Record	✓	P	W		TPIA shall identify and stamp the test piece

 MANUFACTURER / SUB-SUPPLIER		MAIN SUPPLIER		SIGNATURE				FOR NTPC USE		DOC.NO. 9915-371-110-HYD-QVM-Q-002 REV.02 CAT - I	
						LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION, M.MANUFACTURER/SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC, INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION AS APPROPRIATE. "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"		REVIEWED BY		APPROVED BY	


		<b>MANUFACTURING QUALITY PLAN</b>				PROJECT: KHURJA SUPER THERMAL POWER PROJECT (2X660 MW) MAIN CONTRACTOR: BHEL - HYDERABAD PACKAGE: TG PACKAGE CONTRACT NO : THDC/RKSH/CC-9915-371			
		Manufacturer's Name & Address: BHEL Hyderabad-32		Item : TD BFP IMPELLER (HY19593)		QP : HYQA/MQP/PMP/BFP/547/983 REV. 02 DATE : 08.10.2021 PAGE 23 OF 37			



Sl. No.	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
					M	C/N					M	C	N	
1.6	Rough Machining	Dimensional Inspection (Rough Casting)	Major	Measrt	100%	100%	Ordering Drawing	Ordering Drawing	Dimension Report	✓		P	V	
1.7	WPS/PQR/Welder qualification record for repair welding (Based on internal NDT)	Record Review	Major	Record Review	100%	100%	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Welding Records	✓		P	V	Defectogram shall be submitted to BHEL for written permission for weld repair
1.8	Stress relieving followed by blasting	Record Review	Major	Review	100%	100%	HY19593 & BHEL Drg	HY19593 & BHEL Drg	SR Chart	✓		P	V	


**2.0 FINAL INSPECTION AND TESTING**

2.1	Mechanical Tests	Mechanical Properties (checked on test samples identified by TPIA)	Major	Mech. Properties as per specn	Each Casting	Each Casting	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Test Certificate	✓		P	W	W
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 MANUFACTURER / SUB-SUPPLIER		 FOR NTPC USE		REVIEWED BY APPROVED BY		APPROVAL SEAL	
LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M.MANUFACTURER/SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION AS APPROPRIATE. "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"				DOC.NO. 9915-371-110-HYD-QVM-Q-002 REV.02 CAT - I			

MANUFACTURING QUALITY PLAN															
 Manufacturer's Name & Address: BHEL Hyderabad-32		Item : TD BFP IMPELLER (HY19593)		QP : HYQA/MQP/PMP/BFP/547/983 DATE : 08.10.2021		REV. 02 PAGE 24 OF 37		PROJECT: KHURJA SUPER THERMAL POWER PROJECT (2X660 MW) MAIN CONTRACTOR: BHEL - HYDERABAD PACKAGE: TG PACKAGE CONTRACT NO : THDC/RKSH/CC-9915-371							
				SI. No.	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY
					M	C/N				M	C	N			
2.2	Hardness Test	Hardness	Major	Hardness	Weld Repair areas, casting & test coupon	Weld Repair areas, casting & test coupon	100%	100%	HY19593 & BHEL Drg	HY19593 & BHEL Drg	✓	P	W	W	
2.3	Final Dimensions	Dimensional checkup after proof machining	Critical	Measrt	100%	100%	100%	BHEL Drawing	BHEL Drawing	Dimension report	✓	P	W	W	
2.4	Visual Inspection	Visual Inspection, Surface roughness for internal holes	Major	Visual	100%	100%	100%	HY19593	HY19593	Inspection Report	✓	P	W	W	
2.5	Soundness of material	Surface Quality	Major	LPI	100% Machined Area	100% Machined Area	100%	HY19593	HY19593	DP Report	✓	P	W	W	
		Sub Surface Quality	Major	MPI	100%	100%	100%	HY19593	HY19593	MPI Report	✓	P	W	W	

 MANUFACTURER / SUB-SUPPLIER		 FOR NTPC USE		DOC.NO. 9915-371-110-HYD-QVM-Q-002 REV.02 CAT - I	
				REVIEWED BY	APPROVED BY
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		<b>MANUFACTURING QUALITY PLAN</b>				PROJECT: KHURJA SUPER THERMAL POWER PROJECT (2X660 MW) MAIN CONTRACTOR: BHEL - HYDERABAD PACKAGE: TG PACKAGE CONTRACT NO : THDC/RKSH/CC-9915-371			
		Manufacturer's Name & Address: BHEL Hyderabad-32		Item : TD BFP IMPELLER (HY19593)		QP : HYQA/MQP/PMP/BFP/547/983 REV. 02		DATE : 08.10.2021 PAGE 25 OF 37	



Sl. No.	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	*	AGENCY			REMARKS
					M	C/N					M	C	N	
2.6	Marking and Punching	Internal Soundness Marking & Stamping	Major	RT	100%	100%	HY19593 & BHEL Drg	HY19593 & BHEL Drg	RT Report/ RT Film	✓	P	V	V	RT FILM REVIEW
			Major	Visual	100%	100%	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Inspection Report	✓	P	W	V	Marking by hard stamp method

**3.0 PACKING & PRESERVATION**

3.1	Pump Impeller	Preservation and Despatch (Seaworthy packing in case of imported sources)	Major	Visual	100%	100%	HY19593 & BHEL Drg	HY19593 & BHEL Drg	Records	-	P	-	-	
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**NOTES:**

- 1) Repair of the castings shall not be carried out without prior permission from BHEL
- 2) In case of differing requirements, anomalies, any, specification/drawing shall prevail over quality plan
- 3) This QP is applicable for the main and subsequent spares supplies of the project
- 4) This QP is applicable only for the approved vendors as per LOA list for THDC, Khurja project

 MANUFACTURER / SUB-SUPPLIER		 FOR NTPC USE		LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION, M.MANUFACTURER/SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC, INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION AS APPROPRIATE. "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"		DOC.NO. 9915-371-110-HYD-QVM-Q-002    REV.02    CAT - I	
SIGNATURE		REVIEWED BY		APPROVED BY		APPROVAL SEAL	