

**BHARAT HEAVY ELECTRICALS LIMITED**

CORPORATE RESEARCH & DEVELOPMENT DIVISION

VIKASNAGAR, HYDERABAD - 500 093, INDIA

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RD:DP:MPX:F-04

ENQUIRY

To

-

Enquiry No: Enq Date: Due Date: Delivery By:

990806651 05-MAR-09 02-APR-09

-

PLEASE SUBMIT YOUR QUOTATION IN SEALED COVER
 SUPERSCRIBED WITH ENQUIRY NO, ENQUIRY DATE
 AND DUE DATE SUBJECT TO OUR TERMS AND
 CONDITIONS ENCLOSED, FOR THE FOLLOWING
 MATERIALS SO AS TO REACH US ON OR BEFORE THE
 DUE DATE BY 12 NOON. THE TENDERS WILL BE
 OPENED AT 2 PM ON THE SAME DAY

Pin

Email :

Attn. .

PLEASE GIVE REFERENCE OF ENQ NUMBER , ENQ .DATE AND DUE DATE IN ALL YOUR CORRESPONDENCE
 FOR PROMPT ACTION. IN CASE IF YOU ARE NOT MAKING THE OFFER PLEASE POST A REGRET LETTER AND
 RETURN THE DOCUMENTS.

SL NO	DESCRIPTION / SPECIFICATION	UNIT	QTY
1	DESIGN, FABRICATION AND COMMISSIONING OF ACID TEXTURISATION SYSTEM FOR mc-Si WAFERS FOR USE IN SOLAR CELL APPLICATIONS.	NO	1
SPECIFICATIONS: ATTACHED AT ANNEXURE - A			
ALL OFFERS SHALL INCLUDE FILLED UP COMPLIANCE STATEMENT AS PER ANNEXURE - B AND PRICE BID FORMAT AS PER ANNEXURE - C.			

Please submit your offer in Two parts as per enclosed "General Terms and Conditions of enquiry & Contract for the purchase of Goods/ Services" in separate sealed covers as detailed below:

1) First cover shall contain a) Technical & Commercial bid, b) Compliance Statement, c) Un-priced Price bid, i.e. a copy of the Price bid with the price(s) columns left blank.

2) Second Cover containing Price bid.

If the Price bid is found to be different from the un-Priced Price bid in any way, the offer will be rejected.

3) GUARANTEE CERTIFICATE : REQUIRED

4) MANUFACTURER'S TEST CERTIFICATE : REQUIRED

5) BHEL reserves right to procure above items by REVERSE AUCTION.

Note:

1) ALL OFFERS MUST INCLUDE NAME OF CONTACT PERSON, PHONE NO, FAX NO, EMAIL ID.
 UNSIGNED/INCOMPLETE OFFER(S) ARE LIABLE FOR REJECTION.

2) Taxes & Duties quoted will be taken for cost evaluation & order placement and no change will be entertained later except in the case of changes made by the Government.

3) Changes in Taxes and Duties because of the changes in Turnover etc. will be to the supplier's account.

4) In case any Taxes/duties exempted, a self declaration for the same may be attached to the offer.

AS WE ARE ENGAGED IN R&D ACTIVITY "C" FORM WILL NOT
 BE ISSUED

Yours faithfully
 for

PLEASE FILL UP THE ENCLOSED VENDOR REGISTRATION FORM
 AND SEND IT ALONG WITH YOUR QUOTATION. OTHERWISE
 YOUR QUOTATION WILL NOT BE CONSIDERED. (IGNORE THIS IF
 YOU HAVE ALREADY SUBMITTED THIS FORM)

BHARAT HEAVY ELECTRICALS LTD

NARSIMHA RAO N

Manager

Amorphous Silicon Solar Cell Plant, Gurgaon

Specifications of Acid texturisation system

Functional Requirement:

The system is required for texturisation (roughening of surface) of silicon wafers using acidic solution for application in solar cells.

Scope:

Design, fabrication, supply, installation and commissioning of Acid texturisation system, suitable for handling of thin (~0.2 mm) silicon wafers of size: 156 mm x 156 mm as per the scheme given in Sketch No.1.

Overview of Acid texturisation system

The system consists of seven tanks for processing and rinsing of silicon wafers. A buffer tank fitted with heat exchanger plates is required for storage, mixing of fresh acids and extraction of heat generated due to exothermic reaction in the process tank. Heat exchanger plates are to be cooled using a chiller. Hardware is required to move wafer basket from one tank to the other sequentially in a linear configuration. The vertical movement of arm is to be provided using pneumatic/electromechanical devices. The complete process monitoring and control is envisaged through a PLC based automation. About 25 wafers stacked in a wafer carrier have to be loaded and unloaded manually and rest of the texturisation process has to be carried out automatically.

Sl. No.	Process tanks with lids, Qty: 3nos.	Vendors remarks/Confirmation
1	<p>i. Process Tank -A: Double walled tank (Refer Sketch no.2)</p> <ul style="list-style-type: none"> a. Material for Tank and lid: PVDF sheet b. Thickness of the sheet: 6 mm c. Total volume of acidic solution ($\text{HF} + \text{HNO}_3 + \text{H}_2\text{SO}_4 + \text{H}_2\text{O}$) used: 18 liters. d. Outer tank size (outer Dim): (L x W x H): 370mm x 370mm x 400 mm e. Inner tank size (outer Dim): (L x W x H): 270mm x 270mm x 300 mm (suitable for wafer carrier of Size: (L x W x H): 144 mm x 187mm x 184 mm to be supplied by BHEL) f. Lid with handle: To cover the tank g. Inlet connection for inner tank: One number at the Center of the bottom of tank fitted with acid compatible pneumatic valve. h. Drain connection for outer tank: One number with acid compatible pneumatic valve. i. Size of inlet and drain connections: $\frac{1}{2}$ inch dia, suitable for 6-kg/cm² pressure. j. Plumbing material: CPVC k. Diffuser: A removable box (material PVDF) with perforated top plate to be fixed at the bottom of the tank for uniform flow distribution of chilled acid. The diffuser box can be used for removal of silicon splinters also. (Refer Sketch no.3) 	
	<p>ii. Process Tank- B: Double walled tank (Refer Sketch no.4)</p> <ul style="list-style-type: none"> a. Material for Tank and lid: PPE sheet b. Thickness of the sheet: 10 mm c. Total volume of alkali solution ($\text{NaOH} + \text{H}_2\text{O}$) used: 18 liters d. Outer tank size (outer Dim): (L x W x H): 370mm x 370mm x 400 mm e. Inner tank size (outer Dim): (L x W x H): 270mm x 270mm x 300 mm f. Lid with handle: To cover outer tank g. Drain connection for inner tank: one number at the Center of the bottom with alkali proof pneumatic valve h. Drain connection for outer tank: one number with alkali proof pneumatic valve i. Size of drain connections: $\frac{1}{2}$ inch, suitable for 6kg/cm² pressure j. Plumbing material: CPVC k. Splinter removal: Through a removable perforated plate 	

Signature and seal

(Vendor's endorsement as acceptance to the above specifications)

	iii. Process Tank- C: Double walled structure (Refer Sketch no.5) a. Material for Tank and lid: PPE sheet b. Thickness of the sheet:: 10 mm c. Total volume of acidic solution (HCl + H ₂ O): 18 liters. d. Outer tank size (outer Dim): (Lx W x H): 370mm x 370mm x 400 mm e. Inner tank size (outer Dim): (Lx W x H): 270mm x 270mm x 300 mm f. Lid with handle: To cover the tank g. Drain connection for inner tank: one number at the Center of the bottom with acid proof pneumatic valve h. Drain connection for outer tank: one number with acid proof pneumatic valve i. Size of drain connections: ½ inch, suitable for 6 kg/cm ² pressure j. Plumbing material: CPVC k. Splinter removal: Through a removable perforated plate	Vendors remarks/Confirmation
2	Rinse Tanks with lids (D1-D4), Qty: 4 nos. Double walled structure (Refer Sketch no.6) One rinse tank to be placed after each process tank for rinsing of wafer carriers in DI (De ionized) water. a. Material of the Tanks and lids: PPE sheet b. Thickness of the sheet: 10 mm c. Outer tank size (outer Dim): (Lx W x H): 370mm x 370mm x 400 mm d. Inner tank size (Inner Dim): (Lx W x H): 270mm x 270mm x 300 mm e. Lid with handle: To cover the tank f. Drain connection for inner tank: One number with acid proof pneumatic valve g. Drain connection for outer tank: One number with acid proof pneumatic valve. h. DI water inlet connection: One number at the Center of the bottom of tank fitted with pneumatic valve. i. Size of drain connections: ½ inch, suitable for 6 kg/cm ² pressure j. Plumbing material: CPVC k. Measurement of Resistivity of drained DI water: Sensor for water Resistivity (2-18 M Ohm cm) to be provided at the drain outlet of D4 tank. l. DI water flow shut off: Through feed back from DI water Resistivity meter. m. Diffuser: A removable box with perforated top plate to be fixed at the bottom for uniform flow distribution of DI water. The diffuser box also to be used for removal of silicon splinters.	

Signature of the vendor and seal
(Vendor's endorsement as acceptance to the above specifications)

3	Buffer tank with heat exchanger plates	Vendors remarks/Con firmation
	Buffer tank- E: Qty: 1No. Single walled structure (Refer Sketch no.7) <ul style="list-style-type: none"> a. Material for Tank and lid: PVDF b. Thickness of sheet: 6 mm (with suitable reinforcement) c. Total volume of acidic solution: 150-170 liters. d. Size of the Tank: :Lx W x H: 700mm x 300mm x 700 mm e. Lid with handle: To cover the tank f. Drain connection: Through a 'T' joint, one side of the 'T' joint to be connected to acid circulation pump through a pneumatic valve and another side of the 'T' to be connected to drain through a pneumatic valve for draining the acid mixture. Acid circulation pump is in the scope of vendor. g. Size of drain connections: ½ inch, suitable for 6 kg/cm² pressure h. Plumbing material: CPVC 	
	Heat Exchanger plates-F for acid cooling. Qty: 1No. <ul style="list-style-type: none"> a. Heat exchanger plates: Fluoro polymer (FEP, PFA, PTFE) based heat exchanger (Model. No. X4-18-18-24-F-LP) from M/s Process Technology, USA or equivalent to be fixed inside the buffer tank. b. Amount of heat Extraction in acidic solution: 50 kcal per minutes c. Temperature of the Acidic solution to be maintained: 8-25 °C (±2°C). d. Acid circulation: Chilled acid to be pumped from buffer tank to process tank-A through a manual throttle valve suitable for flow rates in the range: 15-20 lpm. At the inlet of acid circulation pump a suitable filter has to be provided. e. Acid circulation pump impeller material: PVDF f. Pump Capacity: Head: 3 m, Flow rate:15-20 lpm g. Thermal insulation: Suitable insulation to be wrapped around the buffer tank walls. 	
	Chilled water: Chilled water (5-10 °C) to be made available at ASSCP, Gurgaon, at pressure: 5-6Kg/cm² and flow rate of 10-15 lpm. However the vendor is required to make arrangement at his works for pre dispatch inspection at his cost	

Signature of the vendor and seal
 (Vendor's endorsement as acceptance to the above specifications)

4	Process and Rinse Tank Support structure and Exhaust enclosure	Vendors remarks/Confirmation
	Tank Support Structure All the tanks have to be supported on support structure with level adjustment mechanism. <ul style="list-style-type: none"> a. Structure: Suitable MS angles/Square sections. b. Protection: Painted with acid resistant paint coating 	
	Exhaust enclosure All the tanks are to be enclosed in an enclosure with a suitable support MS structure and painted with acid resistant paint coating <ul style="list-style-type: none"> a. Enclosure Material: PVC sheet b. Thickness of the sheet: 5 mm c. Enclosure exhaust connection: Through a manual throttle valve (~ 6 inch dia). (Exhaust blower and duct to be made available at ASSCP, Gurgaon by BHEL.) d. A duct to be provided (~ 8" X 8" size) a little above the tank level for effective suction of acid fumes e. Sliding windows on the front side: 3 mm thick Transparent Polycarbonate sheets f. Removable panels made of PPE (5 mm thick) to be provided at lower front and rear side and attached to the support structure. 	
5	Hardware for Automation and sensors : Transport mechanism for wafer baskets <ul style="list-style-type: none"> a. Layout of the scheme is as per sketch no.1. Wafer basket arms to be moved over 7 tanks placed in a linear manner. b. No. of wafer basket Arms: 1 no. c. Vertical arm movement mechanism: Pneumatic/electromechanical d. Stroke length: ~12-15 inch e. Loading and unloading: Manual f. Arm should have suitable provision to hold/Lock the basket handle. g. Arm should have provision to move up and down independently. h. Suitable railing for transport of arms i. Positive pressure to be maintained around transport railing to protect from acid vapors. j. All hardware items to be made of acid resistant materials and where ever not possible these should be coated suitably to protect them in the acidic environment. 	

Signature of the vendor and seal
(Vendor's endorsement as acceptance to the above specifications)

	Sensors for monitoring of process parameters: <ol style="list-style-type: none"> Digital pH meter: 1 No. with two sensors compatible with HF and other acids. Suitable for computer interfacing. pH range: 0.00 to 6.00, pH resolution: 0.01, Automatic temperature compensation,. Temperature sensor for acidic solution: 2 nos. acid proof PT100 element. (one number to be provided in Buffer tank and the other one in Process tank-A). Audio/visual alarm: To indicate any deviation from set value ($\pm 2^{\circ}\text{C}$). Acid level indicator in buffer tank: Acid compatible level sensor for low and high level indication with audio/visual alarm and stops acid circulation pump when acid level reaches low level in buffer tank. Flow sensor for acid circulation: To indicate acid flow and stop the pump in case flow stops. 	Vendors remarks/Confirmation
6	Automation : <ol style="list-style-type: none"> PLC/PC SCADA based Horizontal movement of arms: Provision for variable speed settings (100-1000 cm/min) Speed of Vertical movement of arms: ~3" per sec Process time in each tank: 20-300 sec. Selectable DI water Resistivity at the out let of rinse tanks to be monitored at Tank-D4 only. DI water flow start/stop Automatically based on feed back from DI water Resistivity meter .Movement of Arm: Smooth movement in both horizontal and vertical directions to be ensured. 	
7	Piping & valves : <ol style="list-style-type: none"> All the water inlet and drain connections should be made with $\frac{1}{2}$ inch dia connections of CPVC. Fittings should be compatible for 6 Kg/cm² pressure. DI water to each rinse tank to be connected through a Flow meter. Typical plumbing scheme is given in sketch no.8. Suitable PPE trays below the acid tanks with drain connection to be provided for any chemical spillage with a facility of spraying water to clean the chemical. A suitable filter to be provided at the suction side of the acid circulation pump. DI water inlet connection for all the rinse tanks to be provided through pneumatic valve. The drain connections from all the rinse tanks to be connected to a common drain line (2"dia pipe). Drain connection from Process tank-A to be connected to a separate line(2" dia Pipe) through acid compatible pneumatic valve. Drain connection from Process tank-B and C to be connected to a separate drain line (2" dia Pipe) through acid compatible pneumatic valves. 	

Signature of the vendor and seal
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8	Electrical: a. A suitable cabinet to house control panel for control of various pneumatic valves and the PC. b. Equipment to be designed for 230 V/400V, 50 Hz power supply.	Vendors remarks/Confirmation
9	Safety alarms/interlocks: a. Alarm for Exhaust failure b. Alarm for excess temperature of acid solution c. Any other necessary safety provision d. Provision for 3 nos of additional interlocks for future use	
10	Services requirement: Requirement of services like Compressed air, DI water, Power etc., which are required for commissioning of the system are to be indicated by the vendor. These services will be provided by BHEL at ASSCP, Gurgaon	
11	System Acceptance criteria: a. Test certificate for tank materials, pneumatic valves, plumbing materials and all sensors to be provided to BHEL for verification. b. Tank dimensions as per specifications. c. All the inlet and drain connections for acids/alkali/Rinse tanks have to be demonstrated for leak proof operation at the designated pressures. d. Control and operation of pneumatic valves for smooth operation have to be demonstrated. e. Smooth wafer carrier transport movement with one arm controlled through a PC as per BHEL specifications. f. Chilling of acidic solution to be demonstrated to remove about 50 kcal per minute of heat form acidic solution. During pre dispatch inspection, this can be demonstrated with water by inserting an immersion heater of 2 k Watt and maintain the water temperature at 15°C (±2°C) in the process tank with heater on. g. Monitoring of conductivity of DI water at the drain connection of Rinse tank D-4 has to be demonstrated. h. Operation, control and logging of various process parameters through PC. i. One set of detailed operation and maintenance manual to be supplied. Manuals of OEM suppliers also to be provided.	
12	Warranty One year after installation and commissioning of the system	
13	Delivery System is to be delivered and commissioned at ASSCP, Gurgaon, Haryana (Near Delhi)	

Signature of the vendor and seal
(Vendor's endorsement as acceptance to the above specifications)

Important note

A. Techno Commercial Bid (to be enclosed in a separate sealed cover)

1. **The vendor is required to submit the technical bid conforming to all the points given in the specifications.**
2. The sketches referred in the above specifications are not manufacturing drawings. They are only conceptual drawings. However, the vendor is required to prepare manufacturing drawings in consultation with BHEL before starting of the system fabrication.
3. The design and fabrication of acid texturisation system involves the expertise/facilities in the following areas:
 - a. Fabrication of PPE/PVDF tanks
 - b. Handling of corrosive acids like HF, HNO₃ etc and suitable heat exchanger for these acids.
 - c. Automation for movement of wafer baskets as per pre defined process sequence.

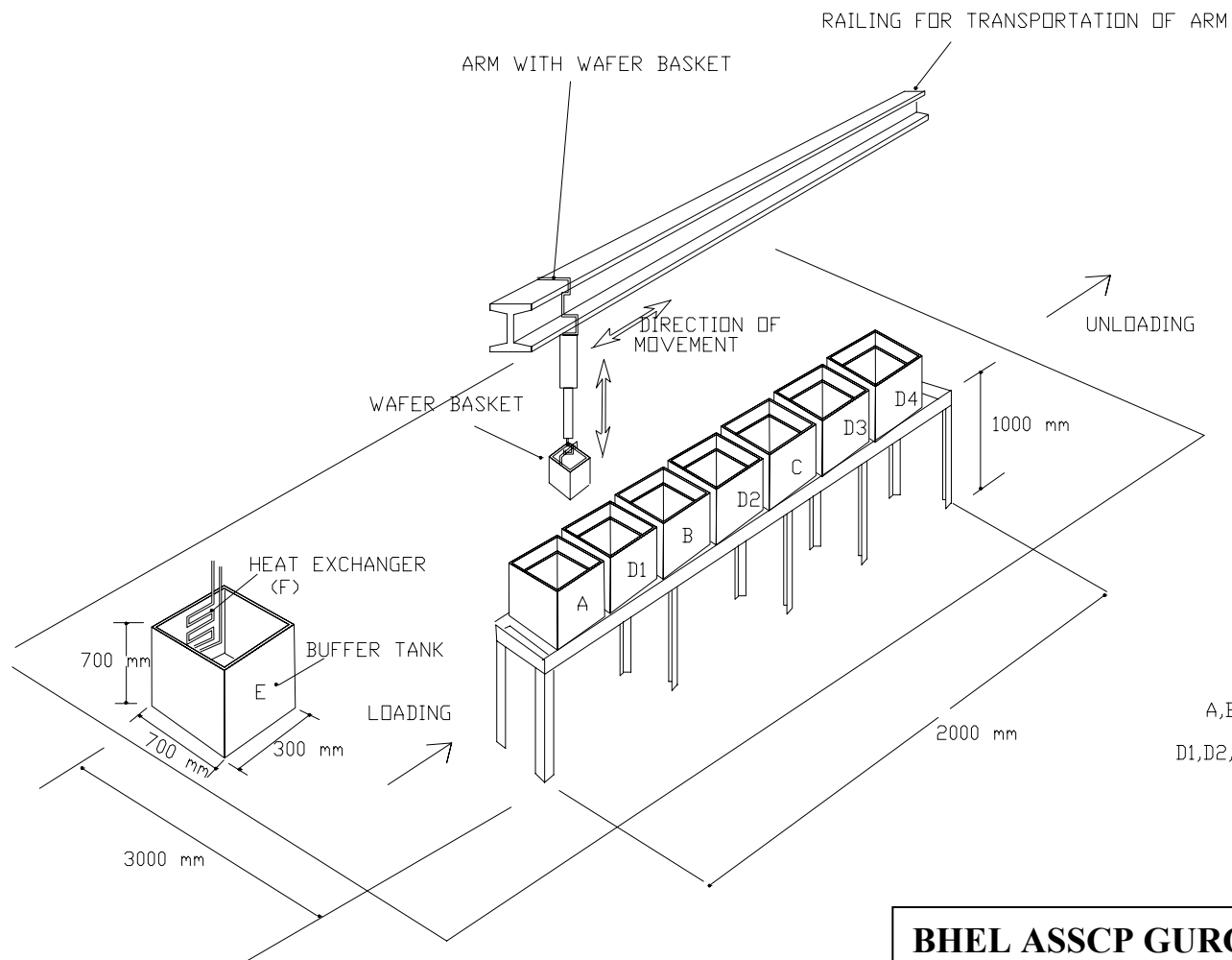
The vendor has to provide complete information on expertise/facilities available with regard to the above points. The vendor may provide the above details either in the form of documents or in the form of video. BHEL technical team may visit the works of vendors to evaluate them, if required.

4. Vendor should have completed/executed a job involving expertise in any one of the areas mentioned at Sl.No.3 (a, b, c) above. (Documentary evidence to be provided). In case the vendor has tie-up with any associate in developing any of the areas mentioned at Sl.No.3 (a, b, c) , the name and address of the associate with his credentials has to be provided.
5. Vendor should have executed at least one single order worth more than Rs.10 lakh successfully (Documentary evidence to be provided) during the past three years.
6. The Vendor is required to furnish details of proposed acid cooling system using Fluoro polymer based Heat exchanger plates.
7. Vendor to provide details of available technical manpower & services and their associates.
8. Commercial terms: As per BHEL standard conditions.

Annexure - C

B. Vendors are requested to submit their financial offer in the following format (to be enclosed in a separate sealed cover):

S. No.	Item description	Cost (in Rs.)
1	PVDF process tank (1no), complete with all accessories like in let and outlet connections fitted with pneumatic valves etc.	
2	PPE Process tanks (2nos) and PPE rinse tanks (4nos) complete with in let and outlet connections fitted with pneumatic valves and manual valves	
3	PVDF Buffer tank (1no) fitted with Fluoro polymer heat exchanger plates and acid circulation pump.	
4	MS support structures for all the tanks coated with acid resistant coating and PVC exhaust enclosure, panels for covering front and backside of support structure	
5	Hardware and software for automation and process control	
6	HF compatible pH, temperature, level sensors and controls/display units	
7	Piping and Plumbing items	
8	Any other item relevant for fabrication of acid texturisation system	
9	Excise,. VAT Sales Taxes etc.	
10	Packaging and forwarding/Transportation to ASSCP, Gurgaon	
11	Installation and commissioning charges	
	Total cost	



- A,B,C - PROCESS TANKS
- D1,D2,D3, D4 - RINSE TANKS
- E - BUFFER TANK
- F - HEAT EXCHANGER

BHEL ASSCP GURGAON

ACID TEXTURISATION SYSTEM

SKETCH NO. : 01

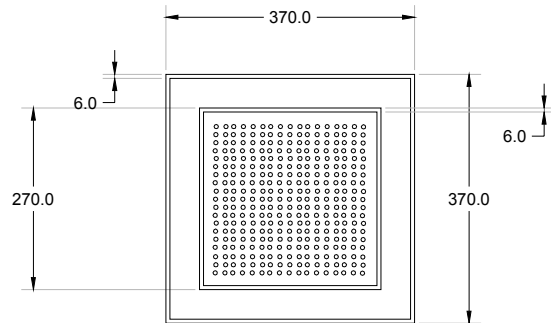
DESCRIPTION: ISOMETRIC VIEW OF THE SCHEME

ALL DIMENSIONS ARE IN mm

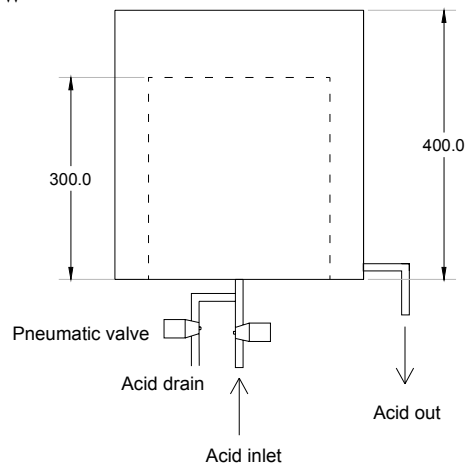
DIMENSIONS ARE APPROXIMATE

TOPVIEW

Top view

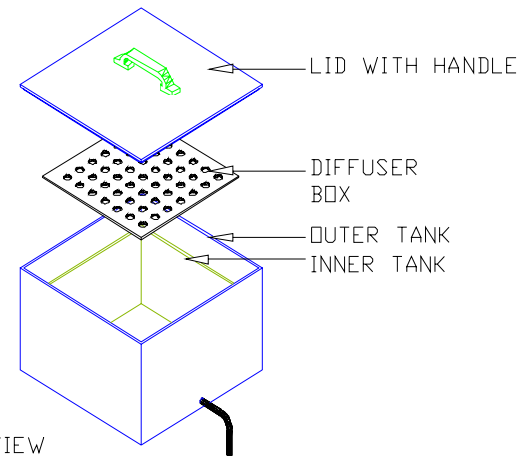


FRONT VIEW



Front view

ISOMETRIC



ISOMETRIC VIEW
PROCESS TANK -1

Process tank with diffuser box

BHEL ASSCP GURGAON

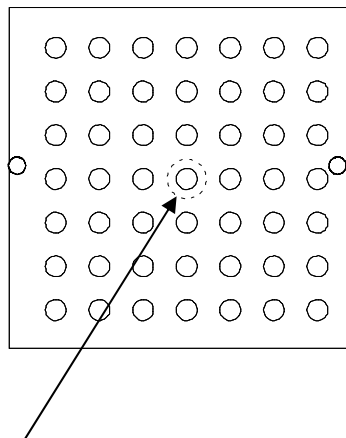
ACID TEXTURISATION SYSTEM

Sketch No.-02 Process Tank -A

Material : 6 mm PVDF

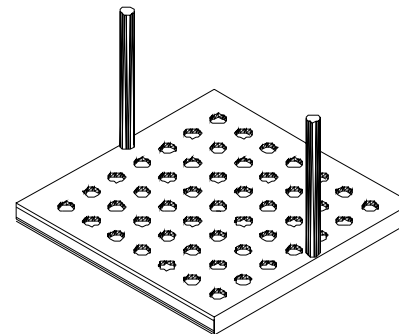
ALL DIMENSIONS ARE IN mm

TOP VIEW



Bottom plate with centre
hole

The diffuser box dimensions should be fixed to accommodate in the process tank-1
With a centre hole provided at the bottom plate to facilitate acid inlet



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ACID TEXTURISATION SYSTEM

SKETCH NO.-03

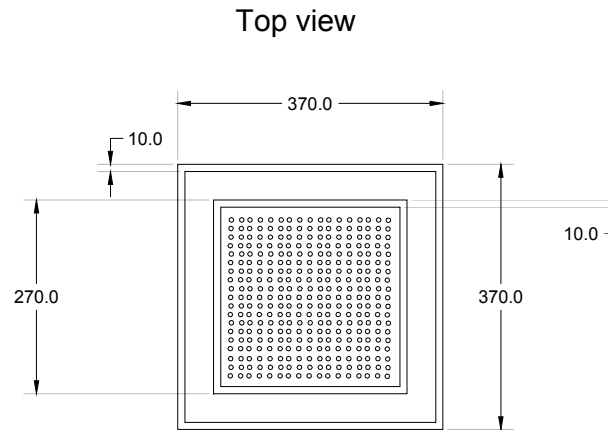
MATERIAL: PVDF, 6mm THICK

DESCRIPTION: DIFFUSER BOX

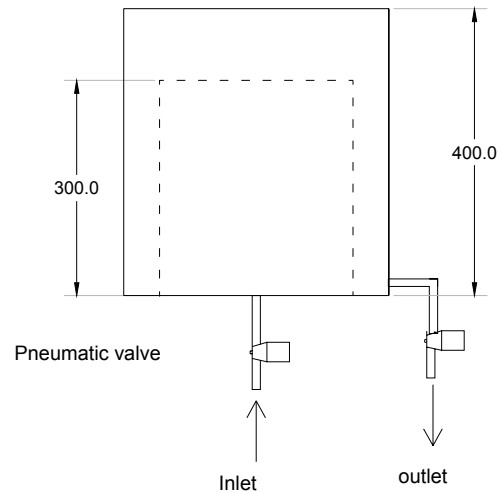
ALL DIMENSIONS ARE IN mm

DIMENSIONS ARE APPROXIMATE

TOPVIEW

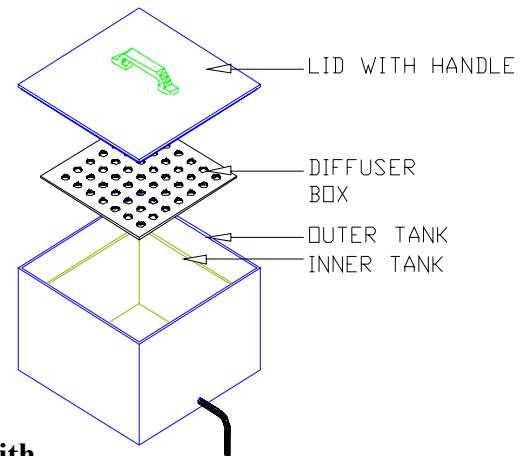


FRONT VIEW



Front view

ISOMETRIC



Process tank with
diffuser box

BHEL ASSCP GURGAON

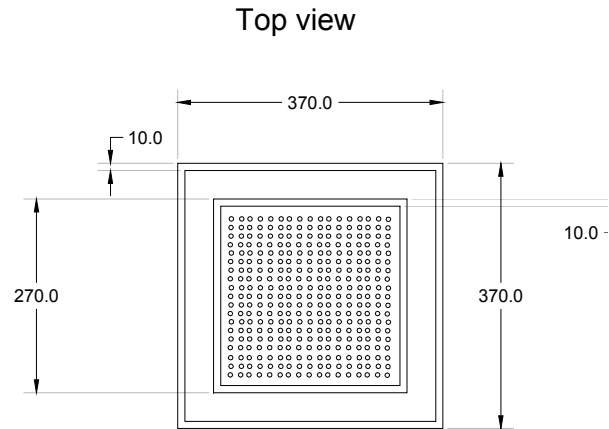
ACID TEXTURISATION SYSTEM

Sketch No.-04 Process Tank -B

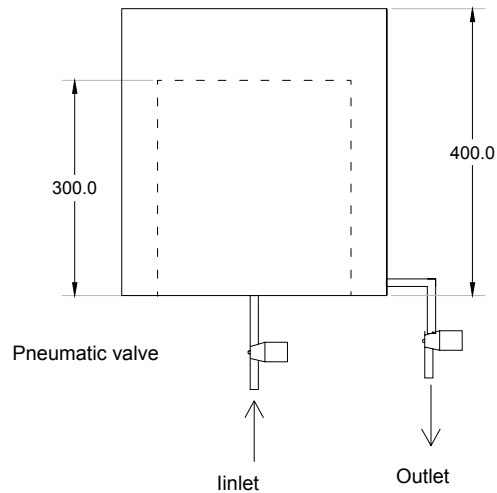
Material : PPE sheet

ALL DIMENSIONS ARE IN mm

TOPVIEW

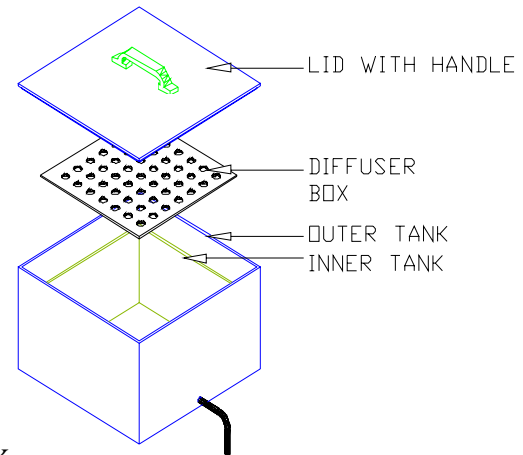


FRONT VIEW



Front view

ISOMETRIC



Process tank
with diffuser box

BHEL ASSCP GURGAON

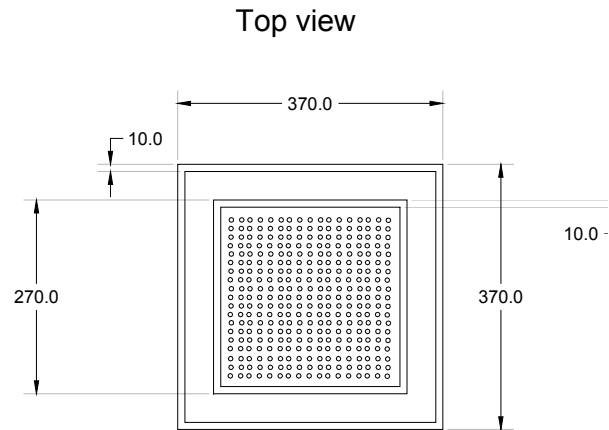
ACID TEXTURISATION SYSTEM

Sketch No.-05 Process Tank -C

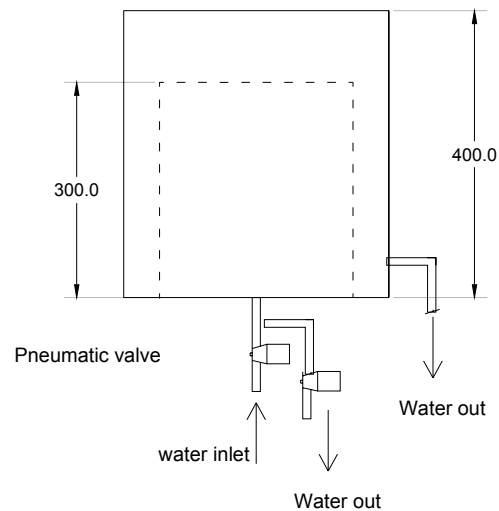
Material : PPE sheet

ALL DIMENSIONS ARE IN mm

TOPVIEW

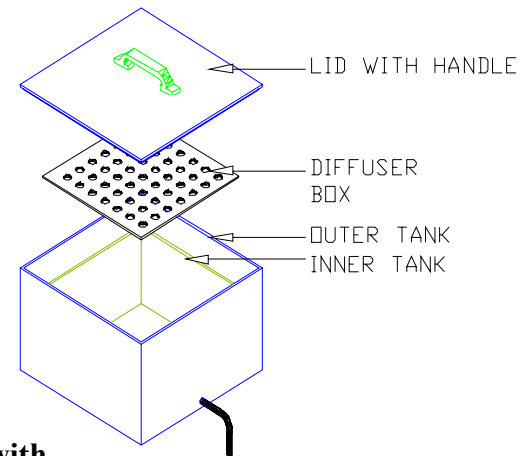


FRONT VIEW



Front view

ISOMETRIC



Rinse tank with
diffuser box

BHEL ASSCP GURGAON

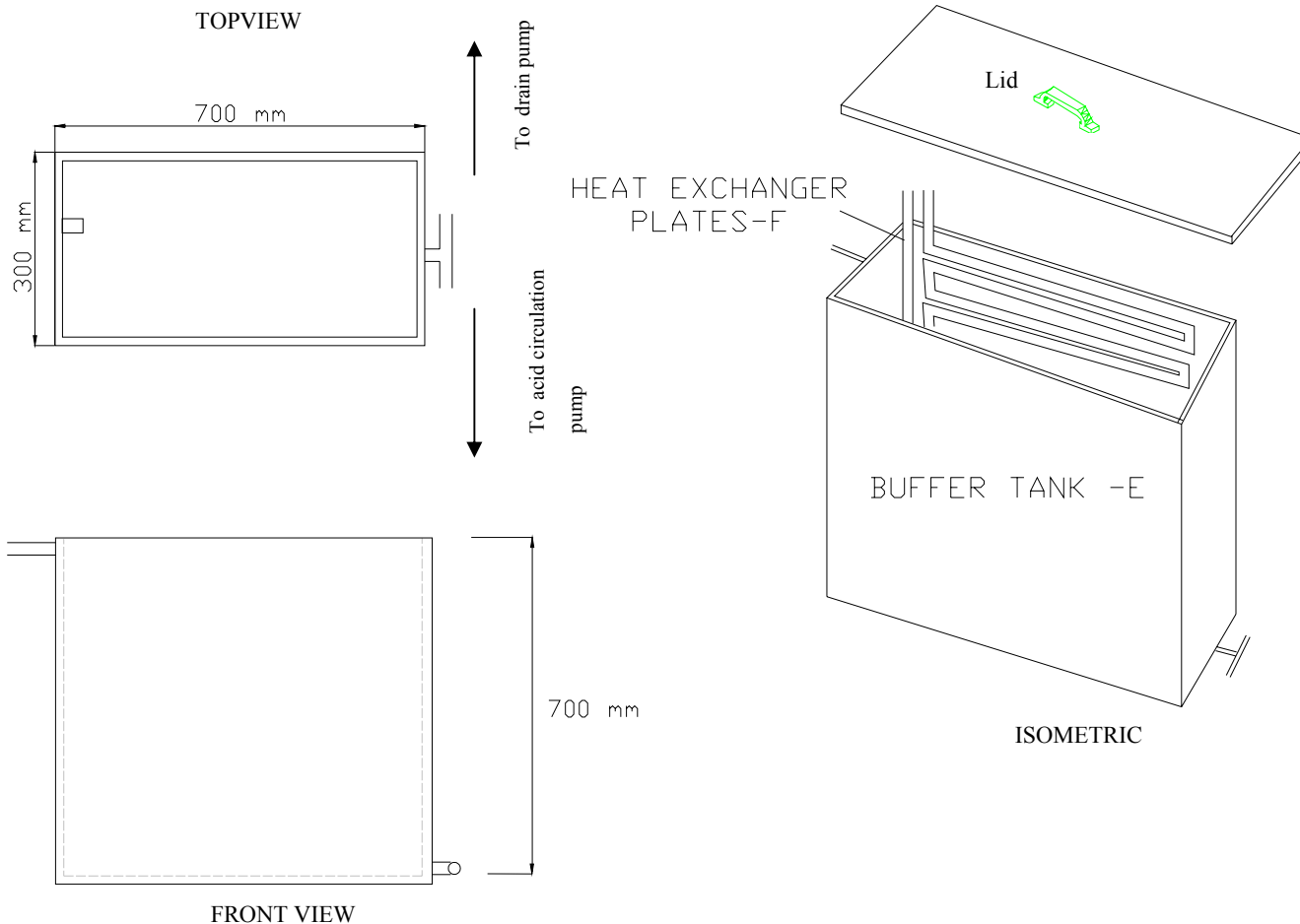
ACID TEXTURISATION SYSTEM

Sketch No.-06 Rinse Tank:D1 - D4

Quantity -04

Material : PPE sheet

ALL DIMENSIONS ARE IN mm



BHEL ASSCP GURGAON

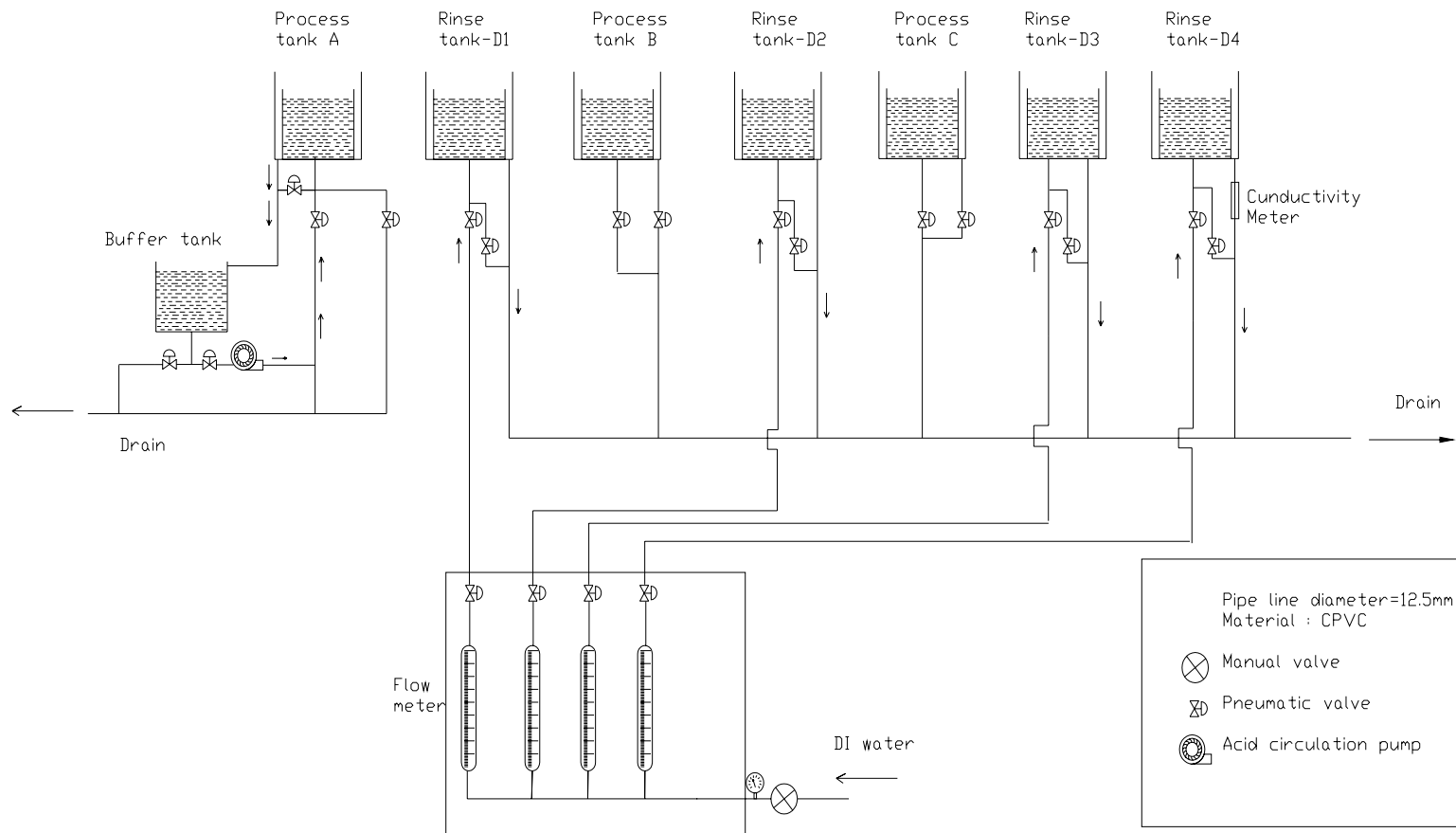
ACID TEXTURISATION SYSTEM

SKETCHNO. -07, DESCRIPTION: BUFFER TANK-E

MATERIAL: PVDF, 6 mm THICK

ALL DIMENSIONS ARE IN mm

DIMENSIONS ARE APPROXIMATE



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ACID TEXTURISATION SYSTEM

SKETCHNO. -08, DESCRIPTION: Plumbing scheme

PIPING MATERIAL: CPVC,

Pipe Size :12.5mm dia.

AUTHORISATION LETTER FOR E-PAYMENT/ NEFT / RTGS

(PLEASE FILL UP THE FORM COMPLETELY IN CAPITAL LETTERS ONLY)

1	Type of Request (Tick One)	NEW / CHANGE
2	BHEL Vendor Code	
3	Company's Name	
4	Address	
5	City with Pin Code	
6	State	
7	PAN NUMBER	
8	Name of Contact Person	
9	Phone No with STD Code	
10	Fax No with STD Code	
11	Email Id	
12	Web Site (URL)	

BANK DETAILS FOR EFT / RTGS

1	Bank Name	
2	Branch	
3	Branch Code	
4	Address	
5	PHONE No.	
6	Account No.	
7	MICR/ IFSC Code	
8	Bank Swift Code	
8	NEFT/ RTGS enabled	Yes / No
10	Cancelled Cheque	Enclosed / Not Enclosed

1. I, as representative / owner of the above named company, hereby authorise BHEL R&D Hyderabad, to electronically make payments to the designated bank account. I hereby certify that the particulars given above are true, complete and correct.
2. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transferring Bank responsible.
3. This authority remains in full force until BHEL receives and acknowledge written notification requesting a change or cancellation.

Date:

Authorised Signatory
Designation :

COMPANY SEAL



BHARAT HEAVY ELECTRICALS LIMITED
CORPORATE R&D DIVISION, VIKAS NAGAR, HYDERABAD – 500 093, AP, India
Ph: 0091-40 – 23778474, FAX: 0091-40 – 23770698

RD:MPX:F-20

General Terms and Conditions of Enquiry & Contract for the Purchase of Goods/ Services

1. The quotation and any order resulting from this enquiry shall be governed by these General Terms and Conditions of enquiry and contract for the supply of goods and the supplier quoting against this enquiry shall, unless specifically stipulates any different terms or conditions, be deemed to have read and agreed to the same.
2. Sealed quotations in double cover with tenderer's distinctive seal, superscribing enquiry number, date and due date are to be submitted so as to reach on or before due date & time, addressed to **Additional General Manager(MM) and Head, Bharat Heavy Electricals Limited, Corporate Research & Development Division, Vikasnagar, Hyderabad, Andhra Pradesh, India – PIN-500 093, India.**
In the case of **Two-part bid**, each inner cover shall clearly be labeled as a) **Technical & Commercial Bid** containing technical data/ drawings/ catalogues/ quality plans along with commercial terms and conditions & copy of the price bid with the price columns left blank (unpriced price bid), b) **Price bid** containing prices quotes. Installation and/or Commissioning charges shall be spelt out in absolutely lucid terms, taking into account total charges, rather than quoting vaguely, such as charges per man-day or charges per engineer per day etc. **If the price bid was found later to be different from the unpriced price bid in any way, the offer will be rejected summarily.**
3. **Tender/ Technical bid Opening:** Unless specified otherwise, tenders/ technical bids will be opened on appointed date and time as mentioned in the enquiry or as communicated changed date/time, if any, in the presence of such of those tenderers who may be present.
4. **Delayed/ Late Tender:** Tenders, which have been posted by registered post through the postal department in time before opening date but received after tender opening, shall be treated as regular tenders. Other tenders received after tender opening time shall be treated as late tenders and normally they may be rejected.
5. The Quotation should be free from overwriting and erasures. Corrections and additions, if any, must be attested. Supplier should indicate in the quotation dimensions (Size), weight, rate etc., in the metric system unless the enquiry calls for different unit.
6. **Validity of Quotation:** All quotations shall be kept open for acceptance for a period of ninety days from the date of opening of Tenders/ Technical bid and this shall be deemed to be an express condition of all quotations. The rate shall be quoted in both figures and in words.
7. In the case of Two-part bid, the vendor should furnish technical clarifications, if any, within stipulated time mentioned, failing which, it will be construed that the vendor is not interested in the tender and BHEL shall not consider the offer for further evaluation.
8. **Revision of Pricebid:** In the event of any bidder, after finalizing the technical specifications and scope of supply, opting to revise and submit their latest price bid, then BHEL reserves the right to open their original / previous price bid also while evaluating revised bid.
9. **Pricebid Opening:** Unless specified otherwise in the enquiry, the Price bids of technically qualified vendors shall be opened with prior intimation in the presence of such of those tenderers who may be present.
10. **Conformity to Specifications:** The material should be of the best quality and shall be conforming to our specification given in our enquiry. Unless otherwise agreed upon by BHEL, no payment shall be due by BHEL in respect of any sample. Offers without details of specifications/ applicable catalogues will not be considered and are liable to be rejected.
11. **Terms of Delivery:** All suppliers shall quote the lowest prices on ex-works and FOB/FCA basis. Foreign suppliers will also indicate their Indian agent's name and address with percentage of agency commission out of the quoted price, if any. Name and Address of the supplier's Bankers address should also be given. Indian suppliers for the indigenously manufactured/ imported stock shall quote on Ex-works /Free-on-Rail/Road /FOR-destination basis, indicating packing & forwarding charges, if any, separately.
12. **Taxes and Duties:** Unless specified otherwise in the enquiry, BHEL do not provide "C" or "D" Form as it is engaged in R&D. All Indian suppliers shall clearly mention current Sales Tax/ VAT, Excise Duty, and Service Tax etc, if any, payable in addition to the quoted price and indicate applicable rates/ percentage, item-wise clearly. It will be paid only if Registration Number under State(TIN)/ Central Sales Tax or Service Tax is specifically mentioned in the Bill/Invoice. Vendors without a Sales Tax/VAT registration and applicable Service Tax registration will not be considered.
13. **Insurance:** Insurance will be arranged by BHEL in case of Ex-Works as well as FOB basis supplies.
14. **Terms of Payment:** Full payment will be made within 30 days after receipt, inspection and acceptance of the material (and where involved, Erection and commissioning of the material/ equipment at BHEL/Destination) though Electronic Fund transfer (RTGS/NEFT/SEFT) with bank charges to the supplier's account. For foreign suppliers, the preferred payment term will be on Sight Draft basis and bank charges inside India will be to BHEL account and outside India will be to supplier's account.
15. Suppliers shall quote competitive price and best delivery for all the items mentioned in the enquiry. BHEL reserves the right to reject partial quotations and to place order on overall landed cost basis. Correct date of effecting supplies in the event of an order should be indicated in the offer. If the supplier's quoted terms are different from BHEL standard payment terms (Refer #14 above), interest @11% per annum (or as indicated in the enquiry) will be loaded to the quoted prices for difference of payment period.
16. **Packing:** The supplier shall be responsible for the goods being properly and adequately packed so as to prevent any loss, damage or deterioration during transit and indicate packing charges, if any, separately.
17. **Part/ Split Ordering:** BHEL reserves right to Order part of the item/ quantity of the enquiry and split the order among qualified vendors.
18. In case the goods enquired are on Rate Contract basis with any other unit of BHEL, such fact should be clearly indicated in the quotation giving full particulars of Rate Contract number, validity and price and also your willingness to comply with order if placed against such Rate Contract. A true copy of Rate contract signed by the supplier should be sent with the quotation.
19. **Inspection:** On receipt, the goods shall be subjected to inspection and also test, if necessary, and our decision regarding the acceptability of the goods shall be final and binding on the suppliers.
20. **Penalty for late delivery:** The time stipulated for delivery of goods shall be deemed to be the essence of the contract and delivery must be completed within the stipulated date/s. In the event of supplier's failure to supply the goods by the stipulated date/s, a penalty of ½% per week for the delayed no of weeks or part thereof for the undelivered portion of PO subject to a maximum of 10% of total order value shall be levied at the discretion of BHEL.
21. **Withdrawal from the Contract:** In case the supplier withdraws the quotation after its acceptance by BHEL or fails to supply the goods as per the terms and conditions of contract, or at any time repudiated the contract wholly or in part, BHEL shall be at liberty to cancel the Purchase Order and to recover from the supplier the extra cost and other loss, incidentals due to the breach of contract on the part of the supplier through risk purchase.
22. **Guarantee/ Warranty certificate and Manufacturer's Test report:** Invariably in all cases where it is so stipulated, the supplier should furnish Guarantee/ Warranty certificate valid for a period of 18 months from date of supply or 1 year from the date of receipt, acceptance and commissioning(or more, if provide by oem) whichever earlier and manufacturer's Test report along with the goods, failing which, BHEL shall have the right to reject the goods.
23. All ferrous/ non-ferrous items shall be colour coded as per bureau of Indian standards/ or IS standards/ BHEL Standards.
24. **Recovery of Dues:** BHEL shall recover any amount due from the supplier or any amount outstanding to the credit of the supplier with BHEL R&D unit or any other BHEL unit(s) and/or by legal action.
25. **Arbitration & Forum for Legal Proceedings:** All disputes arising in connection with indigenously/ foreign supplies shall be settled through arbitration held at Hyderabad, AP, India and arbitration shall be appointed by Arbitration Tribunal of the Federation of Andhra Pradesh Chambers of Commerce and Industry, Hyderabad, AP, India. The Courts at Secunderabad/ Hyderabad, AP, India shall have jurisdiction in respect of any suit or other legal proceeding arising from or relating to this contract

The rights and remedies of BHEL stated in these General terms and conditions shall be in addition and supplemental to its rights and remedies under law and custom or usage of trade or business and shall in no way be deemed to limit, curtail, supercede or derogate from its said rights and remedies.



RD:MPX:F-18

BHARAT HEAVY ELECTRICALS LIMITED
CORPORATE R&D Division
Vikasnagar, Hyderabad, Andhra Pradesh, India – 500093.,

IMPORTED

Suppliers' compliance statement to basic conditions of enquiry (to be submitted along with Technical & Commercial bid)
Enquiry number: **Enquiry dt:**

(In case Order to be placed on the Principal and foreign currency)

Condition	BHEL R & D's terms	Supplier's compliance (indicate Yes/No. if 'No', state terms desired)
1. Validity of offer	90 days from the tender opening date (or as per enquiry)	
2. Delivery requirements	FCA – Nearest International Airport (or as indicated in the enquiry)	
3. Warranty	Unless specifically mentioned in the enquiry, all supplied items to be provided with warrantee for one year (or more, if provided by the OEM) from the date of acceptance/ commissioning. In case of equipment involving erection and commissioning, warrantee shall be for 18 months from the date of dispatch or 12 months from the date of commissioning, whichever is earlier	
4. Terms of payment	Sight draft. All bank charges inside India will be to BHEL R&D account and outside India will be to the supplier's account. Documents through State Bank of India, Trade Finance Central processing Cell (TFCPC), Opp. Anand Theatre, Secunderabad, Andhra Pradesh, India-500003. SWIFT Code: SBININBB602, Phone: 91-40-27816795, FAX: 91-40-27720459	
5. Agency commission	Pl specify Indian agency commission charges, if any, in percentage of quotation. The same shall be paid to the agency in Indian Currency only.	
6. Erection/ Commission	As per enquiry	
7. Documentation	As per enquiry	
8. Insurance	BHEL will arrange Insurance based on intimation to our Insurance agency. Address of the agency will be mentioned in the Purchase Order.	
9. Penalty for late delivery	0.5% per week beyond the delivery date on undelivered portion subject to a maximum of 10% of the total order value.	

* BHEL R&D reserves the right to reject any offer due to non-compliance with the above conditions and/or non-receipt of this form in duly filled condition

* Any other elements of cost in addition to the above may please be specified in detail

(Signature and Stamp/ Seal of Vendor)



RD:MPX:F-17

BHARAT HEAVY ELECTRICALS LIMITED
CORPORATE R&D Division
Vikasnagar, Hyderabad – 500093, India.

Suppliers' compliance statement to basic conditions of enquiry (to be submitted along with Technical & Commercial bid)
Enquiry number:: **Enquiry date::**

(In case Order to be placed on Indian supplier in Indian currency)

Condition	BHEL R& D's terms	Supplier's compliance (indicate Yes/No. if 'No', state terms desired)
1) Validity of offer	Unless specifically mentioned in the enquiry, 90 days from the tender opening date	
2) Delivery requirements	Free delivery at our stores or FOR destination (or as indicated in the enquiry)	
3) Warranty	Unless specifically mentioned in the enquiry, all supplied items to be provided with warrantee for one year (or more, if provided by the OEM) from the date of acceptance/commissioning. In case of equipment involving erection and commissioning, warrantee shall be for 18 months from the date of despatch or 12 months from the date of commissioning, whichever is earlier	
4) Terms of payment	Unless specifically mentioned, full payment will be made within thirty days after receipt, inspection and acceptance of the material at BHEL R&D (and where involved, erection and commissioning of the material/equipment at BHEL/destination), by EFT/RTGS with bank charges, if any, to supplier's account.	
5) Taxes & Duties	Unless specifically mentioned in the enquiry, we do not provide 'C' or 'D' form. Supplier to specify rates of taxes and duties element wise and related percentages. Terms like "inclusive" or "extra" are not acceptable. Please mention "NIL" if taxes/ duties are exempted/ not applicable.	
6) Penalty for late delivery	0.5% per week beyond the delivery date on undelivered portion subject to a maximum of 10% of the total order value	

* BHEL R&D reserves the right to reject any offer due to non-compliance with the above conditions and/or non-receipt of this form in duly filled condition

* Any other elements of cost in addition to the above may please be specified in detail

(Signature and Stamp/Seal of Vendor)



RD:DP:MPX:F-14

BHARAT HEAVY ELECTRICALS LTD.
Corp. R&D DIVISION
VIKAS NAGAR,
HYDERABAD- 500 093 (INDIA)

SUPPLIER REGISTRATION FORM

(FOREIGN SUPPLIER)

ALL COLUMNS SHOULD BE PROPERLY FILLED IN THE SPACE PROVIDED FOR.
WHEREVER IT IS NOT APPLICABLE PLEASE WRITE "NOT APPLICABLE".
INCOMPLETE OR INCORRECT FORMS MAY NOT BE CONSIDERED.

1.0 GENERAL INFORMATION:

1.1NAME OF COMPANY

1.2DETAILS OF HEAD OFFICE:

ADDRESS :
TELEPHONE :
FAX :
.EMAIL :
.WEB SITE :

1.3DETAILS OF FACTORY/WORKS:

ADDRESS :
TELEPHONE :
FAX :
.EMAIL :
.WEB SITE :

1.4DETAILS OF MARKETING AGENT

ADDRESS :
TELEPHONE :
.FAX :
.EMAIL :
.WEB SITE :

1.5 CHIEF EXECUTIVE

1.6 CONTACT PERSON(S)
FOR PRODUCT OFFERED
NAME(S)
OFFICIAL CPACITY
ADDRESS:
TELEPHONE
FAX
E-MAIL

1.7 YEAR OF ESTABLISHMENT

1.8 PRODUCTION CAPACITY PER ANNUM

1.9 PARTICULARS OF PRODUCT INCLUDING
SPECIFICATION AND RANGE OFFERED
FOR REGISTRTION
(ATTACH BROUCHERS AND CATALOGUE)

1.10 NAME(S) OF BANKERS

1.11 BANKER'S CERTIFICATE

1.12 PORT OF LOADING

1.13 NEAREST AIRPORT

1.14 NAME OF THE INDIAN AGENT, IF ANY
WITH AUTHORISATION LETTER

2.0 FINANCIAL INFORMATION

2.1 ...TOTAL CAPACITY

2.2 ...ANNUAL TURN OVER FOR LAST 3 YEARS

2.3 ...WHEHER CREDIT LICENSE ACCEPTABLE YES/NO

3.0 QUALITY MANAGEMENT SYSTEMS
ENCLOSED FORMAT PART-B

3.1 EXPERIENCE LIST FOR SAME/SIMILAR ITEMS
TO BE ENCLOSED

4.0FUTURE EXPANSION PLANS:
(GIVE DETAILS)

5.0 LIST OF ENCLOSURES:
INCLUDING BROUCHERS, CATALOGUES, TECHNICAL
LITERATURE ETC.

6.0 ANY OTHER INFORMATION

SIGNATURE OF SUPPLIER (AUTHORIZED SIGNATORY)

NAME

DESIGNATION

DATE

.....OFFICIAL SEAL

Note: Please attach separate sheets, if space found is inadequate



BHARAT HEAVY ELECTRICALS LTD.

Corp. R&D DIVISION

VIKAS NAGAR,

HYDERABAD- 500 093 (INDIA)

Ph: 040 – 23778474, Fax: 040 – 23770698, email: mpx@bhelrnd.co.in

RD:DP:MPX:F-13

VENDOR REGISTRATION FORM

(Indigenous supplier)

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

Before filling, please refer to instructions on page-4

1.0 VENDOR PROFILE:

1.1 Name and address of the vendor:

Phone Nos.:

Fax No.:

Email: 1.

2.

1.2 Local representative name & address in Hyderabad/ Secunderabad:

Phone Nos.:

Fax No.:

Email:

Contact person:

Mobile No.:

2.0. TYPE OF ORGANIZATION:

PROPRIETORSHIP	COMPANY	SISTER CONCERN (mention vendor registration number of main organization)	
PARTNERSHIP	CORPORATION	Small Scale Industry	ANY OTHER (Please specify)

In case of SSI unit, copy of registration to be enclosed.

3.0 ANNUAL TURN OVER:

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

4.0 NAME AND ADDRESS OF THE BANKER:

1. Bank Name
2. Branch name
3. Account number
4. Account Type
5. MICR Code:
6. IFSC Code(RTGS/NEFT):
7. Bank Phone number(s),

Blank cheque, duly cancelled, to be enclosed.

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

5.0 REGISTRATION PARTICULARS (relevant copies to be enclosed)

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

6.0 CONTACT PERSON: S/Sri

Designation:::

Phone/ Mobile No. :

7.0 TOTAL NUMBER OF EMPLOYEES:

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

8.0 WISH TO REGISTER FOR SUPPLIES/SERVICES:

#	Service/Supplies	Capacity
1		
2		
3		
4		
5		
6		
7		

9.0 REFERENCE LIST :

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

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

10.0 INFRASTRUCTURE / FACILITIES:

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

11.0 REGISTRATION WITH OTHER BHEL UNIT/UNITS:

#	Unit	Registration No.	Year
1			
2			
3			
4			

12.0 ANY OTHER INFORMATION :

DECLARATION:

The information furnished above is true and authentic.

(CEO / PROPRIETOR)

SEAL:

DATE:

The competent authority reserves the right to accept or reject the registration. Registered vendors will be informed by mail / email, as convenient. Contact AGM (MM) for clarification/ additional information on registration.

A separate communication will be sent to you in case of non-registration, citing reasons thereof.

Instructions

1. Answer all items; use NA for items not applicable.
2. BHEL units do not require this registration.
3. Use additional sheets for want of space if required.
4. Attach copies of latest documents in respect of items 5.0 (Registration no.s)
5. Photographs of registered office and the chief executive/proprietor shall be furnished.
6. Use A4 sheets for this document and the enclosures.

* REGISTERED BIDDERS, HAVING BHEL (R&D) REGISTRATION NO. OR HAVE SUBMITTED THIS FORMAT FOR REGISTRATION, NEED NOT FURNISH THIS INFORMATION AGAIN