BHARAT HEAVY ELECTRICALS LIMITED
HEEP: HARDWAR-249 403 (UA)
Fax : 0091 01334-226462, Phone : 0091 01334-281995, 284009
E-mail: sanjay.singh@bhel.in; +91 9899095970

Tender no. C/6580/2021/2580/T1 **Date 02-02-2022**

Subject: Expression of interest as detailed below:

1. Sealed tenders with the Tender No. and opening date clearly super scribed on the cover are invited for the supply of the following items.
2. Last date for obtaining tender documents and opening of tenders is indicated below. Tenders will be received up to 1.45 P.M. on opening date and opened on the same day at 2.00 P.M. in the Tender Room.
3. BHEL will not be responsible for any type of postal delay / incomplete information from vendor.
4. The notification shall be published on www.bhel.com or www.bhelhwr.co.in.
5. No price bid is to be submitted along with this offer.
6. EMD and Tender Fee is not applicable.

Details are as following:

Sl. No.	EOI no.	Description of Equipment	Qty. (Nos.)	Last date for submission of the offer	Opening date
1.	C/6580/2021/2580/T1	ALODINE PROCESS PLANT CUM EFFLUENT TREATMENT PLANT	01 ST	03-02-2022 at 01:45 pm	03-02-2022 at 02:00 pm

- Technical Specifications & PQR are enclosed. Performa for performance feedback is also attached.
- **PREFERENCE TO MAKE IN INDIA**

1. For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 and subsequent Orders issued by respective Nodal Ministry shall be applicable even if issued after issue of this Tender Enquiry but before finalization of EOI.

2. As per Clause 3(b) of MII circular dt. 04.06.2021, Class I Local Supplier and Class II Local Supplier are eligible to participate in the tender and Non-Local Suppler are not eligible to participate in the tender. Offers received from Non-Local Supplier shall be straight away rejected.

3. Technical offers and inputs are required from vendors for establishment of Alodine Process Plant cum Effluent Treatment Plant at Heavy Electricals Equipment Plant BHEL, Haridwar.

4. This Expression of Interest (EOI) is for identification of prospective vendors and finalization of tender specifications only and not for procurement. There is no commercial aspect associated to this EOI.

5. BHEL reserves the right to evaluate the responses, based on technical merits, in the process of short-listing and identification of the participants for further discussions.

6. Vendor must comment against each point of technical specification.

SANJAY SINGH

Digitally signed by SANJAY SINGH
DN: cn=SANJAY SINGH, o=BHARAT HEAVY ELECTRICALS LIMITED, ou=HEEP HARIDWAR, email=sanjay.singh@bhel.in, c=IN
Date: 2022.02.02 16:36:34 +05'30'
Adobe Acrobat Reader version: 2021.011.20039

Instruction to Bidders

Clause 1.0 – Tender submission

The following shall be super scribed on the envelope:

1. **EOI TENDER NO. AND ITEM DESCRIPTION.**
2. **DUE DATE FOR OPENING.**
3. **"TECHNICAL BID"**

Vendor's full name and address should be clearly mentioned on the envelope and shall be addressed to:

To,

Tender Room
4th floor, Main Administrative Building
Heavy Electrical Equipment Plant,
BHEL, Ranipur
Hardwar- 249403

Envelopes not marked as above are liable to be ignored and will not be opened.

- The bidders (originals manufacturers) will have to submit ink-signed offer / bid in original directly to BHEL. In case the bid is submitted by fax / email, the bidders shall simultaneously ensure submission of ink-signed original bid to BHEL also in the manner prescribed in this tender. Unsigned bids shall be ignored.
  However, the suppliers or their authorized person may be allowed to attend the tender opening, if duly authorized by their principals, through a specific letter for a particular enquiry for opening on that particular day. General authorization letter is not acceptable.

- Any corrections / amendments shall be properly & fully authenticated with signature.

Clause 1.1:

TECHNICAL BID shall comprise of following documents:

a) Complete Technical offer
b) Catalogue of the Equipment, Complete reference of the past supply of equipment for the same or similar specification giving details of customer with Name of the contact person, Fax no, phone no, E-mail if available.
c) Deviation with reference to Technical specification to be laid down on separate sheet.
d) Any additional documents (please specify).

Note: No price bid is to be submitted along with this offer.

Clause 1.2:

Technical Bid will be opened on the date and time specified above, in the presence of those **vendors,** who wish to attend **the tender opening**.

Clause 1.3:

BHEL reserves the right to evaluate vendor's process capability / quality systems etc. by visiting vendor works (if required)

Clause 1.4:

The offers of the bidders who are on the banned list and also the offer of the bidders, who engage the services of the banned firm, shall be rejected. The list of banned firms is available on BHEL website www.bhel.com

Thanking You, SANJAY SINGH

Digitally signed by SANJAY SINGH
DN: cn=SANJAY SINGH, o=BHARAT HEAVY ELECTRICALS LIMITED, ou=HEEP HARIDWAR, email=sanjay.singh@bhel.in, c=IN
Date: 2022.02.02 16:36:58 +05'30'
Adobe Acrobat Reader version: 2021.011.20039

For & on behalf of BHEL, Hardwar
Sanjay Singh, Deputy Manager (Capital Purchase)

BHARAT HEAVY ELECTRICALS LIMITED
HEAVY ELECTRICAL EQUIPMENT PLANT
Ranipur, Haridwar

EXPRESSION OF INTEREST

Subject	EXPRESSION OF INTEREST (EOI) FOR "SUPPLY, INSTALLATION, COMMISSIONING OF **ALODINE PROCESS PLANT CUM EFFLUENT TREATMENT PLANT** FOR CHEMICAL PROCESS TREATMENT OF ALUMINUM (AL 5083) COMPONENTS OF OUR PRODUCT AS PER ATTACHED SPECIFICATION."

Bharat Heavy Electricals Limited (BHEL), a leading Central Public Sector Enterprise of Govt. of India (www.bhel.com) catering to the core infrastructure sectors of energy, transportation, heavy engineering industry, Defence, renewable & non-conventional energy etc. is in process to diversify business verticals and to strengthen its value proposition and realign its global positioning, BHEL is in process of making strategic efforts to develop indigenous technological capabilities to fully tap and then leverage the potential opportunities of the Fourth Industrial Revolution.

To move forward in the field of special process of **Alodining of aluminum components**, HEEP, a manufacturing Unit of BHEL established in Haridwar engaged in manufacturing of Power Plant Equipment, is interested to establish a special and challenging Chemical process plant facility. In view of this an **EOI is requested for Identification of prospective vendors and finalization of tender specifications** ***for the "ALODINE PROCESS PLANT CUM EFFLUENT TREATMENT PLANT"*** as per attached specification.

Special Instructions:

1. Technical offers and inputs are required from vendors for establishment of the aforesaid Chemical process facility at Heavy Electrical Equipment Plant, BHEL, Haridwar. Vendor to clearly describe their capabilities, deviations from specifications and should also suggest possible solutions.
2. This Expression of Interest (EOI) is for identification of prospective vendors and finalization of tender specifications only and not for procurement. There is no commercial aspects associated to this EOI.
3. BHEL reserves the right to evaluate the responses, based on technical merits, in the process of short-listing and identification of the participants for further discussions.

4. Vendor to submit compliance for fulfillment of PQR conditions. Documents regarding PQR conditions to be submitted at the time of final tender.
5. Vendors are advised to conduct a pre-bid meeting for any technical clarifications and site visit if required. In case, any clarification is needed or site visit is required, parties may contact the following persons on phone or via e-mail:

   a. Sh. Sumit Kumar, Email: sumit-ku@bhel.in , Mobile: +91 7248116799
   b. Sh. Kumar Abhishek , Email: kabhishek@bhel.in , Mobile: +91 8004939859

Enclosures:

1. Technical Specification
2. Annexure-1 having process and chemical details.
3. Annexure-2 having proposed plant layout details.

Sumit
26/01/2022
Sumit Kuma
Dy. Mgr./DABG-Tech

Kabhishek
(KUMAR ABHISHEK)
JR. Manager
DABG-Tech

Ranjit Kumar
Dy. Mgr/MTE

Rohit Chaudhary
(ROHIT CHAUDHARY
E2/WEX/MM/BL2 CDABG)

बी एच ई एल BHEL	**HEAVY ELECTRICAL EQUIPMENT PLANT** **BHARAT HEAVY ELECTRICALS LIMITED** **BHEL, HARIDWAR**	**CAPITAL PROJECT** **Qty.- 1 set**

Technical Specification of Alodine Process Plant cum Effluent treatment Plant for EOI

Note:-

1. This specification is preliminary one intended only for **" Expression of Interest"** by prospective vendors.

2. Vendor(OEM) must submit complete information against **clause no. 10. The offer meeting this clause would only be processed.**

3. The "Vendor's comment" Column shall be filled in by the Bidder/ Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous information against any of the clauses of the specifications / requirements shall be treated as non-compliance.

4. The offer and all documents enclosed with offer should be in English language only.

Name, Address and contact details of the supplier:	**Name, Address and contact details of the Indian agent:**

Scope: Supply, Erection and Commissioningof Alodine Process Plant cum Effluent treatment Plant complying with the requirements as below.

	CHEMICAL PROCESS DESCRIPTION and SCOPE OF WORK	**BHEL's requirement**	**Vendor's comment**
A	To improve the corrossion resistance property and paint adhesion on the components/parts of our product made up of Aluminum (AL 5083 grade), chemical treatment is done by Alodining process. The Brief description of the process and chemicals used is attached in **Annexure-1**. In order to strengthen in-house facility for undertaking the chemical treatment process, a Chemical treatment plant is required from the Vendor comprising of: i) 03nos. Chemical Process tanks with heaters and accessories ii) 01 no. water rinse tank iii) 01 no. Effluent treatment plant with associated accessories for safe disposal of waste. iv) Fumes exhaust system. v) Platforms, ladders and job holding fixtures/arrangement. The Vendor's Scope shall include supply, installation and commissioning of the entire Alodine process plant cum effluent treatment plant.	Vendor to confirm	
B	Civil work shall be in the scope of BHEL, vendor has to supply drawings of civil work within 15days of the placement of order.	Vendor to confirm	
Brief Specification			
SL.No.	**Item Description**	Vendor to confirm	
1	**CHEMICAL PROCESS TANK (Quantity- 03 nos)** The tanks shall be used for preparation and storage of chemical bath for Alodining process. The AL parts/components shall be dipped inside the bath with a chain pully/ crane arrangement and it needs to be dipped in completely and has to be kept in that position for atleast 30 minutes before taking them out and dipping them in 'water rinse tank' for proper rinsing of the part/ component off the chemicals.	Vendor to confirm	
Basic design features shall be as below:-		Vendor to confirm	
1.1	Tanks to be made with minimum 3 mm thick SS sheet with all around suitable reinforcement with MS box pipe of Suitable size as per design requirement.	Vendor to confirm & specify	
1.2	MoC(Material of construction)- SS 316 or SS(with acid and fluoride resistant material)	Vendor to confirm & specify	

1.3	Shape : Cubical or recommended otherwise Dimension- 4m x 4m x *3m depth* {Note:-dimensions to be desgined optimally to accommodate full dipping of largest component without any overflow of chemical bath}	Vendor to confirm & specify	
1.4	Bottom stiffner -Size and Nos. as per design req.	Vendor to confirm & specify	
1.5	Drain connection - suitable size gate valve (leakage proof) with Flange connection	Vendor to confirm & specify	
1.6	Suitable lining/coating for making the inside of the tank Acid and fluroide proof	Vendor to confirm& specify	
1.70	Suitable thermal insulation (preferably rockwool thermal insulation) with outside epoxy paint and primer for preventing heat loss of chemicals	Vendor to confirm	
1.80	Load bearing capacity sufficient for chemical bath of density equivalent to water plus one ton of component weight being dipped. The bottom and side walls of the tank should be designed to resist Impact load of atleast 1.5 T	Vendor to confirm	
2	**WATER RINSE TANK, Quantity-1 no.** The tank shall be used for rinsing of chemicals dipped components with DM water.	Vendor to confirm	
Basic design features shall be as below:-			
2.1	Tanks to be made with minimum 3 mm thick SS sheet with all around suitable reinforcement with MS box pipe of Suitable size as per design requirement.	Vendor to confirm & specify	
2.2	MoC(Material of construction)- SS 316 (Stainless Steel) or alternate material as recommended by vendor Note:- The tank shall be perenially filled with some water, should resist corrosion	Vendor to confirm	
2.3	Shape : Cubical or recommended otherwise Dimension- 4m x 4m x *3m depth* {Note:-dimensions to be desgined optimally to accommodate full dipping of largest component without any overflow of DM water}	Vendor to confirm & specify	
2.4	Bottom stiffner ->Size and Nos. as per design req.	Vendor to confirm	
2.5	Drain connection - suitable size gate valve (leakage proof) with Flange connection	Vendor to confirm	
2.6	Suitable lining/coating for making the inside of the tank corrossion resistant	Vendor to confirm	
2.70	Load bearing capacity sufficient for chemical bath of density equivalent to water plus one ton of component weight being dipped. The bottom and side walls of the tank should be designed to resist Impact load of atleast 1.5 T.	Vendor to confirm	
3	**Electric Heating system for all tanks (04 tanks)** Suitable no. of heaters ('n' nos.)compatible with the Tank design for uniformly heating the chemical bath as well as water tank to temperature upto 40°C within few minutes and for maintaining the bath temperature between 20° to 40°C during winter months in ambient shop conditions.	Vendor to confirm	
Basic design features shall be as below:-		Vendor to confirm	
3.1	Heating capacity of the heater(wattage)	Vendor to specify	
3.2	Input Power requirement, Single phase/Three phase	Vendor to specify	
3.3	No. of heaters	Vendor to specify	

3.4	Temperature sensor (dip type) with over heat protection limit switch	Vendor to confirm & specify	
3.5	Safety alarm and earthing arrangements	Vendor to confirm & specify	
3.6	Supply of Console for heater's operation and semi-automatic control of the complete system, along with suitable rating wires and cables.	Vendor to confirm	
3.7	MS powder coated cable tray for cable routing in plant from Electrical console to tanks.	Vendor to confirm	
3.8	Any other feature	Vendor to specify	
4	**Effluent treatment plant** Once the Chemical bath has lost its potency and needs to be replaced with new bath, the soultion needs to be treated for safe disposal into the environment. For this purpose an Effluent treatment unit comprising of Concrete tank (disposal tank) with associated PVC piping and accessories is required . The treated waste should meet all the neccessary applicable Environment protection act guidelines for safe disposal. *Refer **Annexure-1** for details about the chemicals used* *note:- Construction of diposal tank (concrete) shall be in the scope of BHEL. Vendor to submit layout and other drawings.*	Vendor to confirm & specify	
4.1	The effluent treatment capacity of the disposal tank needs to be 5kL (min.)	Vendor to confirm & specify	
4.2	The necessary valves, pipes, fittings, pumps etc along with routing of pipes from all the 3+1 (3 chemical process tanks plus one DM water tank)tanks to the disposal tank (preferably under ground) shall be in the scope of vendor.	Vendor to confirm & specify	
4.3	The vendor to submit complete layout of all the four plus one disposal tank indicating the pipe route, valves, pump position etc. along with the complete Pipe Line Drawings etc. along with the offer.	Vendor to confirm & specify	
4.4	DM water pipeline complete with valve and fittings to be supplied. MoC- CPVC	Vendor to confirm & specify	
5	**Working Platform, ladders and job lifting fixtures/arrangement** Atleast 1m wide **working platform** to be provided, at the top of the tanks on two opposite sides, made up of ISMC 100 x 50 mm C chanel with FRP grating. The platform should be sufficiently supported to withstand a total weight of 0.5 T. The platforms and **ladders** to be provided as per attached layout **Annexure-2 and the vendor has to submit proposed layout (if any) .** The sling/hook of the crane holding the job, should not get dipped in the chemical bath and the largest job has weight of around 1 T and cannot be kept on the bottom of the tank due to design constraints, **suitable cage/ holding fixture** need to be provided to lift and suspend the job inside the chemical bath for about 30 minutes without causing any physical strain on the job or on the chemical tank.	Vendor to confirm & specify	
6	**FUME EXHAUST SYSTEM** Supply of PPGL FRP Blower or similar of suitable capacity complete with base frame , motor, Belt,guard and anti vibration pad. Vendor to provide complete detail along with the layout of the plant.	Vendor to confirm & specify	
6.1	Supply of PPGL FRP 5mm (min) Thick Inlet and outlet duct of suitable diameter	Vendor to confirm & specify	
6.2	Supply of PP frp Stack having Thickness of 5 mm (8 Mtr.Maximum height of building considered)	Vendor to confirm & specify	
7	**GENERAL REQUIREMENTS:**	Vendor to confirm	
7.1	Total connected load (KVA):	Vendor to furnish	
7.2	Total combined weight of the system	Vendor to furnish	
7.3	Detailed catalogues , sketch/ photographs of the M/C and accessories/ attachments should be submitted with the offer.	Vendor to furnish	
7.4	Vendor to furnish list of spares and accessories for two years of trouble free operation of the plant.	Vendor to furnish	

8	**ERECTION & COMMISSIONING**	Vendor to confirm	
8.1	Supplier to take full responsibility for carrying out the erection and commissioning of tanks, heaters, FES, it's control & all types of other supplied equipment etc.	Vendor to confirm	
9	**GUARANTEE :**	Vendor to confirm	
9.1	24 months from the date of acceptance of the plant at BHEL works against any mechanical/system related faults including tanks, pipes, pumps, valves and other accessories.	Vendor to confirm	
10	**COMPANY PROFILE**	Vendor to furnish	
10.1	The BIDDER has to provide the details pertaining to each clause in the table given below to understand the profile of the BIDDER's COMPANY.	Vendor to furnish	
10.2	Number of years of experience of the BIDDER/ VENDOR in the field of Design, Manufacturing, & supply of similar plants or other CTPs (Chemical/Effluent Treatment plant).	Vendor to furnish	
10.3	Details of the Codes/Standards adopted for the design and manufacturing.	Vendor to furnish	
10.4	Details of Manufacturing facilities available with the VENDOR for:	Vendor to furnish	
	(a) Sourcing/Building large machine casting or fabricated components	Vendor to furnish	
	(b) Quality/Testing facilities	Vendor to furnish	
	(c) Machine assembly & testing Rigs	Vendor to furnish	
	(d) Manufacturing capacity of company for such machines/plants	Vendor to furnish	
10.5	Bidder to provide the time required for supply, installation and commissioning of the entire plant.	Vendor to furnish	
10.6	**QUALIFYING CONDITIONS**	Vendor to confirm	
10.7	Only those vendors, who have supplied and commissioned at least one similar plant (Chemical process plant / Effluent Treatment Plant) in the past ten years(on the date of opening of tender) and such plant is presently working satisfactorily for more than one year after commissioning (on the date of opening of tender) should quote. However if such machine(s)/Plant has/had been supplied to BHEL, then such plant should be presently working satisfactorily for more than six months after its commissioning and acceptance (on the date of opening of tender) in BHEL.The following information should be submitted by the vendor . This is required from all the vendors for qualification of their offer..	Vendor to confirm	
	1. Name of the customer / company where similar system is installed. (Copy of Purchase order should be furnished)	Vendor to furnish	
	2. Complete postal address of the customer.	Vendor to furnish	
	3. Year of commissioning. (Copy of commissioning report should be furnished)	Vendor to furnish	
	4. Application for which the system is supplied with details of accuracies achieved on the job.	Vendor to furnish	
	5. Name and designation of the contact person of the customer.	Vendor to furnish	
	6. Phone, FAX no. and email address of the contact person of the customer.	Vendor to furnish	
	7. Performance certificate/un priced Copy of purchase order or Commissioning report with supporting acceptance papers or a direct Email from the customer where said plant has been supplied (If Possible).	Vendor to furnish	
10.8	BHEL reserves the right to verify information submitted by vendor. In case the information is found to be false/incorrect, the offer shall be rejected.	Venor to confirm	

28/01/2022
Sumit Kumar
Dy. Mgr/DABG-Tech

Kkabhishek
(KUMAR ABHISHEK)
D.K. MANAGER
FAB/Surface treatment Sec.

Rajnish Kumar
Dy. Mngr/MTE

RChaudhary
(ROHIT CHAUDHARY)
E2/WEX/MM/BLR & DABG

Annexure-2

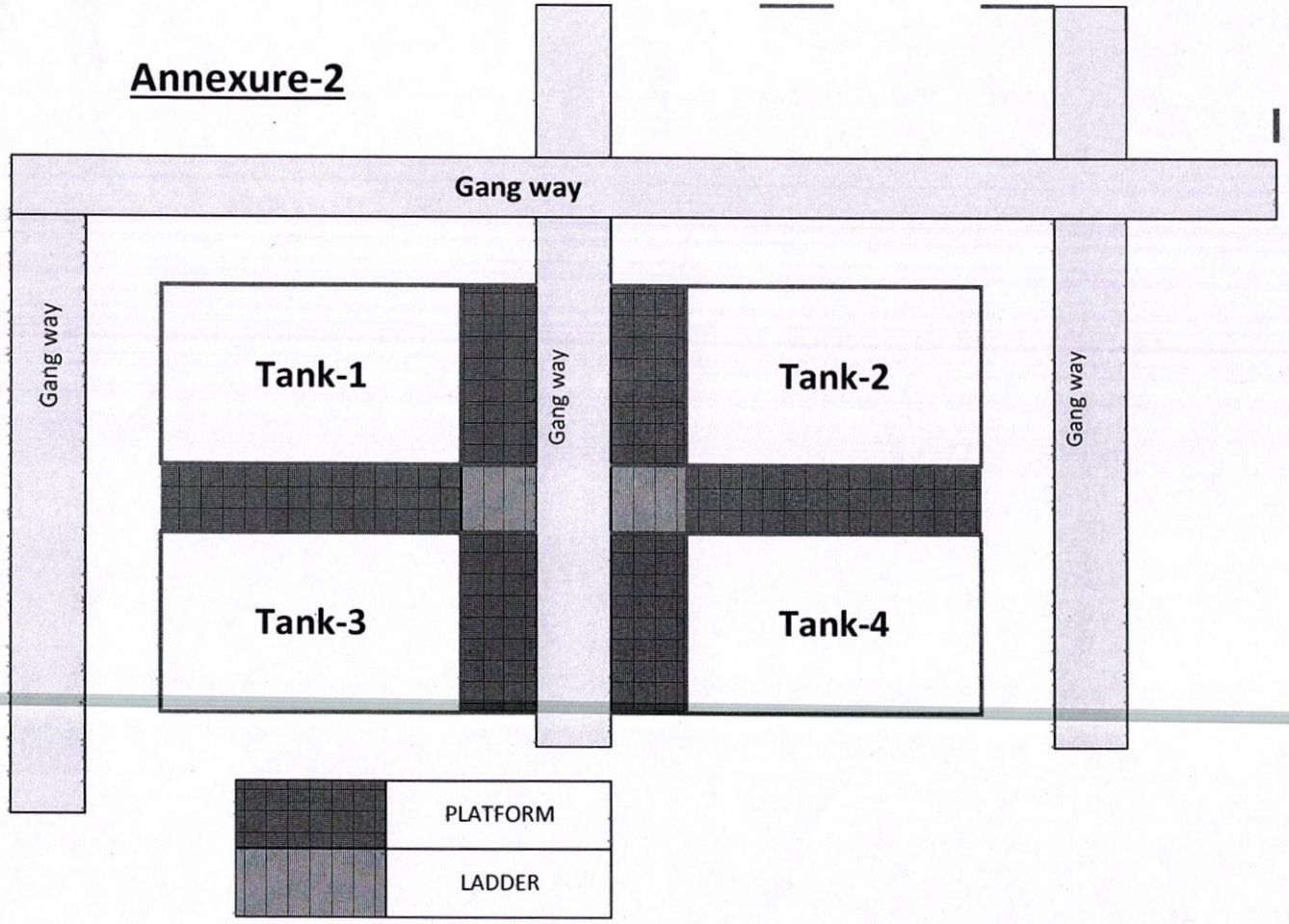


Fig: Proposed Layout of the tank positional arrangement

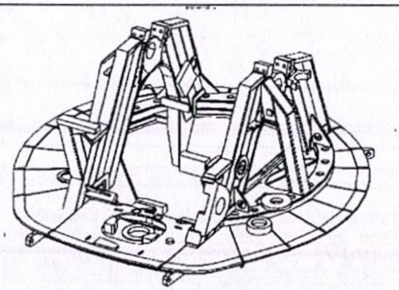
28/01/2022
(Sumit Kumar
Dy. Mgr/DABG-Tech)

(KUMAR ABHISHEK)
DY. MANAGER
DABG

(Ranjit Kum
DY. Mgr / MTE

(ROHIT CHAUDHARY
E2/WEX/MM/BLR & DABG)

Annexure-1

BASIC PROCESS DATA	
1) PROCESS : ALODINING (Passivation on Aluminum)	
2) BASE METAL: ALUMINUM(AL 5083)	
3) COMPONENT'S SIZE (maximum): 3200 mm (dia)x 1600 mm (height) **4) Maximum weight of the component**- around 1 ton.	 Fig; largest component

Chemical details:

1) Degreasing and descaling product: i) Commercial name- UNIKLEEN 437 ii) Make- M/s GTZ Chemicals pvt. Ltd iii) Nature- Acidic iv) Bath preparation- Add 40 – 60 Lt per 1000 L bath volume v) Temp- 20°C to 40°C vi) Disposal- Treat with lime to neutralize acid before disposal.	2) Passivation product: i) Commercial name- Chemidite 14-5(TCP) ii) Make- M/s GTZ Chemicals pvt. Ltd iii) Nature- Acidic iv) Bath preparation- Add 10 – 30 Lt per 1000 L bath volume v) Temp- 35°C to 40°C vi) Disposal - Product and processing bath both are acidic, contains trivalent chromium and fluorides. Need suitable treatment before disposal

Process sequence:-

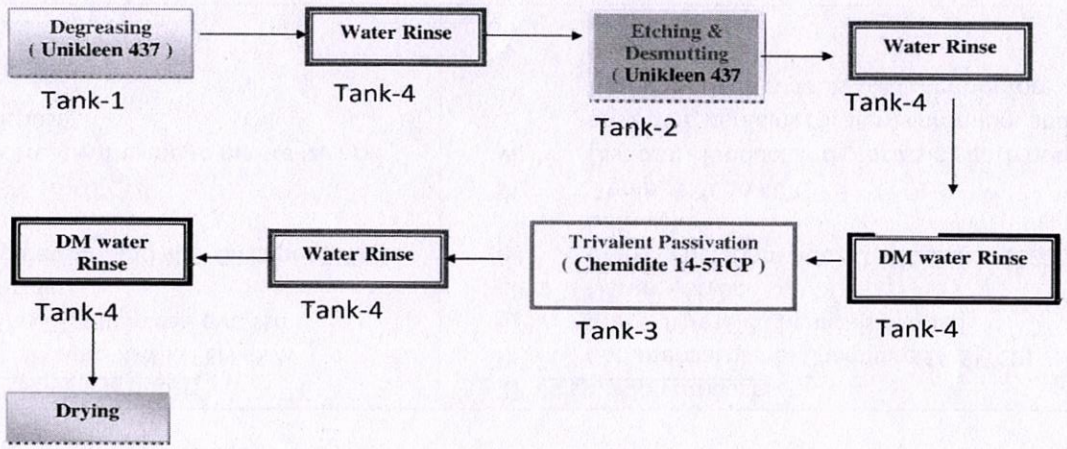
Please refer the flow chart below. The salient points are: -

i) Tank-1 to Tank-3 are Chemical process tanks called in attached specification.
ii) Tank 4 is water rinse tank called in the specification.
iii) The chemical process tanks will store chemical bath of the given chemicals.
iv) The dipping time shall vary from bath to bath.

(AX MANAGER)

Annexure-1

PROCESS SÉQUENCES FOR TRIVALENT PASSIVATION ON ALUMINIUM



Note- *Water rinsing wherever mentioned shall be done in Tank-4 only having DM water.*

Fig: - Process flow chart

28/01/2022
(Sumit Kumar
Dy. Mgr. DABG-Tech)

(KUMAR ABHISHEK)
DY. Manager
DABG.

(ROHIT CHAUDHARY
E2/WEX/BLR&DABG)