

Bid Document/ बिड दस्तावेज़

Bid Details/बिड विवरण	
Bid End Date/Time/बिड बंद होने की तारीख/समय	12-06-2023 19:00:00
Bid Opening Date/Time/बिड खुलने की तारीख/समय	12-06-2023 19:30:00
Bid Offer Validity (From End Date)/बिड पेशकश वैधता (बंद होने की तारीख से)	60 (Days)
Ministry/State Name/मंत्रालय/राज्य का नाम	Ministry Of Chemicals And Fertilizers
Department Name/विभाग का नाम	Department Of Chemicals And Petrochemicals
Organisation Name/संगठन का नाम	Hindustan Organic Chemicals Limited
Office Name/कार्यालय का नाम	Ambalamugal,ernakulam
Total Quantity/कुल मात्रा	2
Item Category/मद केटेगरी	COMPLETE TRAY ASSEMBLY FOR C 2004
BOQ Title/बीओक्यू शीर्षक	COMPLETE TRAY ASSEMBLY FOR C 2004
Years of Past Experience Required for same/similar service/उन्हीं/समान सेवाओं के लिए अपेक्षित विगत अनुभव के वर्ष	3 Year (s)
MSE Exemption for Years Of Experience/अनुभव के वर्षों से एमएसई छूट/	Yes
Startup Exemption for Years of Experience and Turnover/ अनुभव के वर्षों से स्टार्टअप छूट	No
Document required from seller/विक्रेता से मांगे गए दस्तावेज़	Experience Criteria,Past Performance,Certificate (Requested in ATC),Additional Doc 1 (Requested in ATC),Compliance of BoQ specification and supporting document *In case any bidder is seeking exemption from Experience / Turnover Criteria, the supporting documents to prove his eligibility for exemption must be uploaded for evaluation by the buyer
Past Performance/विगत प्रदर्शन	80 %
Bid to RA enabled/बिड से रिवर्स नीलामी सक्रिय किया	No
Type of Bid/बिड का प्रकार	Two Packet Bid
Time allowed for Technical Clarifications during technical evaluation/तकनीकी मूल्यांकन के दौरान तकनीकी स्पष्टीकरण हेतु अनुमत समय	2 Days

Bid Details/बिड विवरण	
Inspection Required (By Empanelled Inspection Authority / Agencies pre-registered with GeM)	No
Evaluation Method/मूल्यांकन पद्धति	Total value wise evaluation

EMD Detail/ईएमडी विवरण

Required/आवश्यकता	No
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ePBG Detail/ईपीबीजी विवरण

Required/आवश्यकता	No
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Splitting/विभाजन

Bid splitting not applied/बोली विभाजन लागू नहीं किया गया.

MII Purchase Preference/एमआईआई खरीद वरीयता

MII Purchase Preference/एमआईआई खरीद वरीयता	No
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MSE Purchase Preference/एमएसई खरीद वरीयता

MSE Purchase Preference/एमएसई खरीद वरीयता	Yes
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1. If the bidder is a Micro or Small Enterprise as per latest definitions under MSME rules, the bidder shall be exempted from the requirement of "Bidder Turnover" criteria and "Experience Criteria" subject to meeting of quality and technical specifications. If the bidder is OEM of the offered products, it would be exempted from the "OEM Average Turnover" criteria also subject to meeting of quality and technical specifications. In case any bidder is seeking exemption from Turnover / Experience Criteria, the supporting documents to prove his eligibility for exemption must be uploaded for evaluation by the buyer.
2. Experience Criteria: In respect of the filter applied for experience criteria, the Bidder or its OEM {themselves or through reseller(s)} should have regularly, manufactured and supplied same or similar Category Products to any Central / State Govt Organization / PSU / Public Listed Company for number of Financial years as indicated above in the bid document before the bid opening date. Copies of relevant contracts to be submitted along with bid in support of having supplied some quantity during each of the Financial year. In case of bunch bids, the category of primary product having highest value should meet this criterion.
3. Purchase preference to Micro and Small Enterprises (MSEs): Purchase preference will be given to MSEs as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 dated 23.03.2012 issued by Ministry of Micro, Small and Medium Enterprises and its subsequent Orders/Notifications issued by concerned Ministry. If the bidder wants to avail the Purchase preference, the bidder must be the manufacturer of the offered product in case of bid for supply of goods. Traders are excluded from the purview of Public Procurement Policy for Micro and Small Enterprises. In respect of bid for Services, the bidder must be the Service provider of the offered Service. Relevant documentary evidence in this regard shall be uploaded along with the bid in respect of the offered product or service. If L-1 is not an MSE and MSE Seller (s) has/have quoted price within L-1+ 15% (Selected by Buyer) of margin of purchase preference /price band defined in relevant policy, such Seller shall be

given opportunity to match L-1 price and contract will be awarded for %(selected by Buyer) percentage of total QUANTITY.

4. Estimated Bid Value indicated above is being declared solely for the purpose of guidance on EMD amount and for determining the Eligibility Criteria related to Turn Over, Past Performance and Project / Past Experience etc. This has no relevance or bearing on the price to be quoted by the bidders and is also not going to have any impact on bid participation. Also this is not going to be used as a criteria in determining reasonableness of quoted prices which would be determined by the buyer based on its own assessment of reasonableness and based on competitive prices received in Bid / RA process.

5. Past Performance: The Bidder or its OEM {themselves or through re-seller(s)} should have supplied same or similar Category Products for 80% of bid quantity, in at least one of the last three Financial years before the bid opening date to any Central / State Govt Organization / PSU / Public Listed Company. Copies of relevant contracts (proving supply of cumulative order quantity in any one financial year) to be submitted along with bid in support of quantity supplied in the relevant Financial year. In case of bunch bids, the category related to primary product having highest bid value should meet this criterion.

COMPLETE TRAY ASSEMBLY FOR C 2004

Technical Specifications/तकनीकी विशिष्टियाँ

Specification Document	View File
BOQ Detail Document	View File

Advisory-Please refer attached BOQ document for detailed consignee list and delivery period.

Consignees/Reporting Officer/परेषिती/रिपोर्टिंग अधिकारी and/ तथा Quantity/मात्रा

S.No./क्र. सं.	Consignee Reporting/Officer/ परेषिती/रिपोर्टिंग अधिकारी	Address/पता	Quantity/मात्रा	Delivery Days/डिलीवरी के दिन
1	Abhilash M S	682302,HINDUSTAN ORGANIC CHEMICALS LTD, AMBALAMUGAL ERNAKULAM	2	60

Buyer Added Bid Specific Terms and Conditions/क्रेता द्वारा जोड़ी गई बिड की विशेष शर्तें

1. Generic

OPTION CLAUSE: The Purchaser reserves the right to increase or decrease the quantity to be ordered up to 25 percent of bid quantity at the time of placement of contract. The purchaser also reserves the right to increase the ordered quantity by up to 25% of the contracted quantity during the currency of the contract at the contracted rates. Bidders are bound to accept the orders accordingly.

2. Generic

After award of contract – Successful Bidder shall have to get Detailed Design Drawings approved from buyer before starting fabrication. Successful Bidder shall submit Detailed Design Drawings for Buyer's approval, within 5 days of award of contract. Buyer shall, either approve the drawings or will provide complete list of modification required in the drawings within 10 days. Seller shall be required to ensure supply as per approved Drawings with modifications as communicated by Buyer. If there is delay from buyer side in approval of drawing– the delivery period shall be refixed without LD for the period of delay in approval of Drawing.

3. **Generic**

Bidder financial standing: The bidder should not be under liquidation, court receivership or similar proceedings, should not be bankrupt. Bidder to upload undertaking to this effect with bid.

4. **Generic**

Bidders are advised to check applicable GST on their own before quoting. Buyer will not take any responsibility in this regards. GST reimbursement will be as per actuals or as per applicable rates (whichever is lower), subject to the maximum of quoted GST %.

5. **Generic**

Bidder shall submit the following documents along with their bid for Vendor Code Creation:

- a. Copy of PAN Card.
- b. Copy of GSTIN.
- c. Copy of Cancelled Cheque.
- d. Copy of EFT Mandate duly certified by Bank.

6. **Generic**

Data Sheet of the product(s) offered in the bid, are to be uploaded along with the bid documents. Buyers can match and verify the Data Sheet with the product specifications offered. In case of any unexplained mismatch of technical parameters, the bid is liable for rejection.

7. **Generic**

Experience Criteria: The Bidder or its OEM {themselves or through reseller(s)} should have regularly, manufactured and supplied same or similar Category Products to any Central / State Govt Organization / PSU / Public Listed Company for 3 years before the bid opening date. Copies of relevant contracts to be submitted along with bid in support of having supplied some quantity during each of the year. In case of bunch bids, the primary product having highest value should meet this criterion.

8. **Generic**

OPTIONAL SITE VISIT:

1. The Bidder is advised to visit and examine the installation site and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid. The costs of visiting the site shall be borne by the Bidder.

COST SHOULD BE BORNE BY THE BIDDER

2. The Bidder representative shall be allowed entry upon consignee premises for such visits, only upon the express conditions that the Bidder will release and indemnify the Buyer and Consignee against all liabilities arising out of such visit including death or injury, loss or damage to property, and any other loss, damage, costs, and expenses incurred as a result of such visit.

3. The Bidder shall not be entitled to hold any claim against Buyer for noncompliance due to lack of any kind of pre-requisite information as it is the sole responsibility of the Bidder to obtain all the necessary information with regard to site, surrounding, working conditions, weather etc. on its own before submission of the bid.

9. **Generic**

1. The Seller shall not assign the Contract in whole or part without obtaining the prior written consent of buyer.
2. The Seller shall not sub-contract the Contract in whole or part to any entity without obtaining the prior written consent of buyer.
3. The Seller shall, notwithstanding the consent and assignment/sub-contract, remain jointly and severally liable and responsible to buyer together with the assignee/ sub-contractor, for and in respect of the due performance of the Contract and the Sellers obligations there under.

10. **Generic**

Without prejudice to Buyer's right to price adjustment by way of discount or any other right or remedy available to Buyer, Buyer may terminate the Contract or any part thereof by a written notice to the Seller, if:

- i) The Seller fails to comply with any material term of the Contract.
- ii) The Seller informs Buyer of its inability to deliver the Material(s) or any part thereof within the stipulated Delivery Period or such inability otherwise becomes apparent.
- iii) The Seller fails to deliver the Material(s) or any part thereof within the stipulated Delivery Period and/or to replace/rectify any rejected or defective Material(s) promptly.
- iv) The Seller becomes bankrupt or goes into liquidation.
- v) The Seller makes a general assignment for the benefit of creditors.
- vi) A receiver is appointed for any substantial property owned by the Seller.
- vii) The Seller has misrepresented to Buyer, acting on which misrepresentation Buyer has placed the Purchase Order on the Seller.

11. **Generic**

While generating invoice in GeM portal, the seller must upload scanned copy of GST invoice and the screenshot of GST portal confirming payment of GST.

12. **Generic**

Supplier shall ensure that the Invoice is raised in the name of Consignee with GSTIN of Consignee only.

13. **Generic**

The successful bidder has to supply all essential accessories required for the successful installation and commissioning of the goods supplied. Besides standard accessories as per normal industry practice, following accessories must be part of supply and cost should be included in bid price:

Should be inclusive of tray manways, weir plates, downcomers, clamps, washers, fasteners etc. for each set and also inclusive of GST, FREIGHT, P&F, NDT inspection charges etc.

14. **Scope of Supply**

Scope of supply (Bid price to include all cost components) : Only supply of Goods

15. **Purchase Preference (Centre)**

Purchase preference to Micro and Small Enterprises (MSEs): Purchase preference will be given to MSEs as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 dated 23.03.2012 issued by Ministry of Micro, Small and Medium Enterprises and its subsequent Orders/Notifications issued by concerned Ministry. If the bidder wants to avail the Purchase preference, the bidder must be the manufacturer of the offered product in case of bid for supply of goods. Traders are excluded from the purview of Public Procurement Policy for Micro and Small Enterprises. In respect of bid for Services, the bidder must be the Service provider of the offered Service. Relevant documentary evidence in this regard shall be uploaded along with the bid in respect of the offered product or service. If L-1 is not an MSE and MSE Seller (s) has/have quoted price within L-1+ 15% of margin of purchase preference /price band defined in relevant policy, such Seller shall be given opportunity to match L-1 price and contract will be awarded for percentage of 25% of total value.

16. Inspection

Nominated Inspection Agency: On behalf of the Buyer organization, any one of the following Inspection Agency would be conducting inspection of stores before acceptance:
Pre-dispatch Inspection at Seller Premises (applicable only if pre-dispatch inspection clause has been selected in ATC):

M/S. BUREAU VERITAS (INDIA) PVT. LTD

Post Receipt Inspection at consignee site before acceptance of stores:
M/s.HINDUSTAN ORGANIC CHEMICALS LTD

17. Inspection

Pre-dispatch inspection at Seller premises (Fee/Charges to be borne by the BUYER): Before dispatch, the goods will be inspected by Buyer / Consignee or their Authorized Representative or by Nominated External Inspection Agency (independently or jointly with Buyer or Consignee as decided by the Buyer) at Seller premises (or at designated place for inspection as declared / communicated by the seller) for their compliance to the contract specifications. Fee/Charges taken by the External inspection Agency and any external laboratories testing charges shall be borne by the Buyer. For in-house testing, the Sellers will provide necessary facilities free of cost. Seller shall notify the Buyer through e-mail about readiness of goods for pre-dispatch inspection and Buyer will notify the Seller about the Authorized Representative/ Nominated External Inspection Agency and the date for testing. The goods would be dispatched to consignee only after clearance in pre-dispatch inspection. Consignee's right of rejection as per GTC in respect of the goods finally received at his location shall in no way be limited or waived by reason of the goods having previously been inspected, tested and passed by Buyer/ Consignee or its Nominated External Inspection Agency prior to the goods' shipment. While bidding, the sellers should take into account 7 days for inspection from the date of email offering the goods for inspection. Any delay in inspection beyond 7 days shall be on the part of the buyer and shall be regularised without Liquidated Damages.

When there is requirement of submission the advance sample, the seller shall inform the buyer promptly through emails about the date of submission of sample to the buyer nominated Inspection agency.

18. Certificates

Bidder's offer is liable to be rejected if they don't upload any of the certificates / documents sought in the Bid document, ATC and Corrigendum if any.

19. Certificates

Material Test Certificate Should Be Sent Along with The Supply. The Material Will Be Checked by Buyer's Lab & the Results of the Lab will be the Sole Criteria for Acceptance of the Item.

20. Certificates

The bidder is required to upload, along with the bid, all relevant certificates such as BIS licence, type test certificate, approval certificates and other certificates as prescribed in the Product Specification given in the bid document.

21. Buyer Added Bid Specific ATC

Buyer Added text based ATC clauses

DOCUMENTS SATISFYING ELIGIBILITY CRITERIA

- 1. DULY SIGNED AND STAMPED TENDER TERMS AS PER ANNEXURE- II.IF ANYDEVIATION,PL.INDICATE SEPARATELY**
- 2. DULY FILLED AND SIGNED COMMERCIAL TERM FORMAT AS PER ANNEXURE III-A,B,C,D**
- 3. DULY FILLED AND SIGNED BID SECURITY DECLARATION & CLAUSE COMPLIANCE AS PER ANNEXURE -IV,V**

4. PARTY HAS TO SUBMIT THE DRAWINGS & QAP FOR APPROVAL PRIOR TO MANUFACTURE
5. MTC AND GUARANTEE CERTIFICATES SHOULD BE PROVIDED ALONG WITH SUPPLY.
6. **THESE ITEMS ARE REQUIRED FOR ANNUAL SHUTDOWN 2023. HENCE THE VENDORS HAS TO SUPPLY THE COMPLETE TRAY ASSEMBLY AT HOCL SITE BEFORE NOVEMBER 2023. All the processes like Drawing approval, Third Party Inspection and dispatching of the material (so as to deliver the material at HOCL before NOV 2023) etc. should be completed before NOV 2023.**
7. DETAILED TECHNICAL SPECIFICATION OR CATALOGUE OF OFFERED PRODUCT SHOULD BE SUBMITTED ALONG WITH TECHNICAL BID
8. PARTY SHOULD PROVIDE 3 SET OF DRAWINGS IN HARD COPIES AND 1 SET OF DRAWING IN SOFT COPIES ALONG WITH THE SUPPLY.
9. **THIRD PARTY INSPECTION : PLEASE NOTE THAT THIRD PARTY INSPECTION WILL BE APPLICABLE IN THIS PROCUREMENT. THIRD PARTY INSPECTION IS REQUIRED FOR 100% QUANTITY. OUR APPROVED THIRD PARTY AND THEIR DETAILS ARE AS UNDER.**

M/S. BUREAU VERITAS (INDIA) PVT. LTD,
JOMER SYMPHONY, D/NO. 48/1744C39
UNIT 5, 6TH FLOOR, PONNURUNNI NORTH
VYTTILA P.O, KERALA - 682019.

CONTACT PERSONS

-

MR. PETER PRAVEEN, EXECUTIVE

PHONE : [+91 9895111743](tel:+919895111743)/53

MOB : [+91 9895005639](tel:+919895005639),

E MAIL : PETER.PRAVEEN@BUREAUVERITAS.COM

MATERIALS WILL HAVE TO BE INSPECTED AT THE VENDOR'S WORKS PRIOR TO DESPATCH AND SHALL BE DESPATCHED ONLY AFTER THE INSPECTION & APPROVAL BY THE TPI. HOWEVER THE INSPECTION CHARGES TO THE THIRD PARTY SHALL BE BORNE BY HOCL AS PER HOCL'S AGREEMENT WITH THE THIRD PARTY. HOWEVER WHATEVER COST INCURRING FOR INSPECTION OF MATERIAL (LIKE NDT ETC.) SHOULD BE BORNE BY THE SUPPLIER. HENCE AS PER THE GEM TENDER TERMS THE RATE QUOTED SHALL BE ALL INCLUSIVE

22. Buyer Added Bid Specific ATC

Buyer uploaded ATC document [Click here to view the file.](#)

Disclaimer/अस्वीकरण

The additional terms and conditions have been incorporated by the Buyer after approval of the Competent Authority in Buyer Organization, whereby Buyer organization is solely responsible for the impact of these clauses on the bidding process, its outcome, and consequences thereof including any eccentricity / restriction arising in the bidding process due to these ATCs and due to modification of technical specifications and / or terms and conditions governing the bid. Any clause(s) incorporated by the Buyer regarding following shall be treated as null and void and would not be considered as part of bid:-

1. Definition of Class I and Class II suppliers in the bid not in line with the extant Order / Office Memorandum issued by DPIIT in this regard.
2. Seeking EMD submission from bidder(s), including via Additional Terms & Conditions, in contravention to exemption provided to such sellers under GeM GTC.
3. Publishing Custom / BOQ bids for items for which regular GeM categories are available without any Category item bunched with it.
4. Creating BoQ bid for single item.
5. Mentioning specific Brand or Make or Model or Manufacturer or Dealer name.
6. Mandating submission of documents in physical form as a pre-requisite to qualify bidders.
7. Floating / creation of work contracts as Custom Bids in Services.
8. Seeking sample with bid or approval of samples during bid evaluation process.
9. Mandating foreign / international certifications even in case of existence of Indian Standards without specifying equivalent Indian Certification / standards.
10. Seeking experience from specific organization / department / institute only or from foreign / export experience.
11. Creating bid for items from irrelevant categories.
12. Incorporating any clause against the MSME policy and Preference to Make in India Policy.
13. Reference of conditions published on any external site or reference to external documents/clauses.
14. Asking for any Tender fee / Bid Participation fee / Auction fee in case of Bids / Forward Auction, as the case may be.

Further, if any seller has any objection/grievance against these additional clauses or otherwise on any aspect of this bid, they can raise their representation against the same by using the Representation window provided in the bid details field in Seller dashboard after logging in as a seller within 4 days of bid publication on GeM. Buyer is duty bound to reply to all such representations and would not be allowed to open bids if he fails to reply to such representations.

[This Bid is also governed by the General Terms and Conditions/ यह बिड सामान्य शर्तों के अंतर्गत भी शासित है](#)

In terms of GeM GTC clause 26 regarding Restrictions on procurement from a bidder of a country which shares a land border with India, 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 the Competent Authority. While participating in bid, Bidder has to undertake compliance of this and any false declaration and non-compliance of this would be a ground for immediate termination of the contract and further legal action

in accordance with the laws./जेम की सामान्य शर्तों के खंड 26 के संदर्भ में भारत के साथ भूमि सीमा साझा करने वाले देश के बिडर से खरीद पर प्रतिबंध के संबंध में भारत के साथ भूमि सीमा साझा करने वाले देश का कोई भी बिडर इस निविदा में बिड देने के लिए तभी पात्र होगा जब वह बिड देने वाला सक्षम प्राधिकारी के पास पंजीकृत हो। बिड में भाग लेते समय बिडर को इसका अनुपालन करना होगा और कोई भी गलत घोषणा किए जाने व इसका अनुपालन न करने पर अनुबंध को तत्काल समाप्त करने और कानून के अनुसार आगे की कानूनी कार्यवाई का आधार होगा।

---Thank You/धन्यवाद---



HINDUSTAN ORGANIC CHEMICALS LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
AMBALAMUGAL, ERNAKULAM DISTRICT, PIN – 682 302
PHONE: (0484) 2720911

Item Number	Item Description	Qty	Unit
1	<p>C 2004 Recycle column [Top] complete tray assembly (1-14) sieve tray single pass including tray manways, weir plates, downcomers, clamps, washers, fasteners etc. for each set. The detailed specifications, dimensions etc. required for the designing, tray drawings preparation, fabrication of the complete tray assembly are attached herewith.</p> <p>Type : Sieve Tray One Pass Spacing between trays : 600mm No. of Holes Per Tray: 1000 Hole Dia: 13mm Hole Pitch: Square Pitch Down comer : 560mm Material of Construction of trays: CS, SA 283 Gr.C Tray Thickness: 3mm ID of Vessel: 1650mm</p> <p>Ref Drawings: 1. 9179-307-0 sheet no. 13 2. 9179-307-0 sheet no. 14</p>	2	SET

NOTE:

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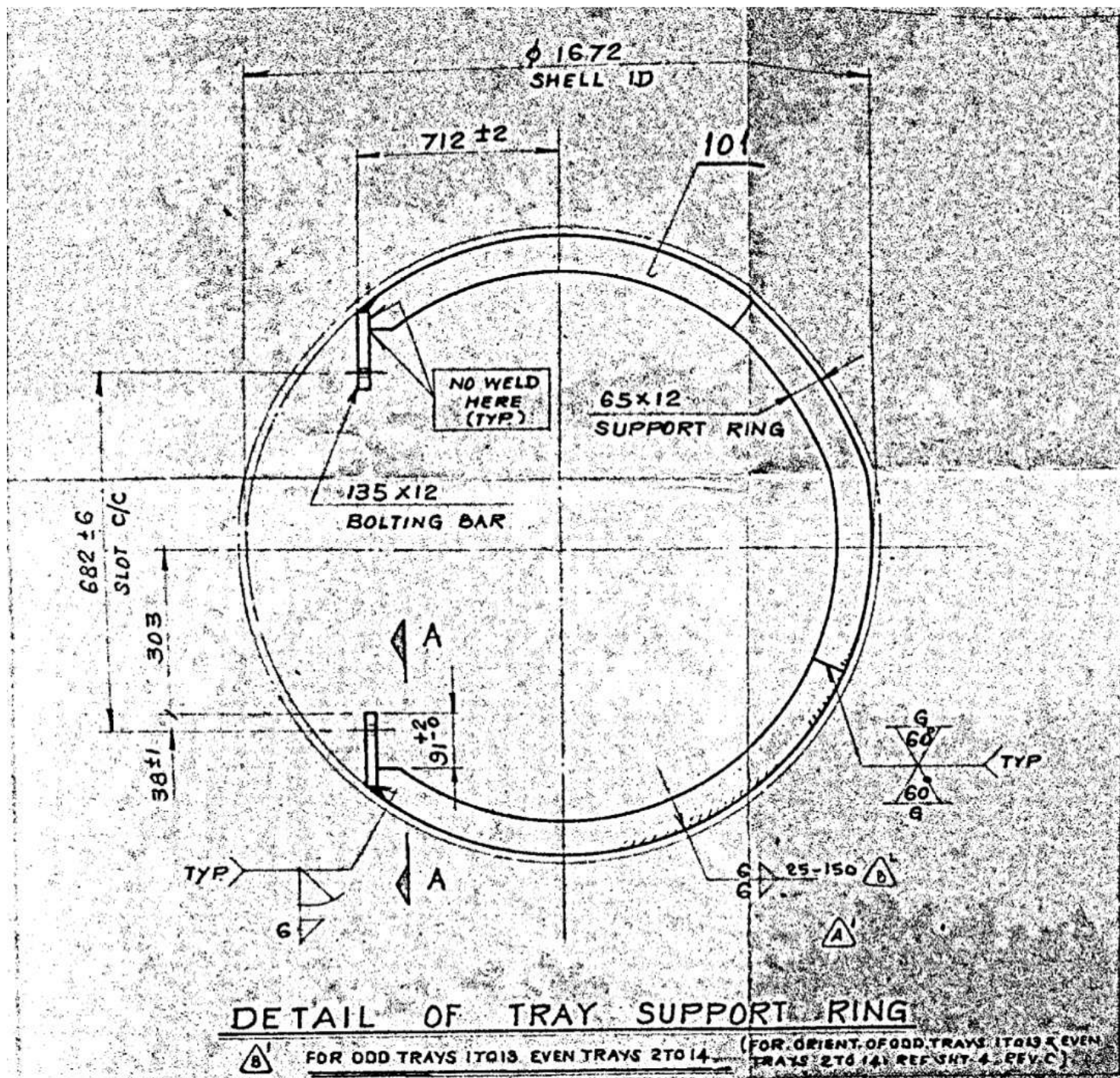
M/S. BUREAU VERITAS (INDIA) PVT. LTD,
JOMER SYMPHONY, D/NO. 48/1744C39
UNIT 5, 6TH FLOOR, PONNURUNNI NORTH
VYTTILA P.O, KERALA – 682019.

CONTACT PERSONS

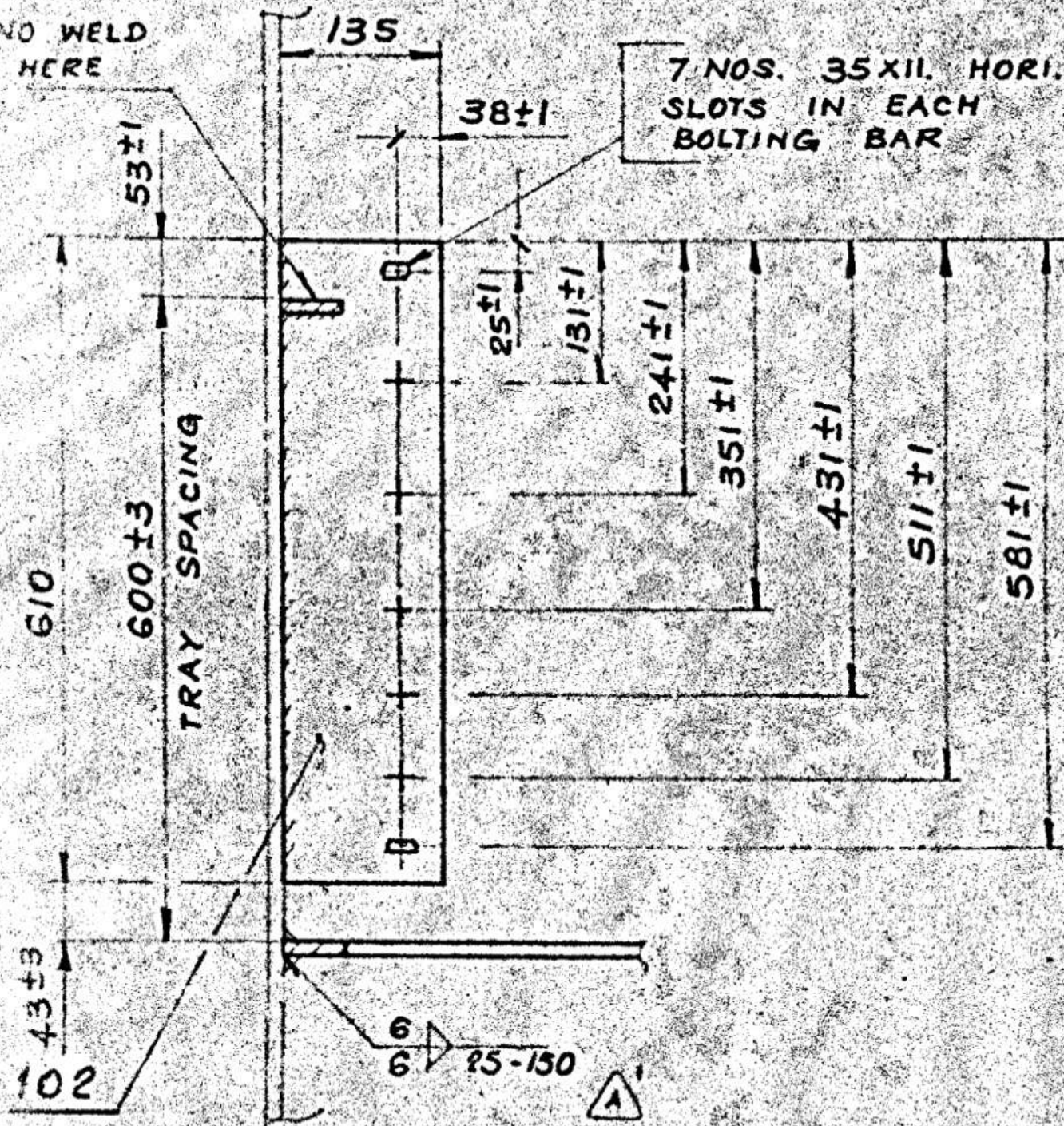
- 1) MR. **PETER PRAVEEN**, EXECUTIVE
PHONE : +91 9895111743/53
MOB : +91 9895005639,
E MAIL : PETER.PRAVEEN@BUREAUVERITAS.COM

MATERIALS WILL HAVE TO BE INSPECTED AT THE VENDOR'S WORKS PRIOR TO DESPATCH AND SHALL BE DESPATCHED ONLY AFTER THE INSPECTION & APPROVAL BY THE TPI. HOWEVER THE INSPECTION CHARGES TO THE THIRD PARTY SHALL BE BORNE BY HOCL AS PER HOCL'S AGREEMENT WITH THE THIRD PARTY. HOWEVER WHATEVER COST INCURRING FOR INSPECTION OF MATERIAL (LIKE NDT ETC.) SHOULD BE BORNE BY THE SUPPLIER. HENCE AS PER THE GEM TENDER TERMS THE RATE QUOTED SHALL BE ALL INCLUSIVE

DATASHEET IS AS GIVEN BELOW:



NO WELD
HERE



SECTION-AA

BOLTING BAR FOR TRAY NO 1 TO 13

117	INT. PIPE	00 88.9 x 11.13 - 1315	1	28.02	SA 106 GR. B.	K
116	BOLTING BAR	R 103 x 12 - 335 LG	4	13.00		
115	SUPPORT RING	SEE DETAIL	2	18.29		
114	PLATE	R 180 x 12 - 264 LG	2	8.96		
113	PLATE	R 153 x 12 - 218 LG	2	6.29		
112	PLATE	R 153 x 12 - 425 LG	2	12.25		
111	SUPPORT RING	SEE DETAIL	1	10.10		
110	BOLTING BAR	R 125 x 12 - 760 LG	4	35.80	SA 515 GR. 70	
109	BOLTING BAR	R 125 x 12 - 610 LG	68	488.43		
108	SUPPORT RING	SEE DETAIL	36	322.72		
107	BRACKET	R 75 x 12 - 60 LG	72	30.52		
106	BRACKET	R 65 x 12 - 60 LG	72	26.45		
105	BOLTING BAR	R 125 x 12 - 610 LG	72	517.16		
104	SUPPORT RING	SEE DETAIL	36	534.74		
103	BOLTING BAR	R 135 x 12 - 762 LG	2	19.38		
102	BOLTING BAR	R 135 x 12 - 610 LG	26	201.69		
101	SUPPORT RING	SEE DETAIL	14	371.22		

PART NO	DESCRIPTION	MATERIAL SIZE	NOS.	WT. IN KG.	MATL. SPECN.	SU
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MATERIAL LIST

VESSEL TRAYS

STANDARD SPECIFICATION

3-18-1

PAGE 1 OF 6

I. GENERAL

A. Scope

1. This specification covers requirements for the fabrication and assembly of vessel trays.
2. Exceptions or variations shown in the Project Specifications take precedence over requirements shown herein.
3. No variations from the Project Specifications and this specification are permitted unless approved in writing by UOP Process Division.
4. In the event of conflict between this specification and other referenced documents the most restrictive definition shall apply. If clarification is required, a written request shall be submitted to UOP Process Division.

B. References (Latest Editions)

1. ASTM Specifications.
2. ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, Unfired Pressure Vessels.

C. Definition

Assembly or assemblies shall be interpreted to include all the component parts of trays such as, but not limited to, floors, weirs, downcomers, upcomers, troughs, wells, baffles, risers, caps, beams, trusses, clamps, bolts, washers, gaskets, and specialties of proprietary trays, as well as support rings, downcomer bars, upcomer bars, and other parts which are to be welded to the vessel.

D. Proprietary Trays

Valve or other type proprietary tray designs shall be of a type approved by UOP Process Division for the conditions specified in the Project Specifications. Trays shall be designed for the maximum loading for the diameter specified with a liquid/vapor ratio based on the data specified in the Project Specifications. Multipass trays shall be designed for equal liquid/vapor ratios in each pass of the tray. Uncapped perforated areas are not acceptable.

II. MATERIALS

A. 12 Cr Stainless Steel Assemblies

1. All sheet and plate material shall be in accordance with ASTM A 176 Type 410S or 405 with No. 1 finish.
2. Support rings, downcomer or upcomer bars, and other parts welded to the vessel shall be carbon steel in accordance with ASTM A285, A283, or better unless specified to be alloy, when they shall be in accordance with II-A-1.
3. All bolting material shall be 12 Cr - ASTM A193 Grade B6 or B6X for bolts and A194 Grade 6 for nuts.

B. Monel Assemblies

1. All sheet and plate materials shall be in accordance with ASTM B127 in the annealed and pickled condition.
2. Support rings, downcomer or upcomer bars, and other parts welded to the vessel shall be in accordance with II-B-1.
3. All bolting material shall be Monel, made from rod or bar stock, ASTM B164.

C. 18 Cr-8Ni Stainless Steel Assemblies

1. All sheet and plate material shall be in accordance with ASTM A167 Type 304 with No. 1 finish.
2. Support rings, downcomer or upcomer bars, and other parts welded to the vessel shall be carbon steel in accordance with ASTM A285, A283, or better unless specified to be alloy, when they shall be in accordance with II-C-1.
3. All bolting material shall be ASTM A193 Grade B8 for bolts and A194 Grade 8 for nuts.

D. Carbon Steel Assemblies

1. All plate and bar material shall be in accordance with ASTM A285, A283, or better. All sheet and strip material shall be commercial grade carbon steel. Trays must be totally free of mill scale.
2. All bolting material shall be in accordance with II-A-3 except when otherwise specified.

E. Gasketing and Packing

1. Asbestos gasketing shall be 1/16" x 1" minimum size, commercial quality tape. Wider tape, through which bolts are to be inserted, shall be drop warp type.
2. Asbestos packing shall be commercial quality twisted rope.

VESSEL TRAYS

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E. Gasketing and Packing (Cont'd)

3. Asbestos washers shall be white millboard, Johns-Manville type 102 or equal.
4. Neoprene, ceramic, and Teflon-impregnated asbestos gasketing shall be commercial quality.

III. DESIGN

A. Thickness

1. Minimum thicknesses for tray parts including corrosion allowance:

	Carbon Steel	12 Cr., Monel and 18 Cr. -8Ni
Specialties of proprietary trays	—	16 USS gage
Bubble caps	10 USS gage (0.1340")	16 USS gage
Support rings	3/8"	1/4"
Downcomer and upcomer bars	3/8"	1/4"
Parts welded to vessel	3/8"	1/4"
All other parts	10 USS gage (0.1340")	14 USS gage

2. The minimum diameter of bolting shall be 3/8 inch.

B. Corrosion Allowance

1. No corrosion allowance is required for Monel or stainless steel assemblies.
2. The corrosion allowance for all surfaces of floors, beams, trusses, or other support members of carbon steel assemblies shall be 0.03 inch minimum.

C. Loading

1. The design live load for tray assemblies shall be based on a liquid height of 2 inches above weirs at a density of 60 pounds per cubic foot, with a minimum of 20 pounds per square foot, except for areas under downcomers, which shall be 60 pounds per square foot.
2. For maintenance, all assemblies shall be designed for a concentrated load of 300 pounds at any point and ambient temperature.

D. Deflection

1. Deflection of assemblies under design live loading shall be limited to 0.0010 of the column diameter.
2. For large diameter vessels, an initial camber may be made in the principal support members of the assemblies not to exceed the deflection due to dead load.

E. Temperature

The structural design temperature shall be as specified in the Project Specification.

F. Properties

The allowable stresses of all structural materials shall be as given in Section VIII, Division 1 of the ASME Boiler and Pressure Vessel Code.

IV. CONSTRUCTION

A. Tolerances

1. Height of weirs, risers, and baffles, and clearances between caps and floors shall be fabricated within 1/16 inch of the dimensions specified and the lengths of downcomers shall be within 1/8 inch.
2. All other parts shall be fabricated in accordance with good shop practice and in such uniformity that all corresponding parts will be interchangeable.

B. Details

1. All assemblies, except one piece cartridge type trays, shall have sections sized to pass freely through the vessel manway.
2. Each assembly, except one piece cartridge type trays, shall have a section or sections for use as an internal manway. Unless otherwise specified, these manways shall be freely removable from top and bottom. Internal manways shall be in line vertically and of a location, shape, and size to permit easy access to every area of the tray.

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B. Details (Cont'd)

3. All assemblies shall be designed for installation and removal from the top unless otherwise specified in the Project Specifications.
4. Support rings, downcomer or upcomer bars, and tray support brackets, when required, shall be designed for welding to the vessel by others. All other parts shall be designed for bolting or clamping in place. Clamping shall be used except where bolting is necessary for load supporting capabilities. Spacing of bolts or clamps shall be close enough to insure optimum liquid-tight construction, but shall not exceed 6 inches. All joints and seams of trays specified to be liquid-tight shall be seal-welded in the field.
5. Drawings and instructions for installation and fabrication of support rings, downcomer or upcomer bars, and tray support brackets in the vessel, shall be furnished by the tray supplier. They shall show clearly the type, size, and extent of welding. Carbon steel rings and bars shall be continuously welded on the top or side and stitch-welded with 1 inch welds on 6 inch centers on the other side. Alloy rings and bars shall be continuously welded on both sides. All brackets shall be continuously welded all around.
6. Gasketing and packing shall not be used in the design or installation of trays except when specified. Fabrication shall provide tight metal to metal joints. Metal seal plates may be used to close construction joints where necessary.
7. All stiffeners and support members are to be located on the underside of the tray floor with the exception of open-type trusses supporting two trays. Stiffeners and support members in bubbling areas shall not exceed 3 inches in width and shall be designed so as not to impede or channel the liquid flow on the tray. The depth of stiffeners and support members shall not exceed 3 inches or 5 percent of the column diameter, whichever is greater. Depth of stiffeners and support members transverse to the liquid flow direction shall not exceed 20 percent of the tray spacing.
8. Tray joints or seams, other than at the column support ring, shall not be located under downcomers. Sumps, other than for draw-off purposes, shall not be used.
9. A minimum of 3/4 inch overlap shall be provided between the tray floor sections and support members.
10. Width of tray support rings shall be as follows:

Vessel Diameter	Width of Ring
Up to 4'-6"	1-1/2"
4'-6" to 8'-0"	2"
8'-0" to 12'-0"	2-1/2"
12'-0" to 20'-0"	3"
20'-0" to 25'-0"	3-1/2"

25'-0" and larger diameters require individual design.
11. Trays and seal pans not specified to be liquid-tight, and of a design which would not easily drain, shall be provided with one or more 1/2 inch x 1/2 inch square drain holes located in the outlet weir directly above the tray floor.
12. Burrs shall be completely removed from all perforated areas and edges of tray sections.
13. Valve assemblies of proprietary trays shall be provided with means to prevent orifice covers from adhering to the tray floor.

C. Welding

1. All welding shall be done by a metal-arc process.
2. Gas or carbon-arc welding shall not be permitted.
3. Resistance welding will be permitted for minor details on approval of UOP Process Division.
4. Welding electrodes of a composition similar to tray material shall be used, except austenitic electrodes of higher chromium and nickel content, such as AWS A5.4, ASME SFA5.4, Class E309 and E310, may be used for 12Cr and type 304 stainless details.

V. ASSEMBLY AND INSPECTION

A. Marking

1. All component parts of assemblies shall be permanently marked with piece marks corresponding to those shown on the fabricator's detailed and assembly drawings.
2. All like pieces shall have the same mark.

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B. Assembly

1. At least one of each type tray shall be trial assembled in the fabricator's shop from parts selected at random. The trial assembly shall be supported in a manner comparable to the final installation.
2. The maximum tolerance for all shop assemblies of trays with respect to a flat plane shall be plus or minus 1/8 inch.
3. The maximum tolerance for all field assemblies of trays with respect to a level plane shall be plus or minus 1/8 inch for column diameters through 15'-0" and plus or minus 3/16 inch for column diameters greater than 15'-0".

C. Inspection

1. All materials and trial and field assemblies are subject to inspection by a representative of the purchaser and/or UOP Process Division before shipment and during installation.
2. Any rejections made by the inspector shall be final; however his approval of the equipment shall in no way release the fabricator of any responsibility for carrying out all of the provisions of this specification.
3. Recommended details of a manometer, for checking tray levelness, are given in Figure 1.

D. Reports

The fabricator shall furnish on request copies of mill test reports for all sheet and bar materials and for alloy bolting material. Mill test reports shall include physical and chemical test data.

VI. SHIPPING*A. Preparation*

1. All metal parts shall be free of all foreign matter, except that any oil coating inherent to the manufacturing process need not be removed.
2. Shipments for field installation shall be given a coating of corrosion inhibitor solution.

B. Packing

1. All materials shall be packed to prevent damage in shipment.
2. All containers shall be marked with purchase order number and vessel item number.
3. Materials for different vessels shall not be intermixed.
4. All support rings, downcomer or upcomer bars, and other attachments to the vessel, if made by the tray fabricator, shall be shipped direct to the vessel fabricator, unless otherwise designated. This shipment shall include two sets of drawings and instructions for installations.
5. Shipments for field assembly shall include two sets of drawings and instructions for installation.

C. Spares

1. All shipments shall include at least 10 percent of the bolt, nut, washer, and small hardware requirements as construction spares.
2. All shipments shall also include 40 percent of all gasketing and 15 percent of washer type gaskets for construction spares.

VII. DRAWINGS

Manufacturer shall prepare detailed drawings and shall furnish approval and final drawings in accordance with requisitions and/or purchase orders.

VIII. GUARANTEE

The supplier guarantees that the equipment furnished is free from fault in design, workmanship, and material, and is of sufficient size and capacity, and is of proper material to fulfill satisfactorily the conditions specified. Should any defect in design, material, workmanship, or operating characteristics develop during the first year of operation, but not later than 18 months after shipment from supplier's plant, the supplier agrees to make all necessary or desirable alterations, repairs, and replacements of defective equipment, free of charge, and shall pay transportations involved to and from the user's plant. No allowance will be made for alterations or repairs made by others without written consent or approval of supplier. If the defect or failure to function cannot be corrected, the supplier agrees to replace

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VIII. GUARANTEE (Cont'd)

promptly, free of charge, said equipment, or to remove the equipment and refund the full purchase price. In no case will the supplier be responsible for contingent liability.

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BY APP'D

DATE

THE FOLLOWING GENERAL NOTES APPLY TO ALL ITEMS LISTED ON INDIVIDUAL SPECIFICATION SHEET:

- A. All items shall comply with the requirements, terms and conditions of UOP Specification 3-18-1.
- B. All trays are numbered from top (#1) to bottom.
- C. Material abbreviations: C.S. = carbon steel, 410 = 12% chromium alloy, 304 = 18-8 stainless steel.
- D. If there is agreement by UOP for purchase of proprietary valve type trays in lieu of sieve trays, such trays shall be designed in accordance with the tray data on individual specification sheet and accompanying sieve tray layout. Downcomer dimensions as shown for sieve tray layout shall be followed as closely as possible. Minor deviations to adjust for proprietary cap arrangement will be accepted. All valve parts shall be Type 410 chromium alloy for carbon steel trays and chromium alloy trays. Valve parts for higher alloy trays shall match the tray metallurgy.
- E. System of measurement is metric; all dimensions are to be in millimeters except as noted.
- F. For columns where the specified I.D. is indicated to be minimum (Min.), adjustments in tray dimensions to accommodate the final I.D. selected shall be to the chord heights of side downcomers which are also indicated as minimum (Min.). For consistency with this dimensional adjustment, the I.D. of the top (or suitable) manway of the column must be equal to or greater than the largest downcomer chord height or width plus 100 mm, to avoid tray joints under downcomers.

THE FOLLOWING NOTES APPLY ONLY WHEN LISTED FOR INDIVIDUAL ITEM OF SPECIFICATION SHEET:

1. One pass. 2. Two pass, center downcomer. 2X. Two pass, side downcomer.
3. Three pass. 4. Four pass, intermediate downcomer. 4X. Four pass, side and center downcomers.
5. Support rings, downcomer and upcomer bars, and other parts welded to vessel shall match the metallurgy of the vessel shell or lining, whichever is the higher alloy.
6. Downcomer(s) shall conform to transition cone of vessel, contractor to furnish cone details.
7. Tray(s) shall be liquid tight by seal welding, except at manway(s) use gasketing.
8. Tray(s) including downcomer(s) shall be liquid tight by seal welding, ~~and gasketing~~. Manway(s) shall be gasketed.
9. Weirs shall be level. Use adjustable weirs which are sealed against leakage.
10. Do not provide drain holes. Tray(s) shall be liquid tight.
11. Stiffeners and support members transverse to the liquid flow direction shall not exceed 2 inches in depth and shall not be located above upcomers, or within a lateral distance from upcomers equal to one tray space.
12. Trays shall be assembled on rods and spacers or arranged in cartridges with trap attached to downcomer of bottom tray.
13. Trap shall be located in transition cone of vessel and properly feed the tray or accumulator below.
14. All tray assemblies shall be designed for installation and removal from top and bottom.
15. Each tray shall have froth initiator(s) in accordance with UOP Std. Dwg. No. 3-130-.
16. Trap(s) below tray shall be baffled, or alternately tray shall have vapor tunnel(s) in downcomers to allow vapor flow across tray.

<h2 style="margin: 0;">VESSEL TRAYS</h2>	PROJECT SPECIFICATION NUMBER REVISION <div style="text-align: center; font-size: 1.2em;">9179 - 307 - 0</div> SHEET 13 OF BY APP'D DATE
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NAME OF VESSEL						RECYCLE COLUMN					ITEM		C-2004	
ITEM NO.	QUAN. (ASSEM.)	I.D. OF VESSEL	MATE- RIAL	DESCRIPTION	DWG. NO. OR SHEET NO.	S	A	T	W	X		TRAY NOS.	NOTES	
1	14	1650 (MIN.)	C. S.	SIEVE TRAYS	14							1-14	1	
2	1	1650 (MIN.)	C. S.	TRAP	3-194-1	600	100	40	150	125 (MIN.)		BELOW 14		
3	18	1650 (MIN.)	C. S.	SIEVE TRAYS	15							ODD NOS 15-49	2	
4	18	1650 (MIN.)	C. S.	SIEVE TRAYS	15							EVEN NOS 16-50	2X	
5	2	1650 (MIN.)	C. S.	TRAPS	16							BELOW 50		

For notes 1 thru 16 see sheet 2.
 THE FOLLOWING NOTES APPLY ONLY WHEN SPECIFIED ABOVE.

17. Bubble caps shall be in accordance with UOP Std. Dwg. No. _____ Type No. _____.
18. Bolts and nuts for manway(s) shall be Type 304 (ASTM A193 Grade B8 for bolts and A194 Grade 8 for nuts), Type 410 (ASTM A193 Grade B6 or B6X for bolts and A194 Grade 6 for nuts).
19. Asbestos, Teflon-impregnated asbestos, neoprene, ceramic packing and gasketing, shall be used as required for proper design and installation of tray(s) manway.
20. Each tray shall have a total of _____ — _____ diameter holes on approximately _____ square, equilateral triangular pitch.
21. Each tray shall be designed for an upward pressure differential of _____
22. See sketch below.
23. Drawoff well(s) on tray No. _____ shall be _____ mm deep and a minimum of _____ mm wide and extend under entire downcomer area.

TRAY DATA:	MAXIMUM ALLOWABLE OVERALL PRESSURE DROP FOR VESSEL = 0.50 Kg/cm ²	
SERVICE <i>UOP CATALYTIC CONDENSATION PROCESS</i>	FOAMING TENDENCY = LOW	
FLUID DESCRIPTION <i>H₂CBN</i>		
TRAY SPACING, mm <i>600 (TYP) EXCEPT; 1200 = 14-15.</i>		
LOADING FOR TRAYS	1-14	15-50
OPERATING PRESS., KG/cm ² (g)	7.34	7.70
OPERATING TEMP., °C	165	263
STRUCTURAL DESIGN TEMP. °C	300	300
VAPOR RATE, Kg/h	44779	54545
VAPOR DENSITY, Kg/m ³	19.9	28.1
LIQUID RATE, Kg/h	18699	61979
LIQUID DENSITY Kg/m ³	705	626
SURFACE TENSION, DYNES/CM.	11.3	7.1

ALL SECTIONS SHALL PASS THROUGH AN 18" I.D. VESSEL MANWAY.

VESSEL TRAYS

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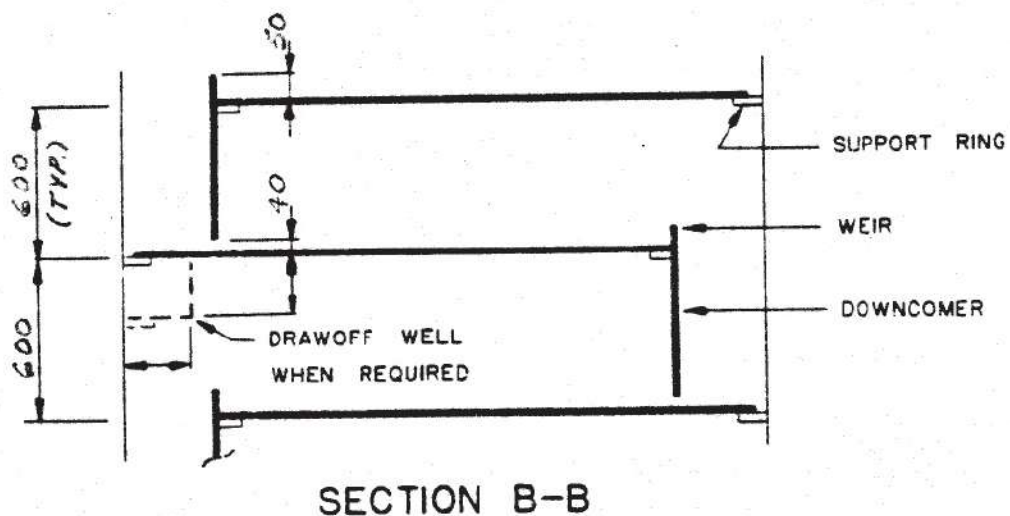
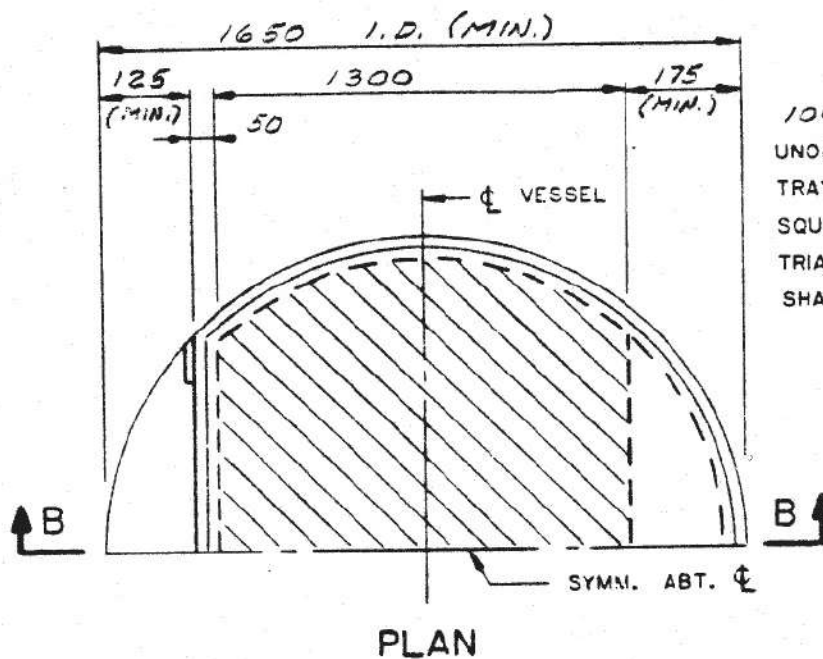
BY APP'D

DATE

NAME OF VESSEL RECYCLE COLUMN

ITEM C-2004

ONE-PASS SIEVE TRAYS (STRAIGHT DOWNCOMERS)



1000 TOTAL 13 DIAMETER HOLES PER CENTER DOWNCOMER TRAY

UNOBSTRUCTED HOLES TO BE
EVENLY DISTRIBUTED ON
SQUARE OR EQUILATERAL
TRIANGULAR PITCH
THROUGHOUT SHADED AREA

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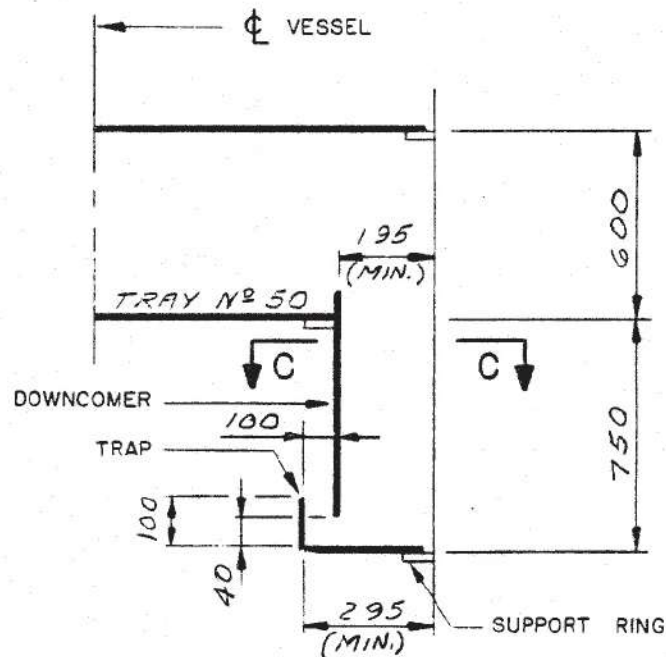
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NAME OF VESSEL RECYCLE COLUMN

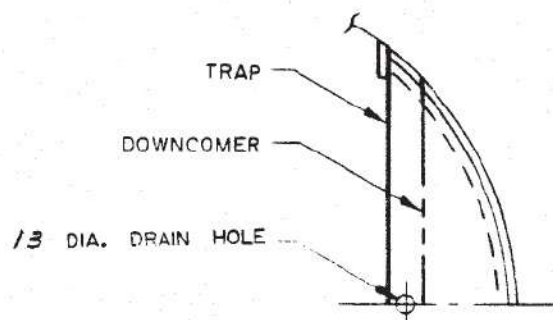
ITEM C-2004

TRAPS

(ONE-PASS OR TWO-PASS SIDE DOWNCOMER SIEVE TRAYS)



ELEVATION



SECTION C-C

COLUMN C-2004

Equipment No. : C-2004
Equipment Name : RECYCLE COLUMN
Design Code : ASME SEC VIII DIV. I

Design Pressure/Temp : 11 Kg/cm²g(Inlet)/300°C
: 1 kg/cm²g (Exit)/90°C

Operating Pressure/Temp. : 7.7 Kg/cm²g/272°C
Test Pressure : 16.5 Kg/cm²g (H₂O)
Process Fluid : HCBN
Insulation thickness : 100mm(Hot)

Capacity : 78.5M³
Erection weight : 36165(Less Trays) kgs
Operating weight : 68500 Kgs
Hydrostatic Test Weight : 114665 Kgs

Manufacturers No. : 1462/A (Job No)
Year of Built : 1984
Manufacturer's Name : M/S. KAVERI ENGG. INDUSTRIES LTD

CONSTRUCTIONAL DETAILS:

<u>Description</u>	<u>Length</u>	<u>Thk</u>	<u>Mat.</u>	<u>OD</u>
SHELL(BOTTOM)	4550	16	SA 515 Gr.70	1700
" (TOP)	15376	14	"	"
SMXEL DISHEDEND (TOP)	-	16	"	"
DISHED END(BOTTOM)	-	14	"	"

DEMISTER MESH : NIL

TRAY DETAILS

No. of trays : 50

Tray Nos.	1-14	15-50
Type	Sieve tray one pass	Sieve tray two pass
Spacing	600mm	600mm
No. of holes/tray	1000	1000
Down Comer	560mm	50mm
Material of construction	CS	CS

: 2 :

REFERENCE

Drawing Nos. : 1462/A-NP-1-SHT-10F1
1462/A-MD-2-SHT 1 of 2, 2 of 2
1462/A-PD3 SHT 1 of 1
1462/A 1-4

Purchase Order No. : PPR/PHE/3028-32/013 dt. 21.1.84
Customer Drawing No. : 9792-557-02104-4 SHT

Total Height : 40200mm
Column Height : 35200 (Tangent Line)

RECYCLE COLUMN C-2004

FABRICATION & DESIGN DATA

Equipment No. : C-2004
Equipment Name. : Recycle Column
Drawing No. : 1462/A Rev. F of M/s Kavery Engg Industries Ltd.
Inner Diameter : 1672 mm
TL-TL : 35210 mm
Total Height : 41375 mm
Design Pressure
INT : 11.00 Kg/cm²
EXT : 1.00 Kg/cm²
Design Temperature at top
INT : 300 °C
EXT : 90 °C
Operating Temperature
TOP : 272 °C
BOTTOM : - °C
Corrosion Allowance : 3.00 mm

MOC : SA 515 Gr 70

TRAYS

Sieve Trays of 13mm Dia holes at Square Pitch

1462/A Sh. 2 of 4 Rev. D of M/s Kavery Engg Industries Ltd.
Drawing No. : Ltd.
MOC : SA 283 Gr C
No. of Trays : 50