

Click on the Document Title to go to that section of the document

Table of Contents			
Document Number	Rev.	Document Title	Page Number
A307-01C-VV-MR-6007-59-RFQ	A	ENQUIRY DOCUMENT	2
A307-01C-VV-MR-6007	A	VESSELS-CS (UPTO 25 THK)	111
A307-16-46-LL-6007	A	LIST OF APPLICABLE SPECIFICATIONS & STANDARDS	115
A307-01C-16-46-VDR-6007	A	VENDOR DATA REQUIREMENTS FOR VESSEL	119
A307-16-46-TR-6007	A	INSTRUCTIONS TO BIDDERS	122
A307-16-46-SS-6007	A	SCOPE OF SUPPLY	130
A307-16-46-UR-6007	A	UNIT RATES FOR ADDITION / DELETIONS	135
6-12-0001	5	General specification for pressure vessels.	140
6-12-0002	7	Supplementary specification for carbon steel vessels.	153
6-12-0011	7	Standard specification for boiler quality carbon steel plates.	160
6-12-0014	5	Standard specification for weldable structural quality steel plates for tanks and vessels	167
6-14-0009	3	Packing, marking & shipping specs. for tray and tower internals.	171
6-81-0001	2	Standard specification for Positive Material Identification (PMI) at Supplier's Works	177
6-81-0011	2	ITP for Pressure Vessels / Columns carbon steel.	185
6-78-0001	0	Specification for Quality Mgt. System Requirements from Bidders	192
6-78-0003	0	Specification for Documentation Requirement from Suppliers	201
7-12-0001	5	Vessel tolerances.	213
7-12-0006	5	Angle leg support.	215
7-12-0007	5	Pipe leg support.	217
7-12-0010	6	Manhole with davit.	218
7-12-0013	6	Nozzle reinforcement and projection.	220
7-12-0015	5	Standard bolt hole orientation.	222
7-12-0025	5	Fire proofing & insulation supports.	223
7-12-0026	5	Earthing lug.	225
7-12-0027	5	Name plate.	226
7-12-0028	5	Manufacturer name plate.	227
7-12-0029	5	Bracket for name plate.	228
7-12-0030	4	Name plate for small equipment.	229
A307-01D-16-46-DS-3047	C	MECHANICAL DATASHEETS FOR ID-V-140A/B	230
A307-01D-16-46-DS-3047A2	C	MECHANICAL DATASHEETS SHT 2 FOR ID-V-140A/B	231
A307-000-06-42-PLS-01	1	JOB SPECIFICATIONS FOR SHOP AND FIELD PAINTING/COATING AND LINING	232
A307-01C-16-46-DS-3182	B	CONDENSATE POT IC-V-202	280
A307-01C-16-46-DS-318202	B	MECHANICAL DATASHEETS	281
A307-01C-16-46-DS-3181	B	CONDENSATE POT IC-V-201	282
A307-01C-16-46-DS-318102	B	MECHANICAL DATASHEETS	283

REQUEST FOR QUOTATION (RFQ)

RFQ No. : SM/A307-IC-VV-MR-6007/59

Date: 10 – OCT - 2013

	Client : BHARAT PETROLEUM CORPN. LIMITED Project: INTEGRATED REFINERY EXPANSION PROJECT AT KOCHI REFINERY MR No.: A307-000-WD-MR-6007 REV.A Item: PRESSURE VESSELS – CS (UPTO 25 MM) Due Date & Time: 30 - OCT - 2013 & Up to 1200 Hrs. (IST)
UNPRICED BID OPENING:	At 1400 Hrs. (IST) on 30 - OCT - 2013 (at EIB - 5th Floor, Engineers India Limited, Bhikaiji Cama Place, R.K. Puram, New Delhi – 110066, India) (In case the bid due date happens to fall on Holiday, the next working day shall be deemed to be due date)
PRICED BID OPENING:	TIME & VENUE SHALL BE INTIMATED LATER.

Gentlemen,

Bids are requested on behalf of our Client M/s Bharat Petroleum Corporation Limited on e-procurement system for the subject item in total compliance to technical specifications, scope, terms & conditions of enquiry documents / attachments.

1. Bidder should submit their bids strictly as per the requirements outlined hereunder and as specified in the material requisition.
2. Bids are required to be submitted through EIL's Authorized Service Provider's (ASP) Electronic System / Portal at www.tenderwizard.com/eil only, on or before the bid submission date and time. Bidders are required to register themselves at www.tenderwizard.com/eil . No registration fee would be charged from the bidders.

Bidders to refer attached Instructions to Bidders for E-Tendering.

3. Bidders in their own interest are requested to register on e- tendering portal and upload/submit their bid well in time. Bidders should avoid the last hour rush to the website for registration of user id & password, enabling of user id and mapping of digital signature serial number etc. since this exercise require activities from EIL & M/s Anatares System (Service Provider) and needs time. In the event of failure in bidder's connectivity with EIL/Service Provider during the last few hours, bidder is likely to miss the deadline for bid submission.

Due date extension request due to above reason may not be entertained.

4. Bidders are required to upload the complete bid comprising of Part-I:- Unpriced Bid along with all supporting documents & Part-II :- Priced Bid on the e-tendering website (www.tenderwizard.com/eil) only.- Refer General Instruction provided in SIB .
5. Technical specification should be strictly as per the Material Requisition attached. It may be noted that the Bid shall be evaluated as received and technical queries may not be issued.
6. Commercial requirements are specified in the Special Instructions to Bidders, General Purchase Conditions, Agreed Terms & Conditions (ATC) questionnaire and all other RFQ documents. The pre-filled Agreed Terms & Conditions Questionnaire should be returned duly signed and stamped along with copy of your un-priced bid.
7. The order, if placed, will be issued by our above-mentioned client.

8. If not bidding, please inform vide E-mail with attached regret letter within the due date & time, with reasons(s) of not participating in the RFQ. In case there is no response, names of such bidder may not be considered for issuance of future enquiries.

9. Direct bids only, without the intermediary of an Indian Agent will be considered from Foreign Bidder.

10. Delivery Period:-

FOR INDIAN BIDDERS: Within **8 Months** on FOT Despatch Point Basis from the date of Fax of Acceptance. Date of LR/GR shall be considered the date of delivery.

11. Payment Terms shall be as per following:-

For Indian bidders:

The payment to Indian bidders shall be made in accordance with S. No. 1.4 & 1.7 Under Section A of Special Instruction to Bidders (SIB).

12. The offer should be valid for 3 (Three) months from final bid due date.

13. Only E-Bids to be uploaded in EIL's authorized service provider's portal www.tenderwizard.com/eil shall be acceptable. Physical bids and Bids/ Offer through Email or fax/ Telex/Telegraphic or Bids received in open condition or Bids in any other mode shall not be accepted.

13. The bidder shall bear all costs associated with the preparation and submission of its bid, and the Purchaser/Consultant shall in no case be responsible or liable for these costs regardless of the conduct or outcome of the bidding process.

14. Canvassing in any form by the Bidder or by any other agency on their behalf may lead to disqualification of their bid.

15. The E-bids received online shall be opened at EIL office on due date and time as specified above. Bidder can view online the name of the other bidders who have submitted their e-bids after opening is performed by EIL.

16. All technically and commercially acceptable bidders will be advised of venue, date and time of priced bid opening. Bids shall be opened online, hence bidders may review opening status at their places. Interested bidder may send their representatives (duly authorised by a competent person and having the Letter of Authority as per proforma enclosed), of such technically and commercially acceptable bidders. Time and Date of opening of Price Bids shall be notified to the qualified and acceptable bidders at a later date.

17. As Purchaser intends to contract directly with suppliers of the goods for which bids are invited, the bids should be prepared by the suppliers and submitted directly. Purchaser reserves the right to reject offers made by intermediaries.

18. Addendum / corrigendum to the RFQ documents if issued must be signed and submitted along with the bid.

19. Bidders to note that price changes against Technical / commercial clarifications, in line with terms & conditions of enquiry documents are not allowed. In case any bidder gives revised prices / price implications against such clarifications, their bid shall be liable for rejection.

20. EIL reserves the right to use in-house information for assessment of bidder's capability for consideration of bid.

21. In case any bidder is found to be involved in cartel formation, his bid will not be considered for evaluation / placement of order. Such bidder will also be debarred from bidding in future.

22. The bidder who is providing the technology from the company which is recently acquired / taken over by them or purchasing the technology by other companies, shall provide proper documentary evidence. In the absence of the same their offer shall be liable for rejection.

23. Bidders are requested to quote as per their capability as registered in EIL, as on the date of issue of RFQ.

- 24 Owner reserves its right to allow Public Sector Enterprises (Central/State), Micro & Small Enterprises (MSEs) and MSEs owned by Scheduled Caste (SC)/ Scheduled tribe (ST) entrepreneurs, purchase preference as admissible/applicable from time to time under the existing Govt. policy. Bidder to submit documentary evidence for the same duly certified by Statutory Auditor of the bidder or a practicing Chartered Account (not being an employee or a Director or not having any interest in the Bidder's company / firm) where audited accounts are not mandatory as per law.). In this regard, item wise quantity may be splitted and the quoted price shall remain valid.
- 25 The Net Worth of the bidder should be positive as per the immediate preceding year's audited financial results. However, Central Public Sector Enterprises (CPSEs) are exempted from this requirement. If the bidder is not meeting the above criteria their bid shall not be evaluated further. Bidders are therefore requested to furnish the Audited Financial Statement for the immediate preceding year including Profit & Loss Account.
- 26 Purchaser reserve the right to make any changes in the terms and conditions of purchase and to reject any or all the bids.
- 27 **Category of MR:**
- i) Please note that this is a Category-I MR whereby no technical offers are invited and no correspondence shall be entered into or entertained after bid submission.
 - ii) No technical details of any nature shall be included in the offer and if the offer contains any technical deviations or clarifications or stipulates any technical specifications, the offer shall be liable for rejection.
 - iii) The submission of prices by vendor shall be construed to mean that the vendor has confirmed compliance with all technical specifications of the correspondence item.

Contact Persons for this RFQ are:

Mr Subhendu Mondal, AGM(C&P), Phone No. +91-(0)11-2676-3883 & email: subhendu.mondal@eil.co.in

Mr. Naman Khanna, Engineer (C&P), Phone No. +91-(0)11-2676-3885 & email: naman.khanna@eil.co.in

*** Please specify RFQ. No. SM/A307-IC-VV-MR-6007/59 in all Correspondence.**

THIS IS NOT AN ORDER

Very truly yours,
For & on behalf of
Bharat Petroleum Corporation Limited

(SUBHENDU MONDAL)
ASST. GEN. MANAGER(C&P)
ENGINEERS INDIA LIMITED

Enclosure: As per List Attached

LIST OF ENCLOSURES

DOCUMENT

- A) Request For Quotation (RFQ)
- B) Proforma of Letter of Authority for Attending Un-priced / Priced Bid Opening
- C) Annexure-I : Provisions for Micro & Small Enterprises under PPP, 2012
- D) Price Schedule Format (For Indian Bidders)
- E) Commercial document:
 - i) Agreed Terms & Conditions (For Indian Bidders)
 - ii) Special Instruction to Bidders (SIB)
 - iii) General Purchase Conditions (Indian)
 - iv) Proforma of Bank Guarantee (Performance) / Advance Bank Guarantee
 - v) Integrity Pact
 - vi) Instruction to Bidders for e-tendering.
 - vii) E-Tendering Help Manual for Bidders
 - viii) Browser Settings
- F) Technical document **MR No. A307-IC-VV-MR-6007**

Proforma of Letter of Authority
for Attending Unpriced / Priced Bid Opening

No.

Date:

The Asst.General Manager (C&P)
Engineers India Limited
Engineers India Bhawan EIB-5th Floor
1-Bhikaiji Cama Place
New Delhi – 110 066
India

Attn. : Mr. S.MONDAL

Dear Sir,

***We hereby authorise following representative(s) to attend the
Unpriced / Priced Bid Opening against your RFQ No..... for
..... (Item Name)***

1. Name & Designation Signature

2. Name & Designation Signature

We confirm that we shall be bound by all and whatsoever our representative(s) shall commit.

Yours faithfully,

Signature _____
Name & Designation _____
For & on behalf of _____

Note:

This Letter of Authority should be on the letterhead of the bidder and should be signed by a person competent and having the Power of Attorney to bind the bidder.

PROVISIONS FOR MICRO AND SMALL ENTERPRISES UNDER PPP, 2012

- i) In Tender, participating Micro and Small Enterprises quoting price within price band of L1+15% shall also be allowed to supply a portion of requirement by bringing down their prices to L1 price in a situation where L1 price is from someone other than a micro and small enterprises and such micro and small enterprises shall be allowed to supply upto 20% of the total tendered value. In case of more than one such Micro and Small Enterprises, the supply shall be shared proportionately (to tendered quantity). Further, out of above 20%, 4% (20% of 20%) shall be from MSEs owned by SC/ST entrepreneurs. This quota is to be transferred to other MSEs in case of non-availability of MSEs owned by SC/ST entrepreneurs.
- ii) The quoted prices against various items shall remain valid in case of splitting of quantities of the items as above.
- iii) In case bidder is a micro or Small Enterprise under the Micro, Small and Medium Enterprises Development Act, 2006, the bidder shall submit the following:
 - a) Documentary evidence that the bidder is a Micro or Small Enterprises registered with District Industries Centers or Khadi and Village Industries Commission or Khadi and Village Industries Board or Coir Board or National Small Industries Corporation or Directorate of Handicrafts and Handloom or any other body specified by Ministry of Micro, Small and Medium Enterprises.
 - b) If the MSE is owned by SC/ST Entrepreneurs, the bidder shall furnish appropriate documentary evidence in this regard.
 - c) **The above documents submitted by the bidder shall be duly certified by the Statutory Auditor of the bidder or a practicing Chartered Accountant (not being an employee or a Director or not having any interest in the bidder's company/ firm) where audited accounts are not mandatory as per law.**

If the bidder does not provide the above confirmation or appropriate document or any evidence, then it will be presumed that they do not qualify for any preference admissible in the Public Procurement Policy (PPP), 2012.

Note :- i) The provisions for micro & small enterprises under PPP, 2012 mentioned above shall only be applicable for such items for which evaluation shall be done on item wise basis and the same shall **not** be applicable for items for which group wise / block wise evaluation is to be done.
However, wherever single item is showing in Block/Group, the same shall be treated as individual item and the aforesaid MSME provision shall be applicable for such items.

PREAMBLE TO PRICE SCHEDULE (INDIAN)

RFQ NO. SM/A307-IC-VV-MR-6007/59

ITEM : PRESSURE VESSEL - CS (UPTO 25MM)

NAME OF BIDDER: M/S _____

- 1 Scope of supply including testing, inspection, documentation etc., shall be strictly as per Material Requisition and other documents which are part of RFQ.
- 2 Bidder must quote Transportation Charges inclusive of Service Tax plus ed. Cess thereupon in the space provided in the price schedule as per MR.
- 3 Bidder shall furnish built-in CIF value if any, against each quoted item, giving details of description of goods, qty. rate of Custom Duty etc. in attached FORM- 2..
- 4 All the Columns of quoted items in the Price Schedule must be filled with required information, as applicable.
- 5 Bidder must quote the price in enclosed Price Schedule formats only. The formats shall not be changed and/or retyped.
- 6 Quoted prices are firm and fixed till complete execution of the entire order and no variation on any account is allowed.
- 7 Bidders shall quote Unit Rates for Addition/ Deletion purpose, as per Format provided with Material Requisition.
- 8 Bidder to note that inspection shall be carried out by EIL and the charges for the same shall be borne by Owner. However, in case of certain Import Contents as required by bidder for subject item the same shall be procured under TPIA (Lloyds/BV/DNV/TUV/CEIL) inspection in the country of origin and the quoted prices shall be inclusive of the same.
- 9 Bidder must submit signed and stamped Un-Priced copy of Price Schedule indicating "Quoted" or "Not Quoted" against each item with their Unpriced offer.
- 10 In case of any discrepancy between Unit Price and Total Price, Unit Price shall prevail.
- 11 Evaluation shall be done on itemwise basis (Supply + Transportation).
- 12 Bidder to confirm that he has noted the contents of the Preamble to the Price Schedule, Price Schedule, RFQ, Material Requisition etc and quoted his prices accordingly without any deviation.

NOTES: 1. Bidders must submit this document duly signed and stamped with both unpriced & priced offer.

2. Price Schedule contains total 3 pages .

PRICE SCHEDULE (INDIAN BIDDER)

RFQ NO. SM/A307-IC-VV-MR-6007/59

ITEM : PRESSURE VESSEL - CS (UPTO 25MM)

NAME OF BIDDER: M/S _____

ITEM SL. NO. AS PER MR.	DESCRIPTION/ TAG NO.	QTY (IN NOS.)	Unit Price on FOT Despatch Point Basis incl. of P & F (in Rs.)	Total Price on FOT Despatch Point Basis incl. of P & F (in Rs.)	Unit Transportation Charges upto Project Site Inclusive of Service Tax + Ed. Cess. (in Rs.)	Total Transportation Charges upto Project Site Inclusive of Service Tax + Ed. Cess. (in Rs.)	Cenvatable Service Tax included Transportation Charges in %
01.00	Supply of Pressure vessel - CS (Upto 25 mm) for following Tags/ Items as per complete scope mentioned in Material Requisition No. A307-IC-VV-MR-6007						
01.01	(IC-V-201) CDU HEATER LP STEAM APH CONDENSATE POT	1					
01.02	(IC-V-202) CDU HEATER LP STEAM APH CONDENSATE POT	1					
01.03	(ID-V-140A/B) LP STEAM AIR PREHEATER CONDENSATE POT	2					
06.00	Unit rates of items for addition/deletion purpose as per MR DOCUMENT No. A307-16-46-UR-6007	1	Bidder to furnish the Unit Rates for Addition/ Deletion in the format provided with MR only.				

ENCLOSURE TO PRICE SCHEDULE FOR SUPPLY

FORMAT - "CIF/CD"

RFQ NO. SM/A307-IC-VV-MR-6007/59

ITEM : PRESSURE VESSEL - CS (UPTO 25MM)

NAME OF BIDDER: M/S _____

DETAILS OF BUILT-IN-CIF VALUE OF IMPORT CONTENT CONSIDERED AND INCLUDED IN QUOTED FOT DESPATCH POINT PRICES UNDER PRICE SCHEDULE

DESCRIPTION			CIF value of Import Content included in quoted supply prices for column (2) Qty. (In Rs)	RATE OF IMPORT DUTY INCLUDED IN QUOTED SUPPLY PRICES					
For Item Sl . No. as per MR	Description of Imported Items	Qty. (Unit____) *(1)		CUSTOM TARIFF NO.	BASIC CUSTOMS DUTY (%)	CVD + EDU. CESS ON CVD (%)	EDU. CESS ON CUSTOM DUTY (%)	SAD (%)	TOTAL CUSTOM DUTY (%)
	1	2	3	4	5	6	7	8	9
For Item SL. No 1	i)_____								
For Item SL. No 2	i)_____								
For Item SL. No 3	i)_____								
	ii)_____								
TOTAL CIF VALUE									

BHARAT PETROLEUM CORPORATION LTD

IREP-Kochi Refinery

(Job No. A307)

AGREED TERMS & CONDITIONS (ATC) (FOR INDIAN BIDDERS)

Supplier Name: M/s _____

RFQ No.: _____

Supplier's Offer Ref No. & Date: _____

Tel. No. _____ Mob. No. _____ Fax No. _____

Contact Person: _____ E-mail _____

1. ALL CORRESPONDENCE MUST BE IN **ENGLISH** LANGUAGE ONLY.
2. DULY SIGNED & STAMPED COPIES OF THIS "QUESTIONNAIRE", WITH ALL THE CLAUSES DULY CONFIRMED/ PRECISELY REPLIED TO BY THE SUPPLIER, SHALL BE ENCLOSED.
3. ALL COMMERCIAL TERMS ARE GIVEN/CONFIRMED IN THE QUESTIONNAIRE ITSELF AND NOT ELSEWHERE IN THE QUOTATION. IN CASE OF CONTRADICTION, THE SAME GIVEN HEREIN SHALL PREVAIL.
4. **FAILURE ON PART OF THE SUPPLIER IN SUBMITTING THIS DULY FILLED-IN "QUESTIONNAIRE" WITH UN-PRICED BID AND/ OR SUBMITTING INCOMPLETE REPLIES MAY LEAD TO REJECTION OF SUPPLIER'S BID.**
5. YOUR OFFER SHALL BE IN TOTAL COMPLIANCE WITH RFQ DOCUMENTS CONTAINING COMMERCIAL AND TECHNICAL SPECIFICATIONS INCLUDING GENERAL/ TECHNICAL NOTES AND SCOPE OF SUPPLY/SERVICES/ SITE WORK, AS APPLICABLE INCLUDING DOCUMENTATION AS PER MATERIAL REQUISITION (MR) AND SUBSEQUENT TECHNICAL/ COMMERCIAL AMENDMENT AND TECHNICAL/ COMMERCIAL CORRIGENDUM, IF ANY.

SL. NO.	DESCRIPTION	SUPPLIER'S CONFIRMATION
1.	<u>Price Basis:</u>	
i)	Quoted supply prices are on FOT - Despatch Point basis inclusive of Packing & Forwarding.	<i>Confirmed</i>
ii)	Specify Despatch Point	-----
iii)	<u>Freight Charges:</u>	
a)	Confirm firm transportation charges inclusive of Service Tax and Ed Cess, upto project site, has been quoted separately by you in Price Schedule.	<i>a) Confirmed , Quoted in Price Schedule</i>
b)	No Variation on any account (including Statutory Variation) on Service Tax on Transportation Charges shall be paid by the owner.	<i>b) Confirmed</i>
iv)	<u>Insurance:</u>	
	a) <u>For Supply Only</u>	
	Transit/Marine Insurance of Equipment/ Item has been taken care by the Owner & charges of the same have not been included in the quoted prices.	<i>Confirmed.</i>

SUPPLIER'S SIGNATURE WITH STAMP/SEAL

SL. NO.	DESCRIPTION	SUPPLIER'S CONFIRMATION
	b) For Supply + Site Work Comprehensive Insurance (Transit/Marine-cum-storage-cum-erection till handing over of equipment) has been taken care by the Seller & charges of the same have been included in the quoted prices.	Confirmed
2.	Excise Duty applicable extra on Finished Goods:	
a.	Specify Excise Tariff Sub-Heading No.	_____
b.	Present Rate of Excise Duty & Edu. Cess payable extra on finished goods (including Spares)	%
c.	Any variations in Excise Duty & Edu. Cess at the time of supplies for any reasons including variation due to Turnover shall be borne by the Seller. Only Statutory Variations within the Contractual Delivery / completion period shall be borne by Purchaser.	Confirmed
d.	If Excise Duty & Edu. Cess is not applicable at present due to any reason, the same shall be borne by Seller if it becomes applicable later.	Confirmed
e.	Confirm Excise Duty & Edu. Cess will not be applicable on transportation charges.	Confirmed
f.	If Excise Duty & Edu. Cess is not applicable on transportation charges presently, and if it becomes applicable at the time of delivery due to any reasons other than statutory, the same will be borne by the Supplier. Confirm acceptance.	Confirmed
g.	Non Cenvatable Excise Duty, if any is included in quoted prices & no variation on any account (including statutory variation) shall be paid by Owner.	Confirmed
h.	Only Statutory Variations, if any, in the present rate of Excise Duty, upto the Contractual Delivery Date / Completion Period shall be to Owner's account subject to documentary evidence to be furnished by Seller.	Confirmed
3.	Sales Tax applicable extra on finished goods:	
a.	Central Sales Tax against Concessional Form "C" payable extra on finished goods (including spares) is applicable & the present rate (in %age) is indicated	(Applicable / Not Applicable) (Please tick whichever is applicable)%
b.	Kerala VAT payable extra on finished goods (including spares) without concessional form is applicable & the present rate (in %age) is indicated	(Applicable / Not Applicable) (Please tick whichever is applicable)%
c.	If CST / Kerala VAT is not applicable at present due to any reason, the same shall be borne by Supplier if it becomes applicable later.	Confirmed
d.	Confirm CST/ Kerala VAT will not be applicable on transportation charges.	Confirmed
e.	If CST / Kerala VAT is not applicable on transportation charges presently, and if it becomes applicable at the time of delivery due to any reasons other than statutory, the same will be borne by the Supplier. Confirm acceptance.	Confirmed

SUPPLIER'S SIGNATURE WITH STAMP/SEAL

SL. NO.	DESCRIPTION	SUPPLIER'S CONFIRMATION
h.	Only Statutory Variations, if any, in the present rate of CST / Kerala VAT, upto the Contractual Delivery Date / Completion Period shall be to Owner's account subject to documentary evidence to be furnished by Seller.	<i>Confirmed</i>
4.	<u>Octroi / Entry Tax:</u> Octroi / Entry Tax, if applicable on finished goods (including spares) shall be borne and paid directly by Owner. Confirm that Octroi / Entry Tax has not been included in the quoted prices.	<i>Confirmed</i>
5.	Any new or additional taxes/ duties and any increase in the existing Cenvatable taxes/duties imposed after contractual completion period shall be to Supplier's account whereas any corresponding decrease in the existing Cenvatable taxes/ duties shall be passed on to the Owner.	<i>Confirmed</i>
6.	<u>Spares Parts:</u> a. Confirm item wise unit price (FOT Despatch Point) of following spare parts as required in Material Requisition (MR) have been included indicating itemised quantity. i) Mandatory Spares are quoted as per MR. ii) Commissioning spares as specified in MR are included in the quoted Price. iii) Special Tools & Tackles as specified in the MR are included in the quoted prices. iv) Confirm spares wherever required have been included in the quoted price and list of spares is also furnished. v) Recommended Spares for Two Years Operation & Maintenance, as specified in MR have been quoted separately with Price validity of One (1) year from Contractual Delivery Date for Main Items/Equipment & List of such spares has been furnished in the Unpriced Bid.	<i>Confirmed</i> <i>Confirmed (if Applicable as per MR)</i> <i>Confirmed (if Applicable as per MR)</i> <i>Confirmed (if Applicable as per MR)</i> <i>Confirmed (if Applicable as per MR)</i> <i>Confirmed (if Applicable as per MR)</i>
7.	<u>Site Work:</u> For Site Work, if in the scope of the Bidder as per MR, please confirm the following: a. Confirm that quoted site work prices are exclusive of Service Tax & Edu. Cess but inclusive of VAT on Works Contract and all other applicable taxes & duties. b. Percentage of Service Tax & Edu. Cess as applicable extra on Site Work. c. Supplier shall submit the Assessment/ Liability Certificate from Sales Tax authorities indicating the VAT on Works Contract payable for enabling Owner to deduct the same from Supplier Invoices & make payment to the tax authorities. TDS Certificate towards VAT on Works Contract shall be provided by Owner. Statutory variation on VAT on Works Contract shall not be payable by Owner. d. Statutory Variation on Service Tax & Edu. Cess on Site work shall be paid by the Owner against documentary evidence within Contractual completion period.	<i>Confirmed</i> -----% <i>Confirmed</i> <i>Confirmed</i>

SUPPLIER'S SIGNATURE WITH STAMP/SEAL

SL. NO.	DESCRIPTION	SUPPLIER'S CONFIRMATION
e.	Confirm that Entry Tax / Octroi applicable on Construction Machinery/Equipment brought by the supplier to site to execute / complete the site work shall be borne by the Supplier and same is included in the quoted prices. No variation (including statutory) on such entry tax shall be paid by the Owner.	<i>Confirmed</i>
8.	<u>Supervision / Training Charges:</u>	
a.	Charges for Supervision / Training, if in the scope of the Bidder as per MR have been indicated by bidder separately in the Price Schedule.	<i>Confirmed, Quoted in Price Schedule</i>
b.	Percentage of Service Tax & Edu. Cess as applicable extra on Supervision / Training	-----%
c.	Per-diem rate for supervision has been quoted in accordance with the Terms & Conditions for Supervision enclosed with the RFQ Documents.	<i>Confirmed</i>
d.	Where erection/ testing/ commissioning supervision, commissioning assistance is required as per RFQ Documents / Material requisition, penalty for non mobilization/delay in mobilization as per order shall be applicable. The penalty shall generally be 1.5 times the per diem rate for each day of delay of reporting to site and shall be in addition to price reduction for delayed delivery.	<i>Noted & Confirmed</i>
e.	Bidders shall also provide additional BG of an amount equal to the per diem charges for the number of days considered for evaluation, over and above 10% PBG to cover compensation for delay in mobilizing the erection/ commissioning personnel. This BG will be released to the bidder upon the erection/ commissioning personnel reporting at site. This BG shall be furnished along with payment milestone for submission of final documentation as per MR and shall be initially valid up to six months which shall be extended based on the request by Owner.	<i>Noted & Confirmed</i>
9.	Confirm documentation charges as per MR are included in quoted prices.	<i>Confirmed</i>
10.	<u>Price Reduction for delay in delivery/ completion:</u>	
	a) Confirm acceptance of price reduction schedule for delay in deliveries / completion as specified in GPC & Special Instructions to Bidders (SIB) enclosed in RFQ Document. Liquidated damages or penalty are not acceptable.	<i>Confirmed</i>
	b) In case of delay, vendor will reduce the invoice amount by applicable reduction.	<i>Confirmed</i>
11.	<u>Delivery / Completion Period:</u> Please confirm delivery / completion period as specified in the RFQ Covering Letter.	<i>Confirmed</i>
12.	<u>Payment Terms:</u> Confirm acceptance of "Terms and Mode of Payment" as per respective clause(s) given in SIB and RFQ covering letter.	<i>Confirmed</i>

SUPPLIER'S SIGNATURE WITH STAMP/SEAL

SL. NO.	DESCRIPTION	SUPPLIER'S CONFIRMATION
13.1	<u>PART ORDER:</u>	
a.	Confirm acceptance of Part Order clause as per GPC (Indigenous). And bidder also confirm acceptance to part quantity orders of any items (having quantities 5 Nos. & more) to facilitate purchase preference to MSME bidders as per Govt. guide lines.	<i>Confirmed (If Applicable as per MR)</i>
13.2	<u>MSME BIDDERS:</u>	
a	Confirm whether the bidder is a MSME bidder or not.	YES/ NO <i>(Please tick whichever is applicable)</i>
b	In case bidder is a MSME bidder, they must submit documentary evidence for the same duly certified by Statutory Auditor of the bidder or a practicing Chartered Account (not being an employee or a Director or not having any interest in the Bidder's company/ firm) where audited accounts are not mandatory as per law.	_____
c	In case bidder does not submit duly authenticated documentary evidence as required above, bidder shall not be considered eligible for availing MSME benefits.	<i>Confirmed</i>
d	Any charges quoted extra as lumpsum (like IBR, Testing, freight, etc.) shall be applicable prorata on value basis in the event of part order / part quantities/ split order.	<i>Confirmed</i>
14.	<u>Repeat Order:</u> Confirm Acceptance of Repeat Order clause as per RFQ Covering Letter / SIB / GPC.	<i>Confirmed</i>
15.	<u>Performance Bank Guarantee:</u>	
a)	In the event of award of order, submission of Performance Bank Guarantee for 10% of total order value along with Final supply payment valid till full guarantee period plus 3 (Three) months.	<i>Confirmed</i>
b)	The Performance Bank Guarantee shall be strictly as per enclosed proforma and shall be from any Indian Scheduled Bank or branch of an International Bank situated in India and registered with Reserve Bank of India as scheduled foreign Bank.	<i>Confirmed</i>
16.	<u>Guarantee / Warranty:</u> Confirm acceptance to Guarantee / Warranty clause as mentioned in the GPC/SIB.	<i>Confirmed</i>
17.	<u>Firmness of prices:</u> Confirm quoted prices shall remain firm and fixed till complete execution of order. Price Variation shall not be considered on any account.	<i>Confirmed</i>
18.	<u>Testing and Inspection charges:</u>	
a.	Goods supplied are subject to stage wise and final inspection as specified in MR by EIL and no extra charges shall be payable by Owner towards the same. Travel, Living and Personnel expenses of EIL's Representative shall be borne by Owner.	<i>Confirmed</i>
b.	Quoted prices are: i) Inclusive of all testing and inspection charges (if applicable) as per MR. ii) Inclusive of all IBR/IGC/NACE charges (if applicable) as required in the Material Requisition.	<i>Confirmed</i>

SUPPLIER'S SIGNATURE WITH STAMP/SEAL

SL. NO.	DESCRIPTION	SUPPLIER'S CONFIRMATION
	iii) Inclusive of all statutory certification charges PESO/CCOE etc. (if applicable) as required in the Material Requisition c. Is your shop approved by IBR/CCE authority, if yes, indicate validity. i. IBR ii. CCE It is the responsibility of supplier to get the entire imported materials and the built in imported contents inspected by TPIA (i.e. Lloyds/BV/DNV/TUV/CEIL) in the country of origin and the quoted prices are inclusive of charges towards the same.	<i>Confirmed</i> <i>Confirmed</i> <i>IBR Approved</i> <i>Confirmed</i>
19.	<u>Import Content:</u> If your offer is based on certain imported raw materials required for equipments/ materials offered, please specify the following : a. Confirm that quoted prices are based on Merit rate of Customs duty, CVD, Educational Cess and SAD as applicable. b. Indicate rate of Import Duties considered and included in the quoted prices. c. Indicate brief description/ specification with itemised CIF value and country of origin of imported material. d. Indicate classification with tariff no. under which Vendor intends to import. e. Confirm prices shall be firm on account of variation in foreign exchange rate. f. Owner shall not provide any import licence. g. Quoted prices are after considering the benefit of CENVAT on CVD including Edu. Cess. In case material is shipped directly to Port/Project Site, quoted prices are excluding CENVAT benefit. h. In case material is directly dispatched from port, CVD amount shall be reimbursed subject to submission of bill of entry documents along with CVD invoice. i. Any upward variation due to change in Customs Duty classifications shall be absorbed by the vendor. However, any reduction in customs duty due to change in classification shall be passed on to Owner.	<i>(Applicable / Not Applicable)</i> <i>(Please tick whichever is applicable)</i> <i>Confirmed</i> <i>Refer Annexure to Price Schedule</i> <i>Refer Annexure to Price Schedule</i> <i>Refer Annexure to Price Schedule</i> <i>Confirmed</i> <i>Noted</i> <i>Confirmed</i> <i>Confirmed</i> <i>Confirmed</i>
	j. Statutory variations, if any, in the rate of Import Duties upto 2/3rd contractual delivery period shall be to Owner's account. k. Any increase in price due to increase in the rate of Import Duties, due to any reasons, whatsoever, beyond the 2/3rd contractual delivery period, shall be to vendor's account. However, any decrease in Import Duties rate at the time of actual clearance of imported materials shall be passed on to Owner.	<i>Confirmed</i> <i>Confirmed</i>

SUPPLIER'S SIGNATURE WITH STAMP/SEAL

SL. NO.	DESCRIPTION	SUPPLIER'S CONFIRMATION
l.	The CIF Value(s) indicated by the vendor shall be deemed to be the maximum value(s) for the purpose of payment of variation in custom duty and/or other statutory variations, if any, thereon.	<i>Confirmed</i>
m.	Variation in price due to Customs duty rate will be dealt separately after receipt of material at site, against documentary evidence.	<i>Confirmed</i>
20.	<u>Validity of Bid:</u>	
a.	Confirm Bid validity as stipulated in RFQ covering letter from the final due date of bid submission.	<i>Confirmed</i>
21.	<u>Compliance to RFQ documents:</u>	
a)	Confirm your offer is in total compliance with RFQ Document containing technical specifications including General / Technical notes, scope of supply/services/site work (as applicable) including documentation as per Material Requisition (MR) and subsequent amendment and corrigendum, if any.	<i>Confirmed</i>
b)	Confirm your offer is in total compliance with RFQ documentation containing commercial terms and conditions as per the following documents, without any deviation:	
	i) Request for Quotation (RFQ)	<i>Confirmed</i>
	ii) Special Instructions to Bidders (SIB)	<i>Confirmed</i>
	iii) General Purchase Conditions (GPC)	<i>Confirmed</i>
	iv) Terms & Conditions of Site work / GCC / HSE / Integrity Pact.	<i>Confirmed(if applicable)</i>
	v) Terms & Conditions for Supervision services	<i>Confirmed(if applicable)</i>
22.	Whether any of the Directors of Bidder is a relative of any Director of Owner/EIL or the Bidder is a firm in which any Director of Owner/EIL or his relative is a Partner or the Bidder is a private company in which any director of Owner/EIL is a member or Director.	<i>Confirmed No relation</i>
23.	Please confirm you have not been banned or delisted by any Government or Quasi Government agencies or PSUs. If you have been banned, then this fact must be clearly stated. This does not necessarily mean cause for disqualification. However if this declaration is not furnished the bid shall be rejected as non-responsive.	<i>Not Banned</i>
24.	Please confirm your offer contains the following:	
24.1	UNPRICED OFFER- without any Deviations	<i>Confirmed</i>
24.2	PRICED OFFER	
a.	Duly filled Price Schedule with relevant annexures	<i>Confirmed</i>
25.	Please confirm that you have quoted strictly for items based on your registration/approval with EIL as on date of issue of RFQ.	<i>Confirmed</i>
26.	Any claim arising out of order shall be sent to Owner in writing with a copy to EIL within 3 months from the date of last despatch. In case the claim is received after 3 months, the same shall not be entertained by Consultant/ Owner.	<i>Confirmed</i>
27.	Printed terms and conditions, if any, appearing in quotation, shall not be applicable in the event of order. In case of	<i>Confirmed</i>

SUPPLIER'S SIGNATURE WITH STAMP/SEAL

SL. NO.	DESCRIPTION	SUPPLIER'S CONFIRMATION
	contradiction between the confirmations given above and terms & conditions mentioned elsewhere in the offer, the confirmation given/confirmed herein above shall prevail.	
28.	Confirm that Net worth of the Bidder's company is positive as per the immediate preceding year's audited financial results & Immediate preceding year's audited annual financial results has been submitted along with un-priced bid.	<i>Confirmed & Submitted</i>

SUPPLIER'S SIGNATURE WITH STAMP/SEAL



E-Tendering Help Manual for Bidders ENGINEERS INDIA LIMITED



Overview

Tender Wizard is an exclusive, most vibrant end to end solution for buying / selling of products and services through tendering process. It supports A - Z activities of tendering based on proactive work flow concept. Fine details of tendering like vendor registration, Bid Document announcement and corrigendum, Bid Document form processing, opening, negotiation and Bid Document awarding are supported in a real time interactive environment. Tender Wizard creates a true dynamic market place for both buyers and vendors to interact with each other and transact business.

Purpose

The objective of developing the TENDERWIZARD is to automate the departments of Governments. The key objectives of this exchange are Reduced Inventory, consistency in costs across all departments, consistent and sustainable Vendor Development, transactional effectiveness, procurement lead time reduction, transparency etc.,

Audience

This product is extensively used by the Government officials and contractors to enhance the transparency in the day to day tendering activities of the Government offices as well as in contractor community.

Disclaimer

ANTARES assumes no responsibility for any errors that may appear in this document. The information contained herein is subject to change without notice and should not be construed as a commitment by Antares. No responsibility is assumed for the reliability of software or equipment that is not supplied by Antares.

Copyright

This document is confidential and proprietary information of Antares. It should not be disclosed in whole or in part to any third party except to the document to whom it has been submitted without the express written authorization of Antares and should not be duplicated in whole or part for any other purpose other than evaluation of the Technical capability of Antares and shall be returned upon request.

Any reference used in this response is proprietary and is covered under non-disclosure agreement. The information should not be divulged to any other party other than for whom it is intended. Clients and partners may not be contacted about these references or divulge the information contained therein unless duly authorized by Antares.

Login screen

Type the website address <http://www.tenderwizard.com/EIL> in the address bar and click “Go” to access the **Login Screen**.



Login procedure

Enter the given “USER ID” in the box provided. Enter the given “PASSWORD” in the box provided. Click “ENTER” to login to the tendering website. The screen directs you to the PKI based login screen (as shown below):

As a Security purpose the system automatically asks the user to change the password as shown in Figure during the first login. Enter the Old and New Password along with the Hint Question and Answer and the click “Submit” to update the new Password. The user needs to login once again with the new password (note the User Id remains the same) which gives the user the authentication to the change of password.

Modify password: This screen will show only at first time login

Modify Password

User Id :	tvend2
Enter Your Current Password :	
Enter Your New Password :	
Confirm Your New Password :	

Submit

[Terms & Conditions](#) | [Disclaimer](#) | [Glossary of terms](#)
© Copyright 2006 Antares Systems Limited. All rights reserved.

Login again with the new modified password:

Once again the system will ask you to enter the password as shown below. Enter your password and click "Enter" to proceed:

PKI Based Security

Username :	testvend1
Please Re-Enter your Password :	

Enter

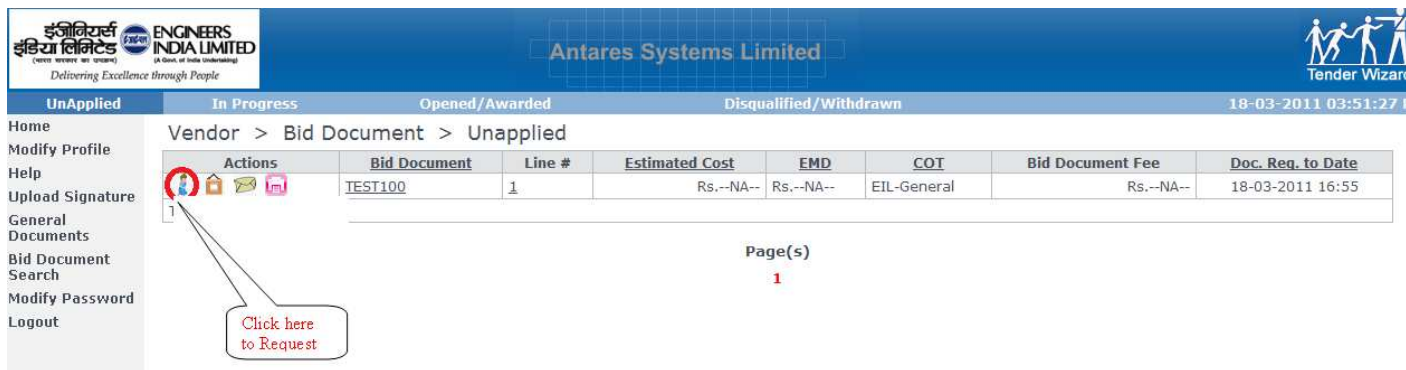
Type your password here

[Terms & Conditions](#) | [Disclaimer](#) | [Glossary of terms](#)
© Copyright 2006 Antares Systems Limited. All rights reserved.

Request for Bid Document

Once the user logs in to the system, by default “**In Progress**” screen will be displayed where all the applied Bid Documents are viewed.

Click “**Un Applied**” to view the new / unapplied Bid Documents. If the Bid Document is due for request, then a Blue colour icon will appear on the screen as displayed below:



The screenshot shows the 'UnApplied' tab selected. The breadcrumb navigation is 'Vendor > Bid Document > Unapplied'. A table lists bid documents with columns: Actions, Bid Document, Line #, Estimated Cost, EMD, COT, Bid Document Fee, and Doc. Req. to Date. The first row shows 'TEST100' with a blue icon in the Actions column. A callout box points to this icon with the text 'Click here to Request'.

Actions	Bid Document	Line #	Estimated Cost	EMD	COT	Bid Document Fee	Doc. Req. to Date
	TEST100	1	Rs.--NA--	Rs.--NA--	EIL-General	Rs.--NA--	18-03-2011 16:55

Once the user requested for the Bid Document, he can access this Bid Document through “**In Progress**” section and the status of the Bid Document will be displayed as “**Received**”. The Bid document has to be paid during submission of Bid document.

Uploading of supporting documents

Click “**Document Library**” (highlighted space in the below figure on the left side) to upload all the necessary supporting documents for the Bid Document. This activity will reduce the user’s work, while submitting the Bid Document. Click “**Upload document**” whenever user need to upload the new attachments. These documents can be attached for any number of Bid Documents applied by the user.

Note:

1: Do not upload the SOR or Price Schedule which is in the form of the excel sheet in which you are required to fill the price, this will upload directly from your system.

2: If there is EMD required and it is in the form of BG then scan the EMD in the two ways

a: First page in the JPEG or JPG format, this page is not required to upload in the document library it will upload directly from your system.

b: Scan all pages in the PDF format, this should be uploaded in the doc library.

The window will be as below figure:



Engineers India Limited,
Government of India Undertaking



30-07-2012 12:10:48 PM

[UnApplied](#)

[In Progress](#)

[Opened/Awarded](#)

[Disqualified/Withdrawn](#)

[Home](#)
[Modify Profile](#)
[Help](#)
[Documents Library](#)
[Bid Search](#)
[Modify Password](#)
[Logout](#)

Vendor > Bid > In Progress

Actions	Bid	Line #	Quantity	Status	Tender Closing Date and Time	EMD	Days/Time Left for Closing
  	SM/A307/OIC-JX-MR-7630/1003	<u>01</u>	. As per NIT	RECEIVED	16-08-2012 12:00	Rs.15,00,000.00	16 (Days)
DESALTER PACKAGE							
  	7352/T-560/11-12/PKK/60	<u>01</u>	. As per NIT	RECEIVED	08-08-2012 12:00	Rs.16,30,000.00	8 (Days)
Civil and structural work for relocation of r and d facilities							
  	TEST 07-06-2012	<u>1</u>	. As per NIT	SUBMITTED	07-06-2012 16:22	Rs.2,00,00,000.00	0
ABCD							
  	TENDER 28-06-12	<u>01</u>	. As per NIT	RECEIVED	05-07-2012 13:00	Rs.50,000.00	0
REFER TO BIDDING DOCUMENT							
  	TEST01111	<u>1</u>	. As per NIT	SUBMITTED	07-06-2012 16:22	Rs.3,000.00	0
refer to bid							

Page(s)

1

UnApplied	In Progress	Opened/Awarded	Disqualified/Withdrawn	30-07-2012 12:11:37 PM
-----------	-------------	----------------	------------------------	------------------------

Home
Modify Profile
Help
Documents Library
Bid Search
Modify Password
Logout

Documents Library

Buyer: Engineers India Limited Vendor: TEST DEMO EIL

File: Attach Name: File Group:

Active records sorted by Last Attached Date (Descending)

Seq.No	Attach Name	File	File Group	Uploaded Date	Last Attached Date	Action
Documents Library is empty						

Browse the file from system, give the attach name & attach description. If you know the file group of the file then select the group otherwise select the general document. Now click on the upload.

In Progress	Opened/Awarded	Disqualified/Withdrawn
-------------	----------------	------------------------

Upload Document

Buyer: Engineers India Limited Vendor: TEST DEMO EIL

*File:

*Attach Name:

*Attach Description:

*File Group:

Note: Maximum allowed file size is 5MB.

Note: The file name should not contain any special character and not even <space> but you can give one space in the attach name and description.

In Progress

Opened/Awarded

Disqualified/Withdrawn

30-07-2012 01:1

Modify Document

Buyer: Engineers India Limited Vendor: TEST DEMO EIL

*File: Doc1.doc

Size 25.5 KB

Uploaded Date 30-07-2012 13:12:25

*Attach Name: COPY OF ATC

*Attach Description:

COPY OF ATC

*File Group: General Documents

Note: Maximum allowed file size is 5MB.

Update

Archive

Go Back

After clicking the update you can check the document by directly clicking on the document library.

Now again come back on in progress and click on the edit attachment level 1

Help Manual for eTendering / eProcurement solution - TENDER WIZARD



UnApplied In Progress Opened/Awarded Disqualified/Withdrawn 30-07-2012 01:22:07

Home
Modify Profile
Help
Documents
Library
Bid Search
Modify Password
Logout

Vendor > Bid > In Progress

Actions	Bid	Line #	Quantity	Status	Tender Closing Date and Time	EMD	Days/Time Left for Closing
	TEST01111	<u>1</u>	. As per NIT	SUBMITTED	07-06-2012 16:22	Rs.3,000.00	0
refer to bid							
	TENDER 28-06-12	<u>01</u>	. As per NIT	RECEIVED	05-07-2012 13:00	Rs.50,000.00	0
REFER TO BIDDING DOCUMENT							
	TEST 07-06-2012	<u>1</u>	. As per NIT	SUBMITTED	07-06-2012 16:22	Rs.2,00,00,000.00	0
ABCD							
	SM/A307/OIC-JX-MR-7630/1003	<u>01</u>	. As per NIT	RECEIVED	16-08-2012 12:00	Rs.15,00,000.00	16 (Days)
DESALTER PACKAGE							
	7352/T-560/11-12/PKK/60	<u>01</u>	. As per NIT	RECEIVED	08-08-2012 12:00	Rs.16,30,000.00	8 (Days)
Civil and structural work for relocation of r and d facilities							

Page(s)

1

You will get the page as below

Now you are required to attach the document one by one in the given link as below

Copyright 2007

Strictly private and confidential

Help Manual for eTendering / eProcurement solution - TENDER WIZARD



In Progress

Opened/Awarded

Disqualified/Withdrawn

30-07-2012 01:36:34

UserID : TEST1

Token : 0

TimeStamp : 00:00:00

Description Of Work : DESALTER PACKAGE

Note : After upload of all documents, click on 'Submit the Tender Form' Button for final submission and acknowledgement.

Attach Name	Follow these Steps	Status	Stage
BIDDING DOCUMENT	Click here to Optionally Download the File(B).	View only	UnPrice Bid
PRICE SCHEDULE FOR INDIAN BIDD	Click here to Upload filled File. Click here to Download Empty Document.	To Upload filled document.	Price Bid
PRICE SCHEDULE FOR FOREIGN BID	Click here to Upload filled File. Click here to Download Empty Document.	To Upload filled document.	Price Bid
PRICED COPY OF TWO YEAR RECOMM	Click here Attach Mandatory File.	To Upload filled document.	Price Bid
BID SUBMISSION LETTER	Click here Attach Mandatory File.	To Upload filled document.	UnPrice Bid
AGREED TERMS AND CONDITIONS DU	Click here Attach Mandatory File.	To Upload filled document.	UnPrice Bid
INTEGRITY PACT DULY SIGNED AND	Click here Attach Mandatory File.	To Upload filled document.	UnPrice Bid
UNPRICED COPY OF PRICE SCHEDUL	Click here Attach Mandatory File.	To Upload filled document.	UnPrice Bid
AUDITED FINANCIAL REPORT OF LA	Click here Attach Mandatory File.	To Upload filled document.	UnPrice Bid
DEVIATION SHEET	Click here Attach Mandatory File.	To Upload filled document.	UnPrice Bid
OTHER COMMERCIAL DETAILS	Click here Attach Mandatory File.	To Upload filled document.	UnPrice Bid
SIGNED AND STAMPED TERMS AND C	Click here Attach Mandatory File.	To Upload filled document.	UnPrice Bid
TECHNICAL OFFER	Click here Attach Mandatory File.	To Upload filled document.	UnPrice Bid
SCANNED COPY OF EMD AS PER BID	Click here Attach Mandatory File.	To Upload filled document.	UnPrice Bid
SCANNED COPY OF COST OF BIDDIN	Click here Attach Mandatory File.	To Upload filled document.	UnPrice Bid
EMD Details	Click here to enter EMD Details.	To be updated	----
Form fee Details	Click here to enter Form Fee Details.	To be updated	----
Link Details	Click here to View Link	View only	----

Copyright 2007

Strictly private and confidential

UnApplied
In Progress
Opened/Awarded
Disqualified/Withdrawn
30-07-2012 05:19:40

Home
Modify Profile
Help
Documents Library
Bid Search
Modify Password
Logout

Documents Library

Bid/Line: 7352/T-560/11-12/PKK/60/01 Buyer: Engineers India Limited Vendor: TEST DEMO EIL

File: Attach Name: File Group:

Active records sorted by Last Attached Date (Descending)

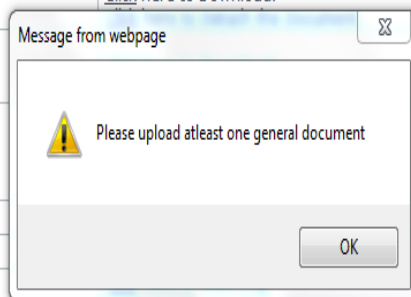
Select	Attach Name	File	File Group	Uploaded Date	Last Attached Date
☐	ASDFGHJKL	SDFGHJ.docx, 9.65 KB	General Documents	28-07-2012 09:29	28-07-2012 09:30
☒	SOR OF PRICE	111111111.xls, 85.5 KB	General Documents	27-07-2012 11:50	27-07-2012 12:07
☐	DOCUMENT	DOCUMENT.doc, 25.5 KB	General Documents	27-07-2012 12:00	27-07-2012 12:00
☐	EXP CERTIFICATE	Desert.jpg, 826.11 KB	General Documents	27-07-2012 11:58	27-07-2012 11:59
☐	COPY OF EMD	EIL.pdf, 1.82 MB	General Documents	27-07-2012 11:44	27-07-2012 11:55
☐	EIL MANUAL	Vendor.pdf, 1.19 MB	General Documents	28-06-2012 11:58	27-07-2012 11:47
☐	PICTURE	Chrysanthemum.jpg, 858.78 KB	General Documents	05-06-2012 16:11	27-07-2012 11:47
☐	BUYER MANUU	FORMATBUYEREIL.pdf, 1.82 MB	General Documents	05-06-2012 16:08	27-07-2012 11:47
☐	ATC COPY	Capture1.JPG, 69.53 KB	General Documents	23-06-2012 21:27	27-07-2012 11:47
☐	AAAAA	tttt_rrrr.doc, 25.5 KB	General Documents	11-07-2012 09:33	27-07-2012 11:46

1

Now you are about to ready to submit the tender form

But before submission you are required to upload rest of other supporting document besides the document which was showing in the red color otherwise you will get the below message.

In Progress	Opened/Awarded	Disqualified/Withdrawn	30-07-2012 05:21:40 P	
		Click here to Download. Click here to Detach the Document.		
SCHEDULE OF RATES		Click here to Download.	Updated	Price Bid
UNPRICED SOR			Updated	UnPrice Bid
TECHNICAL SHEET			Updated	Price Bid
EMD Details			EMD Updated	----
Form fee Details			Form Fee Updated	----
Log Details			View only	----
Click here to Attach the General Documents		Additional Documents can be Optionally Uploaded.		



Note : After upload of all documents, click on 'Submit the Tender Form' Button for final submission and acknowledgement.

(For Information about Document Name move Mouse Over the Document Name Column)

Note : Once the technical/price bids are uploaded to the site, they will be in encrypted format to safeguard the confidentiality & security of the file.

Now attach at least one general document as below figure

Help Manual for eTendering / eProcurement solution - TENDER WIZARD



Antares Systems Limited



UnApplied	In Progress	Opened/Awarded	Disqualified/Withdrawn		30-07-2012 05:22:16 P
Home Modify Profile Help Documents Library Bid Search Modify Password Logout	Click here to Download. Click here to Detach the Document. Updated Price Bid				
	SCHEDULE OF RATES Click here to Download. Click here to Detach the Document. Updated Price Bid				
	UNPRICED SOR Click here to Download. Click here to Detach the Document. Updated UnPrice Bid				
	TECHNICAL SHEET Click here to Download. Click here to Upload the filled File. Click here to Download. Click here to Detach the Document. Click here to Download Empty Document. Updated Price Bid				
	EMD Details Click here to enter EMD Details. EMD Updated ----				
	Form fee Details Click here to enter Form Fee Details. Form Fee Updated ----				
	Log Details Click here to View Log. View only ----				
	Click here to Attach the General Documents Additional Documents can be Optionally Uploaded.				

Note : After upload of all documents, click on 'Submit the Tender Form' Button for final submission and acknowledgement.
 (For Information about Document Name move Mouse Over the Document Name Column)
Note : Once the technical/price bids are uploaded to the site, they will be in encrypted format to safeguard the confidentiality & security of the file.

Go Back
Submit the Tender Form

UnApplied	In Progress	Opened/Awarded	Disqualified/Withdrawn		30-07-2012 05:22:52 PM																														
Home Modify Profile Help Documents Library Bid Search Modify Password Logout	Documents Library																																		
Bid Line: 7352/T-560/11-12/PKK/60/01 Buyer: Engineers India Limited Vendor: TEST DEMO EIL File: Attach Name: File Group: Select Search Reset Active records sorted by Last Attached Date (Descending) <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #f2f2f2;"> <th>Select</th> <th>Attach Name</th> <th>File</th> <th>File Group</th> <th>Uploaded Date</th> <th>Last Attached Date</th> </tr> </thead> <tbody> <tr> <td>☐</td> <td>EIL MANUAL</td> <td> Vendor.pdf, 1.19 MB</td> <td>General Documents</td> <td>28-06-2012 11:58</td> <td>27-07-2012 11:47</td> </tr> <tr> <td>☐</td> <td>BUYER MANUU</td> <td> FORMATBUYEREIL.pdf, 1.82 MB</td> <td>General Documents</td> <td>05-06-2012 16:08</td> <td>27-07-2012 11:47</td> </tr> <tr> <td>☐</td> <td>ATC COPY</td> <td> Capture1.JPG, 69.53 KB</td> <td>General Documents</td> <td>23-06-2012 21:27</td> <td>27-07-2012 11:47</td> </tr> <tr> <td>☒</td> <td>AAAAAAAAA</td> <td> rrrrr.doc, 25.5 KB</td> <td>General Documents</td> <td>11-07-2012 09:33</td> <td>27-07-2012 11:46</td> </tr> </tbody> </table> 1 Note: Already attached document(s) for this tender will not be available. Finish Selection Go Back						Select	Attach Name	File	File Group	Uploaded Date	Last Attached Date	☐	EIL MANUAL	Vendor.pdf, 1.19 MB	General Documents	28-06-2012 11:58	27-07-2012 11:47	☐	BUYER MANUU	FORMATBUYEREIL.pdf, 1.82 MB	General Documents	05-06-2012 16:08	27-07-2012 11:47	☐	ATC COPY	Capture1.JPG, 69.53 KB	General Documents	23-06-2012 21:27	27-07-2012 11:47	☒	AAAAAAAAA	rrrrr.doc, 25.5 KB	General Documents	11-07-2012 09:33	27-07-2012 11:46
Select	Attach Name	File	File Group	Uploaded Date	Last Attached Date																														
☐	EIL MANUAL	Vendor.pdf, 1.19 MB	General Documents	28-06-2012 11:58	27-07-2012 11:47																														
☐	BUYER MANUU	FORMATBUYEREIL.pdf, 1.82 MB	General Documents	05-06-2012 16:08	27-07-2012 11:47																														
☐	ATC COPY	Capture1.JPG, 69.53 KB	General Documents	23-06-2012 21:27	27-07-2012 11:47																														
☒	AAAAAAAAA	rrrrr.doc, 25.5 KB	General Documents	11-07-2012 09:33	27-07-2012 11:46																														

Copyright 2007

Strictly private and confidential



ENGINEERS
INDIA LIMITED
Delivering Excellence through People

E



Tender Wizard

UnApplied
In Progress
Opened / Awarded
Disqualified / Withdrawn
30-07-2012 05:23:19 PM

[Home](#)
[Modify Profile](#)
[Help](#)
[Documents Library](#)
[Bid Search](#)
[Modify Password](#)
[Logout](#)

Selected Documents Library

Bid/Line: 7352T-560/11-12/PKK/60/01 Buyer: Engineers India Limited Vendor: TEST DEMO EIL

(Deselecting the document will be removed from Selected Documents Library)

Select	Attach Name	File	File Group
☒	AAAAAAAAA	 rrrr.doc, 25.5 KB	General Documents

Attach
Go Back

Now you can submit the tender by clicking on the given link.
See the below figure:

Help Manual for eTendering / eProcurement solution - TENDER WIZARD



UnApplied	In Progress	Opened/Awarded	Disqualified/Withdrawn	30-07-2012 05:23:44 P	
Home			Click here to Download.		
Modify Profile			Click here to Detach the Document.		
Help					
Documents Library	SCHEDULE OF RATES		Click here to Download. Click here to Detach the Document.	Updated	Price Bid
Bid Search	UNPRICED SOR		Click here to Download. Click here to Detach the Document.	Updated	UnPrice Bid
Modify Password	TECHNICAL SHEET		Click here to Upload the filled File. Click here to Download. Click here to Detach the Document. Click here to Download Empty Document.	Updated	Price Bid
Logout	EMD Details		Click here to enter EMD Details.	EMD Updated	----
	Form fee Details		Click here to enter Form Fee Details.	Form Fee Updated	----
	AAAAA		Click here to Optionally Download the File(V). Click here to Detach the Document.	View only	UnPrice Bid
	Log Details		Click here to View Log.	View only	----
	Click here to Attach the General Documents	Additional Documents can be Optionally Uploaded.			

Note : After upload of all documents, click on 'Submit the Tender Form' Button for final submission and acknowledgement.

(For Information about Document Name move Mouse Over the Document Name Column)

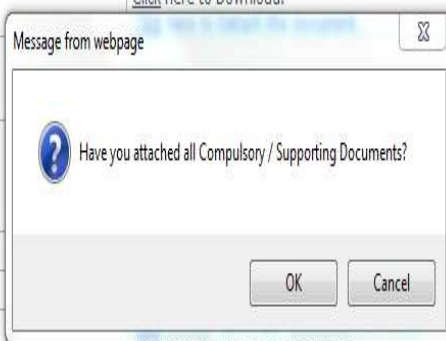
Note : Once the technical/price bids are uploaded to the site, they will be in encrypted format to safeguard the confidentiality & security of the file.

[Go Back](#)

[Submit the Tender Form](#)



UnApplied	In Progress	Opened/Awarded	Disqualified/Withdrawn	30-07-2012 05:23:58
Home		Click here to Download.		
Modify Profile		Click here to Detach the Document.		
Help	SCHEDULE OF RATES	Click here to Download.	Updated	Price Bid
Documents Library	UNPRICED SOR		Updated	UnPrice Bid
Bid Search	TECHNICAL SHEET		Updated	Price Bid
Modify Password	EMD Details		EMD Updated	----
Logout	Form fee Details		Form Fee Updated	----
	AAAAAAAAA		View only	UnPrice Bid
	Log Details	Click here to Detach the Document.	View only	----
	Click here to Attach the General Documents	Click here to View Log.		
		Additional Documents can be Optionally Uploaded.		



Note : After upload of all documents, click on 'Submit the Tender Form' Button for final submission and acknowledgement.

(For Information about Document Name move Mouse Over the Document Name Column)

Note : Once the technical/price bids are uploaded to the site, they will be in encrypted format to safeguard the confidentiality & security of the file.

Go Back

Submit the Tender Form



Please download Whiplash Desktop (Free) software to view drawings

UnApplied

In Progress

Opened/Awarded

Disqualified/Withdrawn

30-07-2012 05:24:38 PM

Home

Modify Profile

Help

Documents

Library

Bid Search

Modify Password

Logout

Buyer :Engineers India Limited

Vender : TEST DEMO EIL

Bid Number : 7352/T-560/11-12/PKK/60

Line Number : 01

Sl No	Description of the Document	Alternate name of document	File Size (in KBs)	Date/Time
Main Documents				
1	TECHNICAL SHEET	TECHNICAL SHEET	24.00	30-07-2012 17:15
2	UNPRICED SOR	UNPRICED SOR	25.50	30-07-2012 17:15
3	EARNEST MONEY DEPOSIT	EARNEST MONEY DEPOSIT	1866.20	30-07-2012 17:20
4	BID DOCUMENT FEE	BID DOCUMENT FEE	25.50	30-07-2012 17:20
5	POWER OF ATTORNEY	POWER OF ATTORNEY	9.65	30-07-2012 17:20
6	PROPOSAL FORMS	PROPOSAL FORMS	826.11	30-07-2012 17:21
7	INTEGRITY PACT	INTEGRITY PACT	85.50	30-07-2012 17:21
8	SCHEDULE OF RATES	SCHEDULE OF RATES	858.78	30-07-2012 17:21
Other Supporting Documents				
1	AAAAAAAAAA	AAAAAAAAAA	25.50	30-07-2012 17:23

* I/We have uploaded our bid document as per the department's requirement.

* I/We affirm that we have uploaded the updated MS Excel sheet (Version 2003) that is downloaded from the eTendering website without changing the format, content or type of file.

* I/We have checked and verified the bid documents by downloading and verified that attached files at right place/link provided.

☒ We hereby agree to the above points and adhere to the correctness of the documents.



UnApplied	In Progress	Opened/Awarded	Disqualified/Withdrawn	30-07-2012 05:24:56 P
-----------	-------------	----------------	------------------------	-----------------------

Home

Modify Profile

Help

Documents Library

Bid Search

Modify Password

Logout

Buyer :Engineers India Limited

Bid Number : 7352/T-560/11-12/PKK/60

Vender : TEST DEMO EIL

Line Number : 01

Message from webpage

 This is final submission. Do you want to Continue?

OK Cancel

Sl No	Description of the Document	File Size (in KBs)	Date/Time
1	TECHNICAL SHEET	24.00	30-07-2012 17:15
2	UNPRICED SOR	25.50	30-07-2012 17:15
3	EARNEST MONEY DEPOSIT	1866.20	30-07-2012 17:20
4	BID DOCUMENT FEE	25.50	30-07-2012 17:20
5	POWER OF ATTORNEY	9.65	30-07-2012 17:20
6	PROPOSAL FORMS	826.11	30-07-2012 17:21
7	INTEGRITY PACT	85.50	30-07-2012 17:21
8	SCHEDULE OF RATES	858.78	30-07-2012 17:21
Other Supporting Documents			
1	AAAAAAAAA	25.50	30-07-2012 17:23

* I/We have uploaded our bid document as per the department's requirement.
 * I/We affirm that we have uploaded the updated MS Excel sheet (Version 2003) that is downloaded from the eTendering website without changing the format, content or type of file.
 * I/We have checked and verified the bid documents by downloading and verified that attached files at right place/link provided.

☒ We hereby agree to the above points and adhere to the correctness of the documents.

Ok Cancel

UnApplied	In Progress	Opened/Awarded	Disqualified/Withdrawn	30-07-2012 05:25:37 P	
Home	7	INTEGRITY PACT	INTEGRITY PACT	85.50	30-07-2012 17:21
Modify Profile	8	SCHEDULE OF RATES	SCHEDULE OF RATES	858.78	30-07-2012 17:21
Help	Other Supporting Documents				
Documents Library	1	AAAAAAAAAA	AAAAAAAAAA	25.50	30-07-2012 17:23
Bid Search	* I/We have uploaded our bid document as per the department's requirement.				
Modify Password	* I/We affirm that we have uploaded the updated MS Excel sheet (Version 2003), that is downloaded from the eTendering website without changing the format, content or type of file.				
Logout	* I/We have checked and verified the bid documents by downloading and verified that attached files at right place/link provided.				
☒ We hereby agree to the above points and adhere to the correctness of the documents.					
This is secure electronic submission. The bids are stored in encrypted format to ensure confidentiality.					
This document is proof of submission of the Bid.					
Thank you very much for submission of your valuable response.					

 **OK**

Done

Trusted sites | Protected Mode: Off 100%

Confirmations on Bid Document submission

Once the EMD, Bid document fee, Price Bid, General documents, Mandatory documents etc. are uploaded, click **“Submit the Bid Document form”** on the Bid Document screen. The user should compulsorily attach at least one document from general document section.

Once the user submits the form, the following confirmations shall appear as an authentication to the submission of the Bid Document. Preserve the printout of confirmation as shown in Figures.

Note that the status of the Bid Document will be changed as “Submitted”, once user click on the final submission button.

Now click on the green icon of the bid:



Vendor > Bid > In Progress

Actions	Bid	Line #	Quantity	Status	Tender Closing Date and Time	EMD	Days/Time Left for Closing
 	TEST 07-06-2012	<u>1</u>	. As per NIT	SUBMITTED	07-06-2012 16:22	Rs.2,00,00,000.00	0
ABCD							
 	SM/A307/OIC-JX-MR-7630/1003	<u>01</u>	. As per NIT	RECEIVED	16-08-2012 12:00	Rs.15,00,000.00	16 (Days)
DESALTER PACKAGE							
 	7352/T-560/11-12/PKK/60	<u>01</u>	. As per NIT	SUBMITTED	08-08-2012 12:00	Rs.16,30,000.00	8 (Days)
Civil and structural work for relocation of r and d facilities							
 	TEST01111	<u>1</u>	. As per NIT	SUBMITTED	07-06-2012 16:22	Rs.3,000.00	0
refer to bid							
 	TENDER 28-06-12	<u>01</u>	. As per NIT	RECEIVED	05-07-2012 13:00	Rs.50,000.00	0
REFER TO BIDDING DOCUMENT							

Page(s)
1

UnApplied	In Progress	Opened/Awarded	Disqualified/Withdrawn	30-07-2012 05:26:40 P
Home	SCHEDULE OF RATES	Click here to Download.	Updated	Price Bid
Modify Profile		Click here to Detach the Document.		
Help	UNPRICED SOR	Click here to Download.	Updated	UnPrice Bid
Documents Library	TECHNICAL SHEET	Click here to Upload the filled File.	Updated	Price Bid
Bid Search		Click here to Download.		
Modify Password		Click here to Detach the Document.		
Logout		Click here to Download Empty Document.		
	EMD Details	Click here to enter EMD Details.	EMD Updated	----
	Form fee Details	Click here to enter Form Fee Details.	Form Fee Updated	----
	AAAAA	Click here to Optionally Download the File(V).	View only	UnPrice Bid
		Click here to Detach the Document.		
	Log Details	Click here to View Log.	View only	----
	Click here to Attach the General Documents	Additional Documents can be Optionally Uploaded.		
	Acknowledgement	Click here to view acknowledgement copy		

The tender form is submitted successfully.

(For Information about Document Name move Mouse Over the Document Name Column)

Note : Once the technical/price bids are uploaded to the site, they will be in encrypted format to safeguard the confidentiality & security of the file.


 Please download Whip-n-Post! Lite(Free) software to view drawings.

[Terms & Conditions](#) | [Disclaimer](#) | [Privacy of terms](#)

Click on the view the acknowledgement copy

Engineers India Limited

Acknowledgement of Bid Submission

Bid :	7352/T-560/11-12/PKK/60
Line :	01
Description of Work :	Civil and structural work for relocation of r and d facilities
Name of the Vendor :	TEST DEMO EIL
Bid Control Number :	100733
Bid Submitted Date and Time :	30-07-2012 17:25
Last Date and Time of Submission :	08-08-2012 12:00

List of the Documents Submitted :

Sl No.	Description	Attach Name	File Size (in KBs)	Date/Time
Main Documents				
1.	TECHNICAL SHEET	TECHNICAL SHEET	24.00	30-07-2012 17:15
2.	UNPRICED SOR	UNPRICED SOR	25.50	30-07-2012 17:15
3.	EARNEST MONEY DEPOSIT	EARNEST MONEY DEPOSIT	1866.20	30-07-2012 17:20
4.	BID DOCUMENT FEE	BID DOCUMENT FEE	25.50	30-07-2012 17:20
5.	POWER OF ATTORNEY	POWER OF ATTORNEY	9.65	30-07-2012 17:20
6.	PROPOSAL FORMS	PROPOSAL FORMS	826.11	30-07-2012 17:21
7.	INTEGRITY PACT	INTEGRITY PACT	85.50	30-07-2012 17:21
8.	SCHEDULE OF RATES	SCHEDULE OF RATES	858.78	30-07-2012 17:21
Other Supporting Documents				
1.	AAAAAAAAAA	AAAAAAAAAA	25.50	30-07-2012 17:23

* I/We have uploaded our bid document as per the department's requirement.

* I/We affirm that we have uploaded the updated MS Excel sheet (Version 2003), that is downloaded from the eTendering website without changing the format, content or type of file.

* I/We have checked and verified the bid documents by downloading and verified that attached files at right place/link provided.

☒ We here by agree to the above points and adhere to the correctness of the documents..

* This is secure electronic submission. The bids are stored in encrypted format to ensure confidentiality.

* This document is proof of submission of the Bid.

* Thank you very much for submission of your valuable response.

Withdrawal of Bid Document

In case, the vendor needs to withdraw his submitted bid, then click "Withdrawal" as shown below and provide reason for withdrawal and proceed. The Bid Document will be moved to Disqualified / Withdrawal section. Once withdrawn, Bid Documents cannot be taken back.

Antares Systems Limited

Tender Wizard

UnApplied In Progress Opened/Awarded Disqualified/Withdrawn 18-03-2011 04:45:30 PM

Vendor > Bid Document > In Progress

Actions	Bid Document	Line #	Quantity	Status	Bid Document Closing Date	Estimated Cost	EMD
TEST100			WORK	SUBMITTED	18-03-2011 17:05	RS.-NA-	RS.-NA-

Page(s)
1

Click here to withdraw the tender

Opening event

Vendors can view the opening event sitting at their own places using internet connection. The Bid Document will be moved to Opened / Awarded section once it is opened by the tendering authority (as shown in figure). If the vendor is not disqualified then the status will be shown as "In the Race" (as shown in figure).

Antares Systems Limited

ENGINEERS INDIA LIMITED

E-Tendering

Tender Wizard

UnApplied In Progress Opened/Awarded Disqualified/Withdrawn 18-03-2011 05:05:47 PM

Vendor > Bid Document > Opened/Awarded

Actions	Bid Document	Line #	Line Status	Remarks
TEST100		1	Opened(1)	In the Race

Page(s)
1

Even competitor's bids sheets can be downloaded from the website as shown in figure.



**ENGINEERS
INDIA LIMITED**
(A Govt. of India Undertaking)
Delivering Excellence through People

E-Tendering



Tender Wizard

UnApplied In Progress **Opened/Awarded** Disqualified/Withdrawn
05-08-2009 04 : 59 : 17 PM

[Home](#)
[Modify Profile](#)
Help
[Upload](#)
[Signature](#)
[General Documents](#)
[Tender](#)
[Search](#)

[Modify Password](#)
[Logout](#)

[User name](#)
 tvend2

[Last Signed](#)
 31-12-2008
 16:07:16

Tender Documents tvend2

Department : **DEMO DEPARTMENT** Region : **bangalore**
Tender : **KDK/3333** Work #: **1**

UserID : **tvend2** Token : **100096**
TimeStamp : **05-08-2009/16:15**

Description Of Work : **TEST**

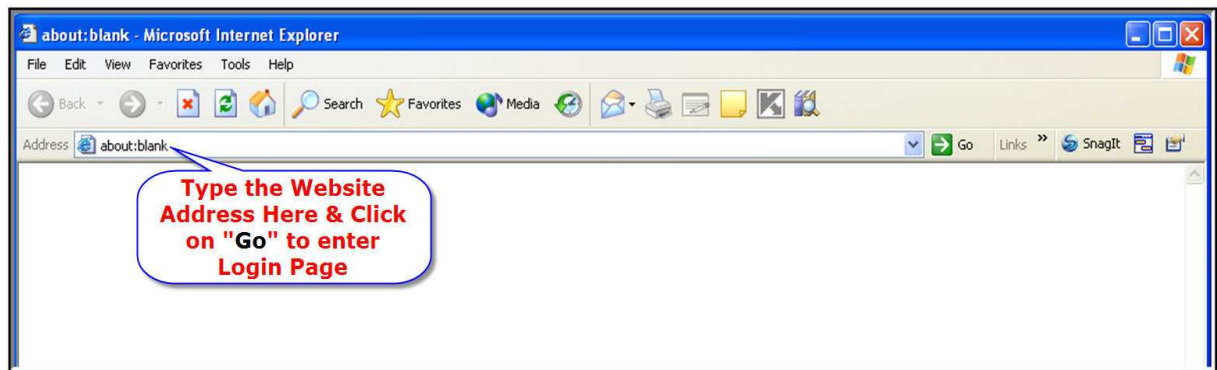
The tender form is submitted successfully.

Document Name	Follow these Steps	Status	Stage
TECH BID	Click here to Download the Updated File.	Updated	Techno Commercial
OTC CHALLENGE	Click here to Download OTC Challan.	View only	----
NEFT CHALLENGE	Click here to Download NEFT Challan.	View only	----
COST BID	Click here to Download the Updated File.	Updated	Cost
Log Details	Click here to View Log.	View only	
Competitor Bid Sheets	Click here to Download.	View Only	Cost
Competitor Bid Sheets	Click here to Download.	View Only	Techno Commercial
Acknowledgement	Click here to view acknowledgement copy		

The tender form is submitted successfully.

(For Information about Document Name move Mouse Over the Document Name Column)

First of all you need to open internet explorer



Type the website address <http://www.tenderwizard.com/EIL> in the address bar and click "Go" to access the Login Screen.



Modify Password

User Id :

tvend2

Enter Your Current Password :

Enter Your New Password :

Confirm Your New Password :

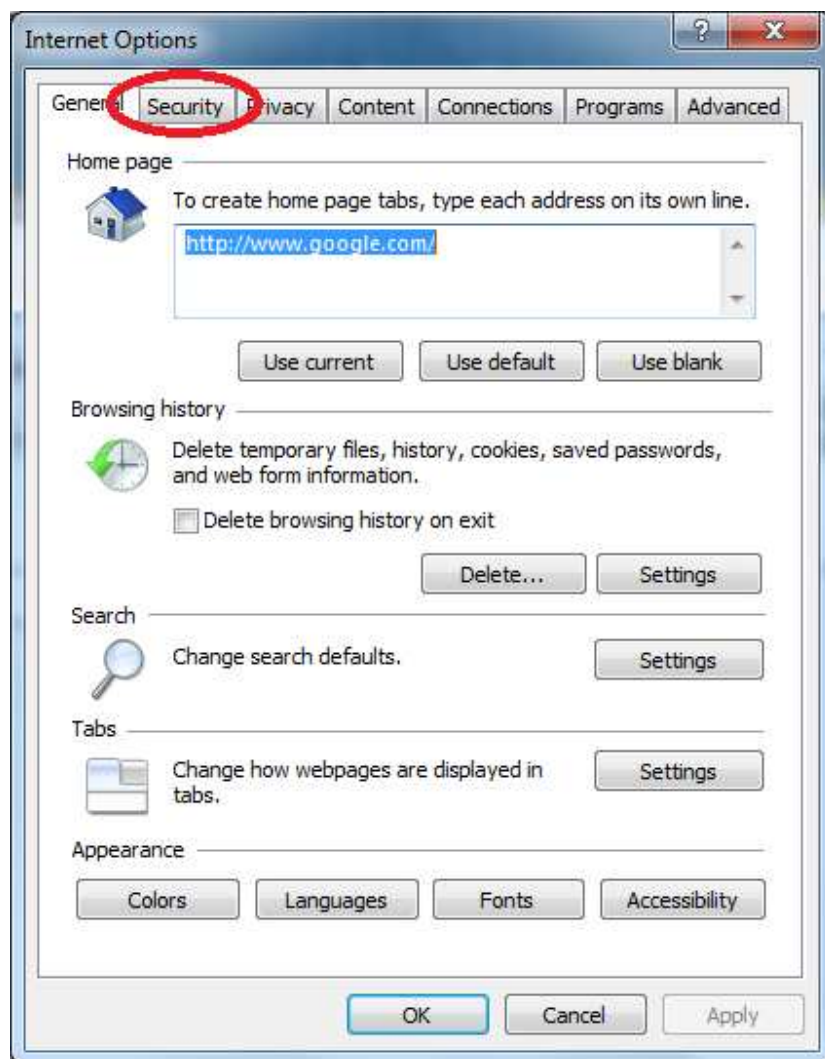
Submit

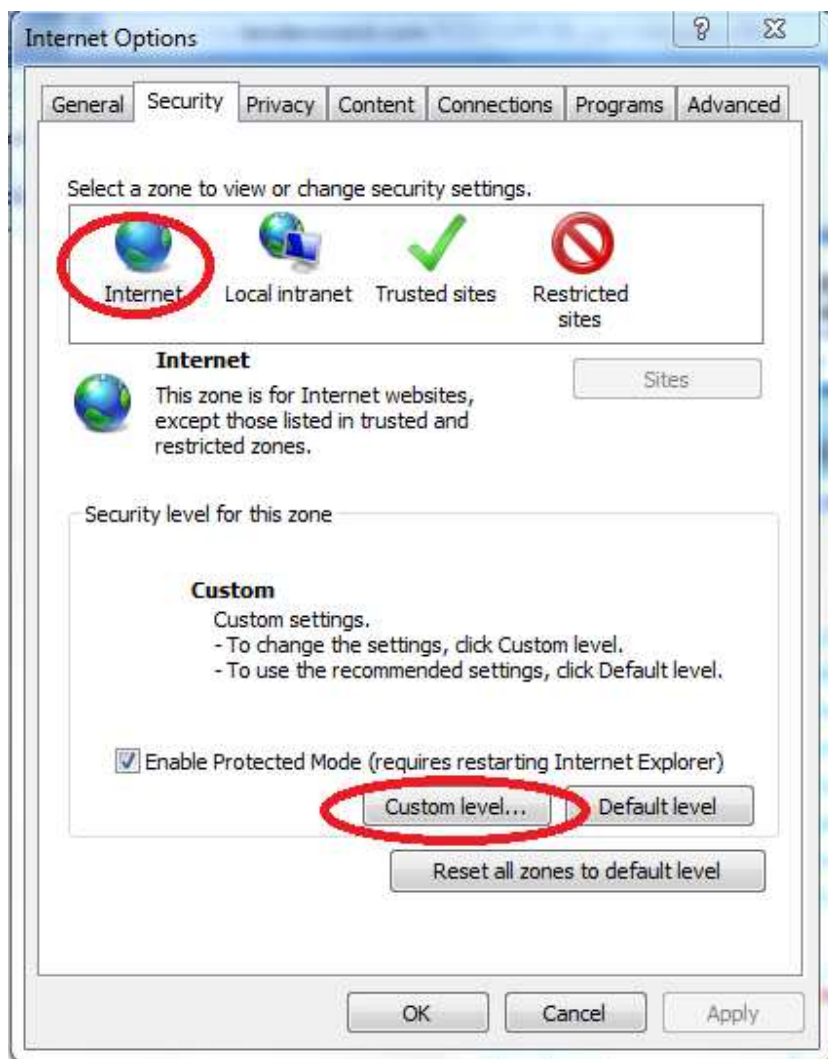
[Terms & Conditions](#) | [Disclaimer](#) | [Glossary of terms](#)

© Copyright 2006 Antares Systems Limited. All rights reserved.

Now open IE and go to the tools ->internet options->

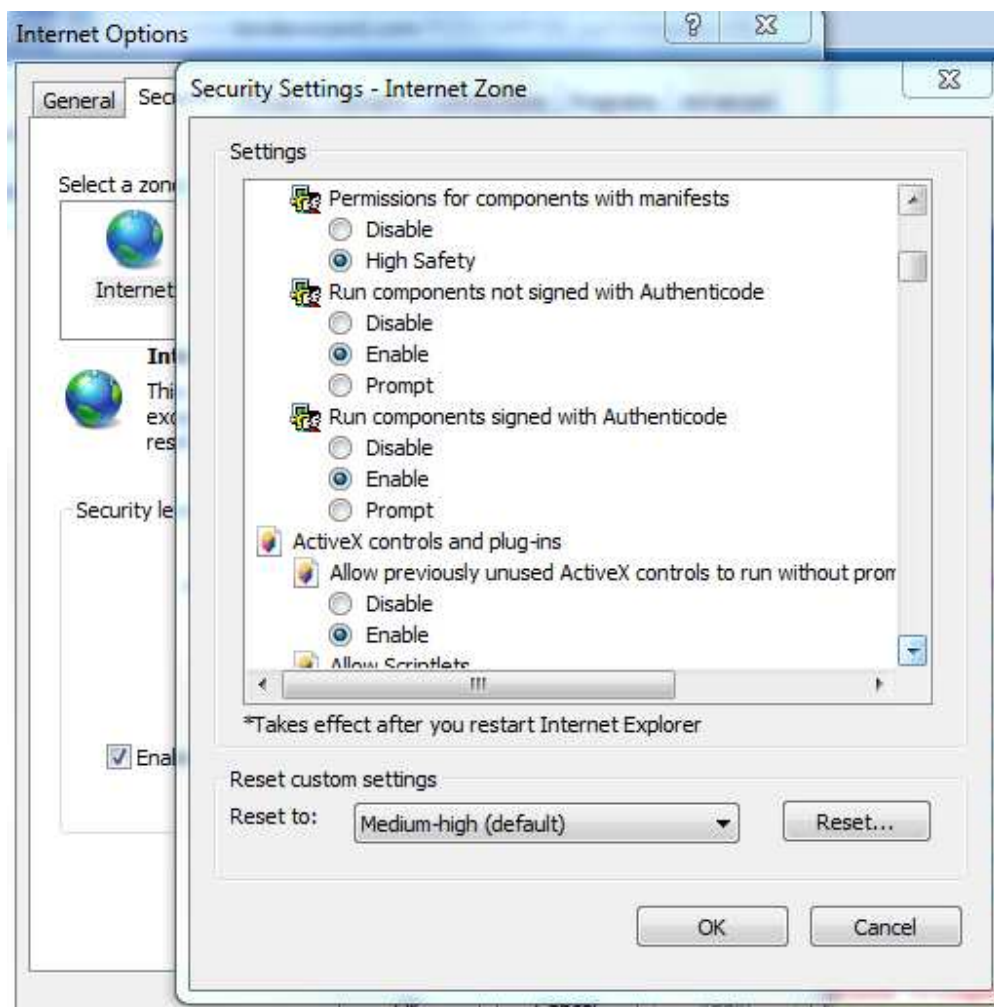
Follow as given settings

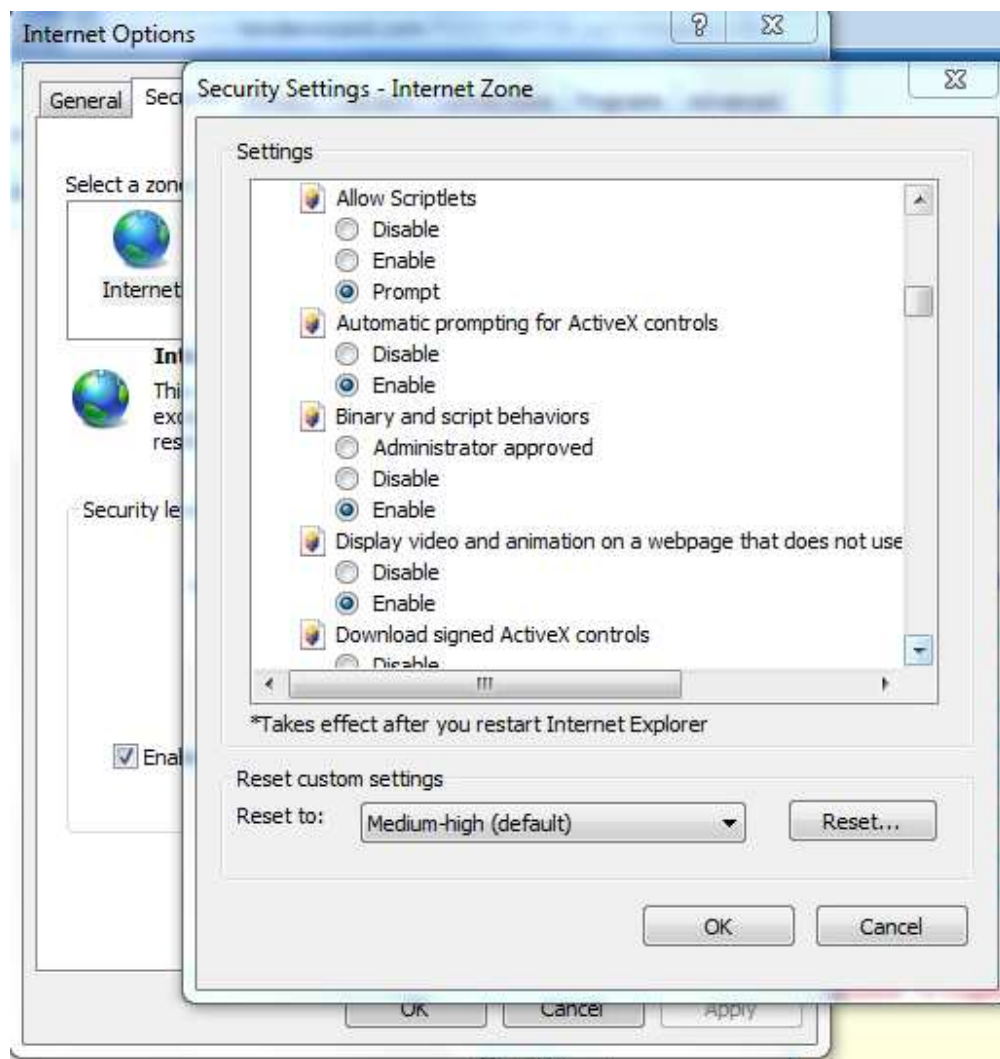


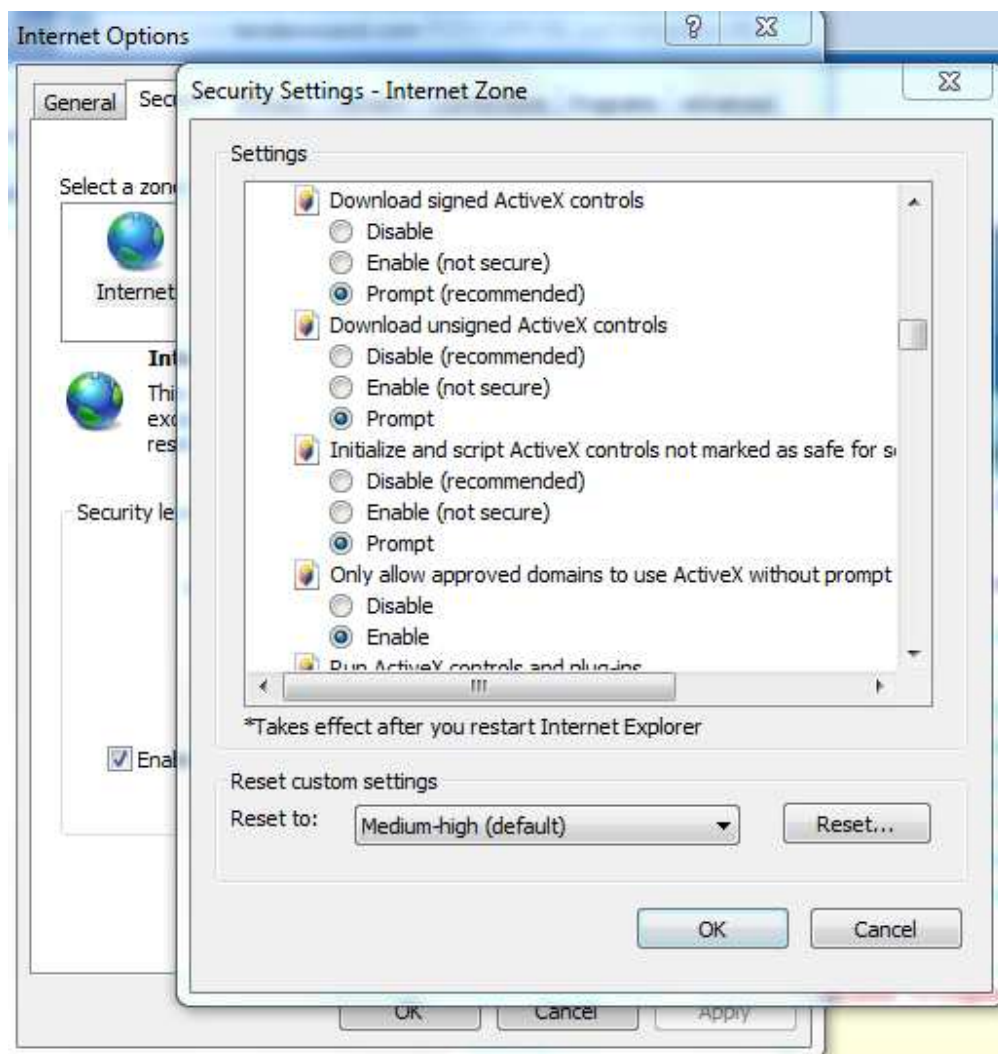


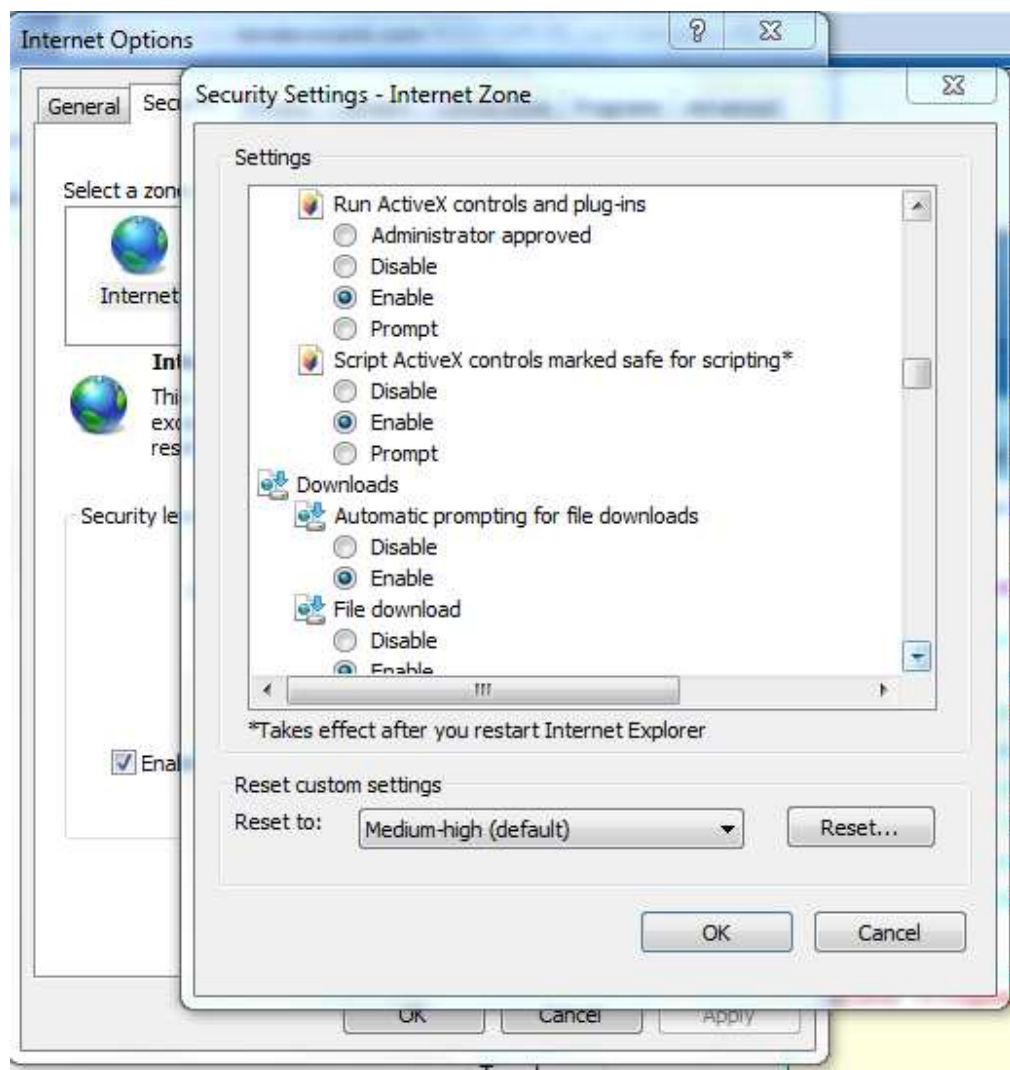
Make all settings as per follows

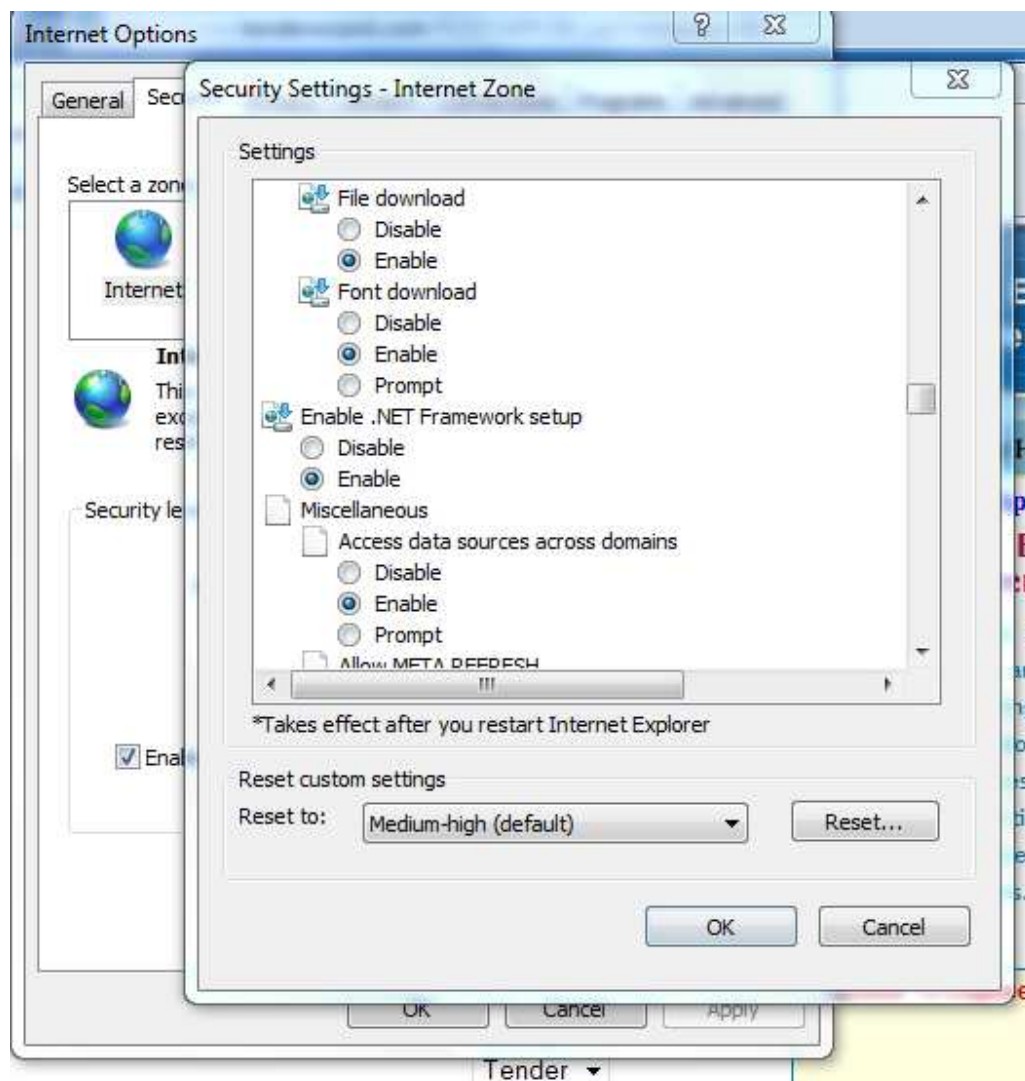


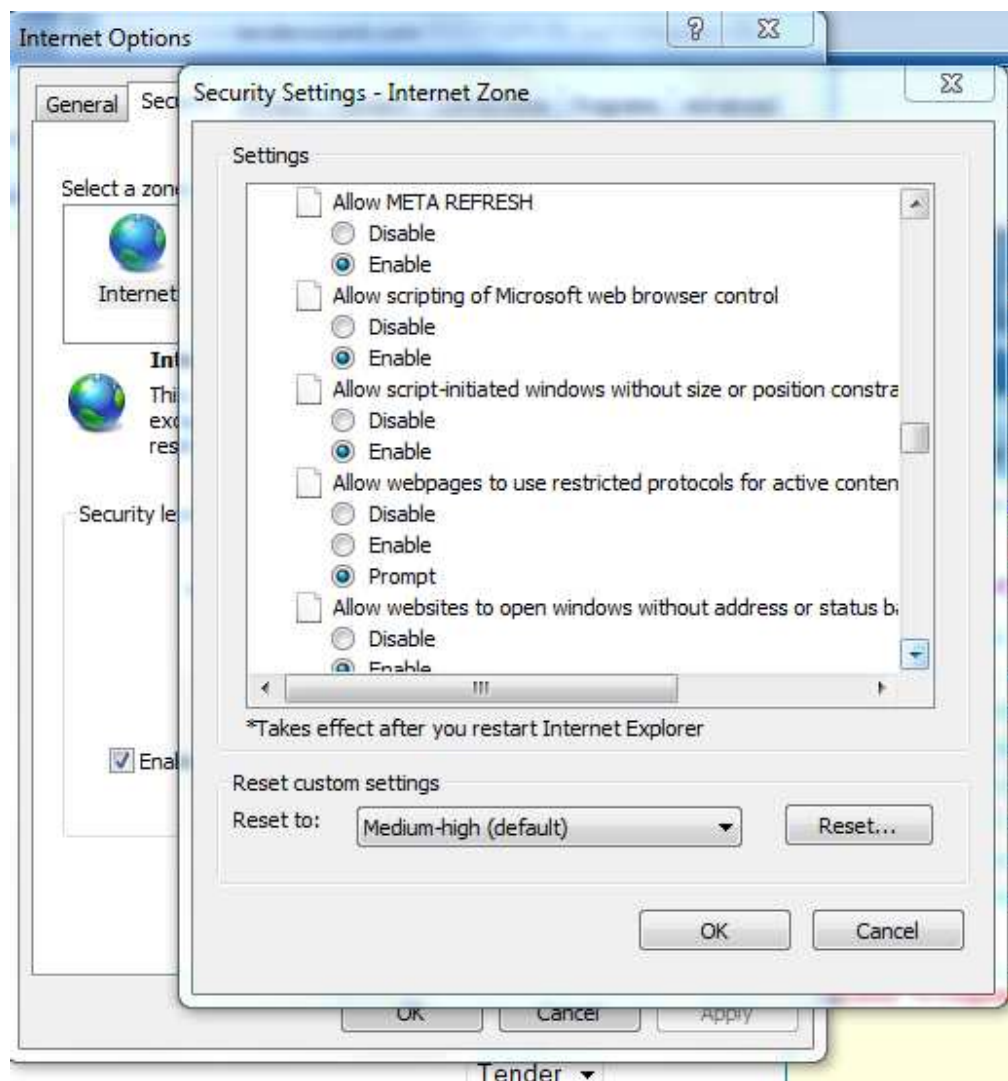




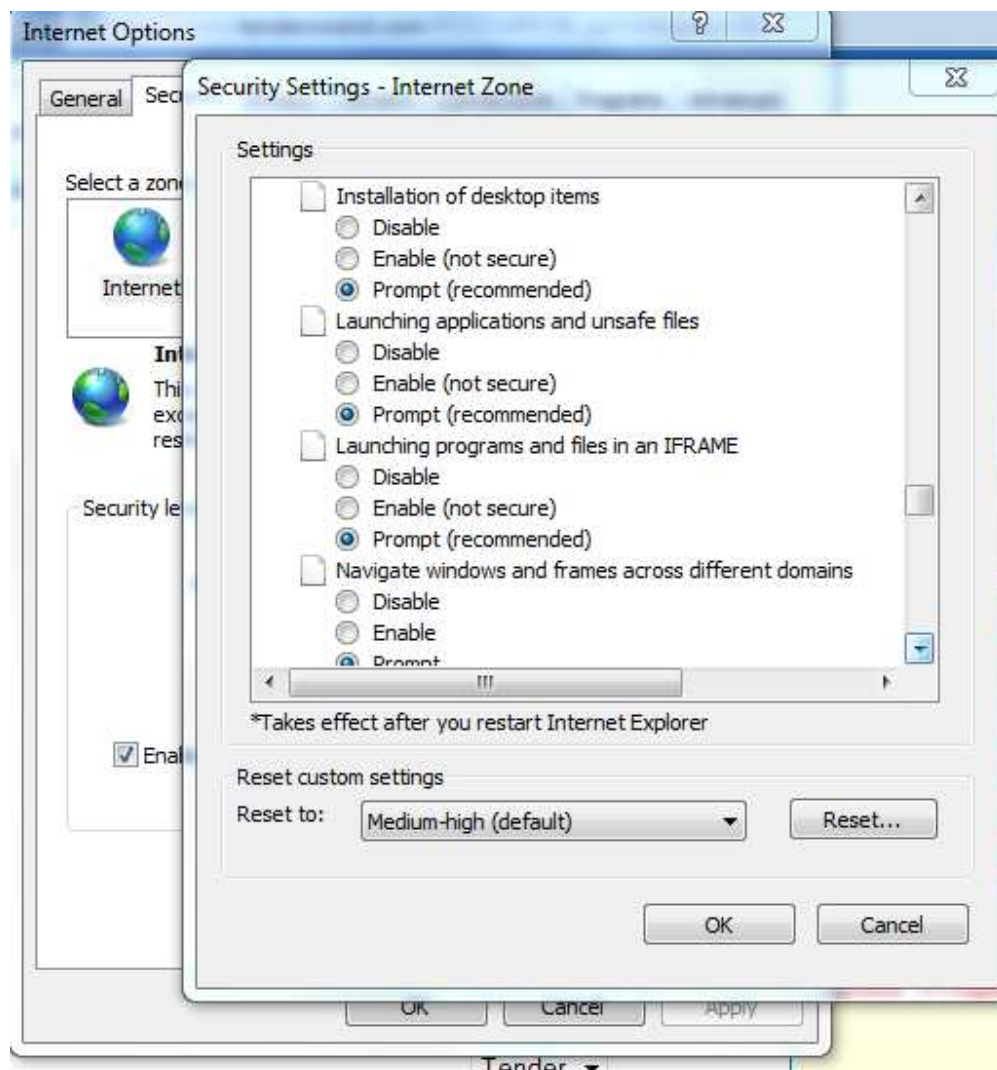


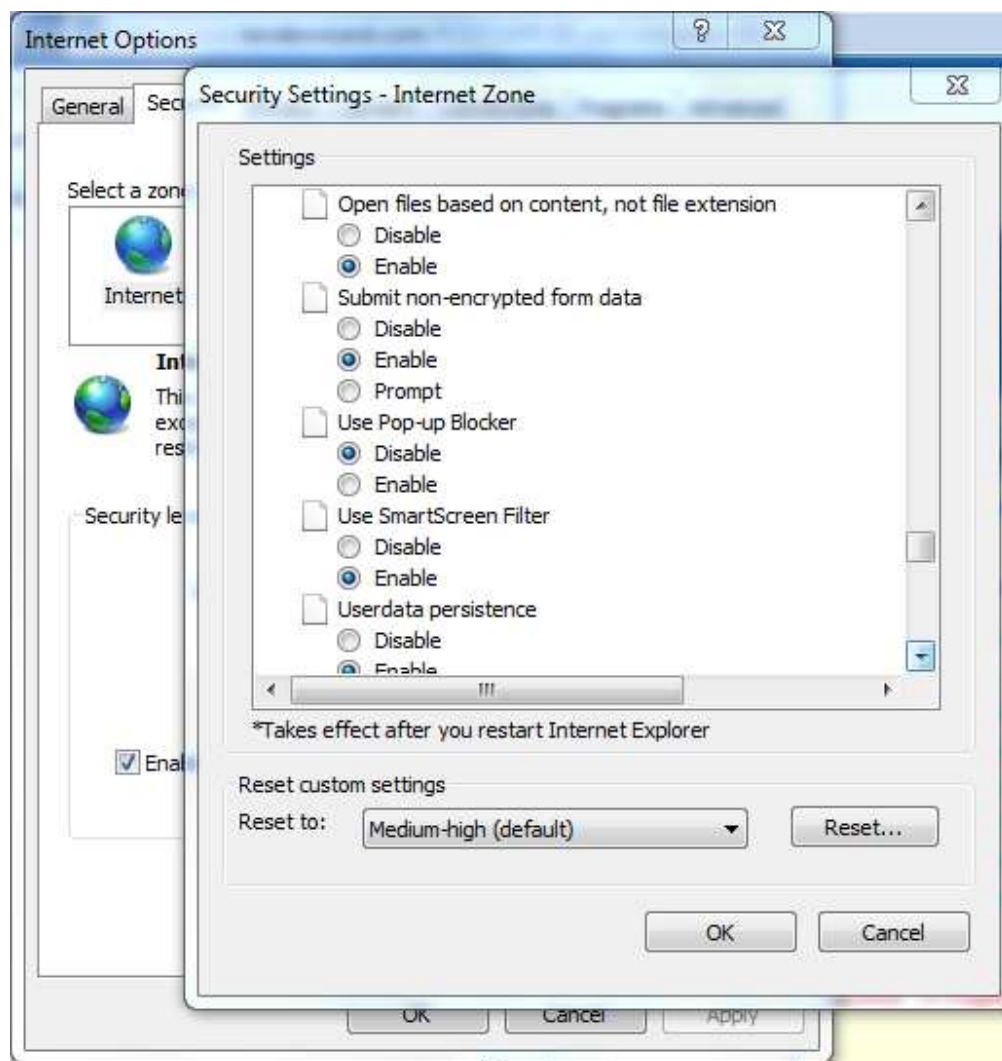




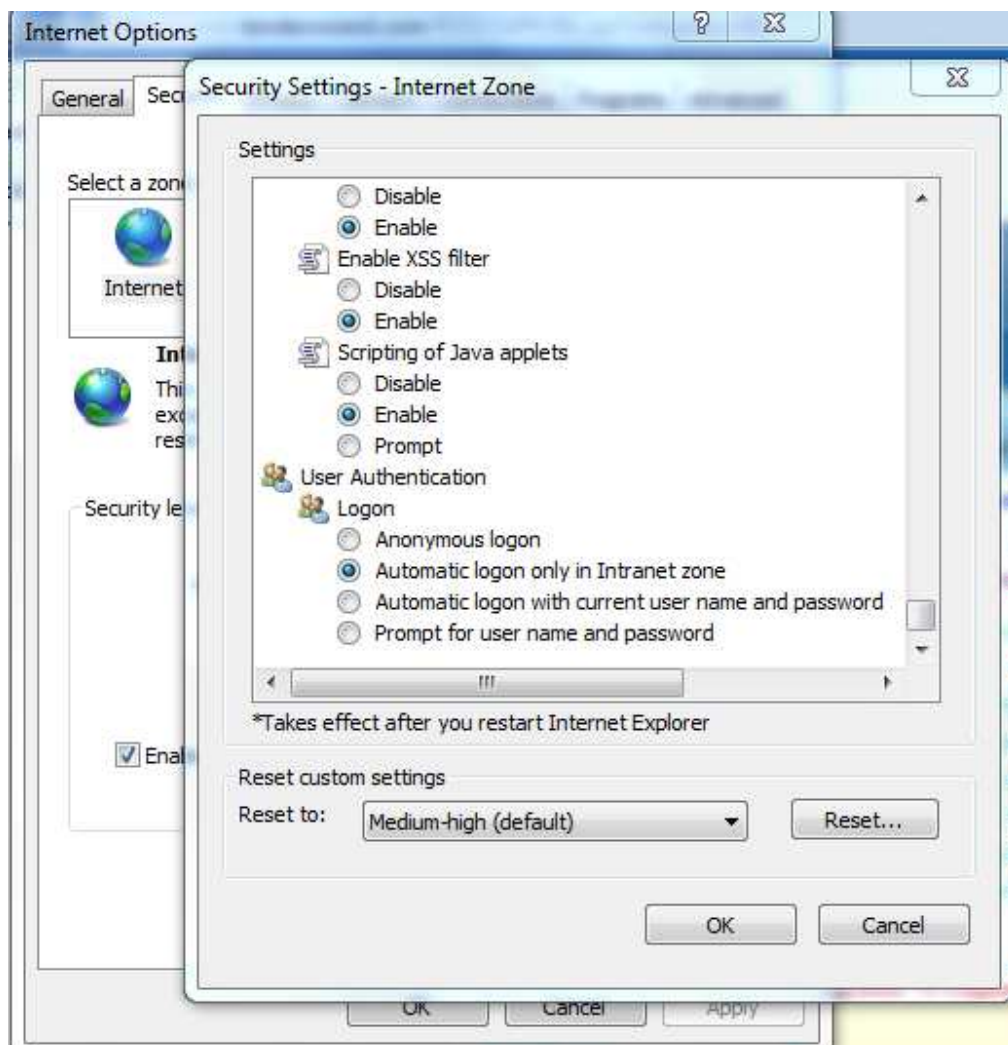


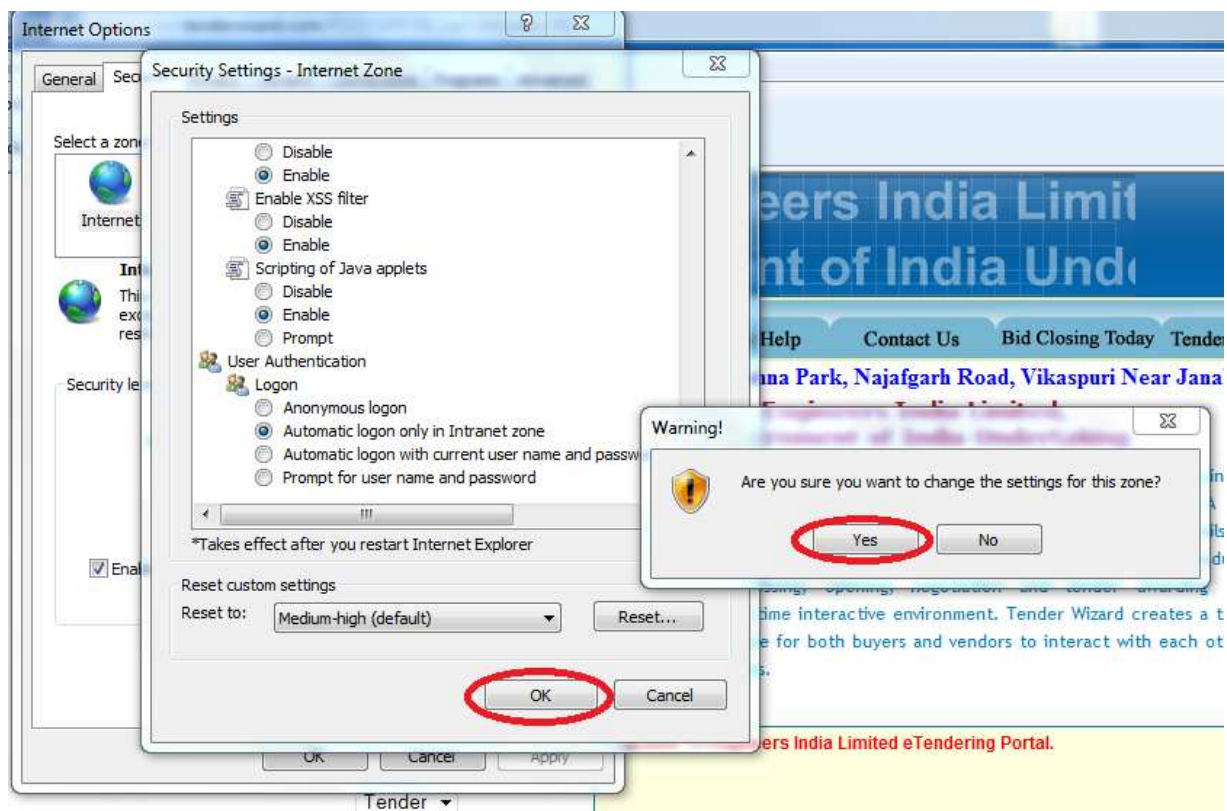






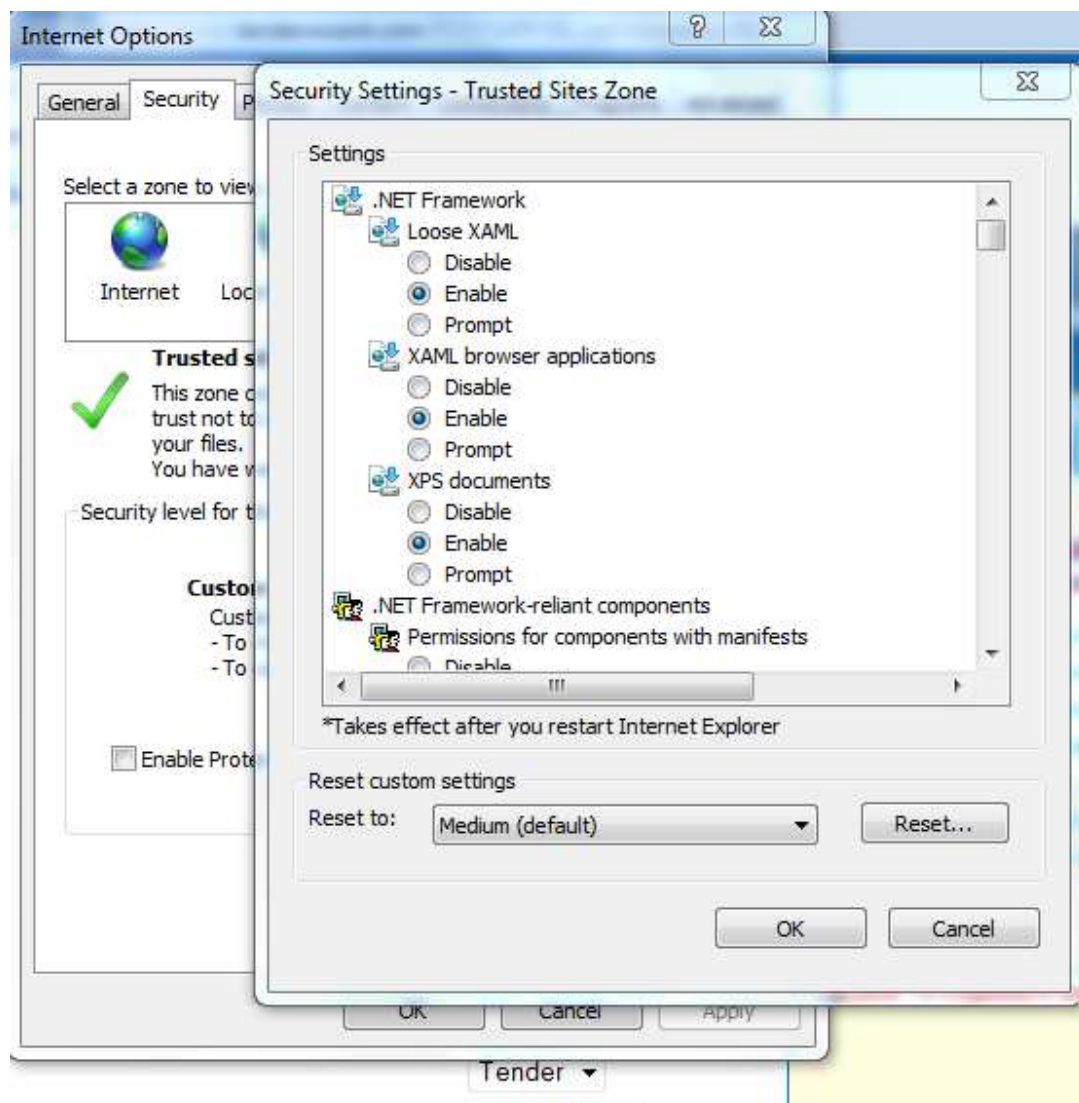


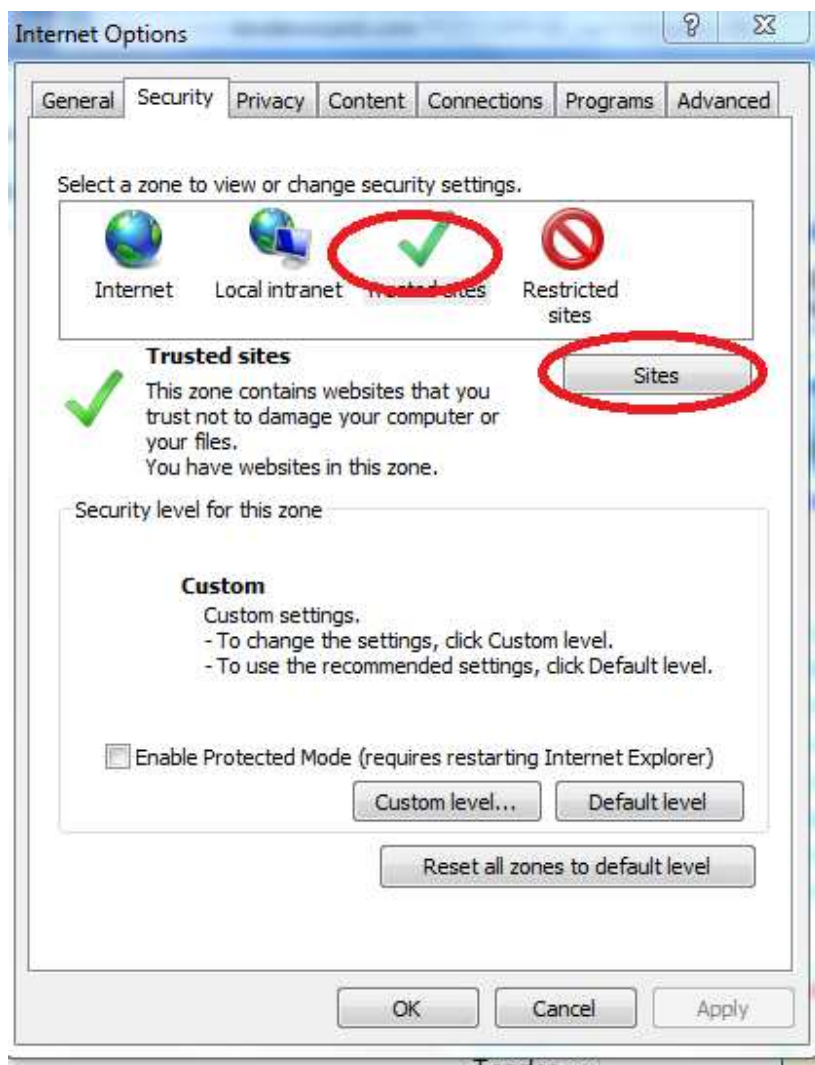


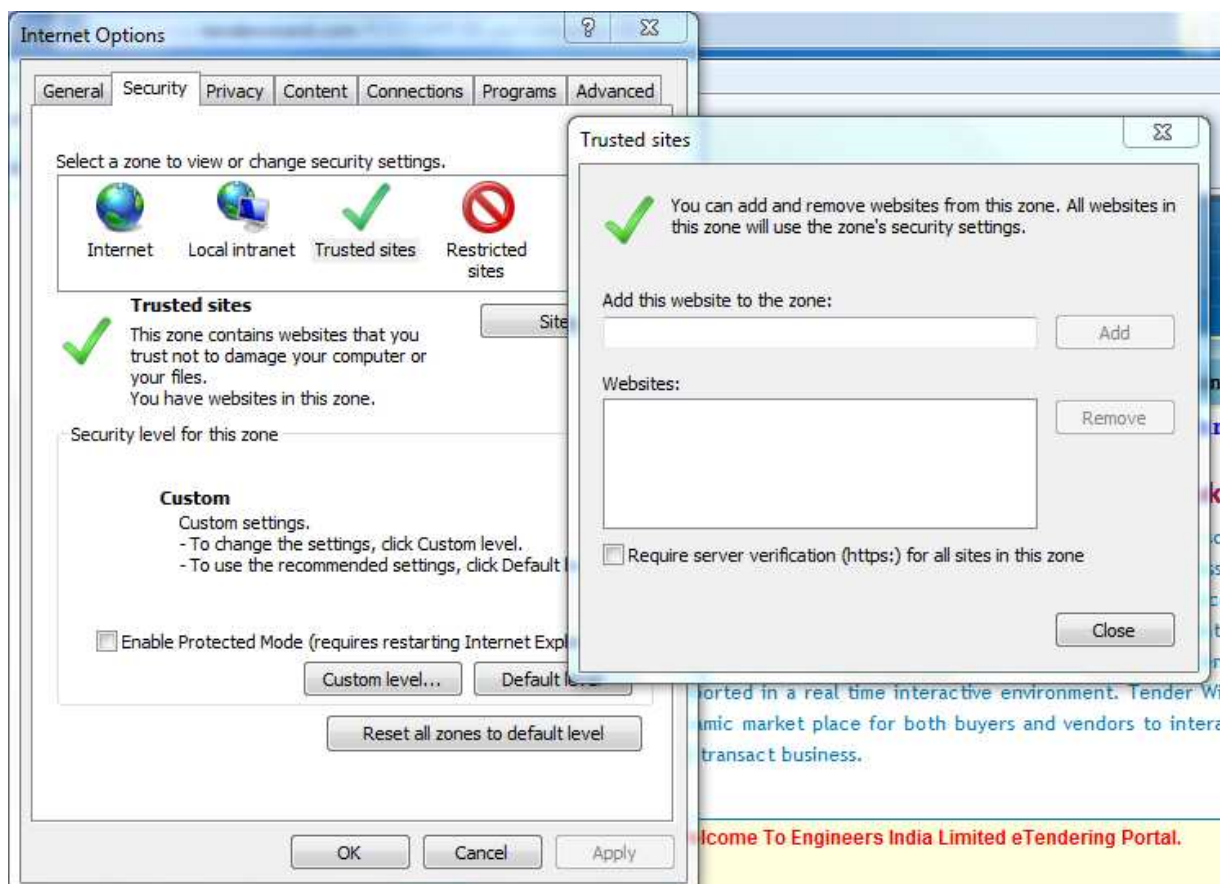


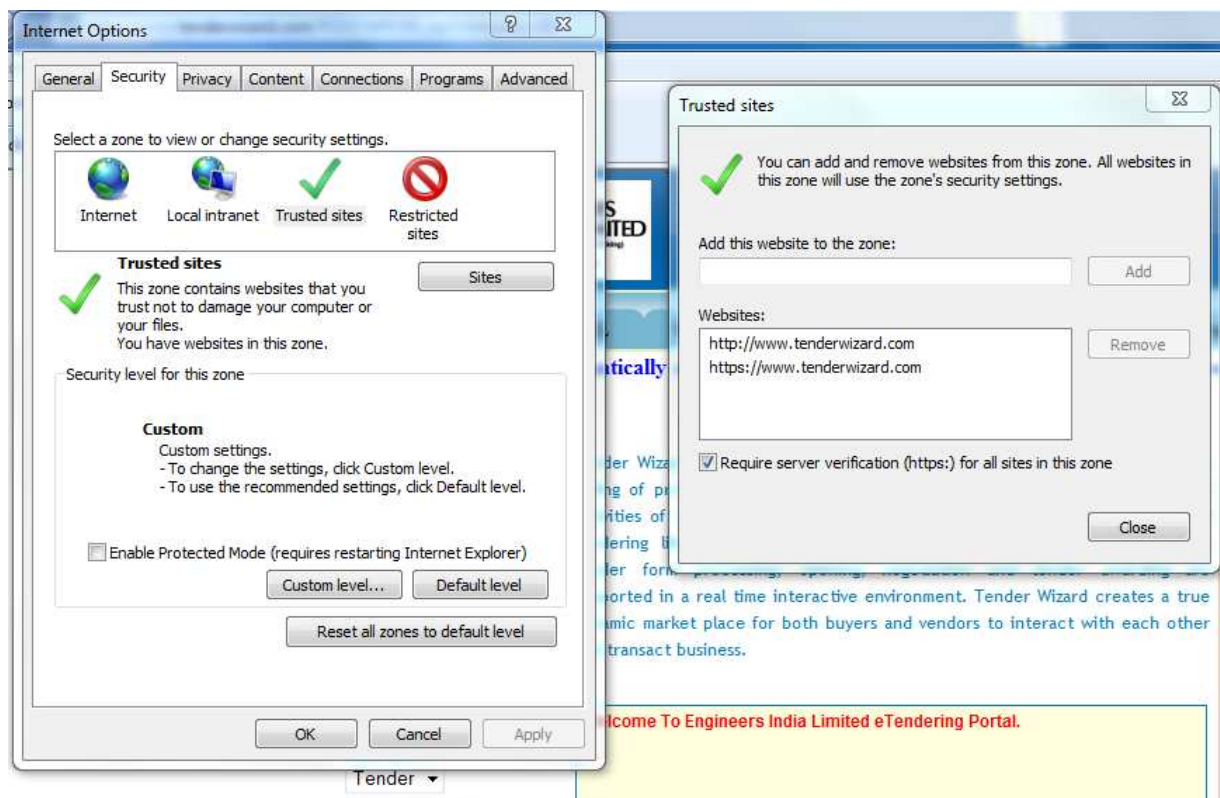
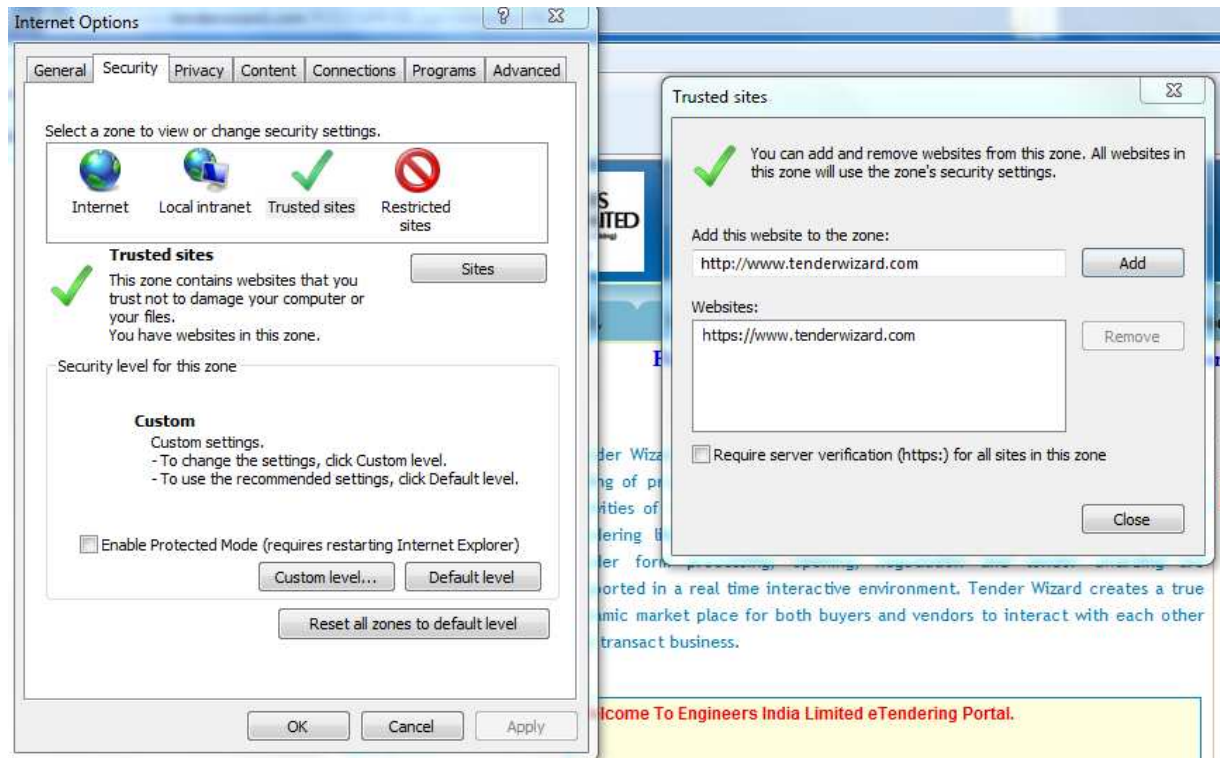
Follow same in the next

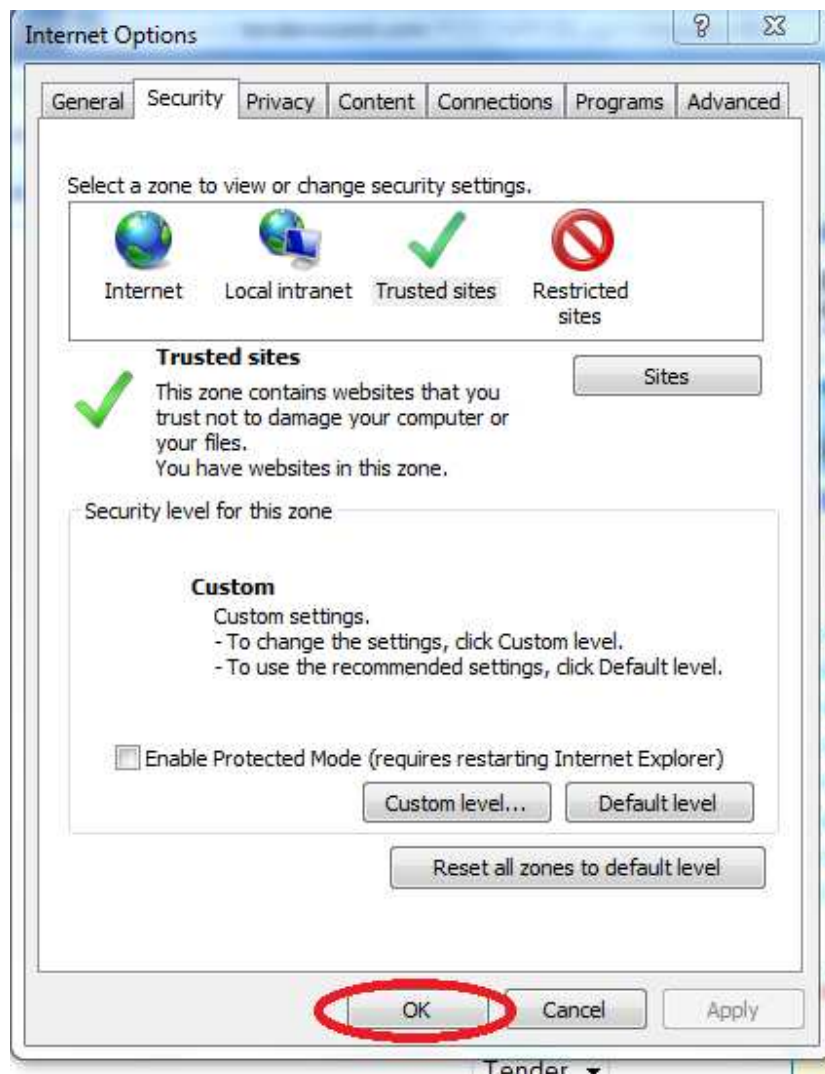












Internet Options

General Security Privacy Content Connections Programs Advanced

Home page

 To create home page tabs, type each address on its own line.

Browsing history

 Delete temporary files, history, cookies, saved passwords, and web form information.

☐ Delete browsing history on exit

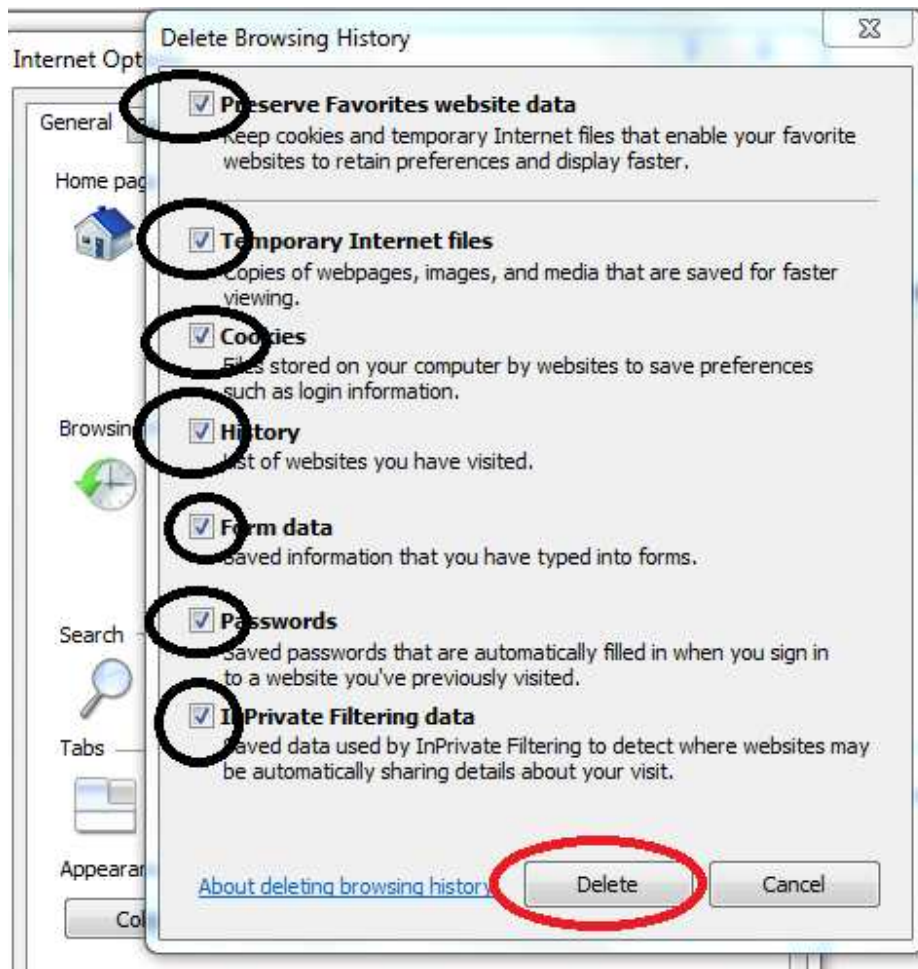
Search

 Change search defaults.

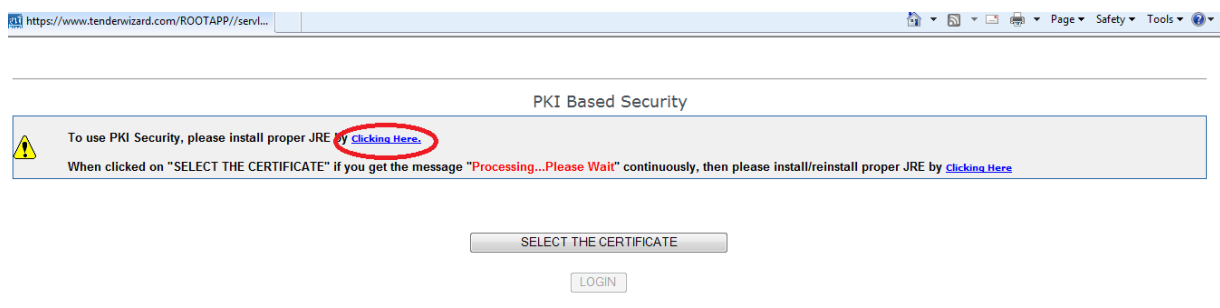
Tabs

 Change how webpages are displayed in tabs.

Appearance



After making all setting you need to login and you will get the page as follows



And install java by clicking the link but before uninstalling the older java version.

**INTEGRATED REFINERY EXPANSION PROJECT
OF
M/s BHARAT PETROLEUM CORPORATION LTD,
KOCHI REFINERY, KOCHI, KERALA

SPECIAL INSTRUCTION TO BIDDER
(SIB)**

INDEX

SECTION – A (TERMS OF PAYMENT)

- 1.0 Payment Terms For Indian Bidders
- 2.0 Payment Terms For Foreign Bidders
- 3.0 Ocean Freight

SECTION – B: EVALUATION CRITERIA FOR COMPARISON OF BIDS

- 4.0 Where only Indian Bids are under comparison
- 5.0 Where only Foreign Bids are under comparison
- 6.0 Where Indian as well as Foreign Bids are under comparison
- 7.0 General Notes
- 8.0 Special Notes on Taxes/Duties and CENVAT benefits
- 9.0 Price Reduction Schedule Towards Delay In Delivery
- 10.0 Guarantee / Warranty Period

SECTION-C: (COMMERCIAL LOADING OF OFFERS IN CASE OF DEVIATIONS)

- 11.0 Basis of Loading
- 12.0 Payment Terms
- 13.0 Performance Bank Guarantee (PBG)
- 14.0 Delayed Deliveries
- 15.0 Price Variation
- 16.0 Freight charges
- 17.0 Indian taxes/ duties
- 18.0 Utilities
- 19.0 Delivery/Completion Period
- 20.0 Foreign Exchange Rate Variation/Custom Duty Variation For Indian Bidders (On Built-In Import Content)
- 21.0 VAT on Works Contracts/ Service Tax/ Splitting Of Orders
- 22.0 Entry Tax
- 23.0 Rejection Criteria
- 24.0 Suo-Moto Changes In Prices
- 25.0 Price Implication Not Permitted
- 26.0 Integrity Pact

SECTION-D: SPECIAL CONDITIONS.

- 27.0 Delivery Schedule/ Completion Period
- 28.0 Despatch Instructions for Indigenous Supplies
- 29.0 Additional Taxes & Duties (Applicable For Indian Bidder)
- 30.0 Recovery Of Custom Duty, Excise Duty And Sales Tax
- 31.0 Governing Law
- 32.0 Purchaser's Rights And Remedies
- 33.0 Deduction At Source
- 34.0 Statutory Approval
- 35.0 Lien
- 36.0 Limitation Of Liability

SECTION-E: GENERAL INSTRUCTIONS

- 37.0 General
- 38.0 Fraudulent Practices
- 39.0 One Bid Per Bidder
- 40.0 Language Of Bid
- 41.0 Earnest Money Deposit:
- 42.0 Modification And Withdrawal Of Bids
- 43.0 Examination Of Bids And Determination Of Responsiveness
- 44.0 Owner's Right To Accept Any Bid And To Reject Any Bid
- 45.0 Notification Of Award
- 46.0 Waiver Or Transfer Of The Agreement
- 47.0 T&C For Foreign Suppliers (To Whom RFQ Issued) Operated Through Their Indian Office / Subsidiaries
- 48.0 Tax Residency Certificate (TRC) Format For Foreign Bidder
- 49.0 Requirement of Employment Visa For Foreign Nationals

SECTION-F: ADDITIONAL CLAUSES TO GPC

- 50.0 Settlement of dispute between CPSEs or CPSEs & Government Departments

Annexure-A (Terms & Conditions For Indian Sourced Components / Services By Foreign Bidder)

SPECIAL INSTRUCTIONS TO BIDDERS
BHARAT PETROLEUM CORPORATION LIMITED, KOCHI REFINERY
INTEGRATED REFINERY EXPANSION PROJECT

SECTION-A: TERMS OF PAYMENT

In partial modification of the Payment Terms as mentioned in the General Purchase Conditions, the following payment terms shall be applicable.

1.0 PAYMENT TERMS FOR INDIAN BIDDERS:

1.1 Where the Material Requisition is only for supply of materials and there is no Supplier Data Requirement specified in MR e.g. Bulk Piping Items, etc.

- 1.1.1 100% Payment within 30 days after receipt and acceptance of materials at site and on submission of Performance Bank Guarantee for 10% of Total Order Value, valid till the full guarantee period plus Three months claim period.

1.2 Where the Material Requisition calls for Supplier Drawings/Technical Documentation.

- 1.2.1 90% Payment within 30 days of receipt and acceptance of materials at Site and on submission of dispatch documents.
- 1.2.2 10% Payment after receipt of final technical documentation as per PR against EIL's certification and on submission of Performance Bank Guarantee for 10% of Total Order Value, valid till full guarantee period plus Three months claim period.

1.3 Where Supply of materials and Erection or Site Work are in the scope of Supplier and Package Items.

1.3.1 Supply

- 1.3.1.1 5% Payment on approval of all drawings atleast in CODE-2 by EIL against submission of Bank Guarantee of equivalent amount valid till complete execution of Order plus Three months claim period.
- 1.3.1.2 15% Payment after receipt of identified raw materials at Supplier's Works and against certification by EIL and submission of Bank Guarantee of equivalent amount valid till complete execution of Order plus Three months claim period.
- 1.3.1.3 60% Payment after receipt of equipment/materials at BPCL's Site. Billing Schedule to be furnished by the Supplier in case pro-rata payments are required.
- 1.3.1.4 10% payment after completion of Site Work and submission of final Technical documents as specified in the Purchase Requisition against EIL's Certification and submission of Performance Bank Guarantee for 10% of Total Order Value (Supply plus Site Work), valid till full guarantee period plus three months claim period.
- In case of delay in start of the site work beyond 6 months, the above 10% Payment shall be released against submission of Bank Guarantee of equivalent amount valid initially for 1 year and subject to extension upto completion of the site work. However, in the event of delay in the site work, the Supplier is not relieved of his responsibility to carry out the same.
- 1.3.1.5 10% payment within 30 days of handing over the successfully commissioned equipment. Wherever commissioning is not in the Supplier's scope, the payment will be released after completion of Site Work as per PR and handing over of equipment.

1.3.2 Erection/ Site work

- 1.3.2.1 90% Payment against monthly running bills (based on agreed Billing Schedule), duly certified by EIL.
- 1.3.2.2 10% Payment within 30 days after final handing over of equipment package to BPCL at site.

1.4 Fabricated Items (Vessels, Columns, Heat Exchangers, etc.)

- 1.4.1 5% Payment on approval of all drawings atleast in CODE-2 by EIL against submission of Bank Guarantee of equivalent amount valid till complete execution of Order plus Three months claim period.

- 1.4.2 15% after receipt of identified raw materials at Supplier's Works and against certification by EIL and submission of Bank Guarantee of equivalent amount valid till complete execution of Order plus Three months claim period.
- 1.4.3 60% Payment through NEFT against receipt of materials at BPCL's Site. Billing Schedule to be furnished by the Supplier in case pro-rata payments are required.
- 1.4.4 10% Payment after receipt of final documents as required in Purchase Requisition against EIL's certification and on submission of Performance Bank Guarantee for 10% of Total Order Value, valid till full guarantee period plus Three months claim period.
- 1.4.5 Balance 10% Payment within 30 days of receipt of equipment at Site.

1.5 Other Items (Pumps, Compressors, Switchgears, etc.)

- 1.5.1 5% Payment on approval of all drawings atleast in CODE-2 by EIL against submission of Bank Guarantee of equivalent amount valid till complete execution of Order plus Three months claim period.
- 1.5.2 75% Payment against receipt of materials at BPCL's Site. Billing Schedule to be furnished by the Supplier in case pro-rata payments are required.
- 1.5.3 10% Payment after receipt of final documents as required in Purchase Requisition against EIL's certification and on submission of Performance Bank Guarantee for 10% of Total Order Value, valid till full guarantee period plus three months claim period
- 1.5.4 Balance 10% Payment against Commissioning/Demonstration of Performance Guarantee (if applicable) or 6 months from receipt of material at Site (against Bank Guarantee of equivalent amount valid for 1 year), whichever is earlier. However, in the event of delay in conducting the Performance Guarantee Run, the Supplier is not relieved of his responsibility to carry out the same. No additional payment shall be made for visit of Supplier to Site for demonstrating the performance, if the same is included in the scope of Supplier.

For items where supervision during erection, testing and commissioning is not required, the last 10% Payment shall be released within 30 days of receipt of material at Site.

1.6 Payment for PGTR / Per Diem Charges for Supervision of Erection, Testing & Commissioning

- 1.6.1 100% Payment of Invoice Amount shall be paid on completion of supervision services / PGTR against submission of Invoice along with Time Sheet duly certified by EIL/BPCL Site-In-Charge. Payment shall be made after deducting Income Tax at applicable rate. Service Tax, if any, shall be paid on submission of Service Tax Invoice.
- 1.6.2 Where erection/commissioning supervision, commissioning assistance is required from the vendor, penalty for non mobilization/delay in mobilization as per order shall also be specified in the specifications. The penalty shall generally be 1.5 times the per diem rate for each day of delay of reporting to site and shall be in addition to price reduction for delayed delivery.
- 1.6.3 Wherever supervision is in the scope of MR, bidders shall provide additional BG of an amount equal to the per diem charges for the number of days considered for evaluation over and above 10% PBG to cover compensation for delay in mobilising the erection/ commissioning personnel. This BG will be released to the bidder upon the erection/ commissioning personnel reporting at site. This BG shall be furnished along with payment milestone for submission of final documentation as per PR and shall be valid up to six months which shall be extended based on the request by BPCL. (In case where commissioning, Performance Guarantee Test, etc. are required and the 10% is under hold, this condition shall not be applicable).

1.7 Transportation charges conjunction

- 1.7.1 100% Payment within 4 weeks after receipt of materials at site.

1.8 General

- 1.8.1 Excise Duty, Service Tax & VAT on Supplies shall be released only on receipt of Cenvatable/ Vatable copy of corresponding Invoice enabling availing of Input Credit by BPCL.
- 1.8.2 No initial advance payment along with Order shall be made by the Owner against Supplies as well as Services (i.e. Transportation, Erection, Site Work, etc.). If a Supplier insists on the same, their Offer shall be rejected.
- 1.8.3 Bank Guarantee(s) shall be issued through Scheduled Commercial Bank in India/ Indian Branch of Foreign Bank, directly to BPCL as per the Pro-forma enclosed with RFQ documents and Supplier shall also enclose copy of the same along with Invoice.

- 1.8.4 All payments shall be released either through Electronic Clearing System (ECS) / Electronic Fund Transfer (EFT)/ Real Time Gross Settlement (RTGS) or through internet, within 30 days of receipt of Invoice and all requisite documents, complete in all respects.
- 1.8.5 Billing schedule shall be submitted to EIL & BPCL by the Supplier for approval within 30 days from the date of Purchase Order wherever specified therein. No payment against pro-rata dispatch shall be made without approval of Billing Schedule.
- 1.8.6 **Major Raw Material**: Shall be as specified below:
- i. Columns and Vessels: Plates and Forgings
 - ii. Heat Exchangers: Plates, Forgings and Tubes
 - iii. Pumps/Compressors: Castings and Drivers
 - iv. Any other item(s) as may be defined in MR/PR.

2.0 PAYMENT TERMS FOR FOREIGN BIDDERS:

2.1 Where the Material Requisition is only for Supply of materials

- 2.1.1 100% of FOB Order Value shall be paid through an Irrevocable Letter of Credit against submission of Shipping Documents. The Letter of Credit shall be established only on receipt of acceptance of Fax of Acceptance/Purchase Order along with submission of Bank Guarantee of 15% of Order Value (10% towards Performance Bank Guarantee valid till full Guarantee period plus Three months claim period & separate 5% Bank Guarantee towards Price Reduction Schedule due to delay in delivery valid till contractual delivery date (CDD) + Five and half Months).

For PGTR cases only

In case of PGTR 90% supply amount shall be released through Letter of Credit and last 10% supply amount shall be released against successful demonstration of Performance Guarantee Test Run & submission of Invoices duly certified by Site-In-charge or 6 months from receipt of material at site (against BG of equivalent amount valid for 1 year), whichever is earlier. However in the event of delay in conducting the PGTR, the bidder is not relieved of his responsibility to carry out the same. No additional payment shall be made for visit of supplier to site for demonstrating the PGTR, if the same is included in the scope of supplier.

2.2 Where the Material Requisition calls for Supply of material and Erection or Site Work in the scope of Supplier and Package Items

For Supply Portion

- 2.2.1 90% Payment of FOB Supply value through an Irrevocable Letter of Credit against submission of Shipping Documents. The Letter of Credit shall be established only on receipt of acceptance of Fax of Acceptance/Purchase Order along with submission of Bank Guarantee of 15% of Order Value (10% towards Performance Bank Guarantee valid till full Guarantee period plus Three months claim period & separate 5% Bank Guarantee towards Price Reduction Schedule due to delay in delivery valid till contractual delivery date (CDD) + Five and half Months).
- 2.2.2 10% Payment of FOB Supply value through direct wire transfer through banking channels on completion of Erection or Site Work or Commissioning/Performance Guarantee Test Run (PGTR) at site, as applicable as per Purchase Order/Purchase Requisition (PR) against submission of final documents or Certificate of Completion of Work by BPCL Site.

For PGTR cases only

The above amount (10%) shall be released against successful demonstration of Performance Guarantee Test Run & submission of Invoices duly certified by Site-In-charge or 6 months from receipt of material at site (against BG of equivalent amount valid for 1 year), whichever is earlier. However in the event of delay in conducting the PGTR, the bidder is not relieved of his responsibility to carry out the same. No additional payment shall be made for visit of supplier to site for demonstrating the PGTR, if the same is included in the scope of supplier.

For Site Work Portion (Erection/Commissioning/PGTR)

- 2.2.3 100% Payment of Amount for Erection or Site Work or Commissioning/Performance Guarantee Test Run (PGTR) at site, shall be paid through direct wire transfer through banking channels on completion of Erection or Site Work at site as per Purchase Order against submission of Certificate for Completion of Work by EIL Site.

The Letter of Credit shall be established only on receipt of acceptance of Fax of Acceptance/Purchase Order along with submission of Performance Bank Guarantee of 15% of Total Order Value [Supply+Site Work] (10% towards Performance Bank Guarantee valid till full Guarantee

period plus Three months claim period & separate 5% Bank Guarantee towards Price Reduction Schedule due to delay in delivery valid till contractual delivery date (CDD) + Five and half Months).

2.3 For Training

2.3.1 At Site: 100% payment against final bill to be submitted by seller after completion of training duly certified by site-in-charge.

2.3.2 At Supplier's Works: 100% payment against final bill to be submitted by seller after completion of training.

2.4 Annual Maintenance Contract

100% payment shall be paid at the end of each quarter of the contractual year against quarterly progressive bills to be submitted by Seller duly certified by Site-in-Charge.

2.5 Payment for PGTR / Per Diem Charges for Supervision of Erection, Testing & Commissioning

2.5.1 100% Payment of Invoice amount through direct wire transfer as per normal banking channels on completion of supervision activity / PGTR upon submission of Invoice, Time Sheet duly certified by Site In-Charge at BPCL Site, legible copy of visa (showing date of entry and date of exit from India) and passport (showing Name and Nationality of the personnel). Payment shall be made after deducting Income Tax at applicable rate.

2.5.2 Where erection/commissioning supervision, commissioning assistance is required from the vendor, penalty for non mobilization/delay in mobilization as per order shall also be specified in the specifications. The penalty shall generally be 1.5 times the per diem rate for each day of delay of reporting to site and shall be in addition to price reduction for delayed delivery.

2.5.3 Wherever supervision is in the scope of MR, bidders shall provide additional BG of an amount equal to the per diem charges for the number of days considered for evaluation over and above 10% PBG to cover compensation for delay in mobilising the erection/ commissioning personnel. This BG will be released to the bidder upon the erection/ commissioning personnel reporting at site. This BG shall be furnish along with dispatch documents which shall be initially valid up to six months which shall be extended based on the request by BPCL.

2.6 General

2.6.1 No initial advance payment along with Order shall be made by the Owner against Supplies as well as Services (i.e. Transportation, Erection, Site Work, etc.). If a Supplier insists on the same, their Offer shall be rejected.

2.6.2 All Bank Guarantee(s) shall be issued through any Indian Scheduled Bank or branch of an International Bank situated in India and registered with Reserve Bank of India as scheduled foreign Bank as per Pro-forma provided in RFQ documents. All Bank Guarantees will be directly to BPCL by the Bank.

2.6.3 All bank charges and stamp duties payable outside India in connection with payments shall be borne by the Supplier. All bank charges and stamp duties payable in India shall be borne by BPCL except L/C Amendment charges for delays in delivery. Confirmation charges for Confirmed L/C shall be borne by Supplier.

2.6.4 Billing schedule shall be submitted to EIL & BPCL by the Supplier for approval within 30 days from the date of Purchase Order wherever specified therein. No part shipment shall be made without approval of billing schedule.

2.6.5 Subject to Technical Acceptability, For supplies sourced within India (if any) by Foreign Bidder & directly dispatched to Site shall have following provisions: (Refer Annexure-A)

3.0 OCEAN FREIGHT:

3.1 Ocean freight from FOB Port of Exit to designated Indian Port shall be arranged by BPCL through their nominated Freight Forwarder. Supplier shall arrange handing over the material to BPCL Freight Forwarder at the designated Port of Exit.

3.2 In cases where the RFQ requires the Supplier to quote Ocean Freight, BPCL reserves the right to ask the Supplier to arrange shipment through their own Freight Forwarder at the quoted freight rates.

3.3 Owner/EIL reserves the right to place the order for foreign bidder either on FOB basis or CFR basis. In case of award, initially the order shall be placed on FOB basis and Owner reserves the right to convert the same to CFR basis within 4 months, from placement of order. Therefore, the Ocean

Freight Charges/ CFR prices should be valid for additional 4 months from the date of Order. The bidder is required to furnish the shipping details within 45 days from the date of order. In case the bidder is not able to prove the shipping details within 45 days then 4 months shall be considered from the date of receipt of shipping details of consignment for converting FOB to CFR.

- 3.4 Above clause no. 3.1 to 3.3 is not applicable for Turn-Key jobs where ocean freight along with Marine cum transit cum erection insurance in bidders scope.

SECTION – B: EVALUATION CRITERIA FOR COMPARISON OF BIDS

4.0 WHERE ONLY INDIAN BIDS ARE UNDER COMPARISON:

- Bids shall be evaluated on the basis of Net Effective Price i.e. landed cost at Site including Third Party Inspection charges (if applicable) by Third Party Inspection Agency as nominated by BPCL minus CENVAT/ Set Off benefit available to BPCL.
- Commercial loading shall be done on FOT Dispatch Point price.
- If a Bidder does not quote freight charges, his offer shall be loaded with maximum freight charges as quoted by the other bidders.

Taxes/Duties:

- Taxes and Duties will be loaded as applicable. However, if a Bidder states that the Sales Tax/ Excise Duty is not applicable at present or quotes lesser percentage stating the same will be charged as applicable at the time of delivery, then such Bidder's price will be loaded by the highest rate as indicated by the remaining bidders.

5.0 WHERE ONLY FOREIGN BIDS ARE UNDER COMPARISON:

- Bids shall be evaluated on the CIF basis including Custom Clearance (as mentioned below), considering firm ocean freight up to Port of Entry (Kochi, India) as quoted by bidders.

Sl. No.	Head	Basis
1	F.O.B. Price	As quoted by the Bidder (including stowage charges in case of pipes*) and Third Party Inspection charges. * Stowage charges, if not included in the quoted FOB Price, the same shall be loaded @ 10% of freight quoted by the Bidder.
2	Add – Ocean Freight	Firm Freight charges as quoted by Bidders or provision mentioned in the bid documents
3	Add – Marine Insurance	@ 1% of FOB Price
4	Add – Customs Duty	Prevailing Rate on (CIF value plus Landing Charges @ 1% of CIF Value)
5	Commercial Loading, if any	On FOB Value
6	Less – Cenvatable Duties	
7	FOT SITE PRICE	Sum Total (Sl. Nos. 1 ~ 5) – (Sl. No. 6)

- If a Bidder does not quote Ocean freight charges, his offer shall be loaded with maximum freight charges as quoted by the other bidders.
- Comparison shall be done on equivalent Indian Rupees considering RBI Reference rate of Foreign Exchange published on the day of Opening of Priced Bids.
- Normally, deviations in Payment terms, Firm prices & Performance Bank Guarantee are not acceptable. However, wherever Bidder insists, the loading shall be done as applicable to Indigenous cases on FOB price.

6.0 WHERE INDIAN AS WELL AS FOREIGN BIDS ARE UNDER COMPARISON:

Domestic Bidders:

- Bids shall be evaluated on the basis of Landed Cost at Site (considering EIL Inspection charges @ 1.25% of FOT Dispatch Point price) including all duties, taxes and transportation charges less Cenvatable Excise Duty, Cenvatable Service Tax, VAT on Supplies, VAT on Works Contract, whichever is applicable.
- Commercial loading shall be done on FOT Dispatch Point price.

Foreign Bidders:

- Bids shall be evaluated on the basis of landed cost at Site including the charges of inspection by Third Party Inspection Agency, all duties, taxes and ocean freight charges as under less Cenvatable CVD/SAD, Cenvatable Service Tax, VAT on Supplies, VAT on Works Contract, whichever is applicable.

Sl. No.	Head	Basis
1	F.O.B. Price	As quoted by the Bidder (including stowage charges in case of pipes*) and Third Party Inspection charges. * Stowage charges, if not included in the quoted FOB Price, the same shall be loaded @ 10% of freight quoted by the Bidder.
2	Add – Ocean Freight	Firm Freight charges as quoted by Bidders
3	Add – Marine Insurance	@ 1% of FOB Price
4	Add – Customs Duty	Prevailing Rate on (CIF value plus Landing Charges @ 1% of CIF Value)
5	Add – Port Handling Charges	@ 2% of CIF Value

Sl. No.	Head	Basis
6	Add – Inland Freight Charges from Port of Entry in India to Project Site	1% of Landed Cost i.e. Sl. Nos. 1 to 5
7	Add – L/C charges	@ 1% of FOB Price
8	Commercial Loading, if any	On FOB Value
9	Less – Cenvatable Duties	
10	FOT SITE PRICE	Sum Total (Sl. Nos. 1 ~ 8) – (Sl. No. 9)

- Wherever supervision and site works are involved, in that cases service tax plus Ed. Cess shall be loaded with as applicable rates

7.0 GENERAL NOTES:

- Cost of Mandatory (Insurance) Spares, if identified in the Material Requisition, Commissioning spares and Special Tools & Tackles will be included for price evaluation of bids, but costs of Spares for Two Years Normal Operation & Maintenance shall be excluded.
- Cost of loading towards Technical Parameters (Utilities, etc.) wherever applicable shall be carried out.
- BPCL shall claim CENVAT benefits on Excise Duty, CVD/SAD, Service Tax as well as the Cess applicable and accordingly Excise Duty/ CVD/ SAD/ Cess/ Service Tax shall be considered and necessary credit shall be given for evaluation and comparison of bids. Wherever Site Work, AMC, Training, Supervision, etc. are required as per MR/RFQ, the same shall be considered for evaluation.
- Bidders shall indicate the Customs Duty at Merit Rate in their Offer.
- The Bidder must ascertain and confirm along with supporting documents in the bid, if any Custom duty exemption / waiver is applicable to the products being supplied by bidder under any multi-lateral / bi-lateral trade agreement between India and Bidder's country.*

The bidder shall liable to provide all documentation to ensure availment of the exemption / waiver. In case the bidder defaults on this due to any reason whatsoever, they shall be liable to bear the incremental Custom Duty applicable, if any.

Any Custom Duty applicability on account of any change in the bi-lateral / multi-lateral agreement shall be in bidder's account.

Documentation to be furnished for availing any exemption / waiver of Custom Duty shall be specifically listed in Letter of Credit also as the pre-requisite for release of payment against shipping documents and this documentation shall necessarily from a part of shipping documents.

- vi. BPCL shall issue Concessional Form 'C' for Central SalesTax, for all applicable cases.
- vii. Comparison shall be done on equivalent Indian Rupees considering RBI Reference Rate of Foreign Exchange published on the day of opening of the Price Bids.
- viii. Third Party Inspection charges for foreign bidder must be included in quoted prices or anything specifically mentioned in RFQ documents..
- ix. Excise Duty, Central Sales Tax, VAT on Supplies & Service Tax shall not be included in the quoted prices and shall be payable extra at actual. BPCL shall claim eligible credit on CENVAT/Service Tax/VAT quoted by the Bidder and therefore eligible portion of CENVAT/Service Tax/VAT shall be considered for price comparison. Bidder shall be required to furnish proper invoices issued in accordance with relevant rules for enabling BPCL to avail CENVAT benefits. Further, the amount of Excise Duty, Service Tax & VAT shall only be payable against submission of CENVATABLE/ VATABLE Invoices, subject to maximum amount quoted in the Offer and in case of non-submission, will not be paid.
- x. Bidders quoted transportation charges shall be inclusive of service tax plus education cess thereupon applicable on transportation.
- xi. Transit Insurance/ Marine Insurance shall be excluded from Supplier's scope for the items where only supply is involved, and in such cases, the same shall be arranged by the Owner. For purchases involving Site Work, the Comprehensive Insurance (Transit/Marine cum Storage, Erection, till handing over of equipment) shall be in the scope of Supplier.
- xii. Owner reserves its right to allow Public Sector Enterprises (Central/State), Micro & Small Enterprises (MSEs) and MSEs owned by Scheduled Caste (SC)/ Scheduled tribe (ST) entrepreneurs, purchase preference as admissible/applicable from time to time under the existing Govt. policy. Bidder to submit documentary evidence for the same duly certified by Statutory Auditor of the bidder or a practicing Chartered Account (not being an employee or a Director or not having any interest in the Bidder's company / firm) where audited accounts are not mandatory as per law.). In this regard, item wise quantity may be splitted and the quoted price shall remain valid.
- xiii. If various item rates are present in the RFQ and if there is correction/wrong entry or a difference between the values entered in figures and in words, the following procedure shall be adopted for evaluation.
 - i. When there is a difference between the rate in figures and in words for an item, the rate which corresponds to the amount worked out by the Bidder for the item based on the notional quantity specified, shall be taken as correct.
 - ii. When the rate quoted by the Bidder in figures and words tallies but the amount is incorrect, the rate quoted by the Bidder shall be taken as correct.
 - iii. When it is not possible to ascertain the correct rate as detailed above, the rate quoted for the item in words shall be adopted as the quoted rate.
 - iv. If the total amount written against an item does not correspond to the rate written in figures and if the rate in words is missing, then the higher of the rates, i.e. higher of the rate worked out by dividing the amount by the notional quantity and the rate quoted shall be considered for evaluation. In the event that such a bid is determined as the lowest bid, the lower of the rates shall be considered for award of works.

8.0 SPECIAL NOTES ON TAXES/DUTIES AND CENVAT BENEFITS:

- (i) CST/ Kerala VAT (Applicable only on supplies being made from within state of Kerala), as applicable during the contractual delivery period, shall be paid by the supplier and the same shall be reimbursed on submission of the documentary proof. 'C' Form for CST will be issued for all applicable cases. However no concessional form is applicable for Kerala VAT.
- (ii) CENVAT BENEFITS: In view of CENVAT/ Input credit benefits being available to BPCL on Excise Duty, no loading on Cenvatable excise duty and/ or interest thereon shall be considered for comparison of bids. In the case of Kerala VAT on Supplies, loading will be done to extent of 80% of VAT rate (since VAT credit is available for 20% only)
In the case of Service Tax, Cenvat credit against Service Tax shall be available to BPCL to the extent of 96% only. Hence loading of 4% of Service Tax rate shall be considered for Price evaluation.
- (iii) BPCL shall claim CENVAT benefits on Excise Duty, Kerala VAT /CVD/SAD/Service Tax as well as the cess applicable and accordingly Excise Duty /VAT/CVD/SAD/Service Tax, Cess shall be considered and necessary credit shall be given for evaluation and comparison of

bids. Credit shall be taken during evaluation for 20% of Kerala VAT rate, 96% of Service Tax rate and full amount for other Cenvatable taxes and duties.

- (iv) Excise Duty, Central Sales Tax, Kerala VAT & Service Tax shall not be included in the quoted prices and shall be payable extra at actuals. Further, the amount of Excise Duty, Service Tax, Central Sales Tax, KVAT shall only be payable against submission of supporting documents/Cenvatable/Vatable invoices subject to maximum amount quoted in the offer and in case of non-submission, will not be paid.
- (v) Non Cenvatable Excise Duty, if any is to be included in quoted prices & no variation on any account (including statutory variation) shall be paid by Owner.
- (vi) All New taxes/duties/cess/levies notified after the last date of submission of bid (final bid due date) but within contractual delivery/ completion period, shall be to Owner's account.
- (vii) The bidder shall be required to furnish details of any special dispensation regarding concessional/ exempted taxes/ duties.

9.0 PRICE REDUCTION SCHEDULE TOWARDS DELAY IN DELIVERY:

i. For Indigenous Vendor:

a) In case item involving supply and site work:-

Price Reduction Schedule towards delay in delivery for domestic bidder shall be applicable as per clause no. 9.0 of GPC Indigenous of RFQ subject to following modification:

"Price Reduction schedule for (Supply + Site work) shall be @ 0.5% of value of total order value (TOV) of per week of delay or part thereof subject to maximum of 5% total order value (TOV)".

b) In case item involving only supply:-

Delayed Delivery shall be as per clause 9 of GPC (For Indigenous materials & equipments).

ii. For Foreign Vendor:

c) In case item involving supply and site work:-

Price Reduction Schedule (Supply + Site work) towards delay in delivery for foreign bidder shall be applicable as per clause no. 17 of GPC Import of RFQ subject to following modification:

"Imports, for any delay in delivery of equipments / materials or part thereof beyond the delivery date stipulated, the vendor shall be liable to pay, compensation at 0. 5% of the total FOB Value of order per week of delay or part thereof subject to maximum of 5% of the total FOB Value of order".

a) In case item involving only supply:-

Delayed Delivery shall be as per clause 17 of GPC (For Foreign materials & equipments).

- iii. Wherever the supply period and site work are indicated as two separate periods and notice of site readiness is required for site work, intervening period, if any shall be excluded, while calculating the price schedule for delay."

10.0 Guarantee / Warranty Period :-

i) For Indigenous Vendor:

a) In case item involving supply and site work including comprehensive Insurance policy:-

In partial modification of the terms specified in clause 30 of GPC –12 months from the date of handing over of duly completed plant/equipment/system as per the contract at site to the owner.

b) In case item involving supply and site work excluding comprehensive Insurance policy:-

Performance Guarantee shall be as per clause 30 of GPC (For Indigenous materials & equipments).

c) In case item involving only supply:-

Performance Guarantee shall be as per clause 30 of GPC (For Indigenous materials & equipments).

ii) For Foreign Vendor:**a. In case item involving supply and site work including comprehensive Insurance policy:-**

In partial modification of the terms specified in clause 26 of GPC –12 months from the date of handing over of duly completed plant/equipment/system as per the contract at site to the owner.

b. In case item involving supply and site work Excluding comprehensive Insurance policy:-

Performance Guarantee shall be as per clause 26 of GPC (For Foreign materials & equipments).

c. In case item involving only supply:-

Performance Guarantee shall be as per clause 26 of GPC (For Foreign materials & equipments).

SECTION-C: COMMERCIAL LOADING OF OFFERS IN CASE OF DEVIATIONS**11.0 BASIS OF LOADING:**

The Foreign Bids shall be loaded on FOB Port of Exit prices and the Indian Bids shall be loaded on FOT Despatch Point prices.

12.0 PAYMENT TERMS:

- i. Any differential payment terms offered by an Indian supplier as against the terms specified in the RFQ/ GPC shall be loaded @ 15% (simple interest) per annum for the applicable period as under:

Drawing approval	:	80% of the delivery period
Sub-ordering of raw materials	:	75% of the delivery period
Receipt of raw material at vendor's works	:	50% of the delivery period
Final 10% also against dispatch documents	:	one month

Period of any other stage shall be suitably decided at the time of evaluation.

In cases like turnkey jobs, to derive the delivery period of supply items, the total period of turnkey jobs shall be split into delivery period of supplies & site work period in the ratio of 70:30 for loading of differential payment terms for the supply periods as defined above.

- ii. Foreign suppliers shall not be permitted to offer differential payment terms as against the terms specified in the RFQ/ GPC and in case they insist, their offer shall be rejected.
- iii. Advance along with FOA/ PO will not be allowed. If a supplier insists for advance payment along with FOA/PO, his offer shall be rejected.

13.0 PERFORMANCE BANK GUARANTEE (PBG):

- i. Performance Bank Guarantee shall be required in all cases of supplies of all values. In case a supplier offers to give a PBG for less than 10% of order value, or for a lesser period than what is provided in GPC, loading shall be done for the differential amount and/ or the differential period. For differential period/ amount, the following example will amplify the methodology of loading (if GPC specifies 10% PBG for 18 months + 3 months claim period = Total 21 months):

For differential period:

<u>Period offered by Bidder</u>	<u>Loading</u>
10% for 21 months	- No loading
10% for 18 months	- $10\% \times 3/21 = 1.43\%$
10% for 12 months	- $10\% \times 9/21 = 4.29\%$
10% for 6 months	- $10\% \times 15/21 = 7.14\%$

For differential Amount:

Other than 10%: To be loaded by percentage by which PBG is short of 10%.

- ii. In case, bidder does not agree to submit the PBG, 10% payment shall be deducted and withheld till the guarantee period.
- iii. In case, Bidder does not agree to submit the PBG or agree for deduction as per Cl. 13.(ii) above, the offer shall be liable for rejection.

14.0 DELAYED DELIVERIES:

- i. **For Supply Only: [considering 0.5% un-delivered order value (UDOV) ~ 5% total order value (TOV)]**

In case a Supplier does not accept the delayed delivery clause and/or takes any deviation (indicates Penalty clause/Liquidated damages in place of Price Reduction Clause) or takes exception to the percentage rate mentioned in GPC, the offer of such supplier(s) shall be loaded as under:

0.5% UDOV to 5%TOV	:	No loading
0.5% UDOV to 5% UDOV	:	5%
0.5% UDOV to less than 5% TOV	:	Differential between the offered %age and 5%
Any other deviation/Liquidated	:	5%
Damages/ penalty or non acceptance of price reduction schedule		

ii. **For Supply + Site Work: [considering 0.5% total order value (TOV) ~ 5% total order value (TOV)]**

0.5% TOV to 5%TOV	:	No loading
0.5% UDOV to 5%TOV	:	5% loading
0.5% TOV to less than 5% TOV	:	Differential between the Offered % and 5%
Any other deviation/Liquidated	:	5%
Damages/ penalty or non acceptance of price reduction schedule		

15.0 PRICE VARIATION:

Suppliers must quote firm & fixed prices unless price variation is specified in the RFQ. Where price variation is permitted as per RFQ, the loading thereto shall be as follows:

a)	Firm Price	No loading
b)	In case of Price Variation formula with ceiling	Loading by ceiling percentage offered.
c)	No ceiling on the formula specified (This loading shall be done only after putting efforts with Supplier to indicate ceiling and obtaining BPCL's approval)	1.5 times the maximum ceiling specified by other Suppliers. In case all other Suppliers have quoted firm prices then @ 1.25% for every month of quoted delivery period to be taken as ceiling.
d)	No formula and no ceiling specified by Supplier (This shall be resorted to only after putting efforts with Supplier and obtaining BPCL's approval)	Offer may be rejected.

16.0 FREIGHT CHARGES:

- i. Indian Suppliers shall quote firm freight charges up to destination by road transport for all cases until unless specified otherwise in the RFQ documents.

17.0 INDIAN TAXES/ DUTIES:

In case a supplier states that taxes/duties are not applicable at present and will be charged as applicable at the time of delivery then his bid shall be loaded by the maximum rate of taxes/duties applicable.

18.0 DELIVERY/COMPLETION PERIOD:

The required delivery / completion period will be stipulated in the RFQ and the bids with longer than required delivery shall be liable for rejection.

19.0 UTILITIES:

Cost loading in respect of utilities etc. will be considered as mentioned in RFQ documents.

20.0 FOREIGN EXCHANGE RATE VARIATION/CUSTOM DUTY VARIATION FOR INDIAN BIDDERS (ON BUILT-IN IMPORT CONTENT) :

- i. Prices shall remain firm and fixed without any escalation except for statutory variation in customs duty rate.

The prices shall be firm and fixed on account of FE variation also.

- ii. Indigenous bidders shall be required to quote their prices **including customs duty (Merit rate) towards their built in import content**. CIF content in Indian Rupees shall also be furnished by Bidders along with the merit rate of customs duty considered.
- iii. The statutory variation in customs duty shall be subject to the following guidelines and the supplier shall confirm the following in their bid:
 - (a) Maximum CIF value of import content shall be furnished in the bid.
 - (b) The material to be imported covering the above CIF value to be indicated in the bid.
 - (c) Any increase in price due to increase in customs duty rate beyond two-third of the quoted delivery period will be to supplier's account. However, any decrease in price due to decrease in customs duty rate at the time of actual clearance of imported materials shall be passed on to BPCL.
 - (d) Variation in price due to customs duty rate will be dealt with separately after receipt of materials at site against documentary evidence.

21.0 VAT ON WORKS CONTRACTS/ SERVICE TAX/ SPLITTING OF ORDERS:

- i. Wherever site work is involved, suppliers shall quote their prices **inclusive** of VAT on Works Contracts. The Supplier shall submit the assessment/ liability certificate from Sales Tax Authority stating the tax due on Contract/ Running bill submitted for payment for enabling BPCL to deduct the VAT on Works Contract as per the certificate, from Suppliers Invoices and remittance to tax authorities. TDS Certificate towards deduction of VAT on Works Contract shall be provided to supplier by owner. Payment to the Supplier will be released only on receipt of the aforesaid certificate. The Supplier shall submit the total tax liability certificate along with final bill. Under no circumstance, the Supplier should remit VAT on Works Contract directly to the Department. Any loss to BPCL, due to direct remittance of VAT on Works Contract by Supplier will be recovered from Supplier. BPCL shall not be responsible for any delay in payment/ non-payment of bill due to delay in submission/ non-submission of the aforesaid certificate. Order for Supply and Site Work shall not be split and only single order covering the entire scope of work on each supplier shall be placed.
- ii. Wherever, Service Tax is applicable, Suppliers shall quote their prices exclusive of Service Tax. Supplier shall be required to furnish Invoices towards Service Tax in order to enable BPCL to avail credit of the same. Presently BPCL is able to avail credit of 96% of the Service Tax rate only. Hence, 4% of Service Tax rate shall be loaded for price evaluation. The same is not applicable for service tax on transportation charges, since CENVAT Benefits not available.

22.0 ENTRY TAX:

Entry Tax is not applicable presently in the State of Kerala and Bidder's should not include the same in their quoted rates/prices. In case Entry Tax is leviable at a later date, the same shall be borne by Owner.

23.0 REJECTION CRITERIA:

Bidder shall strictly comply with the technical and commercial requirements. Bid shall be considered non responsive and rejected, if bidder insists on deviations to the under mentioned provisions of RFQ/Bidding document:

- i) Bid Security amount, Bid security validity, issuing bank and any major deviation to format of Bid security. However this shall not be applicable in case Bid security is not required as per RFQ/Bidding Document.
- ii) Advance payment along with FOA/ PO.
- iii) Unless specified in the RFQ, Price variation with no formula and no ceiling.
- iv) Price change/implication against TQ/CQ when there is no change in scope of work, specification and terms & conditions of MR/RFQ.
- v) Delivery / completion schedule.
- vi) Guarantee/ Defects Liability Period
- vii) Inadequate Bid Validity
- viii) Performance bank Guarantee or any other bank guarantee mandatorily required against Milestone or supervision or Price Reduction Schedule (PRS)

24.0 SUO-MOTO CHANGES IN PRICES:

- (i.) Any Suo-moto reduction in price offered by a supplier within the bid validity by way of discount or revised prices subsequent to the bid due date and which is not as a result of any change in scope of supply or terms and conditions, shall not be taken into account for evaluation. However, such reduction in price shall be taken into account for ordering if such supplier happens to be the recommended supplier as per the originally quoted prices.
- (ii.) However, in the event of any suo-moto price increase sought by a supplier subsequent to the bid due date and which is not as a result of any change in scope of supply or terms and conditions, the bid of such a supplier shall be rejected for the items in which such suo-moto increase is made.
- (iii.) Any wrong interpretation of taxes & duties or any taxes & duties not specified in the offer shall be borne by Bidder.

25.0 PRICE IMPLICATION NOT PERMITTED:

Price implications on account of technical clarifications shall not be permitted as long as BPCL/EIL do not change the specifications/ scope spelt out in the RFQ.

26.0 INTEGRITY PACT:

For all RFQs/ enquiries of value exceeding Rs 1 (One) Crore, the bidder shall comply with the requirements of the Integrity Pact (IP) and Integrity Pact of RFQ/Bidding document shall be accepted and Bidder must submit the same duly signed & stamped along with their bid. Failure to submit the Integrity Pact shall lead to outright rejection of Bid.

Bidding shall be through E-tendering methodology as per Enclosed "INSTRUCTIONS TO BIDDERS FOR E-TENDERING".

SECTION-D: SPECIAL CONDITIONS.

27.0 DELIVERY SCHEDULE/ COMPLETION PERIOD:

- i. All goods under the scope of the Supplier shall be delivered as per delivery schedule/ completion period specified in Request for Quotation (RFQ) and no variation shall be permitted.
- ii. Failing to meet the delivery schedule/ completion period will be subject to price reduction and/or other remedies available to the purchaser in RFQ documents.
- iii. Price Reduction Schedule (PRS) shall be applicable as per Clause 9.0 of GPC (Indian) & clause no. 17 of GPC (Imported) and mentioned in RFQ Covering letter.
- (iv.) The delivery schedule/ completion period shall be reckoned from the date of Fax of Acceptance.
- (V.) For Indian Bidder date of LR/GR shall be considered as date of delivery or date of receipt of material at site shall be the date of delivery as specified in RFQ/FOA/PO. For Foreign Bidder date of clean bill of Lading shall be considered as date of Delivery.
- (VI.) In case of foreign bidder quoted FOB Port of Exit prices, shall be inclusive of all charges inclusive of all applicable taxes & duties, applicable upto FOB port of exit.

28.0 DESPATCH INSTRUCTIONS FOR INDIGENOUS SUPPLIES:

- i. Supplier shall obtain despatch clearance from the purchaser prior to despatch.
- ii. Following despatch documents are required to be submitted by the Indigenous supplier immediately after shipment is made.
 - Commercial Invoice
 - Dispatch instructions/ clearance by Purchaser/Consultant.
 - Inspection Release Note by Third Party Inspection Agency/ Purchaser/ Consultant.
 - LR/ GR
 - Packing List
 - Test Certificates (NDT reports, MTC, etc. as per MR)
 - Certificate of Measurement and Weight
 - List of documents as specified in Vendor Data Requirement in Material Requisition & counter signed & stamped by EIL.

29.0 NEW / ADDITIONAL TAXES & DUTIES (Applicable for Indian Bidder):

- i. Within the contractual delivery period, if any new taxes and/or duties come into force the same will be reimbursed to bidder against documentary evidence. However any new or additional taxes/ duties imposed after contractual delivery shall be to borne by seller.

- ii. All necessary taxes & duties registration, if required for carrying out the site activities shall be done by the bidder and cost towards the same shall be included in quoted prices.
- iii. The statutory variations on Customs duty (rate) considered on above CIF value of built – in import content, within contractual delivery period shall be to Employer's account against submission of the documentary evidence. However, any increase in the rate of Customs duty beyond the contractual completion period shall be to bidder's account. In case of wrong classification, no variation including statutory variation of Customs Duty will be payable extra. Any decrease in the rate of Customs duty shall be passed on to the Employer.
- iv. The statutory variations on Excise rate and amount of Excise Duty, CST with concessional form & VAT without concessional form, which will be payable on the finished goods and Cenvatable Service Tax, as applicable, within the contractual delivery period shall be to Employer's account against submission of the documentary evidence. Any increase in the rate of these taxes and duties beyond the contractual completion period shall be to bidder's account. However, any decrease in the rate of taxes & duties shall be passed on to the Employer.
- v. Works Contract Tax & service tax on transportation, if applicable, shall be included in the quoted prices and no variation including statutory variations shall be payable by BPCL.

30.0 RECOVERY OF CUSTOM DUTY, EXCISE DUTY AND SALES TAX:

In case of Indian Bidders, if the Statutory Variation entitles the employer to recover the amount (irrespective of contractual delivery) such amount will be recovered from any bill of the Supplier immediately on enforcement of such variation under intimation to the Supplier.

31.0 GOVERNING LAW:

Laws of India will govern the Agreement. All matters relating to this contract are subject to the exclusive jurisdiction of the Courts situated in Kochi, Ambalamugal (District), Kerala (India).

32.0 PURCHASER'S RIGHTS AND REMEDIES:

Without prejudice to PURCHASER's right and remedies under Agreement, if SUPPLIER fails to commence delivery as per agreed schedule and/or in reasonable opinion of the PURCHASER, SUPPLIER is not in a position to makeup the delay to meet the intended purpose, the PURCHASER may terminate the AGREEMENT in full or part at SUPPLIER's default and may get supplies from other sources at SUPPLIER's risk and cost.

33.0 DEDUCTION AT SOURCE:

- i. Purchaser will release the payment to the Supplier after effecting deductions as per applicable law in force. Purchaser will release the payment to the Supplier after effecting deductions as per applicable law in force. Owner shall deduct VAT on Works Contract as applicable & shall furnish TDS certificate to supplier.
- ii. Purchaser will release payments to the Supplier after offsetting all dues to the Purchaser payable by the Supplier under the Contract.

34.0 STATUTORY APPROVAL RELATED WITH SUPPLIES / WORKS:

Approval from any authority (i.e. Inspector of Boiler, Electrical Inspector, and Municipal Corporation of Greater Kochi (MCGK) etc.) required as per statutory rules and regulations of Central/ State Government shall be the responsibility of Contractor agency.

The application on behalf of the OWNER for submission to relevant authorities along with copies of required certificate complete in all respects shall be prepared and submitted by the Contractor agency well ahead of time so that the actual construction/ commissioning of the work is not delayed for want of the approval/ inspection by concerned authorities. The Contractor agency shall arrange the inspection of the works by the authorities and necessary coordination and liaison work in this respect shall be the responsibility of the Contractor agency. Reimbursement by the OWNER of the statutory fees payable by Contractor agency (as per advance approval of OWNER) may be provided for, subject to submission of receipt.

The Contractor agency shall carry out any change/ addition required to meet the requirements of the statutory authorities, within the quoted rates. The inspection and acceptance of the work by statutory authorities shall be the responsibility of the Contractor agency.

List of all documents, drawings, forms, affidavits etc required for the approvals shall be submitted by the contractor agency.

35.0 LIEN:

Supplier shall ensure that the Scope of Supply supplied under the Agreement shall be free from any claims of title/liens from any third party. In the event of such claims by any party, Supplier shall at his own cost defend, indemnify and hold harmless Purchaser or its authorised representative from such disputes of title/liens, costs, consequences etc.

36.0 LIMITATION OF LIABILITY:

Notwithstanding anything contrary contained herein, the aggregate total liability of Seller under the Agreement or otherwise shall be limited to 100% of Agreement/ Order price. However, neither party shall be liable to the other party for any indirect and consequential damages, loss of profits or loss of production.

SECTION-E: GENERAL INSTRUCTIONS

37.0 GENERAL: Bidders shall submit their Bids in following manner & containing the listed inputs, duly filled-in, stamped & signed by authorized signatory of Bidder holding Power of Attorney, as a minimum requirement:

a) **PART-I: UNPRICED OFFER**

- A. All technical specifications as per requirement of MR.
- B. Agreed Terms & Conditions duly filled in.
- C. Terms & Conditions for Supervision of Erection/Testing/Commissioning, if applicable
- D. Terms & Conditions for Site Work, if applicable
- E. Copy of Registration with EIL, if applicable
- F. Copy of MOU/ MOM, if any, signed with EIL and referred in offer.
- G. Integrity Pact, duly filled-in, stamped & signed on each page (if applicable).
- H. Audited Financial Report of latest preceding Financial year.
- I. Deviation sheet, if any.
- J. Price Schedule with prices blanked out but "Quoted/ Not quoted" to be mentioned & its relevant enclosures, duly filled-in, stamped & signed on each page.

b) **PART-II: PRICED OFFER**

- A. Price Schedule with prices filled in.
- B. Statement that all specifications and terms & conditions are as per un-priced part of offer.

c) ***Bidders in their own interest are requested to register on e- tendering portal and upload/submit their bid well in time. Bidders should avoid the last hour rush to the website for registration of user id & password, enabling of user id and mapping of digital signature serial number etc. since this exercise require activities from EIL & M/s Anatares System (Service Provider) and needs time. In the event of failure in bidder's connectivity with EIL/Service Provider during the last few hours, bidder is likely to miss the deadline for bid submission. Due date extension request due to aforesaid reasons may not be entertained. Since the bidders are already registered at ASP e-tendering portal, bidders are advised to furnish the details of Digital Signature (serial no.) by email within one week of receipt of intimation of issuance of RFQ to save time and avoid mapping of Digital Signature details to the bidders User ID at the bid uploading stage.***

d) ***Request for extension or any queries or issues related to difficulties in uploading/downloading bids, if any, received from any with less than four working days prior to bid due date shall generally be ignored, since there will not be adequate time for proper communication with Client and other Bidders.***

e) ***Bidders to refer Instruction to Bidders for E-Tendering provided in the RFQ. Bidder shall download the Price Schedule in *.xls format from EIL's Authorised Service Provider's Electronic system / portal at www.tenderwizard.com/eil only, and use the same for uploading their Price Bids as per the Instruction provided.***

Note:

Bidding currency shall be Indian Rupees for supplies dispatched from India & and USD/EURO for supplies dispatched from foreign.

38.0 FRAUDULENT PRACTICES:

The OWNER requires that Bidders/ Contractors observe the highest standard of ethics during the award/ execution of Contract. "Fraudulent Practice" means a misrepresentation of facts in order to influence the award of a Contract to the detriment of the Owner, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Owner of the benefits of free and open competition.

- a) The OWNER will reject a proposal for award if it determines that the bidder recommended for award has engaged in fraudulent practices in competing for the Contract in question.
Bidder is required to furnish the complete and correct information/ documents required for evaluation of their bids. If the information/ documents forming basis of evaluation is found to be false/ forged, the same shall be considered adequate ground for rejection of bids and forfeiture of Earnest Money Deposit.
- b) In case, the information/ document furnished by the Bidder/ Contractor forming basis of evaluation of his bid is found to be false/ forged after the award of the contract, Owner shall have full right to terminate the contract and get the remaining job executed at the risk & cost of such Bidder/ Contractor without any prejudice to other rights available to Owner under the contract such as forfeiture of CPBG/ Security Deposit, withholding of payment etc.
- c) In case, this issue of submission of false documents comes to the notice after execution of work, Owner shall have full right to forfeit any amount due to the Bidder/ Contractor along with forfeiture of CPBG/ Security Deposit furnished by the bidder/ contractor.
- d) Further, such bidder/ contractor shall be put on Blacklist/ Holiday/ Negative List of OWNER/EIL debarring them from future business with Owner & EIL for a time period, as per the prevailing policy of OWNER & EIL.

39.0 ONE BID PER BIDDER:

- a. A Bidder shall submit only one bid in the same bidding process. A Bidder who submits or participates in more than one bid will cause all the proposals in which the bidder has participated to be disqualified.
- b. Alternative price bids are not acceptable.

40.0 LANGUAGE OF BID:

- a) The Bid prepared by the bidder, all correspondence/drawings and documents relating to the bid exchanged by the bidder with the Owner/Consultant shall be in English Language alone provided that any document furnished by the bidder may be written in another language so long as accompanied by an English translation, in which case, for the purpose of interpretation of the bid, the English translation shall govern.
- b) In the event of submission of any document/ certificate by the Bidder in a language other than English, the English translation of the same duly authenticated by Chamber of Commerce of Bidder's country shall be submitted by the Bidder. Metric measurement system shall be applied.

41.0 EARNEST MONEY DEPOSIT:

Bidder shall furnish, as part of its Bid, EMD for an amount as indicated in the NIT/ IFB. If the Bidder is unable to submit Bid Document Fee & EMD in original within the due date & time, then bidder shall submit the original Bid Document Fee & EMD within 7 days from the date of unpriced bid opening, provided copy of the same have been uploaded on E-Tendering Website. In case the bidder fails to submit the same in original within 7 days, then their bid shall be rejected, irrespective of their status/ ranking in tender and notwithstanding the fact that a copy of Bid Document Fee & EMD was earlier uploaded by the bidder. OWNER shall not pay any interest on EMD furnished.

The EMD shall be in favour of BPCL and shall be acceptable in the form of Crossed Demand Draft or Bank Guarantee in the prescribed pro-forma.

The Bank Guarantees/DD for EMD shall be issued by any Scheduled Commercial Bank (other than co-operative Bank) in India or any Indian Branch of Foreign Bank and same shall be as per the format given in this bidding document. Swift Message or Cash or Cheque in lieu EMD shall not be acceptable.

The bank guarantee for submission of EMD shall be valid as period mentioned in EMD / Bid

Security format or elsewhere mentioned in Bid Document / RFQ.

EMD/ Bid securities of unsuccessful bidders will be returned upon award of Contract. However, EMD of the successful Bidder will be returned upon the Bidder's acceptance of PO/ signing the Contract and furnishing the PBG.

The EMD may be forfeited:

- If a Bidder withdraws its bid during the period of Bid Validity or does any breach of tendering terms and conditions, or
- If a bidder modifies his bid on his own.
- In case of a successful Bidder, if the Bidder fails, within the specified period:
 - i. To submit the order acceptance.
 - ii. To furnish the PBG.

42.0 MODIFICATION AND WITHDRAWAL OF BIDS:

- a) The Bidder may modify / withdraw its Bid prior to the due date prescribed for submission of Bids.
- b) No bid shall be modified subsequent to the deadline for submission of bids.
- c) No bid shall be allowed to be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the bidder. Withdrawal of a bid during this interval shall result in the forfeiture of bidder's bid security.

43.0 EXAMINATION OF BIDS AND DETERMINATION OF RESPONSIVENESS:

- a. The Owner/EIL will examine the bids to determine whether they are complete, whether any computational errors have been made, whether the documents have been properly signed, and whether the bids are generally in order.
- f) Prior to the detailed evaluation, the Owner/EIL will determine whether each bid is of acceptable quality, is generally complete and is responsive to the RFQ Documents. For the purposes of this determination, a responsive bid is one that conforms to all the terms, conditions and specifications of the RFQ Documents without deviations, objections, conditionality or reservations.
- c. Bidder shall not be allowed to submit any Price Implication or Revised Price after submission of Bid, unless there is change in the stipulations of the RFQ Document and such changes are incorporated through an Amendment. In case Exceptions and Deviations submitted by Bidder along with Bid are not considered as acceptable and no Amendment is issued, then in such a case the Bidders would be required to withdraw such Exceptions/Deviations in favour of stipulations of the RFQ document and Bidders would not be eligible for submission of Price Implication/Revised Price, failing which such Bid(s) shall be considered as non responsive and rejected.
- d. The Owner/EIL determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence. If a bid is not responsive, it will be rejected by the Owner/EIL, and may not subsequently be made responsive by the bidder by correction of the nonconformity.

44.0 OWNER'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY BID:

The Owner/EIL reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of the order without thereby incurring any liability to the affected bidder or bidders or any obligations to inform the affected bidder or bidders of the ground for Owner/EIL's action.

45.0 NOTIFICATION OF AWARD:

- g) Prior to the expiration of period of bid validity Owner /EIL will notify the successful bidder in writing by fax/e-mail to be confirmed in writing, that his bid has been accepted. The notification of award/ Fax of Acceptance will constitute the formation of the Order.
- h) The Delivery Schedule shall commence from the date of notification of award/ Fax of Acceptance (FOA).
- i) Award of Contract/Order will be by issuing Fax of Acceptance (FOA) of your bid. FOA will contain price, delivery and other salient terms of bid and RFQ Document.

Bidder will be required to confirm receipt of the same by returning "Copy of the FOA" duly signed and stamped by the bidder as a token of acknowledgement to Owner and EIL. On receipt of acknowledgement without any deviation/ condition, detail Purchase Order/ Contract will be issued in quadruplicate. Three copies of the same without any condition/ deviation will be returned duly signed and stamped by the bidder as a token of acknowledgement to Owner and EIL.

46.0 WAIVER OR TRANSFER OF THE AGREEMENT:

The successful bidder shall not waive the Agreement or transfer it to third parties, whether in part or in whole, nor waive any interest that is included in the Agreement without the prior written permission of the Owner.

47.0 T&C FOR FOREIGN SUPPLIERS OPERATED THROUGH THEIR INDIAN OFFICE / SUBSIDIARIES:

- I. The parent company shall issue an authorization from the authorized signatory like CEO, CFO, CS to confirm their authorization to the subsidiary to manufacture & supply the equipments.
- II. The parent company shall furnish a back-up guarantee duly signed by above signatory for the performance of the equipment.
- III. The order shall be placed on Indian subsidiary and the payment shall be released to Indian subsidiary.
- IV. Indian subsidiary shall be a manufacturing company in the same product & not a liaison / representative office.
- V. Bidder to submit bipartite agreement between parent & subsidiary to ensure experience & compliance to contract.
- VI. All critical components / parts to be supplied by parent company only which is enlisted with EIL.

48.0 TAX RESIDENCY CERTIFICATE (TRC) FORMAT FOR FOREIGN BIDDER:

Foreign Bidder shall submit Tax Residency Certificate (TRC) duly filled in detailed format enclosed with RFQ Document.

49.0 REQUIREMENT OF EMPLOYMENT VISA FOR FOREIGN NATIONALS:

- i) All Foreign nationals coming to India for execution of Projects/ Contracts will have to apply for Employment Visa only and that grant of Employment Visa would be subject to strict adherence of following norms:
 - a. Employment Visa is granted only for the skilled and qualified professionals or to a person who is being engaged or appointed by a Company, Organization, Industry or Undertaking etc. in India on contract or employment basis at a senior level, skilled position such as technical expert, senior executive or in managerial position etc.
 - b. Request for Employment Visa for jobs for which large number of qualified Indians are available, is not considered.
 - c. Under no circumstances an Employment Visa is granted for routine, ordinary secretarial/ clerical jobs.
- ii) Suppliers are advised in their own interest to check latest Visa rules from Indian Embassy/ High Commission in their country in case Foreign nationals are required to be deputed to India during execution of the Contract.

50.0 Order of Precedence of Commercial Documents:

In case of an irreconcilable conflict between RFQ, Special Instructions to Bidders & General Purchase Conditions (GPC), the following shall prevail to the extent of such irreconcilable conflict in order of precedence:

- i) RFQ
- ii) Special Instructions to Bidders
- iii) General Purchase Conditions (GPC)

SECTION-F: ADDITIONAL CLAUSES TO GPC

51.0 The following is additional to Clause No. 38.0 of GPC(Indigenous):

Settlement of dispute between CPSEs or CPSEs & Government Departments

In the event of any dispute or difference relating to the interpretation and application of the provisions of the contracts, such dispute or difference shall be referred by either party for Arbitration to the sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law & Justice, Government of India. Upon such reference, the dispute shall be decided by the Law Secretary or the Special Secretary/Additional Secretary, when so authorized by the Law Secretary, whose decision shall bind the Parties finally and conclusively. The Parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.

ANNEXURE-A

INTEGRATED REFINERY EXPANSION PROJECT (IREP) OF M/s BPCL KOCHI REFINERY, KOCHI, KERALA (INDIA) (Job No. A307)

TERMS & CONDITIONS FOR INDIAN SOURCED COMPONENTS / SERVICES BY FOREIGN BIDDER

Foreign bidder may source components / sub-supplies and services from India, if allowed as per Material Requisition. Such sub-supplies / services shall be subject to following Commercial Terms & Conditions:

1. **PRICING:**

- 1.1 The Foreign bidder shall quote firm price for items being sourced from India in Indian rupees on FOT Site basis inclusive of packing, forwarding, transportation, all applicable taxes, duties & levies payable upto site.
- 1.2 Materials if ordered against this Bidding Document are required to be dispatched on door delivery basis through a reliable bank approved Road Transport Company unless the transport company is named by the Owner.

2. **AWARD OF ORDER:**

Client may place two separate orders in this situation considering single point responsibility taken care by foreign (principal) bidder under "Umbrella Contract". However obligation of Performance Bank Guarantee & Price Reduction Schedule for complete package shall always lie with foreign (principal) Bidder.

3. **DELIVERY:**

The delivery period for items being sourced from India, shall be on FOT site basis within the delivery period specified for foreign bidder as per Terms of Bidding document.

4. **PRICE REDUCTION SCHEDULE FOR DELAY IN DELIVERY / SERVICES:**

PRS for delay in delivery / services shall be applicable on total order value including Indian sourced component / Service.

5. **OVERALL RESPONSIBILITY:**

Overall responsibility towards the contractual obligations like delivery, bid security, order execution, performance guarantee etc. including supplies being sourced from India shall be only with the foreign (principal) bidder.

6. **PERFORMANCE BANK GUARANTEE**

Foreign (principal) bidder shall submit one performance bank guarantee as per GPC for total order value including value of items sourced from India.

7. **INSPECTION**

- i. Inspection of Item being sourced from India shall be by EIL/Owner.

- ii. Any change in sourcing from indigenous supplies to imported supplies and vice-versa after bid submission is not permitted.
- iii. Considering EIL Inspection charges, during evaluation prices of Indigenous source item shall be loaded by @1.25% of FOT Despatch Point Price price.

8. PAYMENT TERMS:

8.1 Indian Source supplies:

100% payment along with taxes and duties will be paid against receipt & acceptance of Indian sourced goods/material at project site and on presentation of invoice suitable for availing Cenvat.

8.2 Payment of Indian source supplies/Services shall be released directly to Indian counterpart against Invoices raised by Indian counterpart duly endorsed by Foreign principal for payment.

8.3 The payments shall be made after Adjustment of Price Reduction Schedule.

9. In case of any deviation to above requirement, loading shall be applicable as mentioned for Indian Bidder.



BHARAT PETROLEUM CORPORATION LIMITED

KOCHI REFINERY

GENERAL PURCHASE CONDITIONS

FOR INDIGENOUS MATERIALS AND EQUIPMENTS

INDEX

1.0	DEFINITIONS	22.0	NON-WAIVER
2.0	REFERENCE FOR DOCUMENTATION	23.0	NO ASSIGNMENT
3.0	CONFIRMATION OF ORDER	24.0	VENDOR'S DRAWING AND DATA REQUIREMENT
4.0	SALES CONDITIONS		
5.0	COMPLETE AGREEMENT	25.0	TECHNICAL INFORMATION
6.0	INSPECTION-CHECKING-TESTING	26.0	SERVICES OF VENDOR'S PERSONNEL
7.0	OFFICIAL INSTITUTIONAL TESTING	27.0	CONTROL REGULATIONS
8.0	EXPEDITING	28.0	LIABILITY AGREEMENT
9.0	DELAYED DELIVERY	29.0	CHANGES
10.0	DELAYS DUE TO FORCE MAJEURE	30.0	PERFORMANCE GUARANTEE
11.0	PACKING AND MARKING	31.0	PATENTS & ROYALTIES
12.0	DESPATCH INSTRUCTIONS	32.0	REJECTION, REMOVAL OF REJECTED GOODS AND REPLACEMENT
13.0	PART ORDER / REPEAT ORDER		
14.0	SHIPMENT AND SHIPMENT NOTICES	33.0	RECOVERY OF SUMS DUE
15.0	TRANSIT RISK INSURANCE	34.0	CANCELLATION
16.0	WEIGHTS AND MEASUREMENTS	35.0	OWNER'S MATERIALS
17.0	OILS & LUBRICANTS	36.0	TRANSFER OF PROPERTY FROM THE VENDOR TO THE OWNER
18.0	SPARE PARTS		
19.0	PRICE	37.0	HEADINGS
20.0	TERMS OF PAYMENT	38.0	ARBITRATION
21.0	INVOICING AND NEGOTIATION OF DOCUMENTS	39.0	JURISDICTION

1.0 DEFINITIONS :

The following expressions used in these terms and conditions and in the purchase order shall have the meaning indicated against each of these :

OWNER : Owner means Bharat Petroleum Corpn. Ltd. (a Government of India enterprise), a company incorporated in India having its registered office at Bharat Bhavan, 4 & 6 Currimbhoy Road, Ballard Estate, Mumbai -400 001 and shall include its successors and assigns (hereafter called BPCL as a shortform).

VENDOR : Vendor means the person, firm or the Company / Corporation to whom this purchase order is issued and shall include its successors and assigns.

INSPECTOR : Person deputed by BPCL for inspection checking/testing as Inspector/authorised by BPCL.

GOODS / MATERIALS : Goods and/or Materials means any of the articles, materials, machinery, equipments, supplies, drawing, data and other property and all services including but not limited to design, delivery, installation, inspection, testing and commissioning specified or required to complete the order.

CONTRACTUAL DELIVERY DATE : Contractual Delivery Date is the date on which goods shall be delivered F.O.T. destination, in accordance with the terms of the purchase order. This contractual delivery date/ period is inclusive of all the lead time for engineering, procurement of raw materials, manufacturing, inspection/ testing, packing and any other activity whatsoever required to be accomplished for effecting the delivery at the agreed delivery point.
SITE : Site means BHARAT PETROLEUM CORPORATION LIMITED - KOCHI REFINERY, AMBALAMUGAL, KERALA, 682302.

2.0 REFERENCE FOR DOCUMENTATION :

The number and date of this purchase order must appear on order confirmation, all correspondence, drawings, invoices, shipping notes / despatch advices, packings and on any documents or papers connected within this order.

3.0 CONFIRMATION OF ORDER :

The vendor shall acknowledge the receipt of the purchase order within 15 days following the mailing of the same and shall thereby confirm his acceptance of this purchase order in its entirety without exception. This acknowledgement will bear on both purchase order and general purchase conditions. The vendor shall sign, stamp the acknowledgement copy of the purchase order and return the same to BPCL.

4.0 SALES CONDITIONS :

Owner reserves the right to allow Purchase Preference to Central Public Sector Enterprises, as admissible under existing Policy.

5.0 COMPLETE AGREEMENT :

The terms and conditions for the provision of this constitute the entire agreement between the parties hereto. Changes will be binding only if the amendments are made in writing and signed by an authorized representative of the owner and the vendor.

6.0 INSPECTION-CHECKING-TESTING :

The equipment, material and workmanship covered by the purchase order shall be subject to inspection and testing by inspectors at any time prior to shipment and/or despatch and to final inspection within a reasonable time after arrival at the place of delivery. Inspectors shall have the right to carry out the inspection and testing which will include the raw materials at manufacturers shop, fabricators shop and at the time of actual despatch before and after completion of packing.

All inspections and tests shall be made as required by the specifications attached or made part of this order and/or amendments issued by the owner. All tests, mechanical and others and particularly those required by codes will be performed at the vendors expenses and in accordance with inspectors instructions. The vendor will also bear the expense concerning preparation and rendering of tests required by Boiler Inspectorate or such other statutory testing agencies or by Lloyds Register Industrial Service as may be required.

The salaries and fees of the inspectors and travelling, lodging and boarding expense will not be borne by the vendor unless inspection becomes infructuous due to any omission or commission on the part of the vendor. Before shipping of despatch, the equipment and/or material will have to be checked and stamped by inspectors who are authorized also to forbid the use and despatch of any equipment and/or materials which during tests and inspection fail to comply with the specifications, codes and testing requirements.

The vendor shall :

Inform BPCL atleast 15 days in advance, of the exact place, date and time of rendering the equipment or materials for required inspection. Provide free access to inspectors to vendors or his / its sub-suppliers work and place at their disposal all useful means of performing, checking, marking, testing, inspection and final stamping.

Even if the inspection and tests are fully carried out Vendor would not be absolved to any degree from his responsibilities to ensure that all equipments and materials supplied comply strictly with requirements as per agreement both during manufacture, at the time of delivery, inspection, on arrival at site and after its erection or start-up and guarantee period as stipulated in clause 30 hereof.

The Vendor's responsibility will not be lessened to any degree due to any comments made by BPCL and inspectors on Vendor's drawing or specifications or by inspectors witnessing any chemical or physical tests. In any case, the requirement must be in strict accordance with the Purchase Order and/or its attachments, failing which BPCL shall have the right to reject the goods and hold the Vendor liable for non-performance of contract.

7.0 OFFICIAL INSTITUTIONAL TESTING :

In addition to testing and inspection by inspectors mentioned above, Lloyds Register of Industrial Services or similar institutional agencies like Boiler Inspectorate may be assigned for official testing of all coded equipment. The Vendor shall ensure that all Procedures for preparation and Performance of tests prescribed by such institutions shall be completed scrupulously.

The Vendor is required to send to such institutions as may be designated by the Owner at least three sets of construction drawings for each equipment and calculations. All manufacturer's mills test certificates and analytical reports from material laboratories in respect of all raw materials and components employed shall have to be presented to such institutions inspectors in the number of copies required. Vendor shall maintain close liaison with Procurement Coordinators and Institution's inspectors to maintain schedule and delay if any, in this process will not be taken into consideration as a cause of Force majeure.

8.0

EXPEDITING :

BPCL shall have free access to Vendor's shop and/ or sub-supplier's shop at any time and they shall be provided all the necessary assistance and information

to help them perform their job.

In order to facilitate over-all execution of the order within the contractual delivery date, Vendor shall furnish to BPCL within 4 weeks of receipt of Purchase Order the required number of copies of documents such as but not limited to schedules, PERT charts, unpriiced copies of sub-orders/sub-contracts, phased programme of item wise manufacturing, testing and delivery & any other information/documentation as may be called for by BPCL. Vendor shall furnish progress report at the end of each month.

9.0 DELAYED DELIVERY :

Contractual Delivery date for despatches F.O.R. Destination/ F.O.R. Site-the date of delivery shall be the date on which the goods/materials are delivered to nearest Destination rail head or owner's warehouse at Site. The time and date of delivery of stores / materials/ equipment as stipulated in the order shall be deemed to be the essence of the contract. In case of delay in execution of the order beyond the date of delivery as stipulated in the order or any extensions sanctioned, owner may at his option.

- (i) Accept delayed delivery at prices reduced by a sum equivalent to one half of one percent (1/2%) of the value of any goods not delivered for every week of delay or part thereof, limited to a maximum of 5% of the total order value.
- (ii) Cancel the order in part or full and purchase such cancelled quantities from elsewhere on account and at the risk of the Vendor, without prejudice to its right under (i) above in respect of goods delivered.

10.0 DELAYS DUE TO FORCE MAJEURE :

(i) In the event of causes of Force Majeure occurring within the agreed delivery terms, the delivery dates can be extended by the Owner on receipt of application from the Vendor within the stipulated delivery period. Only those causes which depend on natural calamities, civil wars, national strikes and strikes/lockout at Vendor's works which have a duration of more than seven consecutive calendar days are considered the causes of Force Majeure. The Vendor must advise BPCL by a Registered letter duly certified by local Chamber of Commerce or statutory authorities, the beginning and the end of the cause of delay immediately, but in no case later than 10 days from the beginning and end of such cause of Force Majeure condition as defined above.

(ii) Owner reserves the right to ask Vendor to suspend despatches of the goods/materials covered by this order for such period as they may think fit in the event of strikes, accidents or other causes beyond Owner's control.

11.0 PACKING AND MARKING :

11.1 Packing shall withstand the hazards normally encountered with the means of transport for the goods of this purchase order including loading and unloading operation both by crane and by pushing off.

11.2 The packing specification incorporated herein are supplementary to the internal and external packing methods and standards as per current general rules of J.R.A. Good Tariff Part-I. All packaging shall be done in such a manner as to reduce volume as much as possible.

11.3 Fragile articles should be packed with special packing materials depending on the type of materials.

11.4 Chemicals in powder form, catalyst, refractories

and like materials etc. shall be packed in drums, cans and tins only.

11.5 The hazardous materials shall be packed in accordance with the applicable rules, regulations and tariff of all cognizant Government Authorities and other Governing bodies. It shall be the responsibility of the seller of hazardous materials to designate the material as hazardous and to identify each material by its proper commodity name and its hazardous material class code.

11.6 All package requiring handling by crane should have sufficient space at appropriate place to put sling of suitable dia (strength). Iron/Steel angle should be provided at the place where sling marking are made to avoid damage to package/ equipment while lifting.

11.7 Item shipped in bundles must be securely tied with steel wire or strapping. Steel reinforcing rods, bars, pipes, structural members etc. shall be bundled in uniform lengths and the weight shall be within the breaking strength of the securing wire or strapping.

11.8 All delicate surface on equipment/materials should be carefully protected and printed with protective paint/compound and wrapped to prevent rusting and damage.

11.9 All mechanical and electrical equipment and other heavy articles shall be securely fastened to the case bottom and shall be blocked and braced to avoid any displacement/shifting during transit.

11.10 Attachments and spare parts of equipment and all small pieces, shall be packed separately in wooden cases with adequate protection inside the case and wherever possible should be sent along with the main equipment. Each item shall be suitably tagged with identification of main equipment, item denomination and reference number of respective assembly drawing. Each item of steel structure and furnaces shall be identified with two erection markings with minimum lettering height of 15mm. Such markings will be followed by the collection numbers in indelible ink/paint. A copy of the packing list shall accompany the materials in each package.

11.11 All protrusions shall be suitably protected by providing a cover comprising of tightly bolted wooden disc on the flanges.

11.12 Wherever required, equipment/materials instruments shall be enveloped in polythene bags containing silica gel or similar dehydrating compound.

11.13 Pipes shall be packed as under:

- a. Upto 50mm NB in wooden cases/crates.
- b. Above 50mm NB and upto 100mm NB in bundles and should be strapped at minimum three places.
- c. Above 100mm NB in loose.

11.14 Pipes and tubes of stainless steel, copper etc. shall be packed in wooden cases irrespective of their sizes.

11.15 Pipes with threaded or flanged ends shall be protected with suitable caps covers, before packing.

11.16 Detailed packing list in waterproof envelope shall be inserted in the package, together with equipment/materials. One copy of the detailed packing list shall be fastened outside of the

package in waterproof envelope and covered by metal cover.

11.17 The supplier shall be held liable for all damages or breakages to the goods due to the defective or insufficient packing as well as for corrosion due to insufficient protection.

11.18 Packaged equipment or materials showing damage defects or shortages resulting from improper packaging materials or packing procedures or having concealed damages or shortages, at the time of unpacking shall be to the supplier's account.

FROM
FOR : M/s. BHARAT PETROLEUM CORPORATION LTD. KOCHI REFINERY

P.O. NO ITEM NO

NET WT GROSS WT

DIMENSIONS CASE NO

OF TOTAL
CASES

All packages which require special handling and transport should have their Centres of Gravity and the points at which they may be slung or gripped clearly indicated and marked "ATTENTION SPECIAL LOAD HANDLE WITH CARE" both in English and Hindi Languages.

12.0 DESPATCH INSTRUCTIONS:

- 12.1 Unless otherwise specifically advised in writing goods shall not be despatched without prior inspection testing and Release notes/Materials Acceptance Certificates issued by inspectors.
- 12.2 Vendor shall exercise due care and ensure that the consignment(s) shall be booked under appropriate railway classification, failing which any additional freight incurred by Owner due to vendor's booking the material under a wrong classification shall be to Vendor's account.

14.0 SHIPMENT AND SHIPMENT NOTICES :

1. The Vendor shall make shipment only after prior approval by inspectors wherever specifically mentioned. In the event of the vendor having been advised to hold shipment(s) for any reason whatsoever the vendor shall hold the materials in his/its warehouse for at least 30 days without any compensation or without prejudice to any reduction in price already accrued on account of delays.
2. Immediately after despatch, Vendor shall inform despatch particulars to BPCL as hereunder.

.....2 Copies of the Despatch Advice to Chief Manager (Projects), Kochi Refinery, Ambalamugal, Kerala, 682 302.

15.0 TRANSIT RISK INSURANCE

Transit Risk Insurance shall be covered by the Owner against its Open General Policy, particulars of which shall be shown in the Purchase Order. The Vendor shall intimate the despatch particulars to the insurance company under advice to Chief Manager (Projects), Kochi Refinery, Ambalamugal, Kerala, 682 302.

16.0 WEIGHTS AND MEASUREMENTS

All weights and measurements recorded by BPCL on receipt of goods at site will be treated as final. Vendor's shipping documents and invoices must contain the following data :

- (i) Unit net weight
- (ii) Unit gross weight (packing included)
- (iii) Dimensions of packing

17.0 OILS & LUBRICANTS :

The first filling of oils and lubricants if any required for every equipment shall be included in the price and appropriate products manufactured by BPCL/HPCL/IOCL shall be used. The Vendor shall also recommend the quality/quantity of oils and lubricants required for one year continuous operation.

18.0 SPARE PARTS:

The Vendor must furnish itemised and priced list of spare parts required for two years operation of the main equipment and prime movers also.

The Vendor shall provide the necessary cross sectional drawing to identify the spare part numbers and their location as well as interchangeability chart.

Owners Warehouse is open to receive stores between 8.30 a.m. to 3.00 p.m. on all working days except Sunday. No goods will be accepted after 3.00 p.m.

DESTINATION :

1. The Vendor will note the destination of the Material to be despatched. Demurrage or other expenses incurred owing to any negligence, delay or default on the part of the Vendor will be for Vendor's account and deducted from his invoice before payment.

2. BPCL reserve the right to advise any change in despatching point/destination and/or mode of transport may be required. Any extra expenditure on this account supported by documentary evidence will be reimbursed by BPCL.

13.0 PART ORDER / REPEAT ORDER :

Vendor hereby agrees to accept part order at Owners

19.0 PRICE:

Unless otherwise agreed to in the terms of the purchase order, the price shall be :

- (a) Firm and not subject to escalation for any reason whatsoever till execution of entire order even though it might be necessary for the order executed to take longer than the delivery period specified in the order for any reason whatsoever.
- (b) Inclusive of adequate rail worthy packing and forwarding charges and railway freight wherever F.O.R. destination delivery terms are agreed to but exclusive of transit insurance.
- It will be assumed that packing cases are not returnable unless otherwise agreed in writing.
- (c) Exclusive of Central/State Sales tax, Excise Duty and/or such imposts which are leviable by law on sale of finished goods to Owner and/or Control duty if any, leviable at destination/project site. The nature and extent of such levies shall be shown separately. Vendor's Sales Tax Certificate of registration number shall be shown on his invoice. Copies of Excise Duty payment documents shall be submitted by Vendor alongwith the invoices.

20.0 TERMS OF PAYMENT :

Payment against invoices shall normally be made within 30 days of receipt and acceptance of equipment/materials at site. However, Owner may consider payment of 90 percent against despatch documents through BPCL's bankers, HDFC Bank Limited, 1st Floor, S.L. Plaza, Palativatom, Kochi - 682 025 and balance 10 percent within 30 days of receipt and acceptance of equipment/materials at site, provided the value of the Purchase Order exceeds Rs. 50,000/- All Bank charges will be to Vendor's account. The Vendor shall as a precondition to any payment exceeding 90% (Ninety percent) or the total contract value, furnish to the Owner in cash or in Bank Guarantee from a Scheduled/ Nationalised Bank in a form approved by the Owner for an amount of 10% of the contract value as security for the due performance of all the Vendor's liability in terms of and/or in connection with the contract. This security will be released after the expiry of the period of performance guarantee. Owner may also consider payments within 7 days on receipt of despatch documents directly.

The final settlement of Vendor's invoice is liable to be withheld in the event the Vendor has not complied with submission of drawings data and such documentation as called for in the Purchase Order and/or as required otherwise.

Delay in receiving invoices in the number of copies specified, (or errors and omissions) of failure of delay in providing copies of despatch documents / original R/Rs, G/Rs, etc. and any demurrage or wharfage or any loss resulting thereby shall be borne by the Vendor.

21.0 INVOICING AND NEGOTIATION OF DOCUMENTS :

Invoice and other documents shall be sent as hereunder. Original 2 copies to the Chief Manager (Projects), Kochi Refinery, Ambalamugal, Kerala-682 302

- In case payment is against Despatch Documents through Bank.

- Original invoice alongwith R/R, GC notes etc., should be sent to the HDFC Bank Limited, 1st Floor, S.L. Plaza, Palativatom, Kochi - 682 025 with a stipulation that the Bank shall advise the receipt of documents promptly to the Chief Manager (Projects), Kochi Refinery, Ambalamugal, Kerala - 682 302.

- Balance 2 copies to Chief Manager (Projects) as above.

The invoices and Documents shall be negotiated in the manner specified in the Purchase Order and all Bank charges, if any, shall be to Vendor's account.

22.0 NON-WAIVER :

Failure of the Owner to insist upon any of the terms or conditions incorporated in the Purchase Order or failure or delay to exercise any rights or remedies herein, or by law or failure to properly notify Vendor in the event of breach or the acceptance of or payment of any goods hereunder or approval of design shall not release the Vendor and shall not be deemed a waiver of any right of the Owner to insist upon the strict performance thereof or of any of its or their rights or remedies as to any such goods regardless or when goods are shipped, received or accepted nor shall any purported oral modification or revision of the order by BPCL act as waiver of the terms hereof. Any waiver to be effective must be in writing.

23.0

NO-ASSIGNMENT:

This Purchase Order shall not be assigned to any other agency by the Vendor without obtaining prior written consent from Owner.

24.0

VENDOR'S DRAWING AND DATA REQUIREMENT:

The Vendor shall submit drawings, data and documentation in accordance with but not limited to what is specified in the requisition and/or in Vendor drawings and data form attached to the Purchase Order and as called for in clause 8 viz. "Expediting" above. The types, quantities and time limits of submitting this shall be respected in its entirety, failing which the Purchase Order shall be deemed to have been executed for all purposes including settlement of payment since the said submission is an integral part of Purchase Order execution.

25.0

TECHNICAL INFORMATION :

Drawing, specifications and details shall be the property of the owner and shall be returned by the Vendor on demand. The Vendor shall not make use of drawing and specifications for any purpose at any time save and except for the purpose of the Owner.

The Vendor shall not disclose the technical information furnished to or organised by the Vendor under or by virtue of or as a result of the implementation of the Purchase Order to any person, firm or body or corporate authority and shall make all endeavours to ensure that the technical information is kept CONFIDENTIAL. The technical information imparted and supplied to the vendor by the owner shall at all time remain the absolute property of the owner.

26.0

SERVICES TO VENDORS PERSONNEL :

If specifically asked for in the Purchase Order, the vendor shall depute upon one week's advance notice, the necessary personnel at site for supervision of erection and start-up of the equipment and train a few of the owner's personnel for the operation and maintenance of the equipment, if required, by the owner.

27.0

CONTROL REGULATIONS :

Vendor warrants that all goods/Materials covered by this order have been produced, sold, despatches, delivered and furnished in strict compliance with all applicable laws/regulations, labour agreement, working condition and technical codes and statutory requirements as applicable from time to time. All laws and regulations required to be incorporated in agreements by this charter are hereby deemed to be incorporated by this reference, including, the provisions of Industries (Development & Regulations) Act 1951

and any amendment thereof. Owner disown any responsibility for any irregularity or contravention of any of the statutory regulations in the manufacture or supply of goods covered by the order. The vendor shall ensure compliance with the above and shall indemnify owner against any actions, damages, costs and expenses of any failure to comply as aforesaid.

28.0 LIABILITY AGREEMENT :

In case where it is necessary for employees or representatives of the Vendor to go upon the premises of owner, vendor agrees to assume the responsibility for the proper conduct of such employees/representatives while on said premises and to comply with all applicable Workmen's Compensation Law and other applicable Government Regulations and Ordinances and all plant rules and regulations particularly in regard to safety precautions and fire hazards. If this order requires vendor to furnish labour at site, such vendor's workmen or employees shall under no circumstances be deemed to be in owner's employment and vendor shall hold himself responsible for any claim or claims which they or their heirs, dependent or personal representatives may have or make for damages or compensation for anything done or committed to be done in the course of carrying out the work covered by the purchase order, whether arising at owner's premises or elsewhere and agrees to indemnify the owner against any such claims if made against the owner and all costs of proceedings, suit or actions which owner may incur or sustain in respect of the same.

29.0 CHANGES :

The owner has the option at any time to make changes in quantities ordered or in specifications and drawings. If such changes cause an increase or decrease in the price required for supply, and equitable adjustment under this provision must be finalised within 10 days from the date when the change is ordered.

30.0 PERFORMANCE GUARANTEE :

The vendor shall guarantee that any and all materials used in execution of the purchase order shall be in strict compliance with characteristics, requirements and specifications agreed upon and that the same shall be free from any defects. Checking of Vendor's drawings by BPCL, their approval and permission to ship or despatch the equipment and materials granted by inspectors shall not relieve the vendor of any part of his / its responsibilities of proper fulfillment of the requirements. The vendor will guarantee that all materials and equipment shall be repaired or replaced as the case may be at his own expense in case the same have been found to be defective in respect of materials, workmanship, or smooth and rated operation within a period of 12 months after the same have been put in service or 18 months from the last shipment whichever is earlier. If any trouble or defect originating with the design, materials, workmanship or operating characteristics arise at any time prior to 12 months from the date of first commercial operation of the plant for which the materials supplied under this order form a part thereof, or 18 months from the date of last shipment of the goods/materials whichever period shall first expire, and the vendor is notified thereof, vendor shall at his/its own expense and as promptly as possible make such alterations, repairs and replacements as may be necessary to permit the materials/ equipment to function in accordance with the specifications and to fulfil the foregoing guarantees. Owner may at its option, remove such defective materials at vendor's expense, in which even vendor shall without cost to owner and as promptly as possible, furnish and install proper materials. The Guarantee

period for the replacement of materials parts shall be 12 months starting from the date on which the replacement are put in service, or 18 months from date of receipt whichever is earlier. Acceptance by the owner of any equipment and materials or their replacement will not relieve the vendor of his/its responsibility concerning the guarantee. In the event that the materials supplied do not meet the specifications and/or not in accordance with drawing, data sheets or terms of this order and rectification is required at site, the owner shall notify the vendor giving full details of differences. The vendor shall attend the site within seven (7) days of receipt of such notice, meet and agree with the representatives of the owner for the action required to correct the deficiency. Should the vendor fail to attend meeting at site within the prescribed time, owner shall immediately rectify the work/material and vendor shall reimburse the owner all costs and expenses incurred in connection with such trouble or defect.

The vendor shall furnish a bank guarantee (as per proforma hereunder) to support vendor's performance. The bank guarantee shall remain in force for the entire period covered by the performance guarantee.

31.0

PATENTS & ROYALTIES :

The vendor shall fully indemnify the owner (BPCL) and users of materials specified herein/supplied, against any action, claim or demand, costs and expenses, arising from or incurred by reasons of any infringement or alleged infringement of any patent, registered design, trademark or name, copy right or any other protected rights in respect of any materials supplied or any arrangement, system or method of using, fixing, or working used by the vendor. In the event of any claim, or demand being made or action sought against owner in respect of any of the aforesaid matter, the vendor shall be notified thereof immediately and the vendor shall at his/its own expense with (if necessary) the assistance or owner (whose all expense shall be reimbursed by the vendor) conduct all negotiations for the settlement of the same and/or litigation which may arise thereof.

32.0

REJECTION, REMOVAL OF REJECTED GOODS AND REPLACEMENT :

In case the testing and inspection at any stage by inspectors reveal that the equipment, materials and workmanship do not comply with specification and requirements, the same shall be removed by the vendor at his/its own expense and risk within the time allowed by the owner. The owner shall be at liberty to dispose off such rejected goods in such manner as he may think appropriate. In the event the vendor fails to remove the rejected goods within the period as aforesaid, all expenses incurred by the owner for such disposal shall be to the account of the vendor. The freight paid by the owner, if any, on the inward journey of the rejected materials shall be reimbursed by the vendor to the owner before the rejected materials are removed by the vendor.

The vendor will have to proceed with the replacement of the equipment or part of equipment without claiming any extra payment if so required by the owner. The time taken for replacement in such event will not be added to the contractual delivery period.

33.0

RECOVERY OF SUMS DUE :

All costs, damages or expenses for which the vendor becomes liable under this purchase order shall be deducted from the sum due or which at any time thereafter may become due to the vendor. Should this sum be not sufficient to cover the recoverable amount of claim(s), the vendor shall pay to BPCL on demand the balance remaining due.

34.0 CANCELLATION :

The owner reserves the right to cancel this purchase order or any part thereof and shall be entitled to rescind the contract wholly or in part in a written notice to the vendor if.

- (i) The vendor fails to comply with the terms of this purchase order.
- (ii) The vendor becomes bankrupt or goes into liquidation.
- (iii) The vendor fails to deliver the goods on time and/or replace the rejected goods promptly.
- (iv) The vendor makes a general assignment for the benefit of creditors.
- (v) A receiver is appointed for any of the property owned by the vendor.

Upon receipt of the said cancellation notice, the vendor shall discontinue all work on the purchase order matters connected with it.

The owner in that event will be entitled to procure the requirement in the open market and recover excess payment over the vendor's agreed price, if any, from the vendor, reserving to itself the right to forfeit the security deposit if any, made by the vendor against the contract.

The vendor is aware that the said goods are required by the owner for the ultimate purpose of materials production and that non-delivery may cause loss of production and consequently loss of profit to the owner. In this event of the owner exercising the option to claim damages for non delivery other than by way of difference between the market price and the contract price, the vendor shall pay to the owner, fair compensation to be agreed upon between the owner and the vendor.

The provision of this clause shall not prejudice the right of the owner from invoking the provisions of clause 'Delayed Delivery' as aforesaid.

35.0 OWNER'S MATERIALS :

If specifically agreed to in the purchase order, owner shall furnish to the vendor such materials/equipment (hereinafter called owner's material), as agreed, for incorporation into the manufacture, fabrication, testing or processing of goods/ materials, in accordance with but not limited to, the following conditions.

- a) Owner's material shall be delivered to the vendor after the vendor submits the Bank Guarantee for indemnifying the full value thereof strictly in the manner and as per form of Bank Guarantee approved by the owner.

- b) Owner's material shall be consigned on 'Freight paid' basis to the nearest railway point to vendor's works to which railway will accept the consignment (whether wagon - load or small). Vendor shall arrange to collect promptly such materials from the railway and transport to vendor's works at his/its own cost. Any town duty, octroi or local taxes levied by the local bodies at the vendor's end loading/unloading and any handling expenses from the siding shall be borne by the vendor. Vendor shall arrange to properly store and provide adequate security and protection of owner's materials.

Vendor shall be solely responsible for the safe keeping of such materials.

- (c) The vendor shall give a firm and binding list of

owner's issue of materials and the desired schedule of its delivery to shop floor strictly in accordance with the sequence of fabrication vis-a-vis the contractual delivery period.

- (d) Unused materials or scrap from materials supplied by the owner to the vendor shall be returned by the vendor to the owner or if the owner so direct, the vendor may dispose of the same by sale or otherwise on such terms and conditions as the owner may stipulate and the vendor shall pay to the owner the sale proceeds of the materials so disposed off by sale deducting therefrom expenses incurred by the vendor on such sale, the quantum of such deduction to be mutually agreed upon in advance in writing between the owner and the vendor.

36.0 TRANSFER OF PROPERTY FROM THE VENDOR TO THE OWNER :

In the absence of any provision to the contrary, transfer of property in goods be deemed to have taken place as follows:

1. F.O.R. or F.O.T. despatch point : on handling over the goods to the carriers against a receipt and such receipt having received by the owner.
2. F.O.R. destination station : on taking delivery from the railways at the destination station.
3. Equipment/materials sent freight paid to the Refinery : after arrival at warehouse/site.
4. Equipment erected by vendor/materials required for such job : on temporary acceptance at job site by owner.
5. Equipment commissioned by vendor : on taking over by owner for regular operation after test runs at maximum capacity for specified period are satisfactorily performed.

37.0 HEADINGS :

The headings of the conditions hereof shall not affect construction thereof.

38.0 ARBITRATION :

All disputes arising out of this purchase order shall be referred to the sole arbitrator ~~048 2722061~~ 048 2722061 5699 by the vendor out of panel of three persons nominated by the Chief Manager (Projects), Kochi Refinery and his decision/award shall be final and binding on the owner and the vendor. Subject as aforesaid the Indian Arbitration and Conciliation Act, 1996 shall apply to the arbitration proceedings under the contract.

39.0 JURISDICTION :

All actions at law or suits arising out of or in connection with this purchase order or the subject matter thereof shall be instituted in the court of competent jurisdiction situated at Kochi.

ADDRESS:

Chief Manager (Projects)
Bharat Petroleum Corporation Ltd
Kochi Refinery
Ambalamugal P.O., Ernakulam (Dist.)
Kerala - 682 302
Phone : 0484-2722061-69
Fax : 0484-2721094 / 2720855 / 56

PROFORMA OF BANK GUARANTEE

(Performance)

(On Non-judicial stamp paper for appropriate value)

To
Bharat Petroleum Corporation Limited
Kochi Refinery, Ambalamugal, Kerala- 682 302
Dear Sir,

In consideration of the Bharat Petroleum Corporation Limited (hereinafter called "the Company" which expression shall include its successors and assigns) having awarded to M/s. (Name)..... (address)

referred to as "The Supplier" which expression wherever the subject or context so permits include its successors and assigns) a supply contract in terms interalia, of the Company's Purchase Order No. dated and the General Purchase Conditions of the company and upon the condition of supplier's furnishing security for the Performance of the supplier's obligation and/or discharge of the supplier's liability under and/or in connection with the said supply contract up to a sum of Rs (in figure) (Rs. (in words)) contract value.

We, (Name)..... (constitution)..... (hereinafter called "the Bank" which expression shall include its successors and assigns) hereby jointly and severally undertake the guarantee to pay to the Company in Rupees forthwith on demand in writing and without protest or demur of any and all moneys anywise payable by the Supplier to the Company under in respect of or in connection with the said supply contract inclusive of all the Company's losses and damages and costs, (inclusive between attorney and client), charges and expenses and other moneys anywise payable in respect to the above as specified in any notice of demand made by the Company to the Bank with reference to this Guarantee up to aggregate Rs.....

Rupees..... only,

AND the Bank hereby agrees with company that:

- I. This Guarantee / Undertaking shall be a continuing / undertaking and shall remain valid and irrevocable for all claims of the Company and liabilities of the Supplier arising up to and until midnight of.....
This date shall be 6 months from the last date of guarantee period
- II. This Guarantee / Undertaking shall be in addition to any other guarantee or security whatsoever that the company may now or at any time anywise have in relation to the Supplier's obligations/liabilities under and/or connection with the said supply contract, and the Company shall have full authority to take recourse to or reinforce this security in preference to the other security(ies) at its sole discretion, and failure on the part of the Company in enforcing or requiring enforcement of any other security shall have the effect of releasing the Bank from its liability hereunder.
- III. The company shall be at liberty without reference to the bank and without affecting the full liability of the Bank hereunder to take any other security in respect of the Supplier's obligations and/or liabilities under or in connection with the said supply contract and to vary the terms vis a vis the supplier of the said supply contract or to grant time and/or indulgence to the supplier or to reduce or to increase or otherwise vary the prices of the total contract value or and/or the remedies of the company under any other security (ies) now or hereafter held by the company and no such dealing(s), variation(s), reduction(s), increase(s) or the indulgence(s) or arrangement(s) with the supplier or release or forbearance whatsoever shall have the effect of releasing the Bank from its full liability to the Company hereunder or of prejudicing rights of the Company, against the Bank.
- IV. The Guarantee / Undertaking shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the supplier but shall in all respects and for all purposes be binding and operative until payment of all moneys payable to the Company in terms hereof.
- V. The Bank hereby waives all rights at any time inconsistent with the terms of its Guarantee / Undertaking and the obligations of the Bank in terms hereof shall not be anywise affected or suspended by reason of any dispute or disputes having been raised by the supplier (whether or not pending before any Arbitrator, office, Tribunal or Court) or any denial of liability by the supplier or any other of communication whatsoever by the supplier stopping or preventing or purporting to stop or prevent any payment by the Bank to the Company in terms hereof.
- VI. The amount stated in any notice of demand addressed by the Company to the Guarantor as liable to be paid to the Company by the supplier or as suffered or incurred by the Company on account of any losses or damages of costs, charges and or expenses shall as between the Bank and the company be conclusive of the amount so liable to be paid to the Company or suffered or incurred by the Company, as the case may be and payable by the Guarantor to Company in terms hereof.

Yours faithfully,

Tax Residency Certificate (TRC) Format for Foreign Bidder

Sl. No.	Description	
1.	Name of the assessee	
2.	Status (Individual, Company, Firm etc...) of the assessee	
3.	Nationality (in case of individual)	
4.	Country / Specified territory of incorporation / registration	
5.	Assessee's tax identification number in the country / specified territory of residence or in case no such number, then, a unique number on the basis of which the person is identified by the Govt. of the country or the specified territory	
6.	Residential status for the purpose of tax	
7.	Period for which the certificate is applicable	
8.	Address of the applicant for the period for which the certificate is applicable.	

Note:-

1. Tax Residency Certificate (TRC) containing above details is compulsory for claiming tax relief under Double Taxation Avoidance Agreement (DTAA) in respect of foreign remittances.
2. TRC containing the details as above shall be verified by the Govt of the country or the specified territory of which the contractor/ Licensor (ie, assessee) claims to be a resident for the purpose of tax.
3. Bidder must submit TRC containing the details as above along with invoice for the purpose of effecting payment. **Please be noted that non furnishing of TRC will delay the payment to non – residents.**

PROFORMA OF BANK GUARANTEE

(Performance)

(Ref. clause 26)

To

Bharat Petroleum Corporation Limited

Kochi Refinery, Ambalamugal, Kerala- 682 302

Dear Sir,

In consideration of the Bharat Petroleum Corporation Limited (hereinafter called "the Company" which expression shall

include its successors and assigns) having awarded to M/s. (Name).....(address)

..... (hereinafter

referred to as "The Supplier" which expression wherever the subject or context so permits include its successors and assigns) a supply contract in terms interalia, of the Company's Purchase Order No.....dated..... and the

General Purchase Conditions of the company and upon the condition of supplier's furnishing security for the Performance of the supplier's obligation and/or discharge of the supplier's liability under and/or in connection with the said supply contract up to a sum of (in figure)..... (in words)

.....
.....
.....) contract value.

We,

(Name).....(constitution).....

..... (hereinafter called "the Bank" which expression shall include its successors and assigns) hereby jointly and severally undertake the guarantee to pay to the Company in (Currency) forthwith on demand in writing and without protest or demur of any and all moneys anywise payable by the Supplier to the Company under in respect of or in connection with the said supply contract inclusive of all the Company's losses and damages and costs, (inclusive between attorney and client), charges and expenses and other moneys anywise payable in respect to the above as specified in any notice of demand made by the Company to the Bank with reference to this Guarantee up to aggregate limit of Rs..... (Rupees

.....
.....only)

AND the Bank hereby agrees with company that:

This Guarantee / Undertaking shall be a continuing / undertaking and shall remain valid and irrevocable for all claims of the Company and liabilities of the Supplier arising up to and until midnight of.....

This date shall be 6 months from the last date of guarantee period

This Guarantee / Undertaking shall be in addition to any other guarantee or security whatsoever that the company may now or at any time anywise have in relation to the Supplier's obligations/liabilities under and/or connection with the said supply contract, and the Company shall have full authority to take recourse to or reinforce this security in preference to the other security(ies) at its sole discretion, and failure on the part of the

Company in enforcing or requiring enforcement of any other security shall have the effect of releasing the Bank from its liability hereunder.

The company shall be at liberty without reference to the bank and without affecting the full liability of the Bank hereunder to take any other security in respect of the Supplier's obligations and/or liabilities under or in connection with the said supply contract and to vary the terms vis a vis the supplier of the said supply contract or to grant time and/or indulgence to the supplier or to reduce or to increase or otherwise vary the prices of the total contract value or and/or the remedies of the company under any other security (ies) now or hereafter held by the company and no such dealing(s), variation(s), reduction(s), increase(s) or the indulgence(s) or arrangement(s) with the supplier or release or forbearance whatsoever shall have the effect of releasing the Bank from its full liability to the Company hereunder or of prejudicing rights of the Company, against the Bank.

The Guarantee / Undertaking shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the supplier but shall in all respects and for all purposes be binding and operative until payment of all moneys payable to the Company in terms hereof.

The Bank hereby waives all rights at any time inconsistent with the terms of its Guarantee / Undertaking and the obligations of the Bank in terms hereof shall not be anyway affected or suspended by reason of any dispute or disputes having been raised by the supplier (whether or not pending before any Arbitrator, office, Tribunal or Court) or any denial of liability by the supplier or any other of communication whatsoever by the supplier stopping or preventing or purporting to stop or prevent any payment by the Bank to the Company in terms hereof.

The amount stated in any notice of demand addressed by the Company to the Guarantor as liable to be paid to the Company by the supplier or as suffered or incurred by the Company on account of any losses or damages of costs, charges and or expenses shall as between the Bank and the company be conclusive of the amount so liable to be paid to the Company or suffered or incurred by the Company, as the case may be and payable by the Guarantor to Company in terms hereof.

Yours faithfully,

(To be executed on plain paper and applicable for all tenders of value above Rs. 1 crore)

INTEGRITY PACT

Between

Bharat Petroleum Corporation Limited (BPCL) hereinafter referred to as "The Principal",

And

.....hereinafter referred to as "The Bidder/ Contractor/ Supplier"

Preamble

The Principal intends to award, under laid down organization procedures, contract/s for

..... The Principal values full compliance with all relevant laws and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder/s, Contractor/s and Supplier/s.

In order to achieve these goals, the Principal cooperates with the renowned international Non-Governmental Organisation "Transparency International" (TI). Following TI's national and international experience, the Principal will appoint an Independent External Monitor (IEM) who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above. Accordingly, the Principal has appointed **Mr. Janki Ballabh** and **Mr. T. S. Krishnamurthy as IEM** with the following address:-

Mr. Janki Ballabh
Flat No.605,
Versova Vinayak Co-Op.Hsg.Soc,
HSG Plot No.8,
Near Versova Telephone Exchange,
Versova, Andheri (West)
Mumbai 400 053

Mr. T. S. Krishnamurthy
Flat No. 9, Gokul Tower,
Next to Mookambika Complex,
No. 7, C P Ramaswamy Road,
Alwarpet,
Chennai – 600 018

Section 1 - Commitments of the Principal

1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:

- a) No employee of the Principal, personally or through family members, will in connection with the tender, or the execution of the contract, demand, take a

promise for or accept, for himself/herself or third person, any material or immaterial benefit which he/she is not legally entitled to.

- b) The Principal will, during the tender process, treat all Bidders with equity and reason. The Principal will, in particular, before and during the tender process, provide to all Bidders the same information and will not provide to any Bidder confidential / additional information through which the Bidder could obtain an advantage in relation to the tender process or the contract execution.
 - c) The Principal will exclude from the process all known prejudiced persons.
- 2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the relevant Anti-Corruption Laws of India, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 - Commitments of the Bidder / Contractor/Supplier

- 1) The Bidder / Contractor/Supplier commits itself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
- a) The Bidder / Contractor/Supplier will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person, any material or immaterial benefit which he/she is not legally entitled to, in order to obtain in exchange, any advantage of any kind whatsoever during the tender process or during the execution of the contract.
 - b) The Bidder / Contractor/Supplier will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.
 - c) The Bidder / Contractor/Supplier will not commit any offence under the relevant Anti-Corruption Laws of India; further the Bidder / Contractor/Supplier will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
 - d) The Bidder / Contractor/Supplier will, when presenting his bid, disclose any and all payments he has made, is committed to, or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

- 2) The Bidder / Contractor/Supplier will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder, before contract award, has committed a transgression through a violation of Section 2 or in any other form such as to put his reliability or credibility as Bidder into question, the Principal is entitled to disqualify the Bidder from the tender process or to terminate the contract, if already signed, for such reason.

- 1) If the Bidder/Contractor/Supplier has committed a transgression through a violation of Section 2 such as to put his reliability or credibility into question, the Principal is also entitled to exclude the Bidder / Contractor/Supplier from future Contract award process. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, in particular the number of transgressions, the position of the transgressors within the company hierarchy of the Bidder and the amount of the damage. The exclusion will be imposed for a minimum of 6 months and maximum of 3 years.
- 2) A transgression is considered to have occurred if the Principal after due consideration of the available evidences, concludes that no reasonable doubt is possible.
- 3) The Bidder accepts and undertakes to respect and uphold the Principal's absolute right to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.
- 4) If the Bidder / Contractor/Supplier can prove that he has restored / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal may revoke the exclusion prematurely.

Section 4 - Compensation for Damages

- 1) If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover from the Bidder liquidated damages equivalent to Earnest Money Deposit/Bid Security.
- 2) If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor/Supplier liquidated damages equivalent to Security Deposit / Performance Bank Guarantee.

- 3) The Bidder agrees and undertakes to pay the said amounts without protest or demur subject only to condition that if the Bidder / Contractor/Supplier can prove and establish that the exclusion of the Bidder from the tender process or the termination of the contract after the contract award has caused no damage or less damage than the amount of the liquidated damages, the Bidder / Contractor/Supplier shall compensate the Principal only to the extent of the damage in the amount proved.

Section 5 - Previous Transgression

- 1) The Bidder declares that no previous transgression occurred in the last 3 years with any other Company in any country conforming to the TI approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 - Equal treatment of all Bidders / Contractors /Suppliers/ Subcontractors

- 1) The Bidder/Contractor/Supplier undertakes to demand from all subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.
- 2) The Principal will enter into agreements with identical conditions as this one with all Bidders, Contractors/Suppliers and Subcontractors.
- 3) The Principal will disqualify from the tender process all Bidders who do not sign this Pact or violate its provisions.

Section 7 – Punitive Action against violating Bidders / Contractors / Suppliers/Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor, Supplier or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor, Supplier or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 - Independent External Monitors

- 1) The Principal has appointed competent and credible Independent External Monitors for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- 2) The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Chairperson of the Board of the Principal.
- 3) The Bidder/Contractor/Supplier accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Bidder/Contractor/Supplier. The Bidder/Contractor/Supplier will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to this project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder/Contractor/Supplier/Subcontractor with confidentiality.
- 4) The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Bidder/Contractor/Supplier. The parties offer to the Monitor the option to participate in such meetings.
- 5) As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or heal the violation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendation. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action. However, the Independent External Monitor shall give an opportunity to the Bidder/Contractor/Supplier to present its case before making its recommendations to the Principal.
- 6) The Monitor will submit a written report to the Chairperson of the Board of the Principal within 8 to 10 weeks from the date of reference or intimation to him by the 'Principal' and, should the occasion arise, submit proposals for correcting problematic situations.
- 7) If the Monitor has reported to the Chairperson of the Board a substantiated suspicion of an offence under relevant Anti-Corruption Laws of India, and the Chairperson has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8) The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration

This Pact begins when both parties have legally signed it. It expires for the Contractor/Supplier 12 months after the last payment under the respective contract, and for all other Bidders 6 months after the contract has been awarded.

If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged / determined by Chairperson of the Principal.

Section 10 - Other provisions

- 1) This agreement is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e. Mumbai. The Arbitration clause provided in the main tender document / contract shall not be applicable for any issue / dispute arising under Integrity Pact.
- 2) Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- 3) If the Bidder/Contractor/Supplier is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- 4) Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

.....
For the Principal

.....
For the Bidder/Contractor/Supplier

Place

Witness 1.....
(Signature/Name/Address)

Date -----

Witness 2:
(Signature/Name/Address)

INSTRUCTIONS TO BIDDERS FOR E-TENDERING

Bidders who wish to participate for RFQs/ Tenders which are uploaded on EIL's Authorised service provider's website (i.e. www.tenderwizard.com/eil) should follow the following instructions which shall permit them to Search, View, Download and Submit their Electronic Bids online in a secure manner ensuring confidentiality. These Instructions for E-Tendering shall be read in conjunction with various instructions, wherever appearing with the RFQ/ Bidding Document. The conditions & instructions mentioned here in under shall supersede and shall prevail over the conditions & instructions enumerated elsewhere in the RFQ/ Bidding Document.

1) PARTICIPATION IN E-TENDERING, REQUEST FOR USER ID and PASSWORD:

To participate in E-Tendering, it is Mandatory to the Bidders have a user id and password on e-tendering portal. Bidders are required to be registered on E-Tendering website to obtain user id & password (password will be system generated). However for the tenders issued on limited basis, bidders are already registered by EIL and after their registered, user id & password were communicated to bidders at their e-mail id available in EIL. The bidders who are already registered may contact to concern person of EIL to get their user id and password.

For tender issued on NIT/ Press advertisement basis, bidders are required to registered themselves by using the link of registration provide on the home page of e-tendering website. The bidders are required to fill the online registration form with all required details. The bidder should indicate correct information including their e-mail since all system generated correspondences will be send on these e-mail ids. Digital signature of class 3b individual or class 3 organization is a mandatory requirement for e-tendering, right from log-in into the system. Hence, during registration, bidders shall fill the details of their digital Signature (serial No.) to save time and avoid mapping of Digital Signature details to the bidders user ID at the bid uploading stage. Otherwise, bidders are required to furnish their DC details to EIL for mapping the same to their user id by Service provider. Once, the online registration form is submitted with all required field and documents like pan card, registration or any other document of company, the system will generate the user id and password for the bidder.

However, to use this user id, the bidders are required to get their user id enabled (activate) through concerned engineer for the tender in EIL. Accordingly, after registration, bidder shall send a request to EIL to activate their user id by providing user id and bid reference number.

Note : Bidders who are already registered in any earlier tender of EIL, need not to create new user id, as the same user id can be used for all the tenders issued to them by EIL on this e-tendering portal.

User id and password are unique to each bidder and the bidder shall use the same to view/download/participate in all e-tenders of EIL. Bidders are required to change the password during their first login into the system. There will be single user id permission for each bidder in the system for their company/Organization.

Bidders in their own interest are requested to register on e- tendering portal and upload/submit their bid well in time. Bidders should avoid the last hour rush to the website for registration of user id & password, enabling of user id and mapping of digital signature serial number etc. since this exercise require activities from EIL & M/s Antares System (Service Provider) and needs time. In the event of failure in bidder's connectivity with EIL/Service Provider during the last few hours, bidder is likely to miss the deadline for bid submission. Due date extension request due to above reason may not be entertained.

EIL/EIL's ASP will not be responsible for any delay/ non-availability of USER ID or Password or any last minute request for enabling /resetting the same by the Bidders.

2) TRAINING & FAMILIARIZATION WITH E-TENDERING SYSTEM

The bidder should familiarize themselves with the e-tendering system and understood all formalities related to e-tendering including log-in, system settings, downloading & uploading procedures. The contact details of the concerned representatives from ASP and other helpdesk no.

3) VIEW AND DOWNLOAD E-TENDER

Bidders must go to E-Tendering website www.tenderwizard.com/eil and log-in using their user-id, password and digital signature.

However, the open tenders can be viewed/ downloaded from the link "tender free view" provided on the home page the website, without being log-in into the system.

4) DIGITAL SIGNATURE

Bidders cannot submit e-bids without having valid Digital Signature. The Digital Signature shall be issued by C.A. (Certifying Authority) in India, in the name of a person authorized for E- Tendering on behalf of his Company.

FOREIGN BIDDERS SHALL ALSO HAVE TO OBTAIN DIGITAL SIGNATURE FROM CERTIFYING AUTHORITIES IN INDIA AS APPROVED BY CCA. DIGITAL SIGNATURE OBTAINED FROM FOREIGN COUNTRIES ARE NOT ACCEPTABLE.

Note: In terms of Indian I.T Act 2000, only a digitally signed document will be considered as a valid signed document.

5) BID DOCUMENT FEE/ EARNEST MONEY DEPOSIT, IF APPLICABLE :

Bidders are required to submit the Bid Document Fee & EMD (in the prescribed format) in original as per the manner prescribed in the RFQ/ Bidding Document at the time of bid submission in sealed envelope. However, bidders are required to upload the scanned copy of both Bid Document fee as well as EMD on E-Tendering website along with the e-bid.

If the Bidder is unable to submit Bid Document Fee & EMD in original within the due date & time, he may submit the original Bid Document Fee & EMD within 7 days from the date of unpriced bid opening, provided copy of the same have been uploaded on E-Tendering Website. In case the bidder fails to submit the same in original within 7 days, his bid shall be rejected, irrespective of their status/ ranking in tender and notwithstanding the fact that a copy of Bid Document Fee & EMD was earlier uploaded by the bidder.

6) SUBMISSION OF BID :

Bidders are required to upload the bid along with all supporting documents & Priced part on the E-Tendering website (www.tenderwizard.com/eil) only. However, documents required to be submitted physically, viz., Bid Document Fee, EMD, etc., need to be submitted in a sealed envelope as per the provisions of RFQ/ Bidding Document.

Bidders shall ensure that all the required documents are uploaded in time and failure to upload the same before bid submission date & time is the sole responsibility of bidder. Under no circumstances, EIL shall entertain any request for acceptance of bid documents in physical form or any other form, which are required to be uploaded on E- Tendering Website.

Also bidders are suggested to check the uploaded documents to verify the uploaded documents are opening correctly or not by clicking on the download link.

The bidders needs to submit prices on-line strictly as per the Price Schedule format provided in our E-Tender.

Bidders can submit their Bids on-line only after digitally signing the bid/documents with the Digital Signatures used for log-in.

The Authenticity of above digital signatures may be verified through authorized CA after bid opening and in case the digital signature is not authorized/valid, the bid will be rejected. Bidder shall be responsible for ensuring the validity of digital signatures and proper usage of the same by responsible persons.

No Late Bids after due date & time shall be permitted in E-Tendering website. The system time (IST) being displayed on the E-Tendering website shall be final and binding on bidder and bids have to be submitted by bidders considering this time only and not the time as per their location / country. Bidder who intends to change the bid already submitted may change/revise the same on or before the closing date & time of bid submission.

No Manual Bids shall be permitted. The offers submitted through E-tendering website shall only be considered for evaluation.

Note:

- i. Bidders are advised in their own interest to ensure that bids are uploaded in E- tendering website well before the closing date and time of bid submission.
- ii. No bid can be modified after the dead line for submission of bids.
- iii. EIL shall not be responsible for any failure on the part of the bidder to follow the instructions.
- iv. Inadvertently, if a document is uploaded in E- tendering website by the bidders, such document can be deleted/detach by the Bidder and a new/modified document can be uploaded digitally signed within the bid due date & time.
- v. Bidders are requested to upload small sized documents preferably (upto 5 MB) at a time to facilitate easy uploading into E- Tendering website. EIL does not take any responsibility in case of failure of the bidder to upload the documents within specified time of Bid submission. Bidder can upload any number of documents each below 5 MB in size.
- vi. Wherever, the bidders are asked to upload the required document in Mandatory folders, the bidders must upload the required document only in the Mandatory folders and other documents can be attached in general documents section.
- vii. Any bidder intends to modify their bid they should use "MODIFY" instead of "WITHDRAW".
- viii. Caution : ONCE BID IS WITHDRAWN BY THE BIDDER WILLINGLY OR UNWILLINGLY , SYSTEM WILL NOT ALLOW THEM TO RESUBMIT THEIR BID.

7) OPENING OF BIDS:

The unpriced bids shall be opened online, at the specified date and time given in the RFQ document or extended otherwise. The price bids shall also be opened online on the date & time which will be informed to all the techno-commercially qualified/ acceptable bidders in advance.

The bidders who have submitted their bid will be able to view online the name & status of all the bidders at their respective windows, after unpriced bid opening by buyer. Similarly, the techno-commercially acceptable bidders will be able to view online the price sheets of other techno-commercially acceptable bidders (who qualify for the price bid only) at their respective windows, after priced bid opening by buyer.

Wherever the composite bids are invited, the composite bids shall be opened accordingly.

8) LAST DATE FOR SUBMISSION / RECEIPT OF BIDS:

System does not allow for submission of bids beyond the deadline for bid submission. The system time displayed on EIL's ASP E-Tendering website shall be final and binding on the bidders for all purposes pertaining to various events of the subject RFQ/ Bidding Document and no other time shall be taken into cognizance.

9) GENERAL

- i. The bidders may quote from their own offices/ place of their choice. Internet connectivity shall be ensured by bidders on its own.
- ii. Bidders agree to non-disclosure of trade information regarding the purchase, identity of EIL, bid process, bid technology, bid documentation and bid details.
- iii. EIL shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause.
- iv. EIL shall not be responsible for any indirect / consequential losses / damages, including but not limited to systems problems, inability to use the system, loss of electronic information, etc.
- v. EIL decision on award of Contract shall be final and binding on all the Bidders.

- vi. EIL reserves the right to prescribe different Security Devices for accessing and/or using E-Tendering System or any part thereof, including but not limited to prescribing different Security Device(s) for accessing and/or using different parts of E-Tendering System.
- vii. EIL reserves the right to prescribe password(s) and Login ID(s) for the bidders and its representatives as well as any combination and/or sequence of letters and/or numerals for the password(s) and Login ID(s).
- viii. The actions, failures, omissions and defaults of the bidder's representative(s) shall be construed and be given legal effect as if they are the actions, failures, omissions and defaults of the bidder and the bidder shall be fully responsible for all such matters.
- ix. The bidder shall bear all costs and expenses in relation to its access and use of E-Tendering System, including but not limited to the costs and expenses incurred in ensuring its continued access and use of E-Tendering System.
- x. EIL shall not be responsible or held liable under these Terms and Conditions for any loss or damage that is caused to any party due to use or misuse of the E-Tendering System or breach, by any party, of the Terms and Conditions mentioned herein.
- xi. All Clarification/ correspondences including enabling of user ids, password re-set request, mapping of DC details, etc, if any, will only be entertained from 0900 Hrs. (IST) to 1600 Hrs. (IST) only, during the office working hours.

NOTE: A Ready Reckoner for e-tendering is available on e-tendering website (www.tenderwizard.com/eil) under the Link "Vendor Help". Bidders to click on the link "Vendor Help- Detailed Help" to downloading the same. Bidders to follow the instructions given in the same for uploading their e-bids in e-tendering website.

Annexure-I to ITB for E-Tendering

Contact details of Authorized Service Provide (ASP)

ASP Name: M/s Antares Systems Limited, Bangalore

Address: # 24, 1st Floor, Sudha Complex
Near Havanoor Circle, 3rd Stage
4th Block, Basaveshwara Nagar
Bangalore - 560 079
Ph: 080-40482000
Fax No: +91-80-40482114

New Delhi Help Desk:

C-9, 1st Floor (Back Side)
New Krishna Park, Najafgarh Road, Vikaspuri
Near Janakpuri West Metro Station
New Delhi-110018
Ph No: 011-49424365
Fax No: +91-11-25618721

Contact Persons:

1. Mr. Santosh Srivastava
Contact no: 08800591739
Email: santoshkumar.s@antaressystems.com
2. **Mr. Sachin**
Contact no: 8401982112
Email: sachin.t@antaressystems.com

Help Desk Numbers:

1. Bangalore : 080-40482000
2. New Delhi : 011-49424365
08800 991865
3. Gujarat : 08401982112

This drawing, design and details given on this format are the property of ENGINEERS INDIA LIMITED. They are merely loaned on the borrower's express agreement that they will not be reproduced, copied, exhibited or used, except in the limited way permitted by a written consent given by the lender to the borrower for the intended use. EIL-1641-515 Rev.1 A4-210x297.

MATERIAL REQUISITION (TOP SHEET)

ITEM DESCRIPTION: PRESSURE VESSEL -CS (UP TO 25 MM)

GROUP ITEM CODE: 01AA

DESTINATION: As per Commercial Documents

MR CATEGORY: I

DELIVERY PERIOD: As per Commercial Documents

DOCUMENT NUMBER

(Always quote the Document Number given below as reference)

A307	IC	VV	MR	6007	A	27/08/2013	16	46
JOB NO.	UNIT/ AREA	MAIN COST CENTRE	DOC. CODE	SR. NO.	REV.	DATE	DIVN.	DEPT.
							ORIGINATOR	

NOTES :

- 1 This page is a record of all the Revisions of this Requisition.
- 2 The nature of the Revision is briefly stated in the "Details" column below, the Requisition in its entirety shall be considered for contractual purposes.
- 3 Vendor shall note the MR category and shall submit his offer in line with the requirements included in attached 'Instructions to Bidders'.

REV.	DATE	BY	CHK.	APPD.	DETAILS
A	27/08/2013	VIVEK	TK	KA	ISSUED FOR BIDS

This is a system generated approved document and does not require signature.



ENGINEERS INDIA LIMITED

16

Project: INTEGRATED REFINERY EXPANSION PROJECT

Client: BPCL-KOCHI REFINERY

Sheet 1 of 3

SR. NO.	TAG NO/ ITEM CODE/ [ID. NO.]	DESCRIPTION	QUANTITY
01.00		Residual Design, procurement of materials and bought out components, fabrication including assembly / sub-assembly at shop, NDT, inspection, testing at manufacturer's works, hydrotest, surface preparation and application of shop primer as per data sheet and packing, delivery including supply of all mandatory spare & documentation as per enclosed EIL standard specifications, instructions to vendors, job specification, data sheets etc. and other codes and standards attached or referred.	
➤ 01.01	IC-V-201	CDU HEATER LP STEAM APH CONDENSATE POT	1 Nos
➤ 01.02	IC-V-202	CDU HEATER LP STEAM APH CONDENSATE POT	1 Nos
➤ 01.03	ID-V-140A/B	LP STEAM AIR PREHEATER CONDENSATE POT	2 Nos
02.00		<< DELETED >>	
03.00		Transportation from Vendors work/ shop to site in single piece for the following as per the enclosed EIL standard specifications, instructions to vendors, job specification, data sheets etc.	
➤ 03.01	{03}IC-V-201	For Sr. No. 01.01	1 Nos
➤ 03.02	{03}IC-V-202	For Sr. No. 01.02	1 Nos
➤ 03.03	{03}ID-V-140A/B	For Sr. No. 01.03	2 Nos
04.00		<< DELETED >>	
05.00		<< DELETED >>	
06.00		Unit Rates	
06.01		Unit Rates of items for addition/deletion purpose, as per the enclosed A307-16-46-UR-6007.	1
07.00		<< DELETED >>	
08.00		<< DELETED >>	
09.00		Drawings and documents as per attached Vendor Data requirement for all supplies and services covered above in Sr.Nos.1.00 to Sr.No.8.00	Lot

➤ Vendors shall quote prices in EIL Price Schedule except for Sr.No.9.00. Price for documentation is implied to be included in the prices quoted against Sr.No.1.00 to Sr.No.8.00

Vendor to note that the numbers given in square '[]' and curly '{}' brackets are not for their use and meant for store purpose only. Items shall be tagged as per main equipment Tag No. only.

LIST OF ATTACHMENTS

SL. No.	DOCUMENT TITLE	DOCUMENT NO.	REVISION			
			REV.	REV.	REV.	REV.
			DATE	DATE	DATE	DATE
1	List of applicable specifications & standards	A307-16-46-LL-6007	A			
			26/08/2013			
2	Instructions to Vendor	A307-16-46-TR-6007	A			
			26/08/2013			
3	Scope of Supply	A307-16-46-SS-6007	A			
			26/08/2013			
4	Unit rates for Addition/Deletion	A307-16-46-UR-6007	A			
			26/08/2013			
5	Vendor data requirements	A307-0IC-16-46-VDR-6007	A			
			26/08/2013			
6	Vessel Design Data for IC-V-201	A307-IC-16-46-DS-3181	B			
			26/08/2013			
7	Vessel Design Data for IC-V-202	A307-IC-16-46-DS-3182	B			
			26/08/2013			
8	Vessel Design Data for ID-V-140A/B	A307-ID-16-46-DS-3047	C			
			26/08/2013			

In case of any subsequent revision of MR or PR, only revised sheets of the attachments listed above shall be issued alongwith the revision.

GENERAL NOTES:



ENGINEERS INDIA LIMITED

16

Project: INTEGRATED REFINERY EXPANSION PROJECT

Client: BPCL-KOCHI REFINERY

REQUISITION NO.

A307-IC-VV-MR-6007

Sheet 3 of 3

REV.

A

Vendor Drawing/ Document Submission Schedule

Status
Date

[illegible]

LIST OF APPLICABLE SPECIFICATIONS

[X] indicates applicability

	Title	Doc No.	Shts.	Rev
[X]	General specification for pressure Vessels	6-12-0001	13	5
[X]	Supplementary specification for carbon steel vessels	6-12-0002	7	7
[]	Supplementary specification for low alloy steel vessels	6-12-0003	7	4
[]	Supplementary specification for austenitic stainless steel vessels	6-12-0006	7	5
[]	Supplementary specification for stainless steel clad vessels	6-12-0007	10	4
[]	Supplementary specification for 3½ % Ni steel pressure vessels	6-12-0008	7	4
[X]	Standard specification for boiler quality carbon steel plates	6-12-0011	7	7
[X]	Standard specification for weldable structural quality steel plates for storage tanks and vessels	6-12-0014	4	5
[]	Standard specification for clad plates	6-12-0015	5	4
[]	Standard specification for 3½%Ni steel plates for pressure vessels	6-12-0016	5	3
[]	Standard specification for 1%Cr-½%Mo & 1½%Cr-½%Mo steel plates	6-12-0017	5	4
[]	Standard specification for 2.25-Cr-1 Mo steel plates	6-12-0018	6	3
[]	Standard specification for stainless steel plates	6-12-0020	5	7
[]	Material requirements for carbon steel components used in sour service for petroleum refinery environments	6-79-0013	6	1
[]	Standard specification for surface preparation & protective coating	6-79-0020	59	0
[X]	Packing, marking & shipping specification.	6-14-0009	6	3
[]	Standard specification for mechanical agitators	6-26-0001	12	3
[X]	Standard Specification for Positive Material Identification (PMI) at Vendor's works	6-81-0001	8	2
[X]	Inspection & Test Plan for Pressure Vessels/Columns CS	6-81-0011	7	2
[]	Inspection & Test Plan for SS Clad Pressure Vessels/Columns Reactors	6-81-0013	7	2
[]	Inspection & test plan for wire mesh	6-81-0060	5	2

	Title	Doc No.	Shts.	Rev
	demisters			
[]	Inspection & test plan for weld overlay	6-81-0130	7	2
[]	Standard Specification For Health, Safety & Environment (Hse) Management At Construction Sites	6-82-0001	55	4
[X]	Specification for quality management system requirements from bidders	6-78-0001	7+2	0
[X]	Specification for documentation requirements from suppliers	6-78-0003	8+4	0
[]	Standard specification for positive material identification (PMI) at construction sites	6-82-0002	9+1	2
[]	Standard specification for erection of equipment and machinery	6-76-0001	22	2

LIST OF APPLICABLE STANDARDS

[X] indicates applicability

	Title	Doc No.	Shts.	Rev
[X]	Vessel tolerances	7-12-0001	2	5
[]	Support for horizontal vessel	7-12-0002	1	5
[]	Wooden pillows for saddle support	7-12-0003	1	5
[]	Skirt base details	7-12-0004	1	6
[]	Skirt opening details	7-12-0005	2	5
[X]	Angle leg support	7-12-0006	2	5
[X]	Pipe leg support	7-12-0007	1	5
[]	Bracket support for vertical vessel	7-12-0008	1	5
[]	Manhole with hinged cover	7-12-0009	2	6
[X]	Manhole with davit	7-12-0010	2	6
[]	Ladder rungs for manhole/ demister	7-12-0011	1	5
[]	Retaining plate	7-12-0012	1	5
[X]	Nozzle reinforcement and projection	7-12-0013	2	6
[]	Pad nozzles for vessels	7-12-0014	1	5
[X]	Standard bolt hole orientation	7-12-0015	1	5
[]	Alloy liner details	7-12-0016	2	5
[]	Sight glasses for pressure vessels	7-12-0017	2	5
[]	Internal flanges	7-12-0018	1	5
[]	Vortex breakers	7-12-0019	1	5
[]	Inlet deflector baffle	7-12-0020	1	5
[]	Support ring and bolting bar	7-12-0021	1	5

	Title	Doc No.	Shts.	Rev
[]	Support ring sizes for packed towers internals	7-12-0022	1	5
[]	Pipe davit	7-12-0023	3	6
[]	Lifting lug top head type	7-12-0024	1	7
[X]	Fire proofing and insulation supports	7-12-0025	2	5
[X]	Earthing lug	7-12-0026	1	5
[X]	Name plate	7-12-0027	1	5
[X]	Manufacturer name plate	7-12-0028	1	5
[X]	Bracket for name plate	7-12-0029	1	5
[X]	Name plate for small equipment	7-12-0030	1	4
[]	Details of forged nozzles	7-12-0031	1	4
[]	Supports for internal feed pipe	7-12-0032	2	4
[]	Hot insulation supports for horizontal vessel	7-12-0033	1	4
[]	Pipe davit support detail for cold insulated vessels	7-12-0034	1	4
[]	Typical details of wire mesh demister and its supports	7-12-0036	4	3
[]	SR nozzle neck	7-12-0037	1	3
[X]	Job specification for surface preparation and protective coating	A307-000-06-42-PLS-01	48	1

VENDOR DATA REQUIREMENTS FOR VESSELS

A	26-AUG-2013	Issued for Bids	Vivek	TK	KA
Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by

VENDOR DATA REQUIREMENTS

The following drawings/documents marked "✓" shall be furnished by the bidder.

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	DATA FOLDER AS PER SPECIFICATION			✓	✓	Documents approved by inspector shall be submitted within 2 weeks after dispatch of equipment. @.
2.	DETAIL OF INSULATION, FIRE PROOFING			✓	✓	Documents shall be submitted highlighting areas of discrepancy or fouling, etc. within 10 to 15 weeks of issue of PR.
3.	DETAIL OF EXTERNAL CLIPS SUCH AS LADDER, PLATFORM, PIPE SUPPORT.			✓	✓	Documents shall be submitted highlighting areas of discrepancy or fouling, etc. within 10 to 15 weeks of issue of PR.
4.	DETAIL OF NOZZLES, MANHOLES, ACCESSORIES ETC			✓	✓	Documents shall be submitted within 3 to 5 weeks of issue of PR.
5.	GENERAL ARRANGEMENT DRAWING INDICATING DESIGN DATA FABRICATED EQUIPMENT WEIGHT, GENERAL NOTES, NOZZLE SCHEDULE, DETAIL OF SHELL, HEADS, SUPPORTING ARRANGEMENT, MAIN WELD SEAMS, NOZZLE ORIENTATION PLAN, CUTTING LAYOUT ETC.		✓		✓	Documents shall be submitted within 3 to 5 weeks of issue of PR. Plate cutting layout is not to be submitted.
6.	INSPECTION AND TESTING PLAN		✓		✓	Documents shall be submitted within 5 to 8 weeks of issue of PR. @.
7.	WELDING PROCEDURES AND QUALIFICATION TEST REPORTS		✓		✓	Documents shall be submitted within 5 to 8 weeks of issue of PR. @.
8.	PACKING AND FORWARDING INSTRUCTIONS			✓	✓	
9.	DESTRUCTIVE AND NON-DESTRUCTIVE TEST REPORTS		✓		✓	Documents shall be submitted within 5 to 8 weeks of issue of PR. @.
10.	MATERIAL TEST CERTIFICATES		✓		✓	Documents shall be submitted within 1 week after final inspection. @.
11.	CODE CERTIFICATES (INCLUDING INSPECTION CERTIFICATE, HYDROSTATIC TEST CERTIFICATE, LOCAL CODE REQUIREMENTS, RUBBING OF CODE STAMP AND NAME PLATE ETC.)		✓		✓	Documents shall be submitted within 1 week after final inspection. @.
12.	HEAT TREATMENT PROCEDURE AND TIME TEMPERATURE CHARTS		✓		✓	Documents shall be submitted within 1 week after final inspection. @.

VENDOR DATA REQUIREMENTS FOR VESSELS

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
13.	RADIOGRAPHIC EXAMINATION REPORTS WITH FILMS		✓		✓	Vendor to store these for 5 years. @.
14.	CERTIFIED 'AS BUILT' DRAWINGS INCORPORATING ACTUAL DIMENSIONS AND MATERIAL USED, DULY CERTIFIED BY THE INSPECTOR			✓	✓	Documents approved by inspector shall be submitted within 2 weeks after dispatch of equipment. @.
15.	Design Calculation for Lifting Lug			✓		Documents shall be submitted within 3 to 5 weeks of issue of PR.

Notes :

1. "TICK" denotes applicability
2. Post order, drawing / document review shall commence only after approval of Document Control Index (DCI).
3. All post order documents shall be submitted / approved through EIL eDMS portal
4. Final documentation shall be submitted in hard copy (Six prints) and soft (two CDs/DVDs) in addition to submission through EIL eDMS.
5. Refer - 6-78-0001: Specification for quality management system from Bidders.
6. Refer - 6-78-0003: Specification for documentation requirement from Suppliers.
7. Post order- The schedule of drawing / data submission shall be mutually agreed between EIL & the bidder / contractor / supplier during finalization of Document Control Index (DCI).
8. "@" indicates submission of documents to Inspection Agency.
9. Bill of Material shall form part of the respective drawing.
10. "TICK" denotes applicability.
11. All post order documents shall be submitted / approved through EIL eDMS portal.

INSTRUCTIONS TO BIDDERS

A	26.08.13	ISSUED FOR BIDS	RV/Vivek	TK	KA
Rev. No	Date	Purpose	Prepared by	Checked by	Approved by

INSTRUCTIONS TO BIDDERS

(A) Bidding Instructions (Category-I MR)

1. Bidder to note that no correspondence shall be entered into or entertained after the bid submission.
 2. Bidder shall furnish quotations only for those items, for which he is approved by EIL and which he can supply strictly as per MR specifications.
 3. No technical details of any nature shall be included in the offer. If the offer contains any technical deviations or clarifications or stipulates any technical specifications (even if in line with the MR requirements), the offer is liable for rejection.
 4. The submission of prices by the bidder shall be construed to mean that he has confirmed compliance with all technical specifications of the corresponding item(s).
- B) It is understood that-
- a) The quoted price includes for the "HOLDS" details of which are indicated on the Drg.
 - b) The weights indicated on EIL Engineering Drgs. do not form the basis for offer, since these are approximations only.
 - c) Spares as included in clause no.2.3 of Doc. No. A307-16-46-SS-6004 are included in the quoted price.

Technical Instructions

1. The shape of dished end/toricone, profile of conical reducer, knuckle radius, cone angle and overall height shall be as per engineering drawing. Minimum thickness of shell, cone and dished end shall be achieved taking into account thinning and scaling etc.
2. Dished ends and hot formed pressure parts shall have 10% or 2mm (whichever is higher) allowance for scaling and thinning, in order to achieve minimum thickness specified on the drawing.
3.
 - a. Wherever hot forming and subsequent heat treatment is involved, adopted procedure shall not impair the mechanical properties of the material beyond the limits specified in respective material specification.
 - b. For ~~low temperature equipment and~~ hot formed parts, number of production coupons and the tests thereon shall be as per requisition.
4. ~~Post weld heat treatment~~ and all non destructive testing like radiography, ultrasonic testing, magnetic particle/dye penetrant examination etc. shall be conducted as per requisition.
5. Transportation of all equipment to site shall be in a single piece.
6. Workmanship and materials, in Bidder's scope of supply, shall be guaranteed.
7. ~~Pickling and passivation of internal / external surfaces of stainless steel/monel clad and internal / external surface of SS / Monel internals shall be carried out as per ASTM A-380 / Job Specification # A307-IC-16-46-SP-01.~~

8. ~~For IBR vessels complete design of equipment as per IBR, approval of drawings, documents, stagewise inspection and final certification of the equipment by Inspectorate of Boilers shall be included in Bidder's scope.~~
9. ~~For items which are to approved by PESO, Nagpur, approval of drawings, documents, stagewise inspection and final certification of the equipment by PESO shall be included in Bidder's scope and getting approval from PESO shall be sole responsibility of bidder.~~
10. The main equipment shall not be subcontracted, however the bought out items/ components can be sub-ordered or sub-contracted to EIL approved vendors/sub-contractors only.
11. ~~Demister /Agitator shall be procured from EIL approved vendors only listed in job spec. A307-IC-16-46-SP-02.~~
12. ~~Fabricator to supply template for checking the orientation of anchor bolts on foundation and to ensure matching of base plate that is drilled in advance. The schedule of supply of template at site shall be 8 weeks from LOI.~~
13. Gaskets used for hydrotesting of equipment shall be of the same specification as service gaskets and the fabricator shall supply new gaskets for manholes and nozzles with blind /companion flanges apart from spares. Gaskets used for hydrotest shall not be used for actual hook up.
14. While transporting completed equipment, fabricator shall provide suitable type and no. of supports so that no deformation of any part of the equipment takes place.
15. Fabricator shall exercise utmost care during loading/unloading of equipment so that no damage to any part of the equipment occurs. Suitable type and no. of supports shall be provided for supporting the equipment.
16. **Transportation of equipment/rolled sections etc., shall be governed by commercial conditions.**
 - i) Equipment(s) having length more than 20 meters and / or forming "Gross Vehicle Weight" (weight of equipment(s) & weight of vehicle clubbed together) more than 49 Metric Tones shall be transported on Hydraulic axles only with compliance to all statutory norms of authorities concerned.
Fabricator /transporters to check the requirements as per latest guidelines issued by ministry of surface transport before shipping the equipment.
 - ii) For consignments, a GPS tracking system should be installed to monitor movement of consignment if the equipment(s) / equipment sections meets any of the below criteria:
 - a) Overall diameter (dimension) inclusive of nozzle projection exceeds 5.5 meters.
 - b) Length more than 25 meter.
 - c) Weight over 100 Metric Tones.
17. **In order to facilitate Video conferencing for management review and helmet camera for shop floor view, following shall be taken care by the vendor:**
 - **Vendor shall have video conferencing facility at their manufacturing unit.**

- Management review of the job status shall be done through video conferencing on a monthly basis or on a mutually agreed interval. Also the “work in progress” at the bidder’s workshop shall be shown live to BPCL/EIL through helmet camera.
 - Vendor could share the same information of manufacturer like plan vs. actual progress of the equipment/ system at the OEM’s site with the BPCL / EIL.
18. Erection weight given in equipment data sheet is approximate. Vendor shall calculate the actual equipment weight and furnish calculation. Erection weight furnished in vendor drawing shall be based on fabricator’s calculation. Calculation of Centre of Gravity (C.G.) of the equipment shall also be done by vendor and marked on the equipment & in the fabrication GA drawing.
19. When spot radiography is specified the extent of radiography defined in Clause 5.4.2 of EIL specification 6-12-0001 Rev. 5 shall be replaced as follows:

Each category A or B pressure containing weld shall be spot radiographed in accordance with ASME Section-VIII Division-I, paragraph UW-52 as a minimum requirement. Each Spot radiograph shall be a minimum of six inches (150mm) in length and minimum one spot shall be selected in each circumferential & longitudinal seam. Additionally at least one T-joint in each circumferential seam shall also be selected. Welds from each welding procedure, welded/welding operator shall be examined.

General Instructions

1. All materials including those used for internals shall be procured with stage-wise inspection. Stagewise and final inspection of equipments and its components shall be carried out by following:
 - a) For Foreign Vendors: Stagewise & final inspection of the equipment including all components and internals shall be carried out by third party inspection agency. Quoted price shall include for the same.
 - b) For indigenous Vendors: EIL shall be inspection agency for equipments and its indigenous components.
In case internals/forging/plates etc. are procured from abroad, the inspection shall be carried out by third party inspection agency. Quoted price for TPI of internals / forgings / plates etc. shall include for the same.
 - c) For acceptable third party inspection agencies (TPIA), refer commercial documents.

Fabrication shall not commence before their approval except as noted at SI.No. 2 & 3.
2. Raw material procurement may proceed prior to approval of vendor drawings on the basis of Purchase Requisition. However for plates & nozzles where there is no Hold in size, thickness, etc, material procurement shall be initiated by successful vendor based on MR drawings immediately after placement of order.
3. Shell rolling/welding and dished - head fabrication shall commence without awaiting fabrication drawing approval.

- Inspection shall be carried out in accordance with Purchase Requisition documents till approved fabrication drawings are available.
4. Material for shell, dished ends and skirt shall be considered as major raw material wherever identification of major raw material is one of the payment milestones.
 5. Purchase requisition shall be issued within two weeks of Fax of intent (FOI). Final nozzle sizes (without any holds) shall be issued alongwith purchase requisition or latest within two months of Fax of intent (FOI).
 6. Nozzle orientation of the equipment shall be issued latest by mid of contractual delivery period reckoned from date of issue of Fax of Intent (FOI).
 7. Pipe support/structural clip details shall be issued latest by three months before contractual delivery date.
 8. Minimum course width shall be 1 metre. Maximum no. of longitudinal seams shall be as follows:

(a)	vessels upto 2 metre diameter	:	1 seam
(b)	vessels from 2 metre upto 4 metre dia.	:	2 seam
(c)	vessels from 4 metre upto 6 metre dia.	:	3 seam

 In any case, distance between two longitudinal seams shall not be less than 3 meter.
 9. If any discrepancy is found during design and fabrication stages, the fabricator shall inform EIL immediately and shall obtain necessary clarification/approval before proceeding with that portion of the job any further.
EIL's review of fabricator's drawings and documents must not be considered as a check and shall not relieve the fabricator of his responsibilities to supply equipment as per requisition. Fabricator shall remain responsible for conflicts between his drawings/documents and EIL drawings/documents.
 10. English language and metric units shall be used in all documents. Drawings shall be prepared in prescribed sizes as standardized by bureau of Indian standards (BIS) and shall be preferably in the sizes such as 210 x 297, 297 x 420, 420 x 597, 597 x 841, 841 x 1189 mm.
 11. All fabricator's drawings submitted to EIL shall be based on purchase requisition and shall bear reference number and revision of the corresponding EIL drawings. In addition, it shall indicate item number, client's name, project name, fabricator's name, purchase order number, purchase requisition number, drawing number, revision number etc. all in the lower right hand corner. All revisions shall be clearly marked by encircling with revision marks.
 12. Submission of required drawings/documents shall be the responsibility of fabricator. In the event of fabricator's failure to meet this requirement, the supply of equipment shall be considered as incomplete.
 13. **Vendor shall submit a list of those drawings, which are to be submitted for review to EIL along with the submission dates for each drawing within 15 days of placement of FOI. A soft copy of this index shall also be provided in the format provided. Vendor shall strictly adhere to this drawing submission schedule. Updated vendor drawing / document submission schedule shall be forwarded along with each submission. This shall be submitted in soft copy also.**

14. All drawings shall be thoroughly checked and duly signed by fabricator. Unchecked drawings and drawings without revisions clearly marked shall be returned without review. Successive review of the same fabricator's drawing shall apply only to EIL's latest data sheet/comments on the previous revision. Drawings and documents returned to fabricator for revision shall be resubmitted preferably within ten days of receipt.
15. Dimensions of all flanges shall be as per ANSI B16.5 for nozzle sizes 24"NB and below and as per ANSI B16.47 Series B for sizes greater than 24"NB unless otherwise stated.
16. Fabrication drawings shall be submitted in following stages:

Stage-I

- General arrangement drawing indicating design data, fabricated equipment's weight, general notes, nozzle schedule, detail of shell, heads, skirt/supporting arrangement, main weld seams, nozzle orientation plan, ~~cutting layout (in case of free issue material)~~ etc.
- Detail of all nozzles, manholes, accessories etc.
- Bill of material for each item showing part size, quantity, material specification, scope of supply and weight etc.

Stage-II

- Detail of internals ~~such as tray, tray support ring, support beam, inlet weir and bolting bar.~~
 - Detail of internal distributor, demister support ~~and packing support~~, etc.
 - Detail of external clips for ladder, platform, pipe support, insulation, fire proofing, pipe davit, lifting trunnion, tailing lugs, lifting lugs etc.
 - Shell development drawing incorporating all attachments and weld seams, highlighting all the fouling along with suggestions for resolution.
 - Bill of material for each item showing part size, quantity, material specification, scope of supply and weight etc.
 - ~~In case of owner's free issue plate material, fabricator shall submit plate cutting diagram for EIL's approval.~~
17. After receipt of order, fabricator shall submit to EIL, the planning of fabrication which shall indicate the details and scheduled date of:
 - Sub orders.
 - Purchase of materials such as plates, pipes, forged flanges, bolting, gaskets, etc.
 - Start of fabrication of dished ends and shell, welding of shell and heads.
 - Welding of nozzles and external attachments such as cleats etc.

- **Phased program of shop/site fabrication of equipment section, shop assembly, testing and dispatch to site.**

This planning shall be established to extend from purchasing of equipment components to the end of fabrication and delivery of equipment.

18. All drawings shall be drawn in AUTOCAD R-14 or above. No hand drawn drawings shall be accepted. All residual calculations shall be computerized.
19. Documents and letters shall be furnished in electronic format. The software used shall be as follows.
 - a) MS OFFICE 2000 or above
 - b) ADOBE ACROBAT 5.0 & ABOVE

20. ~~In case of owner's free issue plate material, fabricator shall tabulate each plate detail as per following table:~~

Plate No./ Plate mark	Material Specification	Size of Plate Thk x Width x Length (mm) x (M) x (M)	Equipment Number	Ref. Dwg. No.	Part number and qty.
Size of Plate Thk x Width x Length (mm) x (M) x (M)	Heat/ sample number	Plate Weight (Kgs.)	Used plate weight (Kgs.)	Burnout losses (Kgs.)	
Returnable offcut size with sketch	Returnable offcut weight (Kgs.)	Non returnable scrap weight (Kgs.)	Remarks		

~~Fabricator shall be allowed 2% burnout losses against the material consumed in case of pressure vessels and 1% in case of storage tanks and spheres unless otherwise specified. In general purchase conditions all offcuts of width 800mm and perimeter 2400mm in carbon steel materials and 150mm width and perimeter 1500mm in stainless steel materials shall be returned to owner, unless otherwise specified. Returnable offcuts shall have original plate markings transferred and duly stamped by inspector. All other non returnable scrap shall be sold by fabricator on the basis of owner's instructions and approval.~~

21. Words "fabricator", "vendor", "contractor" appearing any where in the MR/Specifications/ Standards etc. shall be read as "bidder".
22. Bidder to note that interference of nozzles with circumferential seams is not acceptable. Vendor to take suitable care to avoid fouling of external/internal attachments with shell seams.
23. Vendor shall note that the vendor drawing for the following standard components (as applicable) shall not be reviewed by EIL. It shall be solely vendor's responsibility to ensure the correctness of these drawings as per EIL Standards and Drawings. If any discrepancy / mistake is found at a later date the vendor shall rectify the same at his time and cost.

- **Manhole davit/ hinge arrangement & Ladder rungs**

- Pipe Davit
- EIL Name plate, Manufacturer's Nameplate, Nameplate bracket
- Skirt (Pipe) opening details, Access Opening Details, Skirt vent.
- Lifting lugs (Standard Type)
- Fireproofing and Insulation Support
- Earthing lug
- Pipe support cleats and ladder and platform cleats (Fouling of external support cleats (if any), shall be highlighted to EIL along with shell development drawing and suggestion for resolution)

However all these above listed drawing shall be submitted in a separate drawing for information to EIL ensuring adherence to all the respective EIL Standards and Drawings. Clarifications (if any) shall be obtained by Vendor from EIL before fabrication.

24. Standard Inspection and test plans are attached with requisition for guidance. Vendor shall submit inspection test plans for the approval of visiting inspection engineer. Inspection shall take care of all the requirements of specifications. Inspection engineer has the authority to modify the plan depending on the criticality of the item.
25. **In the event of conflict, most stringent requirement in following order of precedence shall govern:**
- a) EIL Mechanical Data Sheet
 - b) Data Sheets for demister, etc. wherever applicable
 - c) EIL specifications and standards
 - d) Codes

However in event of conflict it shall be the duty of the Vendor to bring it to EIL's attention for resolution and resolve it before proceeding with the manufacture. EIL's comments shall be final and binding on vendor without any cost and delivery implications.

SCOPE OF SUPPLY

A	26.08.13	ISSUED FOR BIDS	RV/Vivek	TK	KA
Rev. No	Date	Purpose	Prepared by	Checked by	Approved by

SCOPE OF SUPPLY

[X] Indicates applicability

The following materials will be supplied by

1. Owner

1.1 Boiler quality/low-alloy/stainless/clad steel plate conforming to specification _____
NIL _____ for

- ☐ Shell
- ☐ Dished head/intermediate head/cone
- ☐ Sump and sump head
- ☐ Skirt
- ☐ Manhole neck, nozzle neck 300 NB and above in carbon steel and 125 NB and above in stainless steel
- ☐ Reinforcement pad
- ☐ Wrapper plate
- ☐ Plate type flange
- ☐ Internal piping
- ☐ Tray support ring/bolting bar/seal pan welded to the vessel
- ☐ Pad for external attachment (directly welded to shell)
- ☐ Insulation support
- ☐ Lifting lugs
- ☐ Baffle
- ☐ Demister support

- 1.2 ☐ Forged flange/matching blind flange
- ☐ Pipe for nozzle neck
- ☐ Pipe fitting
- ☐ Gasket

1.3 [X] Foundation/anchor bolts

- ☒ Platform and ladder
- ☒ Permanent instruments
- ☐ Demister with grid, bolting.
- ☒ Fire proofing and insulation
- ☒ Pump assembly with bolting
- ☐ Agitator assembly with bolting
- ☐ Tray/down comer/seal pan/chimney tray not welded to the vessel
- ☐ Brick lining
- ☐ Refractory lining
- ☐ Internal Packing
- ☐ Light and sight glass assembly
- ☐ Thermowells

2. VENDOR

2.1 Boiler quality carbon/~~low alloy/stainless/Clad~~ steel plate conforming to specification SA 516 Gr. 70 (as per data sheets) for

- ☒ Shell
- ☒ Dished head / ~~Flat Head / intermediate head / cone / toricone.~~
- ☐ Sump and sump head
- ☐ Skirt (Partly)
- ☒ Manhole neck, nozzle neck 300 NB and above in carbon steel and ~~125 NB and above in stainless steel & 200 NB and above in clad steel~~
- ☒ Reinforcement pad / Insert Plate
- ☐ Wrapper plate
- ☐ Plate type flange
- ☐ Internal piping / distributor and supports
- ☐ Tray Support Ring/ Packing support ring/Support Angles/ Inlet Weir/Bolting Bar/Seal Pan/ Tray Downcomer welded to the equipment.

-
- ☒ External attachments
 - ☒ Fire proofing and insulation supports welded to equipment
 - ☒ ~~Saddle support/bracket/leg support~~
 - ☒ ~~Lifting Trunnion / Lugs / Tailing lugs.~~
 - ☐ Internal baffles, vortex breaker, ladder rungs, retaining plate
 - ☐ Demister supports
 - ☒ Structural & Piping Clips directly welded to equipments
 - ☐ Guide support/Vacuum stiffening rings / stiffening rings
- 2.2 Structural steel section and plate conforming to ~~IS:226/IS:2062 Gr.B/ SA-283 Gr.C~~ for
- ☐ Shell
 - ☐ Skirt (Partly) /anchor chair/base plate/saddle and bracket support
 - ☐ Internals
 - ☒ Insulation support/fire proofing support
 - ☐ Flat cover
 - ☐ Manway flange/cover
 - ☐ Tailing lug and Stiffening Block/Beam in skirt portion
 - ☒ Structural and piping clips
 - ☐ Section for stiffeners
 - ☒ ~~Leg supports and base plate~~
- 2.3
- ☒ Forged flanges / matching blind flange wherever shown.
 - ☒ Studs/bolts and nuts for manway / ~~handholes / internal flanges~~ / nozzles with blind flange / shell flange, including jack bolts for manways and shell flanges
 - ☒ Gasket for manway / internal flange/shell flange/ nozzles shown with blind flanges
 - ☒ Welding consumables and gases
 - ☐ Demisters with grid and bolting
 - ☐ Wire Mesh

- ☐ Agitator assembly with bolting
- ☐ Pump assembly with bolting
- ☒ Seamless nozzle necks 250 NB & below in Carbon Steel, ~~100NB & below in Stainless Steel & 150 NB & below for weld overlayed nozzle~~
- ☐ Internal piping, ~~coupling~~ and pipe fitting
- ☐ Spray nozzle
- ☐ Ladder rungs
- ☒ Pipe Leg
- ☐ Light and sight glass assembly
- ☒ Davit / ~~hinge assembly for manway~~ / Shell Flange
- ☐ Pipe davit assembly for equipment
- ☒ Items covered in applicable EIL standards
- ☒ All other metallic and non-metallic parts, consumables and gases not covered under 1 and 2 but required to complete fabricated equipments including inspection, testing and supply of equipments as per this requisition
- ☒ Spares –10% of fasteners (min 2 nos. in each size) and two sets of gaskets for each nozzle / Shell flange shown with blind flange / companion flange.
- ☐ Spares (for demister) - 10% (min. 4 nos. of each size/type) extra fasteners (bolts, nuts, clamps, spacers etc.) as required for holding the demister.
- ☐ Template for foundation.
- ☒ ~~Self Reinforced Nozzles~~/LWN Nozzles
- ☒ Shell / Head if made of pipe and pipe cap for ID-V-140A/B

UNIT RATES FOR ADDITION/ DELETION

A	26.08.13	ISSUED FOR BIDS	RV/Vivek	TK	KA
Rev. No	Date	Purpose	Prepared by	Checked by	Approved by

UNIT RATES FOR ADDITIONS/DELETIONS

1. Offer shall contain the sheets given below & the subsequent sheets for addition / deletion of nozzles **duly filled in**, else offer will be rejected. Please note that the same EIL sheets as given below shall be filled in and enclosed in the offer. Bidder shall not enclose his own sheets.
2. It is understood that
 - a) The quoted price includes for the “HOLDS” details of which are indicated on respective equipment Engineering Drawing.
 - b) The weights indicated on EIL Engineering Drawings do not form the basis for offer, since these are approximations only.
 - c) Spares as included in clause no. 2.3 in Scope of Supply (Doc. No. A307-16-46-SS-6007) are considered for in the quoted price.

Description	Price List (To be filled in by bidder)
1. Indicate charges for the following for future addition/deletion with material as per scope of supply defined in the material requisition : i) External support clips per Kg. basis. - IS: 2062 Gr. B - SA-516 Gr. 70 ii) Reinforcement pad/ Insert Plate for nozzle per Kg. Basis - SA-516 Gr. 70 iii) ~~Pipe davit per meter basis~~ ~~100 NB Sch.160~~ ~~150 NB Sch.80~~ ~~200 NB Sch.80~~ ~~200 NB Sch.160~~ ~~200 NB Sch. XXS~~ ~~300 NB Sch.160~~ ~~400 NB Sch.160~~ iv) ~~Tray / Tray support ring/bolting bar, seal pan support, Tray Downcomer & their Support per kg.basis.~~ ~~SA 516 Gr. 70~~ ~~SA 516 Gr. 60~~	

Description	Price List (To be filled in by bidder)
v) ~~Change in support dimension / skirt height per Kg. Basis~~ ~~IS: 2062 Gr. B~~ ~~SA 516 Gr. 70~~	
vi) Change in pipe leg support per Kg. Basis - SA 106 Gr. B	
vii) Change in angle leg support per Kg. Basis - IS-2062 Gr.B - SA-283 Gr.C - SA-516 Gr.70	
viii) Change in nozzle pipe lengths per Kg. basis - SA-106 Gr.B - SA-516 Gr.70	
ix) ~~Change in self reinforced nozzle sizes per kg. Basis~~ ~~SA 105~~ ~~SA 182 Gr F 304~~ ~~SA 350 Gr. LF2~~ ~~In case of change in size, vendor shall submit design calculation, details and weights of the previous size also for EIL review at the time of extra claims.~~	
x) Change in pipe fitting per Kg. Basis - SA-234 Gr. WPB	
xi) Change in internal details including support per Kg. Basis - SA-516 Gr.70	

Description	Price List (To be filled in by bidder)
xii) Change in LWN nozzle / Non-standard flanges dimension per Kg basis - SA 105	
xiii) Change in equipment dimension/thickness per kg basis - SA 516 Gr. 70 - SA 106 Gr.B	

SCHEDULE OF RATES FOR ADDITION/DELETION OF NOZZLES

प्रेशर वैसल्स के सामान्य विनिर्देश

GENERAL SPECIFICATION FOR PRESSURE VESSELS

5	30.06.2010	REVISED AND REISSUED AS STD. SPEC.	KA	RKT	AKM/DM	N.DUARI
4	20.11.09	REVISED & REISSUED AS STD. SPEC.	VB	RKG	AKM	N.DUARI
3	15.05.00	REVISED AND REISSUED AS STD. SPECN.	RKT	AKM	CRMN	MI
2	15.12.94	REVISED AND REISSUED AS STD. SPECN.	DD	AKM	VC	AS
1	01.01.91	ISSUED AS STANDARD SPECIFICATION	DD	CRMN	VC	AS
Rev. No	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
Approved by						

Abbreviations:

ASME	:	American Society of Mechanical Engineers
DNV	:	Det Norske Veritas
IBR	:	Indian Boiler Regulations
ISO	:	International Organisation for Standardisation
NB	:	Nominal Bore
PESO	:	Petroleum & Explosives Safety Organisation
PWHT	:	Post Weld Heat Treatment

Static Equipment Standards Committee

Convenor : Mr. A.K. Malik

Members : Mr. R.K. Trivedi

Mr. K. Anjaneyulu

Mr. Tarun Kumar

Mr. Chandra Kant (Inspection)

Mr. G.K. Iyer (Construction)

Mr. Ratan Lal (Project)

CONTENTS

1.0	SCOPE.....	4
2.0	REFERENCES	4
3.0	DESIGN.....	5
4.0	FABRICATION	6
5.0	INSPECTION & TESTING	9
6.0	SUPPLY	11
7.0	GUARANTEE.....	12
8.0	SITE FABRICATION AND ERECTION.....	12
9.0	DATA FOLDER.....	13

1.0 SCOPE

1.1 This specification covers the general requirements for design, fabrication, workmanship, erection, inspection, testing and supply of unfired pressure vessels and is intended to supplement the minimum requirements of the applicable codes.

1.2 Supplementary specification indicating special or additional requirements shall form addenda to this specification and shall govern. Supplementary specification, when made addenda to this specification shall be referred to in the Material Requisition and / or Purchase Order. Following are the supplementary specifications:

- a) 6-12-0002 Supplementary specification for carbon steel vessels.
- b) 6-12-0003 Supplementary specification for low alloy steel vessels.
- c) 6-12-0006 Supplementary specification for austenitic stainless steel vessels.
- d) 6-12-0007 Supplementary specification for stainless steel clad vessels.
- e) 6-12-0008 Supplementary specification for 3½ %Ni steel pressure vessels.

1.3 In case of conflict, the order of preference shall be as follows :

- a) Engineering drawing
- b) Specifications
- c) Codes

As a general rule, the most stringent requirements shall govern.

2.0 REFERENCES

2.1 Design Codes

The following codes in their latest edition including their addenda at the time of bidding shall form the basis for design, fabrication, inspection, testing and acceptance of equipment :

- (a) ASME Boiler and Pressure Vessel Code Section VIII Div. 1.
- (b) ASME Boiler and Pressure Vessel Code Section IX.
- (c) Indian Boiler Regulations- IBR (whenever applicable).
- (d) The Static and Mobile Pressure Vessels (Unfired) Rules 1981 (whenever applicable).

2.2 Material Codes

Material to be used shall conform to :

- (a) ASME Boiler and Pressure Vessel Code Sec.II.
- (b) Indian Standard specification.

Other specifications of equivalent grade can be used only after written approval from EIL.

2.3 Regulations

National laws and regulations together with any local by-laws for the country or state wherever the vessels are to be used must be complied with by the fabricator.

3.0 DESIGN

3.1 Design Pressure

- 3.1.1 Design pressure specified shall be at the top of vertical vessel or at the highest point of horizontal vessel.
- 3.1.2 The design pressure at any lower point shall be determined by adding the maximum operating liquid head and any pressure gradient within the vessel.

3.2 Corrosion Allowance

- 3.2.1 Corrosion allowance shall be added to both sides of tray support rings and other fixed internal non-pressure parts.
- 3.2.2 Removable internal parts (with the exception of trays) which are bolted or clamped in place, shall be provided with extra thickness equal to half the specified corrosion allowance on each surface exposed to vessel contents.
- 3.2.3 Full corrosion allowance shall be added to the throat thickness necessary for strength or sealing in case of fillet and seal welds on internal attachments.
- 3.3 During fabrication or shop/site hydro-test conditions in horizontal position, the supports for shell shall be so provided that combined stresses in any shell component (based on corroded thickness for site test) do not exceed the following:

- | | | |
|-----|--------------|-----------------------|
| (a) | Tensile : | 90% of ambient yield |
| (b) | Compressive: | Code allowable stress |

- 3.4 All conical reducers shall be designed as toriconical type with knuckle radius at each end as minimum 10% of the adjoining diameter, unless otherwise specified in requisition. 100% radiography shall be carried out for all weld seams of toricone.

3.5 Statutory Approvals

- 3.5.1 For vessels coming under the purview of Indian Boiler Regulations, it shall be vendor's responsibility to get approval from IBR authorities pertaining to design, drawings, material of construction, fabrication, inspection and testing etc.
- 3.5.2 For vessels coming under the purview of Static and Mobile Pressure Vessel rules, it shall be vendor's responsibility to get approval from Petroleum & Explosives Safety Organisation (PESO) pertaining to design, drawings, material of construction, fabrication, inspection and testing etc.

4.0 FABRICATION

4.1 Head/Dished Ends

4.1.1 Dished ends shall preferably be of seamless construction. However, dished ends with one chordal weld seam are acceptable. In such cases, the width of chordal plate shall not be less than one third of the blank diameter and chordal seam shall clear nozzle opening. Intermediate heat treatment, if considered necessary, shall be carried out by the fabricator.

4.1.2 Whenever a dished end is made of more than two plates, it must have a seamless crown plate. Whenever a nozzle or a manhole is positioned at the centre of the dished end, the crown plate should be larger than the nozzle /manhole reinforcing pad.

4.2 Nozzles, Manholes and Handholes

4.2.1 Manhole cover shall be provided with a davit or hinge as per EIL standard and Handhole cover shall be provided with suitable lifting handles.

4.2.2 Inside edges of Manholes/Handholes shall be rounded off smooth with a minimum radius of 3mm.

4.2.3 All nozzles shall be set-in type, unless otherwise specified in requisition. Set on type nozzle for size 50 NB and below can be used with prior approval.

4.3 Flanges

4.3.1 When tongue and groove or male and female faced flanges are used, groove or female face shall be in nozzle flange. However, when the nozzle is located in the bottom, the groove or female face shall be in the cover.

4.3.2 Dimensions of flanges shall be as per ASME B16.5 for sizes upto 600 mm NB (24" mm NB) and as per ASME B 16.47 series 'B' for sizes greater than 600 mm NB (24" mm NB).

4.4 Fasteners and Gaskets

4.4.1 All bolts/studs shall have ISO threading unless otherwise specified. Studs shall extend beyond nuts at least by 2 threads & studs shall be threaded to full length. Bolts/studs (to be tightened by hydraulic bolt tensioner) shall be longer than normal length by minimum 1 nut diameter.

Hydraulic bolt tensioner shall be required for following bolt sizes and conditions:

Nominal Bolt Size	Conditions
All Sizes	When specified by Process Licensor/Project specifications
50 mm and Over	All flange joints
38 mm and to 50 mm	Class 600 and above
	Hydrogen service (Partial Pressure of Hydrogen $\geq 7 \text{ Kg/cm}^2 \text{g}$)
	Design Temperature above 370°C
	Inlet, outlet and quench nozzle flanges of reactors/separators (#)
25 mm to 38 mm	Design Temperature above 370°C
	Inlet, outlet and quench nozzle flanges of reactors/separators (#)

Applicable only for Hydrocracker/DHDT/DHDS/VGO-HDT Reactors and Hot & Cold Separators.

- 4.4.2 All internal bolts shall be provided with double nuts.
- 4.4.3 Threads on external bolting shall be lubricated with graphite grease for working temperature upto 200°C and with Molybdenum Disulphide for higher temperature.
- 4.4.4 Gaskets shall conform to ASME B16.20 and ASME B 16.21.

4.5 Internals and Externals

- 4.5.1 All removable internals shall pass through the manhole.
- 4.5.2 Internal baffles, tray support beams or other internals spanning a chord or diameter of the vessel shall be provided with means to allow differential thermal expansion between the part and the vessel shell.
- 4.5.3 Internal pressure piping shall be seamless and of same specification as the external connected piping. However internal non-pressure piping can be either seamless or welded type.
- 4.5.4 Internal flanges for pressure piping shall be forged flanges. However internal flanges for non-pressure piping can be fabricated from plate.
- 4.5.5 Tray/seal pan support rings, downcomer bolting bars and all internals, beam supports welded to the vessel shall be supplied and welded by vessel fabricator in accordance with the details furnished by EIL.
- 4.5.6 The internal baskets, mesh screens, support grid, distributor/mixing trays, distributor pipes, outlet collector etc. of equipments shall be fitted at shop unless otherwise specified in requisition. Equipments shall be transported along with internals fitted. Temporary wedges (if required) shall be provided for supporting the internals which shall be removed by mechanical contractor at site under vendor's supervision unless otherwise specified. Additionally, manway panels shall be provided for mesh screens, support grids, distributor/mixing trays etc. to ensure accessibility for future inspection, loading/unloading of catalyst/inert balls etc.

In case the internals are to be supplied loose as per requisition, the internal baskets, mesh screens, support grid, distributor/mixing trays, distributor pipes, outlet collector etc. of equipments shall be fitted, then removed and crated for dispatch with vessel. These items should be tagged for field identification and installation.

- 4.5.7 All externals shall be supplied and welded by vessel fabricator in accordance with the details furnished by EIL.

4.6 Name Plate

Each vessel shall be supplied with EIL name plate and manufacturer name plate as per EIL Standards.

4.7 Welding

- 4.7.1 Flame cut edges shall be ground by the fabricator as required to remove slag, detrimental discolouration and non uniformity of edges.
- 4.7.2 All pressure bearing butt welds shall be full penetration, double welded joints. When second side welding is not possible due to inaccessibility, single welded butt joints with root run by Tungsten Inert Gas Process (TIG) can be used to ensure full penetration. Backing strip can be used only after obtaining prior approval from EIL. For sub-zero temperatures, backing strips shall not be used.

- 4.7.3 Nozzles and Manways and their reinforcement pads shall be attached to vessel with full penetration welds.
- 4.7.4 Seams in supporting skirt shall be made with full penetration butt welds. Connections between skirt and vessel head shall be made with a smooth flat faced weld unless otherwise indicated in the engineering data sheet. Width of the weld at skirt end shall be equal to the skirt thickness and its height shall atleast be twice its width.
- 4.7.5 All main weld seams shall be clear of nozzles, reinforcement pads, internals, tray support rings, cleats and stiffening rings by 50 mm minimum (weld edge to weld edge). In case the same is unavoidable following requirements shall apply:

a) Nozzles without reinforcing pad

- i) Any weld seam having distance (weld edge to weld edge) to nozzles within 50 mm (but not fouling with weld seam) shall be fully radiographed and dye penetrant examined to a length equal to 100 mm on each side measured from nearest point to nozzle edge.
- ii) Any weld seam fouling with nozzle opening shall be fully radiographed and dye penetrant examined to a length equal to 3 times of outside diameter of nozzle i.e. 1.5 times of outside diameter of nozzle on each side after installation of nozzles. Nozzle to vessel fillet weld shall be provided with smooth concave radius.

b) Nozzles with reinforcing pad

- i) Any weld seam having distance (weld edge to weld edge) to reinforcing pad within 50 mm (but not fouling with weld seam) shall be fully radiographed and dye penetrant examined to a length equal to 100 mm on each side measured from nearest point to reinforcing pad edge.
- ii) Any weld seam not fouling with nozzle opening but coming under reinforcement pad shall be ground flush, fully radiographed and dye penetrant examined to a length equal to portion of weld seam below reinforcement pad + 100 mm on each side.
- iii) Any weld seam fouling with nozzle opening shall be ground flush, fully radiographed and dye penetrant examined to a length equal to higher of 3 times of outside diameter of nozzle i.e. 1.5 times of outside diameter of nozzle on each side or length equal to portion of weld seam below reinforcement pad + 100 mm on each side.

In case other attachments like internals, tray support rings, cleats etc. is fouling with weld seam, the weld seam portion coming under the attachment plus 100 mm length on each side shall be ground flush, fully radiographed and dye penetrant examined before welding of any such attachment.

- 4.7.6 Vendor shall submit welding procedure specification and qualification record to purchaser's inspector or authorised representative for approval as per ASME Boiler and Pressure Vessels Code Section IX.

Previously qualified welding Procedure Qualification Record (PQR) under EIL, CEIL, Lloyds, DNV, TUV and Bureau Veritas shall also be acceptable.

- 4.7.7 Welding consumables shall be as per ASME Boiler and Pressure Vessel Code Sec.II Part C and shall be indicated in fabrication drawings.
- 4.7.8 Welding shall not commence unless the concerned procedures are approved.
- 4.7.9 Only welders who are qualified in the accepted procedure shall be employed for welding.
- 4.7.10 All internal/external attachments (nozzles, cleats etc.) with fillet welds to the vessel pressure components in case of Hydrogen service, cyclic service and vessels with design temperature (-)29°C and lower, vessels with design temperature 370°C and higher for carbon steel and 425°C and higher for low alloy steel shall be ground smooth and generous concave contour shall be provided.

4.8 Post Weld Heat Treatment

- 4.8.1 Vessels shall be post weld heat treated when specified on the engineering drawings. In no case shall the post weld heat treatment performed be less than that specified in the code.
- 4.8.2 Vessels shall be post weld heat treated as a complete unit including skirt/support, wherever practicable.
- 4.8.3 All flange faces shall be suitably protected against oxidation during post weld heat treatment.

4.9 Tolerances

- 4.9.1 Tolerances shall be as per drawing/standard/code.
- 4.9.2 For dimensions not provided with tolerances, fabricator shall maintain dimensions as per good engineering practice.

5.0 INSPECTION & TESTING

- 5.1 All vessels shall be offered for inspection to purchaser or his authorised inspector.
- 5.2 Inspectors shall have free access to all work shops of contractors or sub-contractors.
- 5.3 Inspection shall be carried out both during fabrication and before delivery and also for sub-ordered materials, if any. In addition to final inspection and certification by Inspector, Inspector's written approval shall be obtained by the manufacturer at all stages of fabrication including, but not limited to the following:
- a) Raw material identification
 - b) Edge preparation for welding, including visual check for laminations.
 - c) Alignment of longitudinal seams.
 - d) Rolling tolerance on individual sections
 - e) Alignment of sections
 - f) Root pass clearing before welding.
 - g) Nozzle setting.
 - h) Dimensional check.

- i) Radiographic Examination.
- j) Dye penetrant examination/Magnetic particle examination.
- k) Stress relieving.
- l) Calibration records of measuring instruments.
- m) Pressure Test (Hydrostatic/Pneumatic test).
- n) Any other special test such as for leak, corrosion, hardness etc.
- o) Surface preparation, primer and painting.

5.4 Radiography

5.4.1 The extent of radiography shall be as specified on the engineering drawings. In no case shall the radiographic examination be less than that specified in the code. However spot radiography is the minimum requirement for all vessels.

5.4.2 When spot radiography is specified, the following requirements shall supplement the requirements specified in ASME Section VIII Division I :

- (i) All T joints shall be radiographed.
- (ii) Minimum 5 % of total weld length excluding T joints shall be radiographed.

5.4.3 All nozzles fabricated from plate, irrespective of thickness of plate, shall be 100% radiographed.

5.4.4 Weld seams of formed ends shall be 100% radiographed after forming and heat treatment, if any.

5.4.5 The specified radiography of welds may be performed before or after postweld heat treatment (PWHT). If performed before PWHT, an additional radiography or alternatively, ultrasonic examination shall be performed after PWHT.

5.4.6 The technique employed and the weld quality achieved shall meet the requirement of the code.

5.5 All nozzle to shell welds (Root and Final run) shall be examined by magnetic particle/ Dye-penetrant examination.

5.6 Hydrostatic Test

5.6.1 All necessary precautions shall be taken to guard against the risk of brittle fracture during hydrostatic test in the shop and at site. The temperature of testing medium shall preferably not be less than 16° C. Prior to hydrostatic test, all weld spatter, weld stubs, scale, dirt etc. shall be removed from vessel.

5.6.2 Hydrostatic test shall be conducted at pressures mentioned in engineering drawings after complete fabrication and post weld heat treatment. After hydrostatic testing, vessel shall be thoroughly dried by blowing dry air.

5.6.3 Clean potable water shall be used for hydrotest. Sea water shall not be used.

- 5.6.4 During hydrotest, care shall be taken to avoid local stresses in shell from exceeding 90 % of the yield strength of the material at the temporary saddle supports.

6.0 SUPPLY

6.1 Surface Cleaning and Painting

- 6.1.1 Surface cleaning and painting shall be as per standard specification for shop and field painting (6-44-0004) or as per job specification as applicable. Paint system shall be selected as per the environments specified on engineering drawing.
- 6.1.2 All completed equipment shall be cleaned internally and externally to remove scale, dirt, sand, water and foreign matter.
- 6.1.3 All flanged faces and other machined surfaces shall be greased or protected with rust preventive coating.
- 6.1.4 Except for machined surfaces, all exterior surfaces of vessels and columns including skirts and integral supports shall be painted to prevent rust, corrosion or damage during transit and storage before erection and final painting.

6.2 Marking

In addition to General purchase conditions, the following requirements shall also be complied with :

- 6.2.1 All loose components such as studs, nuts, washers, gaskets etc. shall be packed in crates and shall be marked for the project, consignee, consigner, job number, item number, order number, gross and net weight, dimensions etc.
- 6.2.2 Additional indications such as North/East/South/West along with centre of gravity shall be clearly marked with white paint.
- 6.2.3 Vessels which have been post weld heat treated or have an applied lining, e.g. lead, glass, rubber etc., shall have a suitable warning printed on the visible portion on the outside of vessel.
- 6.2.4 Specific marking with white paint for slinging shall be provided for all heavy lifts weighing 5 tonnes and above.
- 6.2.5 A copy of packing list shall accompany the material enclosed in a water tight envelope fastened inside a shell connection with an identifying arrow sign "Documents" applied with indelible paint.
- 6.2.6 If it is necessary to separate the unit into different parts for transportation all components and subassemblies shall be carefully identified and match marked to prevent any error in assembly.

6.3 Packing and Shipment

In addition to General Purchase Conditions, the following requirement shall also be complied with:

6.3.1 Packing

- a) Vessels, unless provided with their own steel saddles for entire protection, shall be provided with suitable wooden/steel saddles with steel ties and tension rods. The minimum height of the saddle shall correspond to the maximum projected length of the connected attachments, plus an additional clearance of 45mm. Saddles spacing shall depend on the length of the equipment.
- b) Large diameter equipment shall be provided with adequate number of supports to prevent ovalisation effect while being handled. These supports shall not be removed until the equipments are placed in position at job site.
- c) All connections/protrusions shall be suitably protected. Flanges shall be provided with bolts on metal covers (minimum 5 mm thk.) using atleast four bolts. (Wiring on covers is not acceptable). For ocean shipment, flanged openings shall be additionally covered with heavy plastic bags taped to nozzle. All tell tale holes shall be plugged with hard grease before despatch. Tapped orifices shall have threaded plugs.
- d) Fragile or machined components shall be especially protected against nature during handling and transit.
- e) Pre-fabricated sections shall be protected by temporary stiffeners at each non-supported end. Edges of plates for section to be welded shall also be protected.

6.3.2 Shipment

All despatches of equipment shall be done in accordance with the relevant terms of the Purchase Order.

7.0 GUARANTEE

Unless otherwise specified in General Purchase conditions regarding guarantee, the following shall govern :

- 7.1 Manufacturer shall guarantee that all materials used in the equipment are new and have been submitted to regular acceptance procedure and are free from any defect regarding quality, form and appearance.
- 7.2 Vessel(s) shall be guaranteed for design, raw materials and workmanship for a duration as defined in General Purchase Conditions. When design has been carried out by EIL, the word design shall be excluded from the guarantee clause. The manufacturer shall be completely responsible for any design work carried out by him. EIL's approval of his design will not relieve him of his responsibility to ensure satisfactory performance of such item.
- 7.3 Approval of work by EIL or release of vessels for shipment shall in no way release or relieve the manufacturer of any responsibility for carrying out all provisions of this specification.

8.0 SITE FABRICATION AND ERECTION

- 8.1 Where size or shape of vessel makes it impossible to ship it in one piece, the fabricator shall ship number of shop fabricated sections as defined in requisition. Assembly and testing shall be completed by vessel fabricator at site in horizontal position (for erection by others) in strict accordance with the provisions of applicable order/specification.
- 8.2 Where size or shape of vessel makes it impossible to erect in single piece, the fabricator shall ship number of shop fabricated sections as defined in requisition. Erection, assembly and

testing shall be completed by vessel fabricator at site in vertical position in strict accordance with the provisions of the applicable purchase order/specifications.

8.3 In either of the above two cases, the following additional requirements shall apply:

8.3.1 All pieces shall be shop fit up into sections and each section fit to the adjacent one by the fabricator and all pieces match marked thereafter.

8.3.2 Suitable erection lugs /tailing lugs and locating pins shall be provided by the fabricator to ensure proper fit up & handling of the equipment.

8.3.3 All radiographic requirements for welds completed in the shop shall be made by the fabricator before the part of section leaves the shop.

8.3.4 For equipment requiring PWHT, complete or local PWHT may be carried out at site.

8.4 All lifting lugs/trunions and tailing lugs shall be designed with an impact factor of minimum 2.0 unless otherwise specified.

9.0 DATA FOLDER

Manufacturer shall complete requisite copies of data folder as required in purchase order. This folder shall contain the following information duly certified by Inspector:

- a) Manufacturer's Code Certificate
- b) Fabrication drawing of vessel showing 'As Built' dimensions and 'As Built' erection weight.
- c) Material Test Certificates with their cast /heat and test numbers
- d) Welding procedure qualification reports
- e) Welder qualification reports
- f) Radiographic results
- g) Ultrasonic, Magnetic particle, Dye-penetrant test results (if applicable)
- h) Hardness, corrosion and leak test records (if applicable)
- i) Record charts showing complete heat treatment cycle (if applicable)
- j) Production test coupon results (if applicable)
- k) Charpy V notch test results (if applicable)
- l) Record chart of pressure test (Hydrostatic and/or pneumatic)
- m) Rubbing of name plate
- n) Any other documentation as required in the purchase requisition/purchase order.

कार्बन स्टील वैसल्स के पूरक विनिर्देश

SUPPLEMENTARY SPECIFICATION FOR CARBON STEEL VESSELS

7	30.06.2010	REVISED AND REISSUED AS STD. SPEC.	KA	RKT	AKM/DM	N.DUARI
6	25.09.09	REVISED AND REISSUED AS STD. SPEC.	VB	RKG	AKM	N.DUARI
5	12.04.04	REVISED AND REISSUED AS STD. SPEC.	DNN	AKM	SSA	SKG
4	18.09.00	REVISED AND REISSUED AS STD. SPEC.	RKT	AKM	CRMN	MI
3	15.05.00	REVISED AND REISSUED AS STD. SPEC.	RKT	AKM	CRMN	MI
Rev. No	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
Approved by						

Abbreviations:

ASME	:	American Society of Mechanical Engineers
BHN	:	Brinell Hardness Number
HAZ	:	Heat Affected Zone
LWN	:	Long Weld Neck
NB	:	Nominal Bore
PWHT	:	Post Weld Heat Treatment
UTS	:	Ultimate Tensile Strength

Static Equipment Standards Committee

Convenor : Mr. A.K. Malik

Members : Mr. R.K. Trivedi

Mr. K. Anjaneyulu

Mr. Tarun Kumar

Mr. Chandra Kant (Inspection)

Mr. G.K. Iyer (Construction)

Mr. Ratan Lal (Project)

CONTENTS

1.0	SCOPE.....	4
2.0	DESIGN.....	4
3.0	ELECTRODES.....	4
4.0	FABRICATION	5

1.0 SCOPE

This supplementary specification indicating additional requirements for fusion welded carbon steel vessels shall form addenda to General Specification for Pressure Vessels (6-12-0001) in its latest revision.

2.0 DESIGN

Reinforcement for nozzle openings of size 80 NB (3") and above shall be self reinforced forged nozzle for equipments where nominal thickness of shell/head exceeds 50 mm.

For nozzles of size up to 50 NB LWN can be used in place of self reinforced nozzles.

3.0 ELECTRODES

3.1 Electrodes conforming to following specification shall be used. In case of any deviation, prior approval from EIL shall be obtained.

S.No.	Material to be welded	Electrode Specification
1.	General Structure Welding	ASME IIC SFA 5.1 E-6013
2.	Pressure Parts	
a.	Steels with UTS upto 70,000 psi	ASME IIC SFA 5.1 E7016/ E7018
b.	Steels with UTS upto 80,000 psi	ASME IIC SFA 5.5 E8016-X/ E8018-XX depending upon the alloy element.
c.	Low temperature service	
	Below 0°C and upto (-) 46°C Steels to SA-516 / 516M, SA-537 / 537M, SA-333 / 333M Gr. 6 and SA-350 / 350M LF2	ASME IIC SFA 5.1 E 7016-1/ E7018-1

3.2 All electrodes and fluxes shall be properly baked/dried as per manufacturer's recommendation before use.

3.2.1 All bare electrodes and fluxes shall be selected as per ASME IIC. All weld metal shall have equal or better mechanical properties than the parent metal.

3.2.2 Only dry flux shall be used.

4.0 FABRICATION

4.1 Plate Forming

- 4.1.1 Forming of shell plates and heads shall be carried out by machine, either hot or cold, in such a way so as to preserve the specified material properties and to produce a regular finish.
- 4.1.2 Magnetic particle/Dye penetrant examination shall be carried out on the outside and inside surfaces including edges of torispherical or elliptical heads in knuckle zone, after forming, for detection of cracks.

4.2 Edge Preparation

- 4.2.1 The preparation of edges to be welded shall be done by machining, chipping, grinding, cold shearing, Oxy- acetylene flame cutting or a combination of these.
- 4.2.2 Chipping shall be followed by grinding to a smooth and regular finish.
- 4.2.3 Oxy-acetylene flame cutting done in any circumstances, shall be followed by machining or grinding to eliminate any discolouration of material affected.
- 4.2.4 All welding edges shall be checked by Magnetic particle/Dye penetrant examination for detection of cracks, laminations or segregations.
- 4.2.5 No welding shall be carried out when ambient temperature is less than 10° Celsius unless preheating is carried out.

4.3 Heat Treatment

- 4.3.1 Heat treatment of formed parts shall be carried out as per following:
- Cold formed dished ends or knuckles shall be stress relieved, unless otherwise specified in requisition.
 - Hot formed dished ends or similar parts, which have not been uniformly heated in the normalising range in the final stages of manufacture shall be normalised.
 - When the completed vessel involves post weld heat treatment, heat treatment recommended in (a) above shall not be applicable.
- 4.3.2 Vessels in Hydrogen/Amine/ Sour (H₂S)/Cyclic service shall be PWHT.

4.4 Production Weld Tests

Production Weld Tests shall be applicable for vessels over 50 mm nominal thickness. The following requirements shall apply:

- a. Two production test plate coupons representative of one longitudinal and another circumferential seam shall be provided for each procedure, position and thickness in each vessel shell.
- b. One production test plate representative of the weld seams shall be provided for each procedure, position and thickness for welded dished ends/cones.
- c. The production test plate shall be from material of the same heat and thickness as of shell/head. During and after welding, the test plates shall be subjected to same heat treatment as and together with the course they represent. Extra coupons shall be preserved to take care of eventuality of retests.
- d. The tests mentioned below shall be carried out as per methods of testing in governing codes:
 - i. One transverse tension test
 - ii. Two side bend tests with weld located in the centre of bend.
 - iii. Hardness test on production test coupon weld & HAZ (The hardness value shall not exceed 200 BHN)
 - iv. Micro & macro examination of welds
 - v. Charpy V notch tests on weld and HAZ.
 - a. For low temperature service (0°C & colder) impact test temperature shall be lowest of minimum ambient temperature, design temperature and minimum design metal temperature.
 - b. For vessel over 50 mm nominal thickness used for warmer service, the test temperature shall be lower of 0°C or lowest ambient temperature of the site.
 - c. The acceptance criteria for energy absorption shall be as per Table A 2.15 of SA-20 / 20M. In case the acceptance criteria is not available in SA-20, then applicable design code shall be referred unless otherwise specified in requisition.

4.5

Hardness Survey

For vessels required to meet stress corrosive conditions (such as Hydrogen/Caustic/Sour (H_2S)/Amine), one Brinell hardness reading shall be taken on the inside of each shell section, head, longitudinal weld, circumferential weld and nozzle longitudinal weld after final post weld heat treatment. The value shall be limited to the specified value as per requisition.

बायलर क्वालिटी कार्बन स्टील प्लेटों का मानक विनिर्देश

STANDARD SPECIFICATION FOR BOILER QUALITY CARBON STEEL PLATES

7	30.06.2010	REVISED & REISSUED AS STD. SPEC.	KA	RKT	AKM/DM	N.DUARI
6	10.09.09	REVISED & REISSUED AS STD. SPEC.	VB	RKG	AKM	N.DUARI
5	16.04.04	REVISED & REISSUED AS STD. SPEC.	DNN	AKM	SSA	SKG
4	26.11.99	REVISED & REISSUED AS STD. SPEC.	RKT	AKM	CRMN	A SONI
3	27.06.95	REVISED & REISSUED AS STD. SPEC.	KP SAHU	AKM	VC	A SONI
Rev. No	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
Approved by						

Abbreviations:

ASME	American Society of Mechanical Engineers
EN	European Norm
HIC	Hydrogen Induced Cracking
IBR	Indian Boiler Regulations
SSC	Sulphide Stress Cracking

Static Equipment Standards Committee

Convenor : Mr. A.K. Malik

Members : Mr. R.K. Trivedi

Mr. K. Anjaneyulu

Mr. Tarun Kumar

Mr. Chandra Kant (Inspection)

Mr. G.K. Iyer (Construction)

Mr. Ratan Lal (Project)

CONTENTS

1.0	SCOPE.....	4
2.0	GENERAL.....	4
3.0	SUPPLEMENTARY TECHNICAL REQUIREMENTS.....	4
4.0	CERTIFIED DOCUMENTS.....	6
5.0	PAINTING AND COATING.....	6
6.0	INSPECTION AUTHORITY.....	7

1.0 SCOPE

This specification covers requirements for carbon steel plates intended primarily for pressure vessels/heat exchangers. The steel plates shall meet the requirements of ASME Boiler and Pressure Vessel Code Section II (latest). This is intended to supplement the minimum applicable requirements of the material specification indicated in the material requisition.

2.0 GENERAL

- 2.1 Plates supplied to this specification shall conform to specification SA-20 with additional requirements mentioned herein.
- 2.2 The tolerance on thickness of steel plates shall be positive only.
- 2.3 Final Rolling shall be lengthwise.
- 2.4 The plates shall be free from injurious defects and shall have workmanlike finish. Reconditioning/repair of plates by welding shall not be permitted. Surface conditions shall meet requirements of EN 10163 Class A Subclass 3.

3.0 SUPPLEMENTARY TECHNICAL REQUIREMENTS

- 3.1 All plates shall be supplied in normalised condition except when the applicable material specifications require supply of plates in quenched and tempered condition.
- 3.2
 - a. One product analysis of each heat shall be carried out and reported. Chemical analysis shall be as per applicable specification.
 - b. The carbon content for plates shall not exceed 0.23%.

Additionally, one of the following requirements for carbon equivalent based on heat analysis, shall be also satisfied:

$$C_{eq} = C + \frac{Mn}{6} \leq 0.42 \quad \dots \quad (\text{Eqn. - 1})$$

$$C_{eq} = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Cu+Ni}{15} \leq 0.43 \quad \dots \quad (\text{Eqn. - 2})$$

Equation-1 shall be used when applicable material specification specifies C and Mn only.

Equation-2 shall be used when applicable material specifies the above elements or restricted chemical requirements are specified or supplementary requirements S19 and S21 of SA-20 are specified in material requisition.

For HIC services, these requirements shall be as listed separately.

3.3 Ultrasonic Examination of Plates

- a. Plates having thickness 16 mm to 50 mm (both inclusive) shall be examined ultrasonically as per SA-435.

- b. For thicknesses above 50mm ultrasonic examination shall be carried out as per SA-578 and shall have acceptance standard of level-B.
- c. For quenched and tempered steel plates, ultrasonic examination shall be done after the heat treatment of plates.

3.4 Simulated Heat Treatment of Test Coupons

The following heat treatment shall be conducted on the test coupons representative of heat treated plates before the specified mechanical testing like tensile, bend, impact tests, etc. to meet minimum ASME Sec. II Part - A requirements and these details shall also be recorded on the test certificates.

- a. All plates supplied in Normalised condition and intended for hot rolling / hot forming:

Heat Treatment Cycle

One normalising* + One stress relieving as per UCS-56 of ASME Sec. VIII Div.1 complying with UCS-85 of ASME Section VIII Div. 1.

Note: Any other special requirement shall be specified in MR.

- b. All plates supplied in Quenched & Tempered condition and intended for hot rolling/ hot forming:

Heat Treatment Cycle

One normalising* + quenched & tempering + One stress relieving as per UCS-56 ASME Section VIII Div.1 complying with UCS-85 of ASME Section VIII Div.1.

Note : Tempering temperature shall be at least 20° C above highest stress relieving temperature.

* Recommended normalising cycle :

- i) Soaking temperature : 900°C to 1000°C
- ii) Holding time one hour per 25 mm thickness but not less than half an hour
- iii) Cooling in still air

- c. All plates supplied in Quenched & Tempered condition and intended for cold forming:

Heat Treatment Cycle

One stress relieving as per UCS-56 ASME Section VIII Div.1 complying with UCS-85 of ASME Section VIII Div.1.

- 3.5 Charpy V-notch impact test as per supplementary requirement S5 of specification SA-20 at design temperature indicated in the material requisition shall be conducted for low temperature service (0°C & colder).

- 3.6 If specified in the material requisition, plates shall meet the requirements of Indian Boiler Regulations (IBR).

3.7 Additional Requirements for High Thickness Plates

Plates above 50mm thickness shall meet following additional requirements:

- a. Vacuum Degassing treatment as per the supplementary requirement S1 of specification SA-20. If vacuum degassing is not reported in the test certificates, then through thickness tests as per SA 770 shall be conducted and minimum reduction in area of 35% shall be ensured.
- b. Charpy V-notch impact test as per the supplementary requirement S5 of specification SA-20.

Material meant to be used for design temperature warmer than 0°C, impact test shall be carried out at 0°C or MDMT whichever is lower and acceptance criteria for energy absorption shall be as per Table A2.15 of SA-20. In case the acceptance criteria is not available in SA-20, then applicable design code shall be referred unless otherwise specified in material requisition.

- c. Simulated heat treatment of test coupons for all plates as per Clause 3.4 mentioned above.

4.0 CERTIFIED DOCUMENTS

The supplier shall furnish 6 copies of the following certificates/documents inclusive of all tests required as per specification duly certified by the Inspecting Authority before shipment of plates. The actual values obtained shall be recorded in the test certificates/documents. Material certificates shall conform to EN 10204 Type 3.1.

- a. Chemical Analysis
- b. Mechanical Tests
- c. Data of heat treatment i.e. initial temperature, heating rate, soaking temperature, cooling rate, etc.
- d. Simulated Heat Treatment of Mechanical Test coupons (S3 of SA-20) at indicated Heat Treatment Cycle (if specified in the requisition or whenever applicable)
- e. Ultrasonic Examination (S8 or S12 of SA-20)
- f. Charpy V-notch impact tests (S5 of SA-20 if specified in the requisition or whenever applicable)
- g. Certification as per IBR (if specified in the requisition)
- h. SSC and/or HIC tests (if specified in material requisition)

5.0 PAINTING AND COATING

No painting/coating of any kind is permitted on the steel plates, except stencil marking.

6.0 INSPECTION AUTHORITY

Material test certificates, duly certified by Mill's Quality Assurance Department are acceptable. However, if third party inspection is specified in material requisition, all test certificates and documents shall be duly certified by the third party.

भंडारण टैंक एवं वैसल के लिये वेल्डिंग योग्य स्ट्रक्चरल क्वालिटी स्टील प्लेटों का मानक विनिर्देश

STANDARD SPECIFICATION FOR WELDABLE STRUCTURAL QUALITY STEEL PLATES FOR STORAGE TANKS AND VESSELS

5	30.06.2010	REVISED AND REISSUED AS STD. SPEC.	KA	RKT	AKM/DM	N.DUARI
4	15.09.09	REVISED & REISSUED AS STD. SPEC.	VB	RKG	AKM,	N.DUARI
3	08.04.04	REVISED & REISSUED AS STD. SPEC.	DNN	AKM	SSA	SKG
2	19.09.00	REVISED & REISSUED AS STD. SPEC.	KPS	AKM	CRMN	MI
1	01.03.96	REVISED & REISSUED AS STD. SPEC.	KPS	AKM	VC	A.SONI
Rev. No	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
Approved by						



Abbreviations:

IS Indian Standard

EN European Norm

Static Equipment Standards Committee

Convenor : Mr. A.K. Malik

Members : Mr. R.K. Trivedi

Mr. K. Anjaneyulu

Mr. Tarun Kumar

Mr. Chandra Kant (Inspection)

Mr. G.K. Iyer (Construction)

Mr. Ratan Lal (Project)

CONTENTS

1.0	SCOPE.....	4
2.0	GENERAL.....	4
3.0	SUPPLEMENTARY TECHNICAL REQUIREMENTS.....	4
4.0	CERTIFIED DOCUMENTS	4
5.0	PAINTING AND COATING.....	4
6.0	INSPECTION AUTHORITY	4

1.0 SCOPE

This specification covers additional and supplementary requirements for weldable structural quality Steel Plates to IS:2062 (latest), intended primarily for storage tanks and vessels.

2.0 GENERAL

2.1 The maximum under tolerance permissible on the thickness of plate shall be 0.25 mm. Tolerances on other dimensions of plates shall be as per IS:1852.

2.2 Direction of final rolling shall be lengthwise.

2.3 Reconditioning/Repair of plates by welding shall not be permitted. Surface condition shall meet requirements of EN 10163 (Part 2) Class A Subclass 3.

3.0 SUPPLEMENTARY TECHNICAL REQUIREMENTS

3.1 Heat analysis and product analysis shall be carried out for each heat and chemical composition shall meet the limits as specified in IS: 2062.

3.2 Y-groove weld crackability test as per IS:10842 shall be carried out for plates conforming to Gr. E250 C having thickness 12mm and above.

3.3 Charpy impact test shall be carried out on the plates having thickness greater than 12 mm conforming to Grade E250 B & E250 C. Test temperature shall be as specified in the material requisition and acceptance criteria for energy absorption shall be as mentioned in Table-2 of the specification IS:2062.

4.0 CERTIFIED DOCUMENTS

The supplier shall furnish 6 copies of the following certificates / documents inclusive of results of all tests required as per specification, duly certified by the Inspecting Authority before shipment of plates. The actual values obtained during tests shall be recorded in the test certificates / documents. Material certificates shall conform to EN 10204 Type 3.1.

- a. Chemical Analysis
- b. Mechanical Tests
- c. Data of heat treatment
- d. Charpy V-notch impact tests
- e. Y- groove crackability test

5.0 PAINTING AND COATING

No painting/coating of any kind is permitted on the steel plates except stencil marking.

6.0 INSPECTION AUTHORITY

Material test certificates, duly certified by Mill's Quality Assurance Department are acceptable. However, if third party inspection is specified in material requisition, all test certificates and documents shall be duly certified by the third party.

ट्रे एवं टावर इन्टरनल की पैकिंग, अंकन एवं प्रेषण के लिये विनिर्देश

PACKING, MARKING AND SHIPPING SPECIFICATIONS FOR TRAYS AND TOWER INTERNALS

3	16.11.09	REAFFIRMED AND REISSUED AS STANDARD SPECIFICATION	PG	SKM/HCN	AKG	ND
2	21.07.04	REAFFIRMED AND REISSUED AS STANDARD SPECIFICATION	PB	SKM/HCN	RKA	SKG
Rev No	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
Approved by						

Abbreviations:

Heat and Mass Transfer Standards Committee

Convenor : Sh. AK Gupta

Members : Sh. KK Gupta

Sh. Mandip Kapoor

Sh. GK Iyer (Const.)

Sh. RK Bhadari (Project)

CONTENTS

1.0	INTENT.....	4
2.0	PACKING	4
3.0	MARKING	5
4.0	SHIPMENT	5
	SKETCHES	6

1.0 INTENT

This specification defines the minimum requirements for packing, marking and shipping of Trays, Tower Internals, Tower Packing and other associated components so as to ensure the damage free transportation. This specification shall not be construed as final and shall not relieve the vendor of their responsibility of adequate packing of the same for damage free transportation depending upon the mode of transportation to be adopted finally.

2.0 PACKING

- 2.1 Trays, Tower Internals and Tower Packing for different columns shall not be mixed in one box and shall be packed (itemwise) separately for each column.
- 2.2 Unless specified otherwise in the Engineering drawings, the internals and its associated components shall not be painted.
- 2.3 All carbon steel components are to be protected against rusting with two coats of double boiled linseed oil and all the stainless steel components are to be cleaned free from foreign materials and shall be supplied duly pickled and passivated.
- 2.4 All components shall be provided with match and identification marks and also bear the column number. All identical components shall have the same markings which shall strictly correspond with numbers given on fabrication drawings. Markings shall be done with indelible paint or ink which does not contain any metallic pigments.
- 2.5 All components shall be packed in suitable wooden boxes (minimum plank thickness shall be 25 mm) with lining of polythene sheets and shall be properly protected against damage during transit. Wherever necessary suitable wooden spacers shall be used to avoid damage to beams and risers etc.
- 2.6 **Nuts, Bolts, Studs, Clips, Washers, Clamps, Gaskets, Pipes etc.**

All supplementary materials like nuts, bolts, clips, washers, clamps, gaskets, pipes and other components required for internals assembly shall be placed in separate boxes itemwise. Nuts, bolts, clamps, washers etc. for individual item shall be packed in separate containers and due care shall be taken to ensure that different types as well as sizes of bolting, clamps etc. are not allowed to get intermixed. Separate packages with polyethylene linings for different types of bolts, nuts, clamps, washers etc. for identical components for each column should be made out and then encased in a bigger container which shall be properly marked with the description of materials packed and the column number etc. as directed in 3.1 below. The quantity and description of materials packed shall also be displayed on the smaller packages enclosed in these boxes. All Constructional spares shall be packed in separate containers. The packing for individual components would be done in the same manner as required for supplementary materials and the box shall be marked with "MAINTENANCE SPARES"/"OPERATIONAL SPARES" in addition to other particulars as per 3.1 below.

2.7 Packing Cases

Generally constructed as per drawing attached and the following :

- (a) Crates and boxes over 500 mm long shall be reinforced with a minimum of two steel straps or hoop spaced in 500 mm centers maximum. When the container weight exceeds 250 kg, skids shall be bolted to the container frame.
- (b) Sheathed crates and boxes containing a net weight over 200 kg and all open sided crates shall have diagonal bracing in all faces.

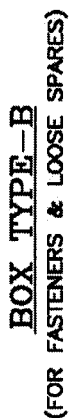
- (c) Flat boxes (containers with two dimension that are four times the third) shall have diagonal bracing on the two large faces and shall have the four steel straps secured with nails or screws when the contained weight is over 200 kg.

3.0 MARKING

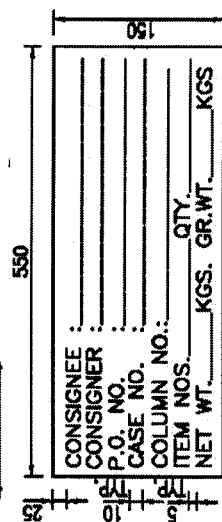
- 3.1 Cases and crates containing tray materials shall be marked at least on 3 sides; for the project, consignees, consignors, Job No., Order No., Gross & Net Weights, dimensions, description and quantity of materials etc. Column No. must appear on all the packing cases/boxes in bold letters.
- 3.2 Additional markings such as “handle with care”, “this side up” etc to be indicated by arrow. “Fragile” or any other additional indications for protection and safe handling shall be added in accordance with the type of materials.
- 3.3 For bulk uniform materials, when packed in several cases, progressive serial numbers shall be indicated on each cases.
- 3.4 A packing list shall accompany the material and shall be enclosed in a waterproof envelope fastened to the package to enable verification on arrival of the consignment or when taking up of the delivery. It is necessary that additional copy of packing list with one copy of drawings along with one copy of installation instructions enclosed in a waterproof envelope is also to be placed under the upper lid in each package.

4.0 SHIPMENT

All despatches of material shall be done in accordance with the relevant terms of the purchase order. Any other means of transport shall be resorted to only after prior approval in writing.



1. ALL WOODEN BOXES TO BE MADE OF 'JUNGLE WOOD'.
2. THERE SHOULD NOT BE ANY GAP BETWEEN TWO MATING PLANKS IN TYPE A & B BOXES.
3. ALL BOXES SUITABLY LABELLED AS TO ITS CONTENTS AND THE TOP OF BOX SHOULD BE CLEARLY MARKED IN ENGLISH.
4. ALL TYPE OF CRATES WILL BE PROVIDED WITH POLYETHYLENE LINING AT INNER SURFACES.
5. ONE COPY OF PACKING LIST ENCLOSED IN WATERPROOF ENVELOPE TO BE FASTENED TO THE BOX (UNDER THE LABEL). ADDITIONAL COPY OF PACKING LIST ALONG WITH COPY OF DRAWINGS AND INSTALLATION INSTRUCTION ENCLOSED IN WATERPROOF ENVELOPE TO BE PLACED UNDER THE UPPER LID IN EACH BOX.
6. GAP BETWEEN TRAY COMPONENTS DEPENDS ON THE INTEGRAL BEAM DEPTH AND TO BE DECIDED BY THE TRAY FABRICATOR.
7. ALL PACKED MATERIAL INSIDE CASES MUST BE SUITABLY SECURED TO AVOID MOVEMENT DURING TRANSPORT.
8. LENGTH, WIDTH AND HEIGHT OF BOXES TO BE DECIDED BY THE FABRICATOR.



TYPICAL LABEL DETAIL
(MATERIAL 0.5 THK. ALUMINIUM PLATE)

विक्रेता कार्यशाला में
सकारात्मक सामग्री पहचान
के लिए मानक विनिर्देश

STANDARD SPECIFICATION FOR POSITIVE MATERIAL IDENTIFICATION (PMI) AT SUPPLIER'S WORKS

2	20.10.11	REVISED AND RE-ISSUED	AKS 21/10/11	SCG	AKC	DM
1	15.07.08	REVISED AND RE-ISSUED	NKR	SSL	SKP	VC
0	07.12.00	ISSUED AS STANDARD SPECIFICATION	AKC	AKB	AKB	MI
Rev. No	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
Approved by						

Abbreviations:

API	:	American Petroleum Institute
AS	:	Alloy Steel
LSTK	:	Lump Sum Turn Key
PMI	:	Positive Material Identification
Sch	:	Schedule
SS	:	Stainless Steel
TPI or TPIA	:	Third Party Inspection Agency

Inspection Standards Committee

Convenor: Mr.AK Chaudhary

Members: Mr. SS Lotay
Mr. SC Gupta
Mr. RK Singh
Mr. Rajeev Kumar
Mr. Anoop Goel
Mr. G Suresh
Mr. G Poornachandra Rao
Mr. MP Jain (Projects)

CONTENTS

1.0	SCOPE	4
2.0	REFERENCE DOCUMENTS	4
3.0	DEFINITIONS	4
4.0	PMI EXAMINATION	5
5.0	ACCEPTABLE METHODS FOR PMI	5
6.0	EXTENT OF PMI EXAMINATION	6
7.0	RECORDING AND DOCUMENTATION	7
8.0	MARKING	7

1.0 SCOPE

- 1.1** This specification applies to the requirements for Positive Material Identification (PMI) to be performed at the Supplier's works on Metallic Materials procured either directly by the Owner/EIL/ LSTK contractor or indirectly through the sub-Suppliers.
- 1.2** Any post order deviation from this specification must be approved by Owner/EIL in the Deviation/ Waiver Permit format (No. 5-0000-0180-F1) enclosed with Material Requisition.
- 1.3** This specification covers the procedures and methodology to be adopted to assure that the chemical composition of the material is consistent with the material specifications as specified in purchase documents using 'Alloy Analyzer' at the time of final inspection before dispatch.
- 1.4** The scope of this specification shall include but shall not be limited to Positive Material Identification (PMI) to be performed on Materials listed below:
- 1.4.1** For alloy Steel materials as below:
- Alloy Steel Pipes including Clad Pipes
 - Alloy Steel Flanges & Forgings
 - Alloy Steel Fittings including Clad Fittings
 - Alloy Steel Fasteners
 - Alloy Cast & Forged steel valves
 - Alloy Steel Instrumentation Items (Control Valves, Safety Valves etc.)
 - Longitudinal Pipe & Fittings Welds.
 - Gaskets (for Ring Type Joints)
- 1.4.2** For Carbon Steel materials as below:
- All Carbon Steel Piping items under NACE or HIC or H2
 - Carbon Steel flanges and valves (Rating 900# and above)
 - Carbon Steel Pipes & fittings for following thicknesses:
 - Size 1"- 2" NB : Sch 160 & above
 - Size 3" NB : Sch XS & above
 - Size 4" - 12" NB : Sch 120 & above

Following items shall be excluded from scope of PMI examination.

- Gaskets other than for Ring Type Joints
 - Internal Components of Valves
- 1.5** All grades of material supplies including Stainless Steels shall be liable for PMI test at site. In case of any defective materials being found at site, the Supplier shall be responsible to effect replacement of such defective materials at project site without any delays to the satisfaction of EIL site RCM (Resident Construction Manager).

2.0 REFERENCE DOCUMENTS

- 2.1** API Recommended Practice 578 (First Edition, May 1999) - Material Verification Program for New and Existing Alloy Piping Systems.

3.0 DEFINITIONS

- 3.1 Supplier:** Any Supplier or Manufacturer on whom an order is placed for the supply of referred items. This definition shall also include any sub-Supplier or manufacturer on whom a sub-order is placed by the Supplier.

3.2 Inspection Lot: A group of items offered for inspection covered under same size, Heat and Heat treatment lot.

3.3 Alloy Material: Any metallic material (including welding filler materials) that contains alloying elements such as chromium, nickel, molybdenum or vanadium, which are intentionally added to enhance mechanical or physical properties and/or corrosion resistance.

4.0 PMI EXAMINATION

4.1 The Supplier shall submit a procedure of PMI to comply with the requirements of this Specification Approval of PMI Procedure shall be obtained from Owner/EIL/TPIA prior to commencing manufacture/ inspection of product.

4.2 PMI examination of materials is independent of any certification, markings or colour coding that may exist and is aimed at verifying that the alloy used are as per specified grades.

4.3 The Supplier shall identify all incoming alloy materials and maintain full traceability of all alloy materials, including all off-cuts. Transfer of identification marks shall be undertaken prior to cutting to ensure maintenance of identification on off-cuts.

4.4 The Supplier shall ensure that all alloy materials are segregated and stored in separately identified locations to prevent the mix up of materials of different alloy specifications or alloy material with carbon steel. Non ferro-magnetic materials shall be segregated at all times from ferro-magnetic materials.

4.5 PMI examination is subject to surveillance inspection by Owner/EIL/TPIA.

5.0 ACCEPTABLE METHODS FOR PMI

5.1 The method used for PMI examination shall provide a quantitative determination of the alloying elements like chromium, nickel, molybdenum or vanadium in Alloy Steel items.

5.2 Instruments or methods used for PMI examination shall be able to provide quantitative, recordable, elemental composition results for positive identification of alloying elements present.

5.3 The acceptable instruments for alloy analyzer shall be either "Portable X-Ray fluorescence" or "Optical Emission" type each capable of verifying the percentage of alloy elements within specified range.

5.4 Chemical spot testing, magnets, alloy sorters and other methods using eddy current or triboelectric testing methods are not acceptable for PMI examination.

5.5 The PMI instrument used shall have the sensitivity to detect the alloying elements in the specified range.

5.6 All PMI instruments shall have been serviced within a 6 month period of the time of use to verify the suitability of batteries, sources etc., and the data of the last service shall be stated on the PMI Report Form (Sample enclosed).

5.7 Each analyzer must be calibrated according to the manufacturer's specification at the beginning and end of each shift. Instrument must be checked against known standard for each alloy type to be inspected during the shift.

- 5.8 Certified samples, with full traceability, of a known alloy materials shall be available for use as a random spot check on the instrument calibration.
- 5.9 The surfaces to be examined shall be prepared by light grinding or abrasive paper and solvent cleaner. Evidence of Arc burn resulting from examination shall be removed by light grinding or abrasive paper. No permanent marks, which are injurious to the usage of product in service, are acceptable.
- 5.10 Alloy Steel ring type joint Gaskets shall be inspected by using portable X-Ray fluorescence instrument.
- 5.11 Testing shall be done as per the procedures outlined by the manufactures of alloy analyzer being used. Modification of these procedures if any must be approved by Owner/EIL.
- 5.12 The persons performing PMI shall demonstrate their capabilities to the satisfaction of Owner/EIL/TPIA visiting engineer. If the Supplier has qualified operator on their rolls, he may perform the examination. Otherwise PMI examination shall be sub-contracted to an independent testing agency approved by EIL.
- 5.13 Whenever material is identified as not meeting requirements by the visiting engineer a rejection note shall be issued.

6.0 EXTENT OF PMI EXAMINATION

Following sampling plans shall be applicable for PMI examination of various items.

A.	Flanges, Fittings Valves, RTJ Gaskets	-	100%
B.	Pipes	-	100% (for pipes procured from traders). 2 random samples drawn from each Size/Heat/Lot (for pipes procured directly from mills)
C.	Fasteners	-	
<u>Lot Size</u>		<u>Sample Size</u>	
Upto 100		2% (Min 2)	
101 to 500		1% (Min 3)	
501 and above		0.5% (Min 5)	

Note:

- For Welded Pipes and Fittings, PMI shall be performed on Base Metal as well as weldments.
- Whenever any sample drawn to PMI test on the basis of percentage selection in B & C above, fails to meet specification requirements, 100% of items of lot shall be tested for PMI.

7.0 RECORDING AND DOCUMENTATION

The results of PMI examination shall be recorded in a Report Format as enclosed with this specification.

8.0 MARKING

8.1 All alloy materials tested by PMI shall be identified using either of the following methods by indicating "PMI OK"

- a) Bar Code/Hologram Sticker
- b) A low stress stamp marking

POSITIVE MATERIAL IDENTIFICATION REPORT BULK MATERIALS					Page of
Project:		Client			Job No.
PMI Report No.		Supplier/Sub-Supplier			
Purchase Order No.		Testing Agency			
Purchase Requisition No:		PMI Location			
Bulk Item Type (as per Requisition)					
Material Specification/Grade					
Number of items in Lot					
Requisition Item No./ Description		Major content, Weight Percent			Remarks Accept/Reject
Element		Cr	Mo	Ni	V
Specified Range					
Actual observations					
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
Instrument Type / ID					
Last Service Date		Inspection Agency			Witnessed By

कार्बन स्टील प्रेशर वैसल्स / कॉलम्स के लिये
निरीक्षण व परीक्षण योजना

INSPECTION AND TEST PLAN
FOR
PRESSURE VESSELS/ COLUMNS CARBON STEEL

2	15.07.2011	REVISED AND RE-ISSUED	HP	SCG	AKC	DM
1	28.09.2007	REVISED AND RE-ISSUED	PD	RB	MVKK	VC
0	10.12.2002	ISSUED FOR IMLEMENTATION	NKN	SPS	AKB	GRR
Rev. No.	Date	Purpose	Prepared by	Checked by	Convenor Standards Committee	Chairman Standards Bureau
Approved by						

INSPECTION AND TEST PLAN FOR PRESSURE VESSELS/ COLUMNS CARBON STEEL

STANDARD SPECIFICATION No.

6-81-0011 Rev.2

Page 2 of 7

Abbreviations:

CCE or CCOE	:	Chief Controller of Explosives	MPT/MT	:	Magnetic Particle Testing
CEIL	:	Certification Engineers International Limited	MRT	:	Mechanical Run Test
CIMFR	:	Central Institute of Mining & Fuel Research	MTC	:	Material Test Certificate
CE	:	Carbon Equivalent	NPSH	:	Net Positive Suction Head
DFT	:	Dry Film Thickness	NDT	:	Non Destructive Testing
DT	:	Destructive Testing	PO	:	Purchase Order
DPT	:	Dye Penetrate Testing	PESO	:	Petroleum Explosive Safety Organization
DHT	:	De-hydrogen Heat Treatment	PQR	:	Procedure Qualification Record
ERTL	:	Electronics Regional Test Laboratory	PR	:	Purchase Requisition
FCRI	:	Fluid Control Research Institute	PMI	:	Positive Material Identification
HT	:	Heat Treatment	RT	:	Radiography Testing
HIC	:	Hydrogen Induced Cracking	SSCC	:	Sulphide Stress Corrosion Cracking
ITP	:	Inspection and Test Plan	TC	:	Test Certificate
IP	:	Ingress Protection	TPI or TPIA	:	Third Party Inspection Agency
IHT	:	Intermediate Heat Treatment	UT	:	Ultrasonic Testing
ISR	:	Intermediate Stress Relieving	VDR	:	Vendor Data Requirement
IC	:	Inspection Certification	WPS	:	Welding Procedure Specification
IGC	:	Inter Granular Corrosion	WPQ	:	Welders Performance Qualification
LPT	:	Liquid Penetrate Testing			

Inspection Standards Committee

Convenor : Mr. A.K. Chaudhary

Members:

Mr. SS Lotay	Mr. Rajeev Kumar	Mr. G. Poornachandra Rao
Mr. S.C. Gupta	Mr. Anoop Goel	Mr. MP Jain (Project)
Mr. R.K. Singh	Mr. G. Suresh	

**INSPECTION AND TEST PLAN
FOR
PRESSURE VESSELS/ COLUMNS CARBON STEEL**

STANDARD SPECIFICATION No.

6-81-0011 Rev.2

Page 3 of 7

1.0 SCOPE

This Inspection and test plan covers the minimum testing requirements of Pressure vessels/ Columns carbon steel

2.0 REFERENCE DOCUMENTS

PO/PR/ Standards referred there in/ Job specifications /approved documents.

3.0 INSPECTION AND TEST REQUIREMENTS

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
1.0	Procedures						
1.1	Hydro test ,heat treatment, NDT, hot forming, WPS/ PQR /WPQ and other Procedures	Documented procedures.	100%	Procedure documents	-	H	R/W (for new PQR)
2.0	Materials inspection						
2.1	Plates, pipes, forging, fittings (To be procured with TPI appointed by supplier)	Chemical analysis & mechanical properties, vacuum degassing, product C.E. impact test of plates/ forgings, hardness check, simulation heat treatment, non destructive Test, visual & dimensional ,SSCC and or HIC test as applicable.	100%	Mill test certificates and TPI reports	H	H	R

**INSPECTION AND TEST PLAN
FOR
PRESSURE VESSELS/ COLUMNS CARBON STEEL**

STANDARD SPECIFICATION No.

6-81-0011 Rev.2

Page 4 of 7

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
3.0	In process inspection						
3.1	Materials identification for plates, pipes (pressure parts)	Review of test certificates, markings visual & dimensional inspection, identity correlation & transfer of identity	100%	Material clearance record	-	H	H
3.2	Material identification for forgings, fittings, fasteners, gaskets (pressure parts)	Review of test certificates, markings identity correlation .	100%	Material clearance record	-	H	W
3.3	Non pressure parts (including internals, supports etc.)	Review of test certificates	100%	Material test certificate	W	R	R
3.4	Inspection of formed components (cold or hot formed)	UT/RT of weld seam as applicable	100%	UT report/RT films	H	H	R
		PT/MT (dished ends and tori cone) for cracks on inside & outside surfaces in knuckle zone and edges.	100%	Inspection report	H	H	R
		IHT/ HT chart review as applicable	100%	HT Chart	W	W	R
		Test coupon as applicable	100%	Inspection report	H	H	W

**INSPECTION AND TEST PLAN
FOR
PRESSURE VESSELS/ COLUMNS CARBON STEEL**

STANDARD SPECIFICATION No.

6-81-0011 Rev.2

Page 5 of 7

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
		Visual & dimensional (min. thickness, profile, ovality etc) inspection	100%	Inspection report	H	H	H
3.5	Welding consumable	Chemical & mechanical properties	100%	Batch test certificates	W	R	R
3.6	Weld edge preparation & set up of pressure parts	Visual & dimensional inspection, weld edge, root gap, offset, alignment, cleanliness etc	100%	Inspection check list	-	W	R
		MT/PT of weld edges as applicable for cracks, laminations or segregations	100%	Inspection check list	-	W	R
3.7	Intermediate inspection of welds	Visual/ inter pass temperature	100%	Inspection report	-	W	R
4.0	Final inspection						
4.1	Visual and dimensional inspection (internals & externals) including welds (before PWHT as applicable)	Visual/ dimensions, completeness of assembly and weld visual for reinforcement, undercuts, Surface defects, etc.	100%	Inspection report	-	H	H
4.2	PMI (AS/SS components)	Chemical check	Each component	Inspection report		W	W/R
4.3	Air test of pads	Leak check	100%	Test report	-	W	W/R

**INSPECTION AND TEST PLAN
FOR
PRESSURE VESSELS/ COLUMNS CARBON STEEL**

STANDARD SPECIFICATION No.

6-81-0011 Rev.2

Page 6 of 7

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
4.4	Trial assembly of internals and column/vessel sections as applicable	Dimensions, completeness of assembly and alignment	100%	Inspection report	-	H	H
4.5	Inspection of completed welds	PWHT as applicable	100%	HT chart		W	R
		MT/PT/RT/UT as applicable	Spot/100%	MP/DP/UT report/RT films	-	W	W/R
4-6	Hardness check on all welds ,HAZ as applicable	Hardness	100%	Inspection report	-	W	W/R
4.7	Production test coupon as applicable	Production test coupon testing	As per spec/drg.	Inspection report	-	H	H
4.8	Hydrostatic test	Leak check	100%	Test report	-	H	H
5.0	Painting						
5.1	Final painting	Visual inspection (after surface preparation and final painting for workmanship, uniformity) DFT check	100%	Inspection report	-	H	R
6.0	Documentation and IC						

**INSPECTION AND TEST PLAN
FOR
PRESSURE VESSELS/ COLUMNS CARBON STEEL**

STANDARD SPECIFICATION No.

6-81-0011 Rev.2

Page 7 of 7

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
6.1	Final stamping, review of inspection documents and issue of IC	Verifying stamping details and review of inspection documents	100%	Name plate/ rub-off and inspection reports	-	H	H
6.2	Final documents as per PR	Verification & compilation of inspection & test records for submission to customer	100%	Q.C. dossier	-	H	H

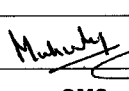
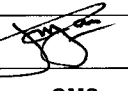
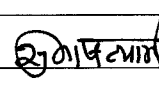
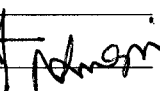
Legends: H- Hold (Do not proceed without approval), R-Review , RW-Random witness, W-Witness (give due notice, work may proceed after due schedule date)

NOTES (as applicable):

- Wherever W/R or H/W is indicated, EIL /TPIA inspection engineer shall decide the option to be exercised for the particular stage and supplier.
- Supplier's in house procedures may be accepted in case TPIA / EIL is satisfied with adequacy of procedures to comply with Purchase order/specifications requirements. In case of non availability of suitable procedures, fresh procedures may be qualified under TPIA / EIL witness.
- In case of conflict between purchase specification, contract documents and ITP, more stringent conditions shall be applicable.
- This document describes generally the requirements pertaining to all types of the item. Requirements specific to PO and the item are only applicable.
- Acceptance Norms for all the activities shall be as per PO/PR/STANDARDS referred there in /Job Specification /Approved Documents.

बोलीकर्ता से गुणवत्ता प्रबंधन प्रणाली अपेक्षाओं हेतु विनिर्देश

SPECIFICATION FOR QUALITY MANAGEMENT SYSTEM REQUIREMENTS FROM BIDDERS

0	04.06.09	Issued as Standard Specification	 QMS Standards Committee	 QMS Standards Committee	 SCT	 ND
Rev. No	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standard Bureau Chairman
						Approved by

Abbreviations:

MR	-	Material Requisition
PR	-	Purchase Requisition
PO	-	Purchase Order
QA	-	Quality Assurance
QMS	-	Quality Management System
ISO	-	International Organization for Standardization
CV	-	Curriculum Vitae

QMS Standards Committee

Convenor: Mr. S.C. Tyagi

Members: Mr. Chandra Kant (Insp.)
Mr. R.K. Trivedi (Engg.)
Mr. R.K. Sabharwal (C&P)
Mr. M.P. Jain (Projects)
Mr. Ravindra Kumar (Const.)
Mr. Mukesh Meena (CQA)

CONTENTS

Clause	Title	Page No.
1.0	SCOPE.....	4
2.0	DEFINITIONS	4
3.0	REFERENCE DOCUMENTS.....	4
4.0	QUALITY MANAGEMENT SYSTEM – GENERAL	4
5.0	QUALITY SYSTEM REQUIREMENTS.....	4
6.0	AUDITS.....	7
7.0	DOCUMENTATION REQUIREMENTS	7

Attachment

Format for Concession/Deviation Permit : Format No.5-0000-0180-F1

1.0 SCOPE

This specification establishes the Quality Management System requirements to be met by BIDDER for following purpose:

- QMS requirements to be met by suppliers/contractors after award of work/during contract execution.

2.0 DEFINITIONS

2.1 Bidder

For the purpose of this specification, the word "BIDDER" means the person(s), firm, company or organization who is under the process of being contracted by EIL / Owner for delivery of some products (including service). The word is considered synonymous to supplier, contractor or vendor.

2.2 Project Quality Plan

Document tailored from Standard Quality Management System Manual of BIDDER, specifying how the quality requirements of the project will be met.

2.3 Owner

Owner means the owner of the project for which services / products are being purchased and includes their representatives, successors and assignees.

3.0 REFERENCE DOCUMENTS

6-78-0002	Specification for Documentation Requirements from Contractors
6-78-0003	Specification for Documentation Requirements from Suppliers

4.0 QUALITY MANAGEMENT SYSTEM – GENERAL

Unless otherwise agreed with EIL / Owner, the BIDDER proposed quality system shall fully satisfy all relevant requirements of ISO 9001 "Quality Management Systems – Requirements." Evidence of compliance shall be current certificate of quality system registration to ISO 9001 or a recent compliance audit recommending registration from a registrar. The quality system shall provide the planned and systematic control of all quality related activities for execution of contract. Implementation of the system shall be in accordance with BIDDER'S Quality Manual and PROJECT specific Quality Plan.

5.0 QUALITY SYSTEM REQUIREMENTS

- 5.1 BIDDER shall ensure that the responsible authority for execution of the order / contract has communicated the PO / contract requirements including any identified or intended statutory and regulatory requirements to all concerned in their organization and sub-contractor's organization who are contributing to the execution of the PO/ contract.
- 5.2 BIDDER shall establish a documented Quality Policy and Quality Objectives to achieve the specified and intended requirement of PO / contract.

- 5.3** BIDDER shall identify and communicate the responsibilities and authorities of the personnel contributing to the execution of the PO / contract.
- 5.4** BIDDER shall deploy competent and trained personnel for various activities for fulfillment of PO / contract. BIDDER shall arrange adequate infrastructure and work environment to ensure that the specification and quality of the deliverable are maintained.
- 5.5** BIDDER shall do the quality planning for all activities involved in delivery of order. The quality planning shall cover as minimum the following:
- Resources
 - Product / deliverable characteristics to be controlled.
 - Process characteristics to ensure the identified product characteristics are realized
 - Identification of any measurement requirements, acceptance criteria
 - Records to be generated
 - Need for any documented procedure
- The quality planning shall result into the quality assurance plan, inspection and test plans (ITPs) and job procedures for the project activities in the scope of bidder. These documents shall be submitted to EIL/Owner for review/approval, before commencement of work.
- 5.6** Requirements for sub-contracting / purchasing of services specified in contract / tender shall be adhered to. Wherever requirements are not specified, the sub-contractor shall establish and maintain a system for purchasing / sub-contracting to ensure that purchased product / service conforms to specified requirements. Criteria for selection of sub-contractor, evaluation, re-evaluation, maintenance of purchasing data and verification of purchased product (sub-contractor services), constitute important components of this requirement.
- 5.7** BIDDER shall plan and carry production and service provision under controlled conditions. Controlled conditions shall include, as applicable
- a) the availability of information that describes the characteristics of the product
 - b) the availability of work instructions
 - c) the use of suitable equipment
 - d) the availability and use of monitoring and measuring devices
 - e) the implementation of monitoring and measurement
 - f) the implementation of release, delivery and post delivery activities
- 5.8** BIDDER shall validate any processes for production and service provision where resulting output cannot be verified by subsequent monitoring and measurement. This includes any process where deficiencies become apparent only after the product is in use or service has been delivered.
- 5.9** BIDDER shall establish a system for identification and traceability of product / deliverable throughout product realization. Product status with respect to inspection and testing requirements shall be identified.
- 5.10** BIDDER shall identify, verify, protect and safeguard EIL / Owner property (material / document) provided for use or incorporation into the product. If any Owner / EIL property is lost, damaged or otherwise found to be unsuitable for use, this shall be reported to the EIL / Owner.

- 5.11** BIDDER shall preserve the conformity of product / deliverable during internal processing and delivery to the intended destination. Requirements mentioned in the tender shall be adhered to.
- 5.12** BIDDER shall establish system to ensure that inspection and testing activities are carried out in a manner that is consistent with the inspection and testing requirements. Where necessary, measuring equipments shall be calibrated at specified frequency, against national or international measurement standards; where no such standard exists, the basis used for calibration shall be recorded. The measuring equipments shall be adjusted or re-adjusted as necessary, identified to enable the calibration status to be determined. The measuring equipments shall be protected from damage during handling, maintenance and storage.
- 5.13** BIDDER shall ensure effective monitoring, using suitable methods, of the processes involved in production and other related processes for delivery of the scope of contract.
- 5.14** BIDDER shall monitor and measure the characteristics of the product/deliverable to verify that product requirement has been met. The inspection (stage as well as final) by BIDDER and EIL / Owner personnel shall be carried out strictly as per the ITPs forming part of the contract. Product release or service delivery shall not proceed until the planned arrangements have been satisfactorily completed, unless otherwise approved by relevant authority and where applicable by Owner / EIL.
- 5.15** BIDDER shall establish and maintain a documented procedure to ensure that the product which does not conform to requirements is identified and controlled to prevent its unintended use or delivery
- 5.16** All non-conformities (NCs) / deficiencies found by the BIDDER'S inspection / surveillance staff shall be duly recorded, including their disposal action shall be recorded and resolved suitably. Effective corrective and preventive action shall be implemented by the BIDDER so that similar NCs including deficiencies do not recur.
- 5.17** All deficiencies noticed and reported by EIL / Owner shall be analyzed by the BIDDER and appropriate corrective and preventive actions shall be implemented. BIDDER shall intimate EIL / Owner of all such corrective and preventive action implemented by him.
- 5.18** BIDDER should follow the standards, specifications and approved drawings. Concessions/Deviations shall be allowed only in case of unavoidable circumstances. In such situations Concession/deviation request must be made by the BIDDER in attached Format No. 5-0000-0180-F1.
- 5.19** BIDDER shall have documented procedure for control of documents.
- 5.20** All project records shall be carefully kept, maintained and protected for any damage or loss until the project completion, then handed over to EIL / Owner as per contract requirement (Refer Specification Nos. 6-78-0002 - Specification for Documentation Requirements from Contractors and 6-78-0003 - Specification for Documentation Requirements from Suppliers), or disposed as per relevant project procedure.
- 5.21** BIDDER shall prepare and submit for review and approval, Project Quality Plan / Quality Assurance Plan for contracted scope / job. The BIDDER'S Quality Plan shall address all of the applicable elements of ISO 9001, identify responsible parties within BIDDER'S organization, for the implementation / control of each area, reference the applicable procedures used to control / assure each area, and verify the documents produced for each area. The Project Quality Plan shall necessarily define control or make reference to the relevant procedures, for design and engineering, purchase, documentation, record control, bid evaluation, inspection, production/manufacturing, preservation, packaging and storage,

quality control at construction site, pre-commissioning, commissioning and handing over (as applicable) in line with contract requirement and scope of work.

6.0 AUDITS

BIDDER shall plan and carry out the QMS audit for the job. Quality audit programme shall cover design, procurement, construction management and commissioning as applicable including activities carried out by sub-vendors and sub-contractors. This shall be additional to the certification body surveillance audits carried out under BIDDER'S own ISO 9001 certification scheme.

The audit programmes and audit reports shall be submitted to EIL / Owner as per specified documentation requirements. EIL or Owner's representative reserves the right to attend, as a witness, any audit conducted during the execution of the WORKS.

In addition to above EIL, Owner and third party appointed by EIL/Owner may also perform Quality and Technical compliance audits. BIDDER shall provide assistance and access to their systems and sub-contractor / vendor systems as required for this purpose. Any deficiencies noted shall be immediately rectified by BIDDER.

7.0 DOCUMENTATION REQUIREMENTS

BIDDER shall submit following QMS documents immediately after award of work (Within one week) for record / review by EIL / Owner.

- Organization chart (for complete organization structure and for the project)
- Project Quality Plan/Quality Assurance Plan
- Job specific Inspection Test Plans
- Job Procedures
- Inspection/Test Formats

In addition to above QMS documents, following documentation shall be maintained by the BIDDER for submission to EIL / Owner on demand at any point of time during execution of the project.

- Quality Manual
- CVs of the personnel in BIDDER'S QA Organogram
- Certificate of approval for compliance to ISO: 9001 standard
- Procedure for Control of Non-conforming Product
- Procedure for Control of Documents
- Sample audit report of the QMS internal and external audits conducted during last one year
- Customer satisfaction reports from at least 2 customers, during the last one year
- Project audit report
- Corrective action report on the project audits
- Technical audit reports for the project

Documents as specified above are minimum requirements. BIDDER shall submit any other document/data required for completion of the job as per EIL/Owner instructions.

CONCESSION/DEVIATION PERMIT

(USE ONLY THIS PAGE FOR COMMUNICATION WITH VENDOR/CONTRACTOR)

TO BE FILLED BY ORIGINATOR	Project _____		Originator Ref. _____	
	Job No. _____		Order/Contract No. _____	
	Equipment Title _____		Item No. _____	
	Originator: Vendor/Contractor _____			
	Caution : Originator to note that any delay in processing of concession/deviation permit shall be to originator's account and shall not be used as a reason for extension in delivery			
	Requirement as per specification		Description of Concession/Deviation sought	
	Why the Concession/Deviation is required? Supporting evidence/calculations enclosed/not enclosed			
Contractual implications if Concession/Deviation is granted:				
* Time impact		More/Less/No change		
* Cost impact		More/Less/No change		
* Performance Warranty/Guarantee		Affected/Not affected		
Under present constraints requested Concession/deviation is most optimum for the project and does not involve any hazard, and shall meet the stipulated performance requirements.				
Date: _____				
Signature Vendor /Contractor (with seal)				

Decision on Concession/Deviation including decision, on time and cost implications

(To be filled by the Inspection engineer [at RPO/HO] or RCM, responsible for conveying the decision to the originator, after resolution)

Date:

Signature _____

Location :

Name _____

Opinion from EIL site supervisor/inspection engineer
(Specify whether post-facto approval required for regularization)

Date : _____

Name : _____
RPO/Site Name _____

Original forward to : _____
(Target division/department/group)

Copy to : _____
(Project Manager)

Date : _____

Name : _____

Disposal by target division/department

Whether any vendor/contractor made 'Technically not Acceptable' during bid evaluation, on the aspect of which this concession/deviation is sought-----YES/NO

Date : _____

Name : _____

Final decision of Project Manager along with overall review
(Client's decision required/not required)

Date : _____

Name : _____

Client's decision, if required

Date : _____

Signature : _____
Name : _____

आपूर्तिकर्ताओं से प्रलेखन अपेक्षाओं हेतु विनिर्देश

SPECIFICATION FOR DOCUMENTATION REQUIREMENTS FROM SUPPLIERS

0	04.06.09	Issued as Standard Specification	QMS Standards Committee	QMS Standards Committee	SCT	ND
Rev. No	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
Approved by						

Abbreviations:

HOD	-	Head of Division / Department
QMS	-	Quality Management System
MOU	-	Memorandum of Understanding
PO	-	Purchase Order
PR	-	Purchase Requisition
MR	-	Material Requisition
EDMS	-	Electronic Document Management System
FOA	-	Fax of Acceptance
LOA	-	Letter of Acceptance
ITP	-	Inspection and Test Plan
URL	-	Universal Resource Locator
PVC	-	Poly Vinyl Chloride
TPIA	-	Third Party Inspection Agency

QMS Standards Committee

Convenor: Mr. S.C. Tyagi

Members: Mr. Chandra Kant (Insp.)
Mr. R.K. Trivedi (Engg.)
Mr. R.K. Sabharwal (C&P)
Mr. M.P. Jain (Projects)
Mr. Ravindra Kumar (Const.)
Mr. Mukesh Meena (CQA)

CONTENTS

Clause	Title	Page No.
1.0	SCOPE.....	4
2.0	DEFINITIONS	4
3.0	REFERENCE DOCUMENTS	4
4.0	DOCUMENTATION REQUIREMENTS	4

Attachments

Format for Drawing/Documentation Transmittal	:	Format No. 3-78-0001
Format for Drawing/Documentation Schedule	:	Format No. 3-78-0002
Format for Comments Resolution sheet	:	Format No. 3-78-0003
Format for completeness of Final Documentation	:	Format No. 3-78-0004

1.0 SCOPE

This specification establishes the Documentation Requirements from Suppliers.

All documents/data against the PO / PR / MR shall be developed and submitted to EIL/Owner by the suppliers for review / records, in line with this specification.

2.0 DEFINITIONS

2.1 Supplier

For the purpose of this specification, the word "SUPPLIER" means the person(s), firm, company or organization who is under the process of being contracted by EIL / Owner for delivery of some products (including service). The word is considered synonymous to bidder, contractor or vendor.

2.2 Owner

Owner means the owner of the project for which services / products are being purchased and includes their representatives, successors and assignees.

3.0 REFERENCE DOCUMENTS

6-78-0001 Specification for Quality Management System Requirements from Bidders

4.0 DOCUMENTATION REQUIREMENTS

4.1 Documents/Data to be Submitted by the Supplier

4.1.1 The Supplier shall submit the documents and data against the PO/PR/MR as per the list given in respective PO/PR/MR.

4.1.2 Review of the supplier drawings by EIL would be only to review the compatibility with basic designs and concepts and in no way absolve the supplier of his responsibility/contractual obligation to comply with PR requirements, applicable codes, specifications and statutory rules/regulations. Any error/deficiency noticed during any stage of manufacturing/execution/installation shall be promptly corrected by the supplier without any extra cost or time, whether or not comments on the same were received from EIL during the drawing review stage.

4.1.3 Unless otherwise specified, submission of documents for Review/Records shall commence as follows from the date of Fax of Intent /Letter of Intent:

QMS - 1 week
Drawing/Document Index - 2 weeks
Other Documents/Drawings - As per approved Drawing/Document Index/Schedule

4.1.4 Documents as specified in PO/PR/MR are minimum requirements. Supplier shall submit any other document/data required for completion of the job as per EIL/Owner instructions.

4.2 Style and Formatting

- 4.2.1 All Documents shall be in ENGLISH language and in M.K.S System of units.
- 4.2.2 A blank space measuring 75 mm (W) x 38 mm (H) shall be provided on the body of all supplier drawings for marking of review codes by EIL.
- 4.2.3 Before forwarding the drawings and documents, contractor shall ensure that the following information are properly entered in each drawing:

Purchase Requisition Number
Name of Equipment / Package
Equipment / Package Tag No.
Name of Project
Client
Drawing / Document Title
Drawing / Document No.
Drawing / Document Revision No. and Date
Transmittal Number
EIL Vendor Print No.
(In case of second & subsequent Revisions)

Note: EIL "Vendor Print Number" is to be picked up from the EIL Review Code Stamp affixed on the previous revision.

4.3 Review and Approval of Documents by Supplier

- 4.3.1 The Drawing/Documents shall be reviewed, checked, approved and duly signed/stamped by supplier before submission. Revision number shall be changed during submission of the revised supplier documents and all revisions shall be highlighted by clouds. Whenever the supplier require any sub-supplier drawings to be reviewed by EIL, the same shall be submitted by the supplier after duly reviewed, approved and stamped by the supplier. Direct submission of sub-supplier's drawings without contractor's approval shall not be entertained.

4.4 Document Category

4.4.1 Review Category

Following review codes shall be used for review of supplier Drawings/Documents:

Review Code 1	-	No comments.
Review Code 2	-	Proceed with manufacture/fabrication as per commented document. Revised document required
Review Code 3	-	Document does not conform to basic requirements as marked. Resubmit for review
R	-	Retained for Records.
V	-	Void

4.4.2 Records Category

Documents under this category are meant for EIL records. These documents would not be returned to supplier. However, comments, if any, will be communicated to supplier.

4.5 Methodology for Submission of Documents to EIL/Owner

4.5.1 Submission of Soft Copy of Drawings/Documents

Soft copy of drawings/documents and data shall be uploaded on the EIL EDMS Portal. The detail guidelines for uploading documents on EIL EDMS Portal are available on following URL

<http://edocx.eil.co.in/vportal>

4.5.2 Submission of Hard Copy of Drawings/Documents

Required number of hard copies of drawings/documents shall be submitted as per PO/PR/MR along with drawing/document transmittal, Format for Drawing/Document Transmittal (Format No. 3-78-0001) is attached with this specification.

4.5.3 Designated Authority for Submission of Drawings/Documents

Drawings/Documents shall be submitted to the designated authority of EIL/Owner as per PO/PR/MR or as communicated to the supplier during kick off meeting or subsequent correspondences.

4.5.4 Details of Contact Persons of Supplier

After placement of order supplier shall inform in writing the details of contact persons associated with the project / job. The details should include e-mail address, mailing address, telephone nos., fax nos. and names of associated persons of the supplier. The above details shall be sent to EIL Project Manager, EIL Inspection HO and concerned Regional Procurement office of EIL.

4.5.5 Drawing/Document Schedule

Supplier shall submit total index of drawings/documents required for review/records based on PO/PR/MR along with schedule date of submission of each drawing/document. The drawing schedule shall be submitted in Format No. 3-78-0002 for approval of EIL/Owner. The drawing schedule shall be specific with regard to drawing/document no., the exact title and size of the drawing/document. For submission of drawing schedule, the supplier shall proceed based on PO/PR/MR and subsequent correspondence. With each submission of drawings/documents, supplier shall submit updated index with schedule v/s actual submission dates, status of drawings, revision no., date, of approval etc. Any submission without index shall not be entertained for review. It shall be ensured that proper sequencing of the drawings/documents to be submitted is maintained in the drawing schedule

4.5.6 Schedule and Progress Reporting

Supplier shall submit monthly progress report and updated procurement, engineering and manufacturing status (schedule vs. actual) every month in, beginning within 2 weeks from FOA/LOA. In case of exigencies, EIL/Owner can ask for report submission as required on weekly/fortnightly/adhoc basis depending upon supply status and supplier shall furnish such reports promptly without any price implication. Format for progress report shall be submitted by the Supplier during kick off meeting or within one week of receiving FOA/LOA, whichever is earlier.

4.5.7 Quality Assurance Plan/Inspection and Test Plan

Inspection and test plans attached if any, to the MR/PR are generic and indicative only. Immediately after receipt of the order, supplier shall submit within one week of receiving FOA/LOA, the Quality Assurance Plan for manufacturing, covering quality control of critical bought out items/materials, inspection & testing at various stages of production, quality control records and site assembly & testing as may be applicable to the specific order and obtain approval from concerned Regional procurement Office of EIL/third party inspection agency, as applicable.

4.5.8 Inspection Release Note (IRN)

Supplier shall ensure that all documents viz. documents reviewed, manufacture's test certificate etc. mentioned in Inspection Release Note (IRN) issued by EIL/third party, are sent to EIL for issue of IRN.

IRN shall be issued by EIL Inspector/ third party inspection agency only after all the drawings/documents as per Supplier's index of drawings/documents are submitted and are accepted under review code-1. Material/Equipments dispatch from Supplier's/sub Supplier's works shall not commence till above condition is met.

Note: Non fulfilling above requirement shall result into appropriate penalty or withholding of payment as per conditions of PO/PR/MR.

4.5.9 Transportation Plan

Transportation Plan for Over Dimensional Consignments (ODC), if any, shall be submitted to concerned Regional procurement Office within 2 weeks of receiving FOA/LOA, for approval. Consignment with parameters greater than following shall be considered as over dimensional.

Dimensions: 5.5 meters width x 5.5 meters height x 25 meters length

Weight : 100 MT

4.5.10 Statutory Approvals

Wherever approval by any statutory body is required to be taken by Supplier, the Supplier shall submit copy of approval by the authority to EIL.

4.5.11 Comments Resolution Sheets

While re-submitting drawings/documents the supplier shall confirm whether all comments have been incorporated, through a comments resolution sheet (As per attached format No. 3-78-0004). If any comments are not incorporated or excluded, then reason or justification for the same shall be furnished in comments resolution sheet

4.5.12 Multi Sheet Documents

Multi sheet documents other than drawings shall be submitted in their entirety in the event of a re-submission, even if only few sheets are revised.

4.6 Final Documentation

4.6.1 As Built Drawings

Shop changes made by Supplier after approval of drawings under 'Code 1' by EIL and deviations granted in deviation permits, if any, shall be marked in hard copies of drawings which shall then be stamped 'As-built' by the supplier. These 'As-built' drawings shall be reviewed and stamped by EIL Inspector or TPIA also. Supplier shall prepare scanned images files of all marked – up 'As – built' drawings. Simultaneously Supplier shall incorporate the shop changes in the native soft files of the drawings also.

4.6.2 As Built Final Documents

As built final documents shall be submitted as listed in PO/PR/MR.

4.6.3 Packing/Presentation of Final Documents

Final Documents shall be legible photocopies in A4, A3 size only. Drawings will be inserted in plastic pockets (both sides transparent, sheet thickness minimum 0.1 mm) with an extra strip of 12 mm wide for punching so that drawings are well placed.

Final Documentation shall be bound in Hard board Plastic folder(s) of size 265 mm x 315 mm ($10\frac{1}{2}$ inch x $12\frac{1}{2}$ inch) and shall not be more than 75 mm thick. It may be of several volumes and each volume shall have a volume number, index of volumes and index of contents of that particular volume. Where number of volumes are more, 90mm thickness can be used. Each volume shall have top PVC sheet of minimum 0.15 mm thick duly fixed and pressed on folder cover and will have 2 lever clip. In case of imported items documents, 4 lever clip shall also be accepted. All four corners of folders shall be properly metal clamped. Indexing of contents with page numbering must be incorporated by supplier. Spiral/Spico bound documents shall not be acceptable. As mentioned above, books should be in hard board plastic folders with sheets punched and having 2/4 lever clips arrangement.

Each volume shall contain on cover a Title Block indicating package Equipment Tag No. & Name, PO/Purchase Requisition No., Name of Project and Name of Customer. Each volume will have hard front cover and a reinforced spine to fit thickness of book. These spines will also have the title printed on them. Title shall include also volume number (say 11 of 15) etc.

4.6.4 Submission of Soft Copies

Supplier shall submit to EIL, the scanned images files as well as the native files of drawings/documents, along with proper index.

In addition to hard copies, Supplier shall submit electronic file (CD-ROM) covering soft copies of all the final drawings and documents, all text documents prepared on computer, scanned images of all important documents (not available as soft files), all relevant catalogues, manuals available as soft files (editable copies of drawings/text documents, while for catalogues/manuals/proprietary information and data PDF files can be furnished).

4.6.5 Completeness of Final Documentation

Supplier shall get the completeness of final documentation verified by EIL and attach the Format for Completeness of Final Documentation (Format No. 3-78-004) duly signed by EIL Inspector or TPIA as applicable to the document folder.

DRAWING/DOCUMENT TRANSMITTAL SHEET

CONTRACTOR'S VENDOR'S LOGO ETC.
PL. DO NOT CHANGE LOCATION OR EXCEED THIS SPACE

PR/TENDER NO.	:	JOB NO.	:
CONTRACTORS/VENDOR'S NAME	:	PROJECT	:
EIL LOI/PO NO.	:	CLIENT	:
CONTRACTOR'S VENDOR'S LETTER NO.	:	DATE	:

[illegible]

CATEGORY CODES:

R- Drawings which are required to be reviewed by EIL
I – Drawings which are to be submitted for EIL record

Page 1 of 1

CONTRACTOR'S/VENDOR'S DRAWING/DOCUMENT SCHEDULE

PROJECT

CONTRACTOR'S/VENDOR'S NAME, LOGO
ETC.

PL. DO NOT CHANGE LOCATION OR EXCEED THIS SPACE

CLIENT

[illegible]

R – Drawings which are required to be reviewed by EIL.
I – Drawings which are to be submitted for EIL record.

Comment Resolution Sheet

Job. No. _____

Project Title _____

Drawing/Document No._____

Revision No. _____

[illegible]

COMPLETENESS OF FINAL DOCUMENTATION

Name of Supplier/Contractor :
Customer :
Project :
EIL's Job No. :
Purchase Order No./
Contract No. :

Purchase Requisition No./
Tender No. :

Rev. No. :

Name of the Work/ Equipment :
Tag. No. :
Supplier's/ Contractor's Works :
Order No. :

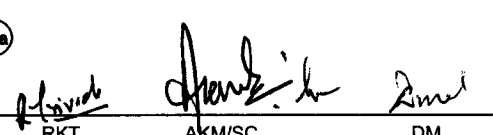
Certified that the Engineering Documents/ Manufacturing & Test Certificates submitted by the supplier are complete in accordance with the Supplier Data Requirements of Purchase Requisition.

Signature :
Date :
Name :
Designation :
Department :

Signature :
Date :
Name :
Designation :
Department :

Supplier/Contractor

EIL



Copyright EIL - All rights reserved

NOTES

1. REFERENCE LINES SHALL BE LIGHTLY PUNCH-MARKED INSIDE AND OUTSIDE AROUND THE CIRCUMFERENCE OF THE SHELL PLATE ON THE TANGENT LINES OF THE VESSEL.
2. a) OUT OF ROUNDNESS (OVALITY) SHALL BE AS PER APPLICABLE CODE.
b) OUTSIDE CIRCUMFERENCE OF SHELL SHALL BE WITHIN THE FOLLOWING LIMITS.
 ± 10 mm FOR NOMINAL DIAMETER 1200 mm AND UNDER.
 ± 12 mm FOR NOMINAL DIAMETER 1201 mm THROUGH 2400 mm.
 ± 20 mm FOR NOMINAL DIAMETER ABOVE 2400 mm.
- c) FOLLOWING TOLERANCES ON DIAMETER SHALL APPLY THROUGHOUT ITS LENGTH FOR VESSELS WITH TRAYS AND / OR PACKING. (FOR CARTRIDGE TYPE TRAY REFER SPECIAL NOTE-E).

VESSEL NOM. DIA.	TOLERANCE ON NOM. DIA.
2000 mm AND UNDER	$\pm 0.5\%$
2001 mm TO 4000 mm	GREATER OF ± 10 mm OR $\pm 0.35\%$
4001 mm TO 8000 mm	GREATER OF ± 14 mm OR $\pm 0.25\%$
ABOVE 8000 mm	TO BE SPECIFIED ON VESSEL DRAWING.

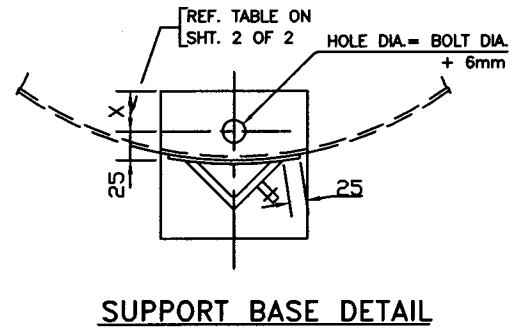
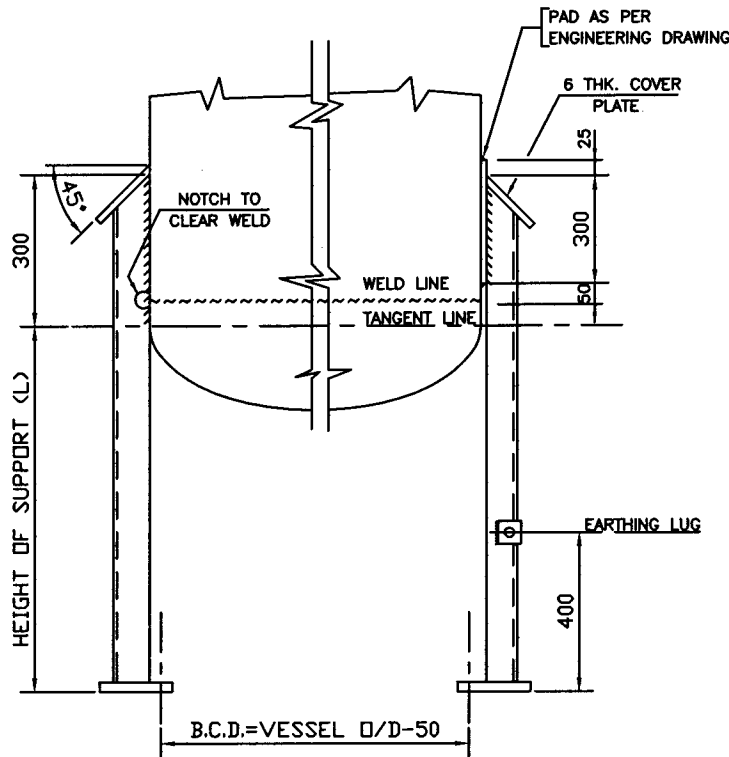
3. TOLERANCE FOR LENGTH ± 5 mm PER 3000 mm, MAXIMUM 15 mm.
4. OUTSIDE SURFACE OF CYLINDER MAY BE OUT OF ALIGNMENT / STRAIGHTNESS NOT MORE THAN 6 mm PER 6000 mm STRAIGHT LENGTH, BUT NOT MORE THAN 20 mm FOR ANY LENGTH.
5. TOLERANCE FOR CENTRE TO CENTRE DISTANCE BETWEEN ANY PAIR OF INSTRUMENT CONNECTIONS TO BE AS FOLLOWS:-
DISTANCE BETWEEN NOZZLES : ± 1 mm
ORIENTATION : ± 1 mm
NOZZLE FACE INCLINATION : $\pm 1/4^\circ$
6. ELEVATIONS FROM REFERENCE PLANE MAY VARY AS FOLLOWS:-
MANHOLE: ± 12 mm, NOZZLE ± 6 mm, INTERNAL SUPPORTS: ± 3 mm, EXCEPT THAT LOCATIONS OF MANHOLES AND NOZZLES NEAR THE TRAY SHALL NOT VARY MORE THAN ± 3 mm FROM THE TRAY.
7. PROJECTION OF FLANGE FACE FROM SHELL CENTRAL LINE / TANGENT LINE MAY VARY ± 5 mm FOR NOZZLES AND ± 12 mm FOR MANHOLES.
8. CIRCUMFERENTIAL AND RADIAL DEVIATION OF NOZZLES, MANHOLES AND SUPPORTS FROM THE TRUE POSITION SHALL NOT VARY MORE THAN ± 3 mm.
9. BOLT HOLE ORIENTATION OF NOZZLES MAY VARY ± 2 mm AT BOLT CIRCLE.
10. VERTICAL AND HORIZONTAL DEFLECTION OF NOZZLE FLANGE FACES FROM PLANES NORMAL TO NOZZLE CENTRE LINES OR PARALLEL TO VESSEL CENTRE LINE SHALL NOT BE MORE THAN $\pm 1/2^\circ$.
11. ALL TOLERANCES OF TRAY SUPPORTS TO BE AS PER TRAY SPECIFICATIONS / DRAWING.
12. THE BASE RING BOLT CIRCLE DIAMETER MAY VARY ± 5 mm. FOR ANY DIAMETER MEASURED AT POINTS 90° APART, DISTANCE BETWEEN TWO CONSECUTIVE HOLES MAY VARY BY ± 5 mm.
13. a) DEVIATION OF SUPPORT BASE FROM HORIZONTAL MAY BE AS FOLLOWS:-
FOR VESSEL DIA. 1500 mm AND UNDER 3 mm
FOR VESSEL DIA. OVER 1500 mm TO 2000 mm 5 mm
FOR VESSEL DIA. OVER 2000 mm TO 4000 mm 6 mm
FOR VESSEL DIA. OVER 4000 mm TO 5000 mm 8 mm
FOR VESSEL DIA. OVER 5000 mm 10 mm
b) DEVIATION OF SUPPORT BASE FOR BRACKET TYPE SUPPORT / SADDLE SUPPORT FROM HORIZONTAL MAY BE $\pm 1^\circ$
14. DISTANCE BETWEEN CL TO CL OF SUPPORTS AND BOLT HOLES IN SUPPORTS FOR HORIZONTAL VESSELS MAY VARY ± 3 mm.
15. DISTANCE BETWEEN CENTRE LINE OF HORIZONTAL VESSEL AND BOTTOM OF SUPPORT MAY VARY ± 3 mm.
16. a) TOLERANCE FOR CENTRE TO CENTRE DISTANCE BETWEEN ANY PART OF EXTERNAL STRUCTURAL ATTACHMENT SHALL NOT VARY MORE THAN ± 3 mm.
b) TOLERANCE FOR DISTANCE FROM REFERENCE PLANE TO BASE OF VERTICAL SUPPORTS AND CENTRE LINE OF SADDLE SUPPORT MAY VARY ± 6 mm.

SPECIAL NOTES

- A. CUMULATIVE TOLERANCES ON CONSECUTIVE DIMENSIONS SHALL BE LIMITED BY OVERALL DIMENSIONAL TOLERANCES. ALL TOLERANCES ARE FROM REFERENCE PLANE UNLESS OTHERWISE INDICATED.
- B. INTERFERENCE BETWEEN INTERNAL AND EXTERNAL PARTS OR ANY RESTRICTION TO THE INTENDED FUNCTION OF ANY PART SHALL BE KEPT IN VIEW WHERE TOLERANCES ARE CUMULATIVE.
- C. SPECIFIC TOLERANCES FOR ANY PART SHOWN ON EIL DRAWING SHALL BE GIVEN PREFERENCE TO THOSE GIVEN IN THIS STANDARD.
- D. UNUSUALLY LARGE OR COMPLEX VESSELS MAY BE EXECUTED AS PER FABRICATOR'S STANDARD WHEN THE TOLERANCES AS SHOWN ARE UNREASONABLE. IN SUCH INSTANCES FABRICATOR'S TOLERANCES & LIMITS MUST BE SUBMITTED FOR APPROVAL.
- E. VESSEL UPTO AND INCLUDING 750 mm NOMINAL DIAMETER SHALL HAVE CARTRIDGE TYPE TRAY. FOLLOWING TOLERANCES ON DIAMETER SHALL APPLY THROUGHOUT ITS LENGTH.

VESSEL NOMINAL DIAMETER	TOLERANCE
500 mm AND UNDER	VESSEL I.D. ± 1 mm 0 mm
501 mm TO 750 mm	VESSEL I.D. ± 3 mm

5	30.06.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	PRRT	ARM/SC	DM
4	08.09.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	DNN	AKM	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
						Approved by



NOTES

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
- THIS STD. IS APPLICABLE FOR VESSEL DIAMETER UPTO AND INCLUDING 2000mm, MAXIMUM SHELL THICKNESS OF 20mm AND MAXIMUM LENGTH (T.L. TO T.L.) OF 3000mm VESSELS BEYOND ABOVE RANGE REQUIRE SPECIAL CONSIDERATION.
- FOR CALCULATION, FOLLOWINGS PARAMETERS HAVE BEEN CONSIDERED.
 - WIND PRESSURE 200 Kg/m²
 - SHAPE FACTOR 0.7
 - BASIC SEISMIC CO-EFFICIENT (α_0) 0.08
 - SOIL FOUNDATION SYSTEM FACTOR (β) 1.5
 - IMPORTANCE FACTOR (I) 2.0
- EMPTY WEIGHT WITH WIND LOADING OR HYDROSTATIC WEIGHT WITH SEISMIC LOADING.
- HEIGHT AND NUMBER OF LEG SUPPORTS AND SIZE OF ANCHOR BOLTS SHALL BE AS PER ENGINEERING DRAWING.
- MINIMUM BOLT SIZE SHALL BE M 20.
- MAXIMUM INSULATION THICKNESS CONSIDERED IS 150 mm.
- IN CASE OF CONFLICT ENGINEERING DRAWING SHALL GOVERN.
- ALL FILLET WELDS SHALL BE 6 mm MINIMUM.
- MATERIALS SHALL BE AS PER ENGINEERING DRAWING.
- EARTHING LUG SHALL BE AS PER STANDARD 7-12-0026.

5	30.06.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT	AKM/SC	DM
4	08.09.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	DNN	AKM	VC

Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman

LEG SUPPORT SIZES

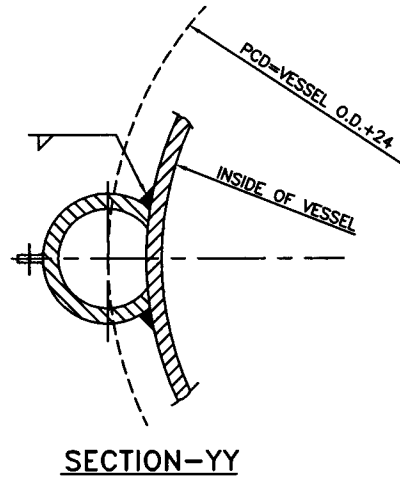
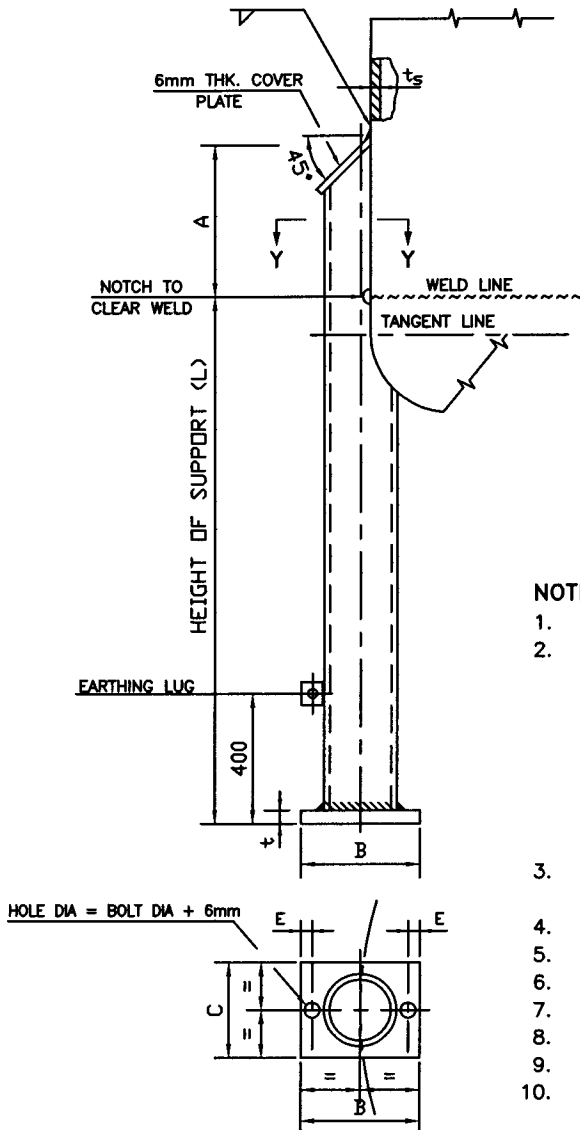
VESSEL O/D(mm)	NO.OF LEGS	LEG SIZE			BASE PLATE SIZE (mm)	X (mm)	MAXIMUM ALLOWABLE LOAD OF VESSEL (Kg.)
		MAX. VESSEL LENGTH (T.L. TO T.L.) UP TO AND INCLUDING 3.0 M					
		L = 1.5 M	L = 2.0 M	L = 2.5 M			
500	3	ISA 100x100x8	ISA 100x100x10	ISA 110x110x15	170x170x16 THK.	40	1500
800	4	ISA 100x100x10	ISA 130x130x8	ISA 130x130x12	200x200x16 THK.	45	3150
1000	4	ISA 100x100x12	ISA 130x130x10	ISA 150x150x12	230x230x16 THK.	45	4600
1250	4	ISA 110x110x15	ISA 150x150x10	ISA 150x150x12	230x230x16 THK.	45	6750
1600	4	ISA 130x130x15	ISA 150x150x15	ISA 150x150x18	230x230x16 THK.	60	9500
1750	4	ISA 150x150x12	ISA 150x150x18	ISA 200x200x12	300x300x16 THK.	60	12700
2000	4	ISA 150x150x18	ISA 200x200x12	ISA 200x200x15	300x300x20 THK.	75	16400

NOTES

FOR A VESSEL WITH MAXIMUM SUPPORT LEG HEIGHT OF 1500mm, FOLLOWING ALTERNATIVE LEG SIZES MAY BE USED :-

- ISA 65x65x8 WITH HYDROSTATIC WEIGHT UPTO 500 Kg.
- ISA 80x80x8 WITH HYDROSTATIC WEIGHT 501 Kg. TO 1000 Kg.

5	30.06.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL		AKM/SC	DM
4	08.09.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	DNN	AKM	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	



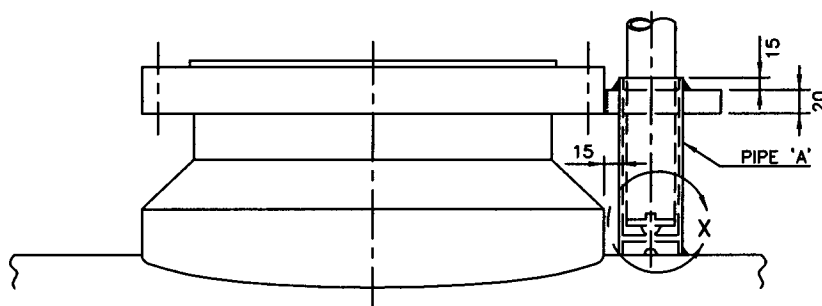
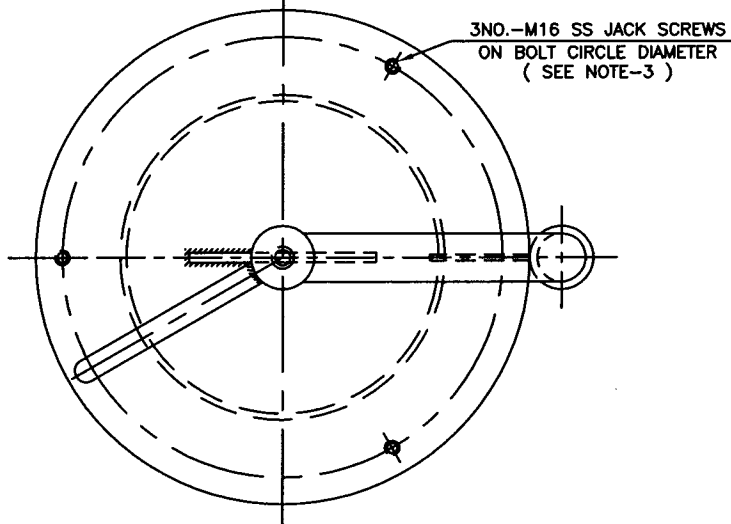
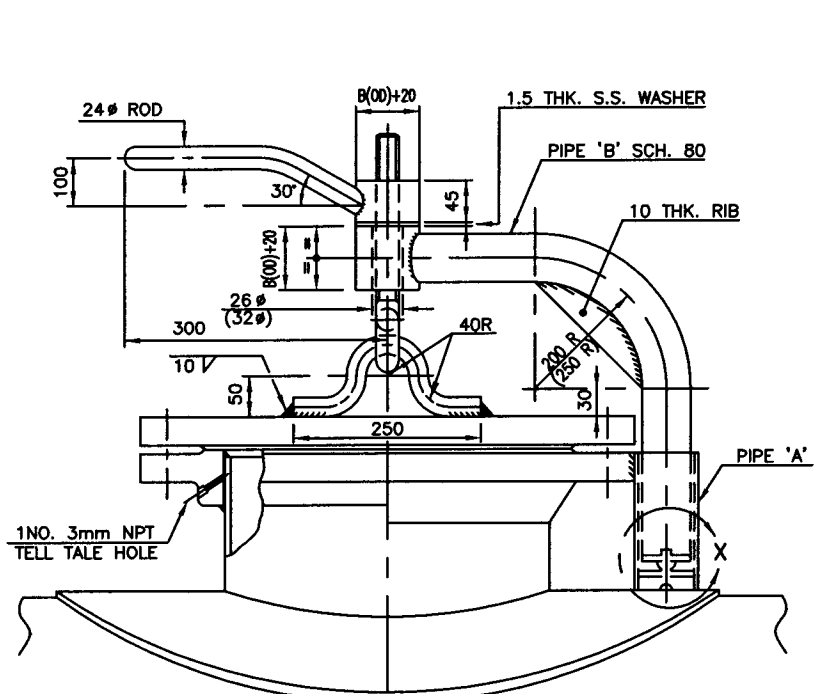
NOTES

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
- FOR DESIGN OF SUPPORT, FOLLOWINGS PARAMETERS HAVE BEEN CONSIDERED.
 - WIND PRESSURE 200 Kg/m²
 - SHAPE FACTOR 0.7
 - BASIC SEISMIC CO-EFFICIENT (α_0) 0.08
 - SOIL FOUNDATION SYSTEM FACTOR (β) 1.5
 - IMPORTANCE FACTOR (I) 2.0
- EMPTY WEIGHT WITH WIND LOADING OR HYDROSTATIC WEIGHT WITH SEISMIC LOADING.
- HEIGHT AND NUMBER OF LEG SUPPORTS AND SIZE OF ANCHOR BOLTS SHALL BE AS PER ENGINEERING DRAWING.
- MINIMUM BOLT SIZE SHALL BE M 20.
- MAXIMUM INSULATION THICKNESS CONSIDERED IS 150 mm.
- IN CASE OF CONFLICT ENGINEERING DRAWING SHALL GOVERN.
- ALL FILLET WELDS SHALL BE 6 mm MINIMUM.
- MATERIALS SHALL BE AS PER ENGINEERING DRAWING.
- EARTHING LUG SHALL BE AS PER STANDARD 7-12-0026.
- SUITABLE PAD FOR SS VESSEL SHALL BE PROVIDED.

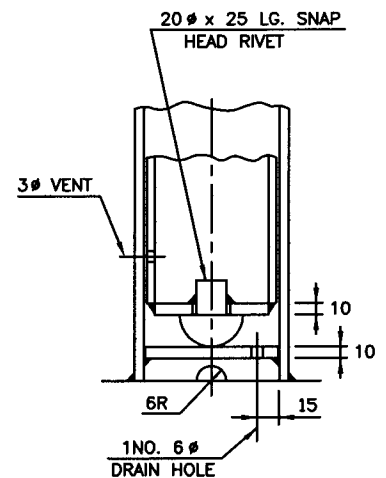
SUPPORT BASE DETAIL

LEG PIPE SIZE	A	B	C	E	t	MAXIMUM ALLOWABLE LOAD PER LEG (Kgs)		
						MAXIMUM HEIGHT OF SUPPORT (L) IN METERS		
						2.0	2.5	3.0
50NB x EXTRA STRONG	120	230	140	36	20	2300	2050	1800
80NB x EXTRA STRONG	180	250	160	36	25	5700	5500	4900
100NB x EXTRA STRONG	230	310	185	42	25	9000	8600	8300
150NB x EXTRA STRONG	320	370	235	44	25	18500	18000	17500

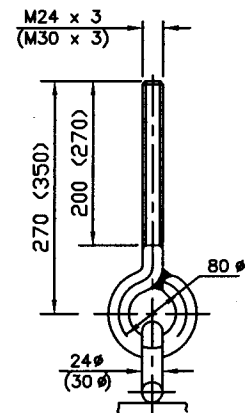
5	30.06.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT	AKM/SC	DM
4	08.09.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	DNN	AKM	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
	Page 217 of 283				Approved by	



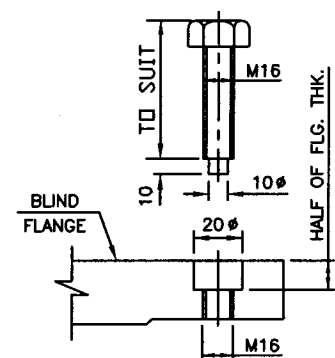
TYP. DETAIL FOR SR MANHOLE



DETAIL 'X'

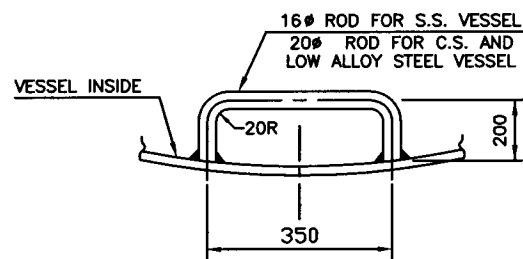
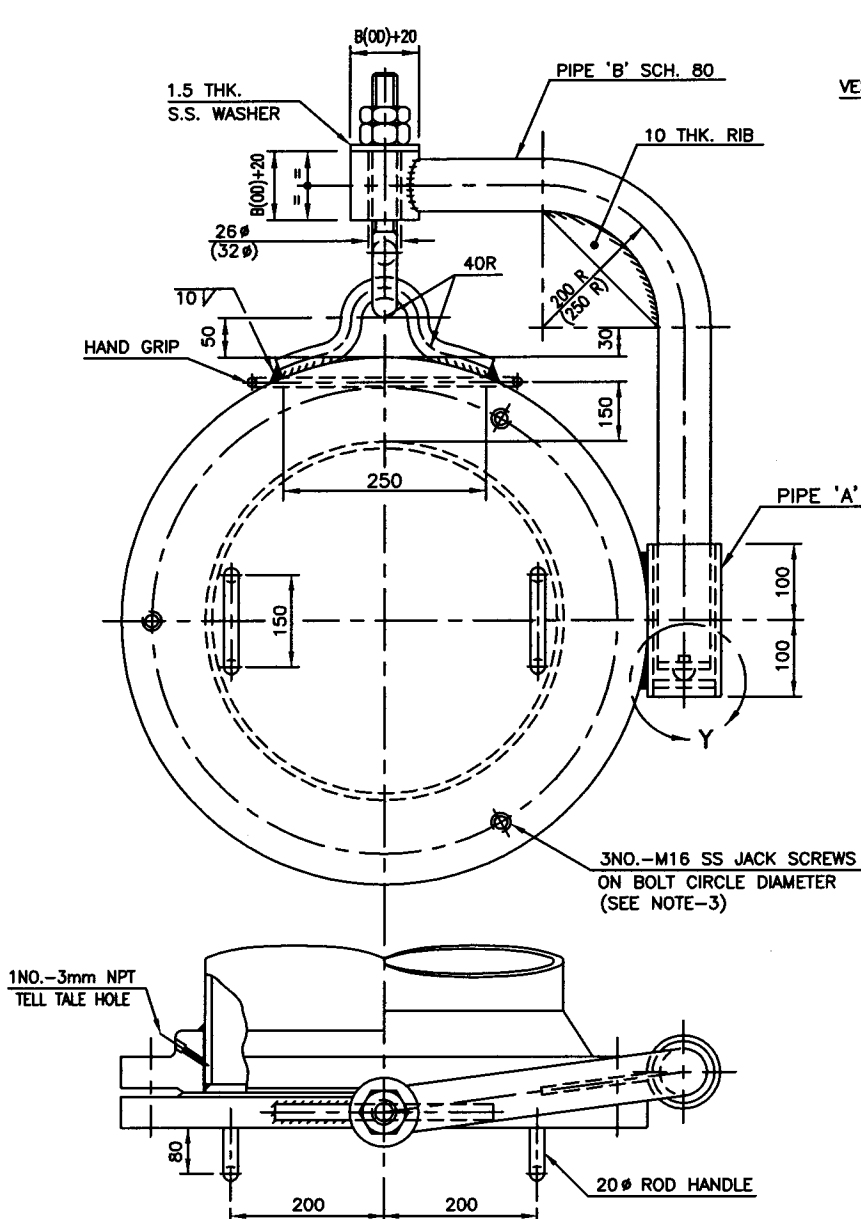


DETAIL OF EYE BOLT

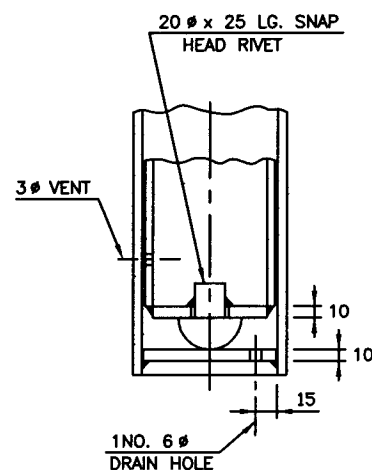


DETAIL OF JACK SCREW

6	30.06.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT	KM/SC	DM
5	11.09.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	DNN	AKM	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
	Page 218 of 283				Approved by	



DETAIL OF HAND GRIP



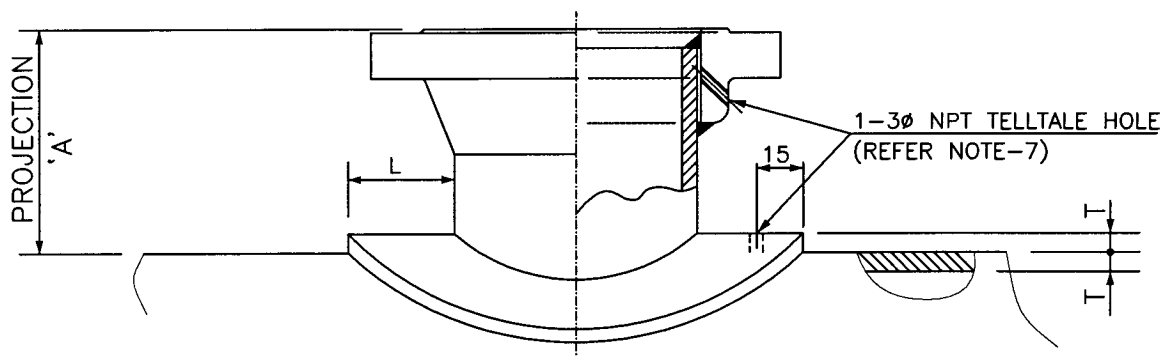
DETAIL 'Y'

NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
2. DIMENSIONS IN BRACKETS ARE FOR CLASS 900.
3. B.C.D. OF JACK SCREWS IS TO BE SUITABLY CHANGED IF MANHOLE STUDS INTERFERE WITH JACK SCREWS.
4. THE SLEEVE PIPE 'A' SHOULD BE IN TRUE VERTICAL POSITION WITHIN A TOLERANCE OF $2\frac{1}{2}$ DEGREE, AFTER WELDING TO THE FLANGE.
5. EDGES SHALL BE ROUNDED OFF IF SQUARE ROD IS USED FOR HANDGRIP.
6. MATERIAL OF DAVIT COMPONENTS SHALL BE C.S. UNLESS OTHERWISE SPECIFIED IN ENGINEERING DRAWING.
7. ALL FILLET WELDS SHALL BE 6mm MINIMUM.
8. THIS STANDARD IS NOT APPLICABLE FOR LOW TEMPERATURE SERVICES.
9. IN CASE OF CONFLICT ENGINEERING DRAWING SHALL GOVERN.

CLASS	SIZE (NB)	A (NB)	B (NB)
150	400	50 NB SCH. 80	40
	450	50 NB SCH. 80	40
	500	65 NB SCH. 40	50
	600	65 NB SCH. 40	50
300	400	65 NB SCH. 40	50
	450	65 NB SCH. 40	50
	500	65 NB SCH. 40	50
	600	90 NB SCH. 40	80
600	400	80 NB SCH. 40	65
	450	90 NB SCH. 40	80
	500	125 NB SCH. 80	100
	600	125 NB SCH. 80	100
900	400	125 NB SCH. 80	100
	450	125 NB SCH. 80	100
	500	150 NB SCH. 80	125
	600	150 NB SCH. 80	125

6	30.06.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT	AKM/SC	DM
5	11.09.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	DNN	AKM	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
	Page 219 of 283				Approved by	



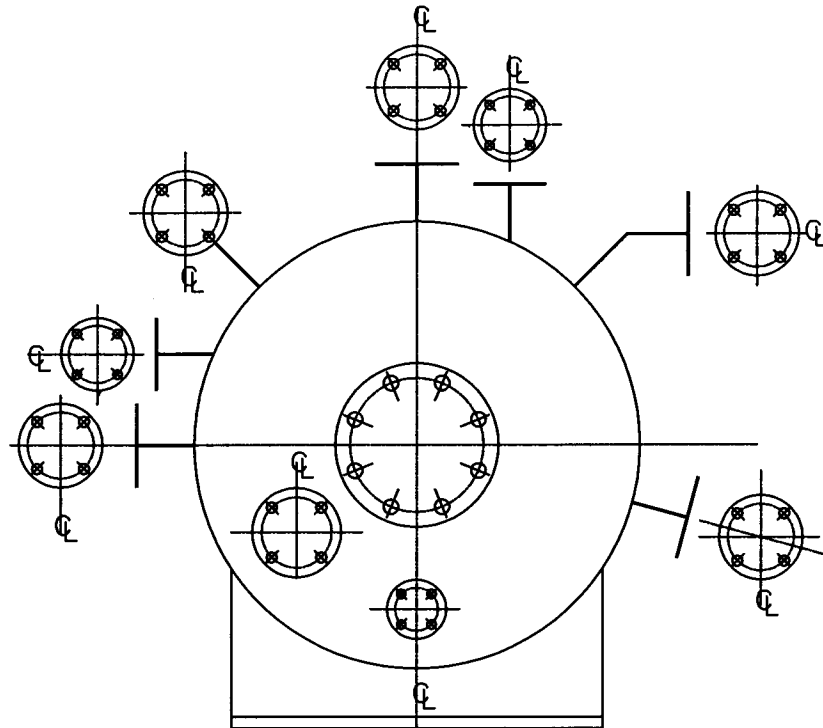
NOMINAL PIPE SIZE	OUTSIDE DIAMETER	L (WIDTH OF PAD) *		PROJECTION 'A' SEE NOTE-4,5,9&10			
		SHELL WELD EFF.=0.85	SHELL WELD EFF.=1.0	CLASS 150	CLASS 300	CLASS 600	CLASS 900
BELOW 3"	STANDARD	—	—	150	150	150	150
3"	88.9	40	45	200	200	200	200
4"	114.3	50	60	200	200	200	200
6"	168.3	70	85	200	200	200	250
8"	219.0	95	110	200	200	250	250
10"	273.0	115	135	200	200	250	300
12"	323.8	135	160	200	200	250	300
14"	355.6	150	175	250	250	250	300
16"	406.4	170	200	250	250	250	300
18"	457.2	195	225	250	300	300	350
20"	508.0	215	250	250	300	300	350
24"	609.6	255	300	250	300	300	400
26"	660.4	285	330	250	300	350	450
28"	711.2	305	355	250	300	350	450
30"	762	325	380	250	300	400	450
32"	812.8	350	405	300	350	400	500
34"	863.6	370	430	300	350	400	500
36"	914.4	390	455	300	350	—	—
38"	965.2	410	480	300	350	—	—
40"	1016	435	505	300	350	—	—
42"	1066.8	455	530	300	400	—	—
44"	1117.6	475	555	300	400	—	—
46"	1168.4	500	585	300	400	—	—
48"	1219.2	520	610	300	400	—	—

6	07.06.2013	REVISED AND REISSUED AS STANDARD	NIKHIL	KA	RKT/SC	DM
5	23.05.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT		
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	

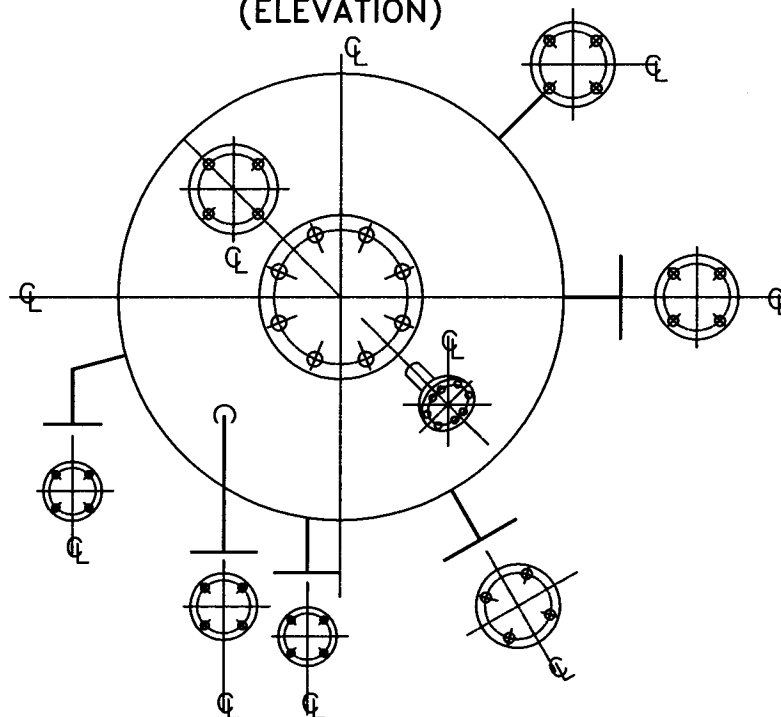
NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
2. IN CASE OF CONFLICT ENGINEERING DRAWING SHALL GOVERN.
- ③ 3. WIDTH IS MINIMUM AND SHALL BE CHECKED AGAINST CODE REQUIREMENT. CHECK REINFORCEMENT REQUIREMENT FOR ALL EXTERNAL PIPING LOADING ALSO.
4. NOZZLE PROJECTIONS ARE BASED ON INSULATION THICKNESS EQUAL TO 75mm. FOR INSULATION THICKNESS GREATER THAN 75mm, THE NOZZLE PROJECTION IS 'A' + [INSULATION THICKNESS(mm)-75].
5. PROJECTION 'A' FOR SELF-REINFORCED NOZZLE SHALL BE BASED ON DESIGN OF REINFORCEMENT SUBJECT TO MINIMUM REQUIREMENTS AS PER THIS STD.
6. EXTEND PAD LOCALLY FOR MANHOLE DAVIT SUPPORT, IF REQUIRED.
7. EXTERNAL REINFORCING PADS SHALL HAVE A MINIMUM OF 1 NO. TELL-TALE HOLE EXCEPT THAT PADS FOR NOZZLES GREATER THAN 10"NB(250NB) SHALL HAVE MINIMUM TWO NOS. TELL-TALE HOLES AND NOZZLES IN EXCESS OF 36"NB (900NB) SHALL HAVE 4 NOS. TELL-TALE HOLES. PAD INSTALLED IN SECTIONS SHALL HAVE ATLEAST ONE TELL-TALE HOLE PER SECTION. TELL-TALE HOLES ON REINFORCEMENT PADS SHALL BE EQUALLY SPACED IN CIRCUMFERENTIAL DIRECTION OF PAD.
8. TELL-TALE HOLE SHALL NOT BE PLUGGED AND SHALL BE FILLED WITH HARD GREASE ONLY, AFTER HYDROTEST/PNEUMATIC TEST OF EQUIPMENT.
9. a) FOR COLUMNS & VERTICAL VESSELS, PROJECTION OF NOZZLE ON TOP HEAD SHALL BE 400mm MINIMUM FROM OUTSIDE.
b) FOR HORIZONTAL VESSELS, PROJECTION OF NOZZLES ON TOP SIDE OF SHELL SHALL BE 300mm MINIMUM FROM OUTSIDE.
10. PROJECTIONS ARE BASED ON ASME B16.5 FLANGES FOR UPTO AND INCLUDING 24"NB NOZZLES AND ASME B16.47 SERIES 'B' FLANGES FOR NOZZLE SIZES ABOVE 24"NB.

6	07.06.2013	REVISED AND REISSUED AS STANDARD	NIKHIL	KA	RKT/SC	DM
5	23.05.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT		
Rev. No.	Date	Purpose	Prepared by	Checked by	Std. Committee Convenor	Std. Bureau Chairman
					Approved by	



HORIZONTAL VESSEL
(ELEVATION)

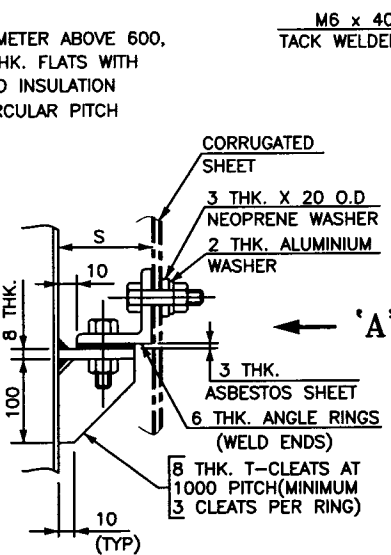
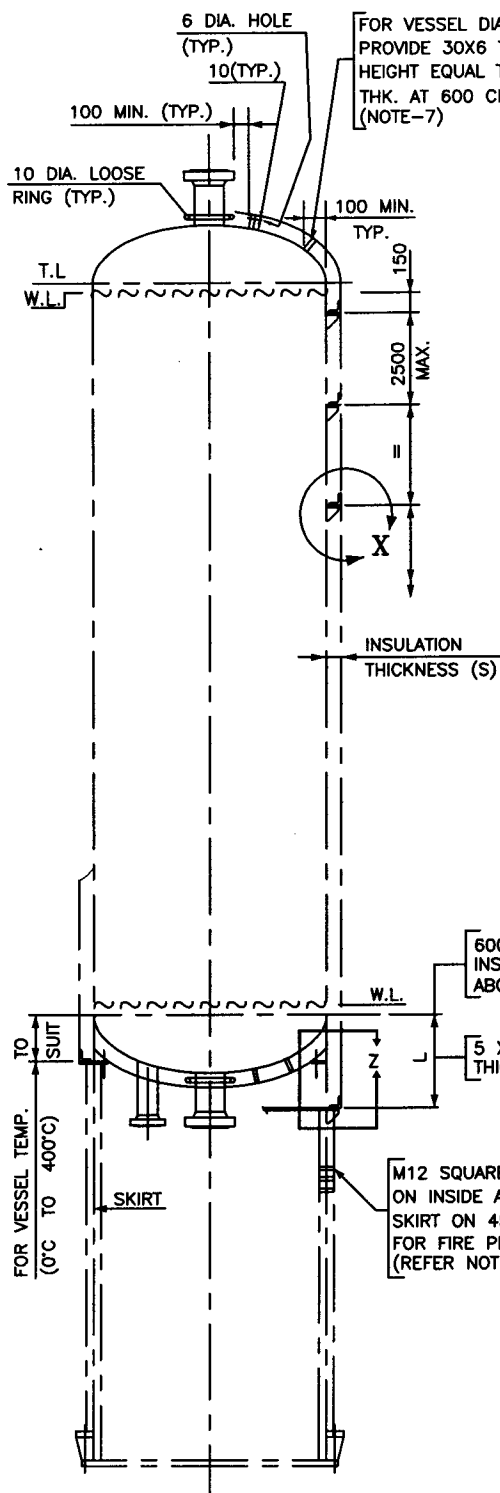


VERTICAL VESSEL
(PLAN)

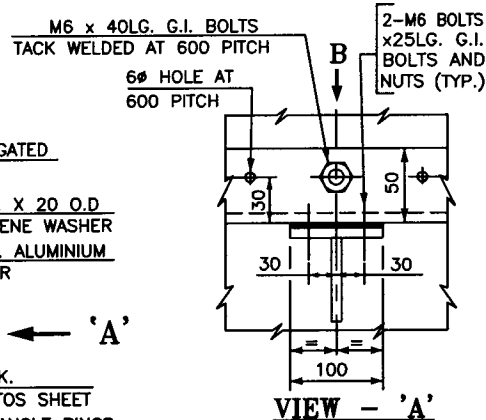
NOTES

1. ANY DEVIATION FROM THIS ARRANGEMENT WILL BE INDICATED IN ENGINEERING DRAWING.
2. BOLT HOLES TO STRADDLE CENTRE LINES INDICATED (BY C.) ABOVE.

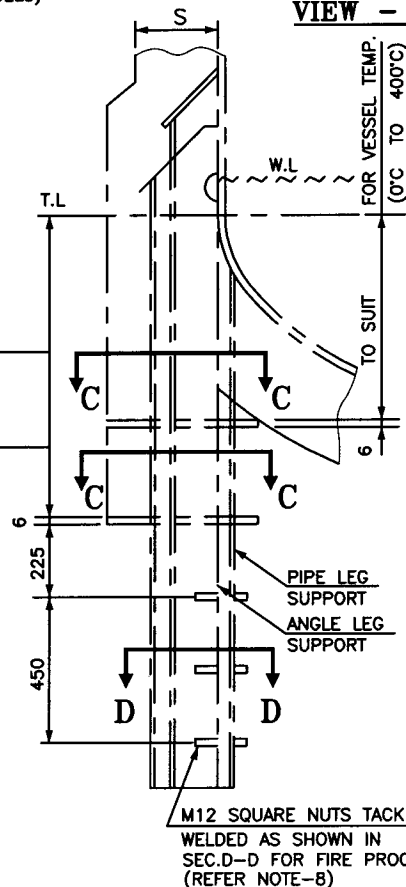
5	23.05.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT		
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	



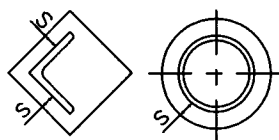
DETAIL-X
(FOR HOT INSULATED VESSELS)
(WHERE S => 40)



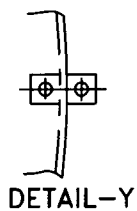
VIEW - 'A'
VIEW - 'B'



SECTION 'D-D'

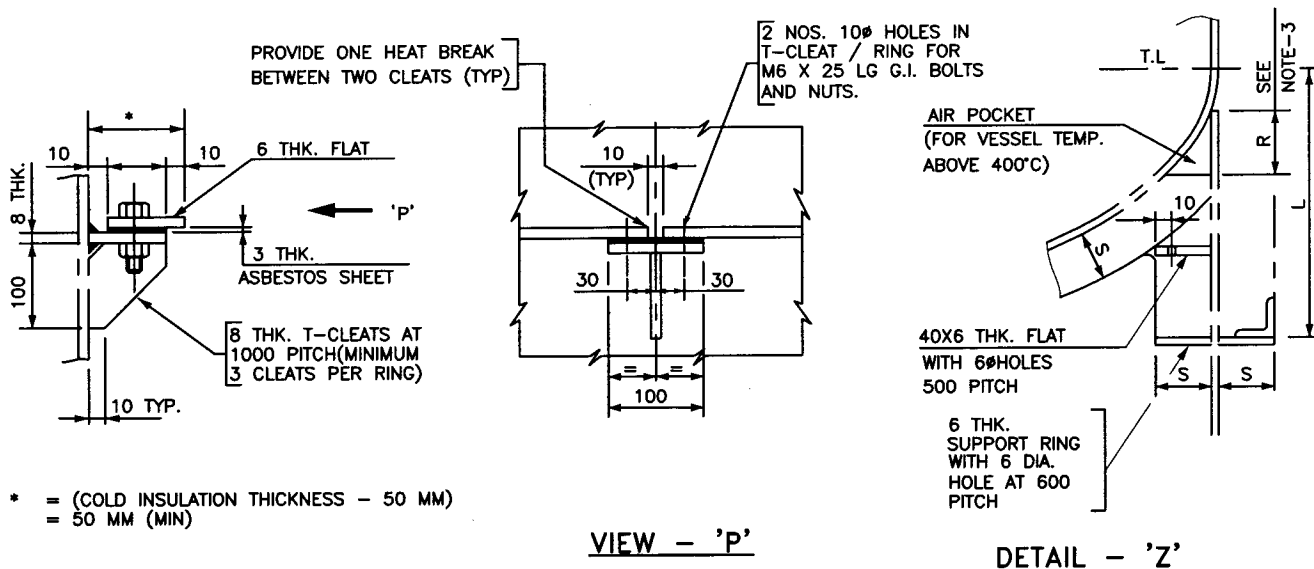


SECTION 'C-C'

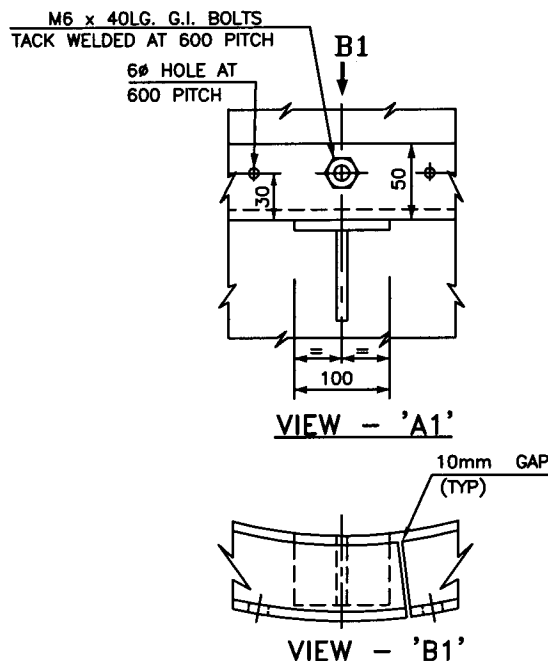
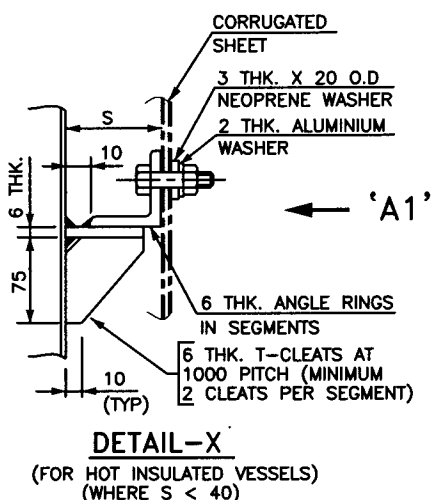


DETAIL-Y

5	31.08.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT	AKM / SC	DM
4	12.10.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKG	AKM	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	



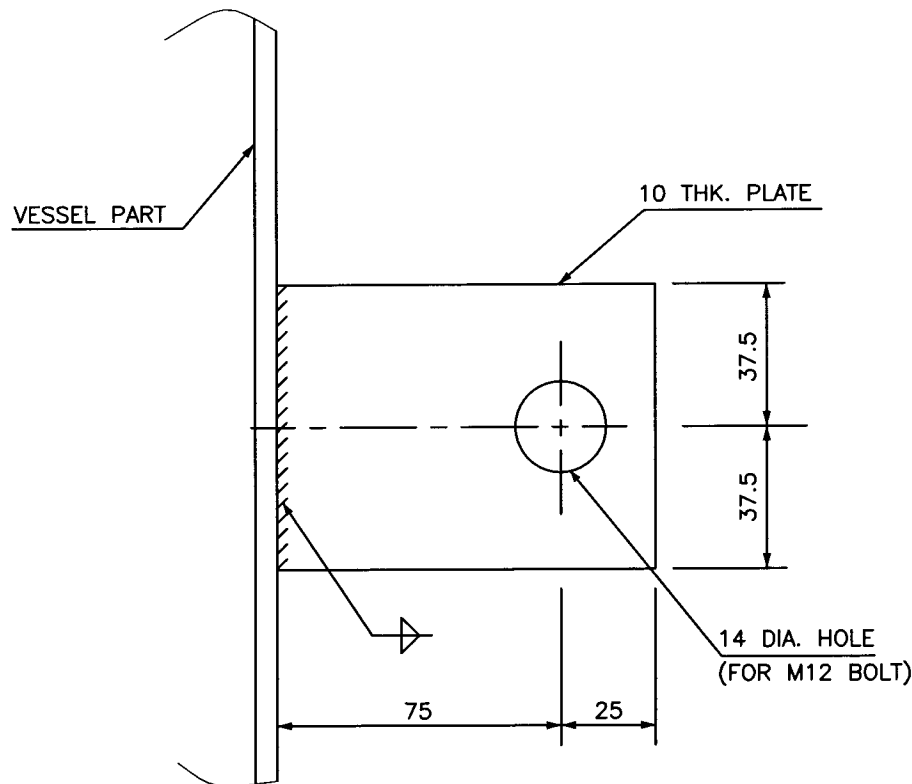
* = (COLD INSULATION THICKNESS - 50 MM)
= 50 MM (MIN)



NOTES

- ALL DIMENSIONS ARE IN mm.
- FOR MATERIAL SPECIFICATION REFER ENGINEERING DRAWING.
- 'R' SHALL BE EQUAL TO 175mm FOR VESSELS UPTO 3000mm DIAMETER AND 300mm FOR VESSELS ABOVE 3000mm DIAMETER.
- DETAILS, DIMENSIONS AND NOTES ON ENGINEERING DRAWING SHALL TAKE PRECEDENCE OVER THOSE SHOWN HEREIN.
- CLIPS SHALL CLEAR WELD SEAMS AND INSULATION RINGS SHALL BE SUITABLY NOTCHED INCASE OF INTERFERENCE WITH NOZZLES/ATTACHMENTS.
- ONLY T-CLEATS WITH ASBESTOS SHEET AND G.I. BOLTINGS, ANGLE RING ALONG WITH TACK WELDED BOLTS, INSULATION SUPPORT CLEATS WELDED TO EQUIPMENT, LOOSE RINGS & M12 NUTS SHALL BE SUPPLIED BY EQUIPMENT FABRICATOR.
- a) FOR COLD INSULATED VESSELS CLEATS ON DISHED ENDS ARE NOT REQUIRED.
b) FOR COLD INSULATED VESSELS CLEATS ON SHELL ARE TO BE PROVIDED IF COLD INSULATION THICKNESS IS MORE THAN 60mm.
- FOR UNINSULATED VESSELS SQUARE NUTS SHALL BE PROVIDED FOR ENTIRE HEIGHT OF SUPPORT (SKIRT, PIPE/ANGLE LEG).

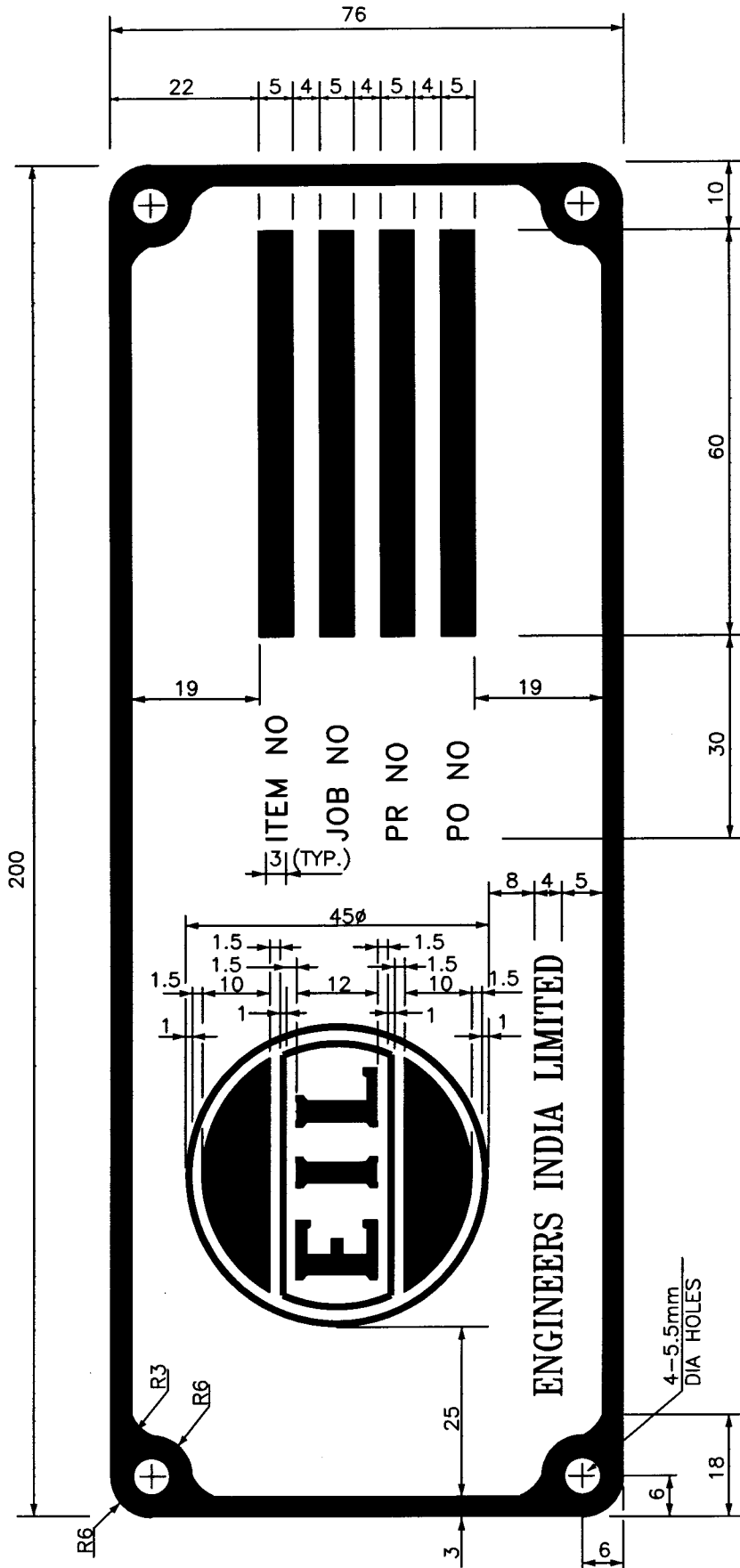
5	31.08.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT	AKM / SC	DM
4	12.10.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKG	AKM	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	



NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
2. ALL EQUIPMENTS SHALL BE PROVIDED WITH TWO(2) EARTHING LUGS, UNLESS OTHERWISE STATED.
- 3.(a) EARTHING LUGS SHALL BE LOCATED DIAMETRICALLY OPPOSITE ON NORTH-SOUTH CENTER LINE ON SKIRT SUPPORTED EQUIPMENTS, ON ANY TWO(2) LEGS OF THREE(3) LEG SUPPORTED VERTICAL VESSEL, ON DIAMETRICALLY OPPOSITE LEGS OF FOUR(4) LEG SUPPORTED VERTICAL VESSEL AND ON EACH SADDLE OF HORIZONTAL VESSEL.
- (b) TWO(2) EARTHING LUGS ARE TO BE LOCATED ON EACH SADDLE OF HORIZONTAL VESSEL OF LENGTH GREATER THAN 20 METERS.
- (c) FOR SPHERE, TOTAL 4-NOS. OF EARTHING LUGS SHALL BE PROVIDED PREFERABLY ON DIAMETRICALLY OPPOSITE AND EQUALLY SPACED LEGS. (SPHERES ARE USUALLY PROVIDED WITH LEGS IN NUMBERS WHICH ARE MULTIPLE OF 4 FOR THE SYMMETRY)
4. DO NOT WELD EARTHING LUG ON PRESSURE PART.
5. IN CASE OF CONFLICT ENGINEERING DRAWING SHALL GOVERN.
6. MATERIAL OF CONSTRUCTION SHALL BE CARBON STEEL.

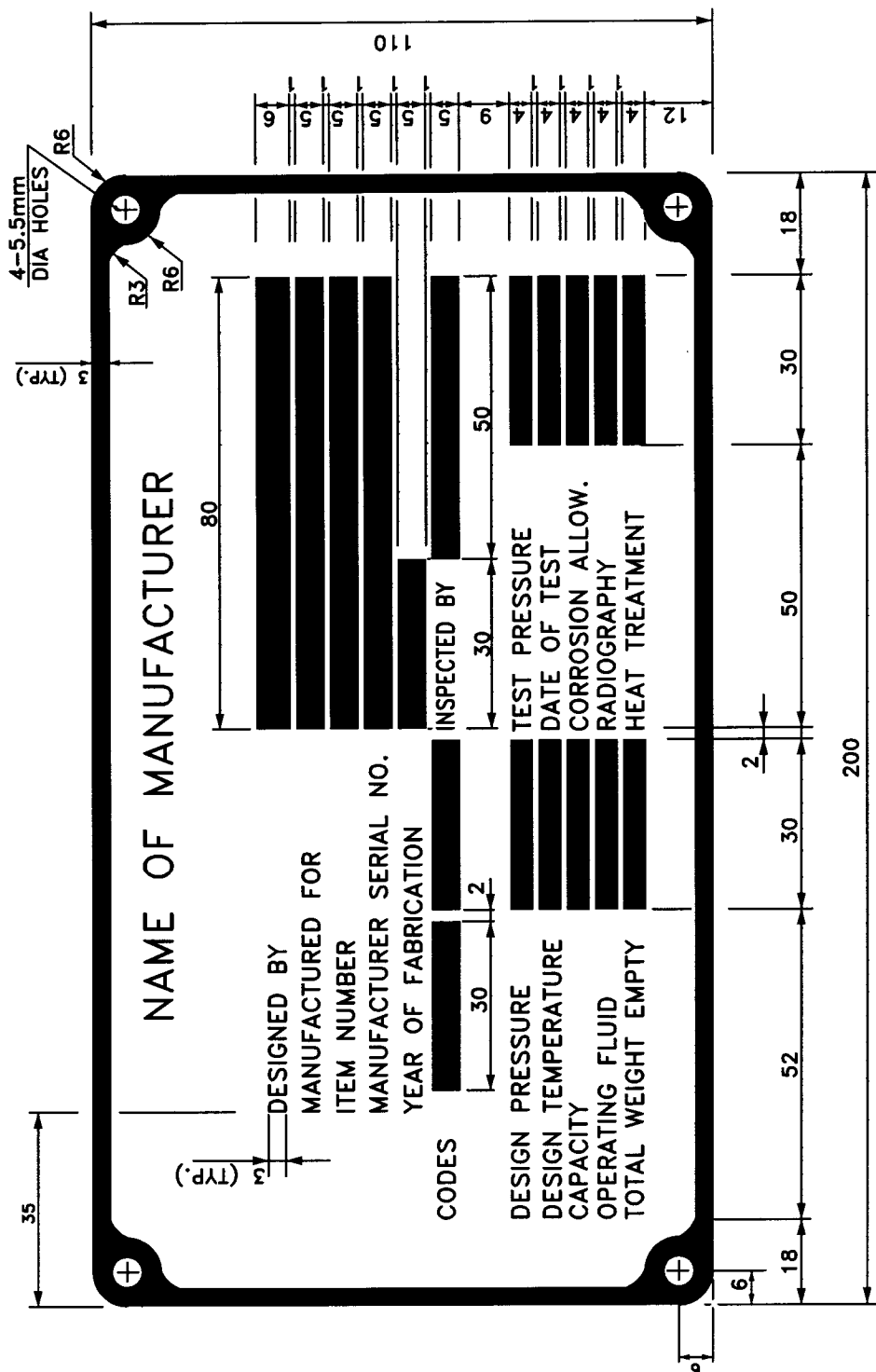
5	31.08.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT	AKM / SC	DM
4	12.10.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKG	AKM	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	



NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
2. ALL LETTERS, BLOCKS AND BORDER SHALL BE OF RAISED POLISHED FACE.
3. BACK GROUND SHALL BE BLACK.
4. NAME PLATE SHALL BE TACK-WELDED TO THE BRACKET. WHERE NOT POSSIBLE IT MAY BE RIVETTED.
5. REFER STANDARD 7-12-029 FOR BRACKET DETAIL OF NAME PLATE.
6. NAME PLATE SHALL BE OF STAINLESS STEEL OF 2mm THICK.

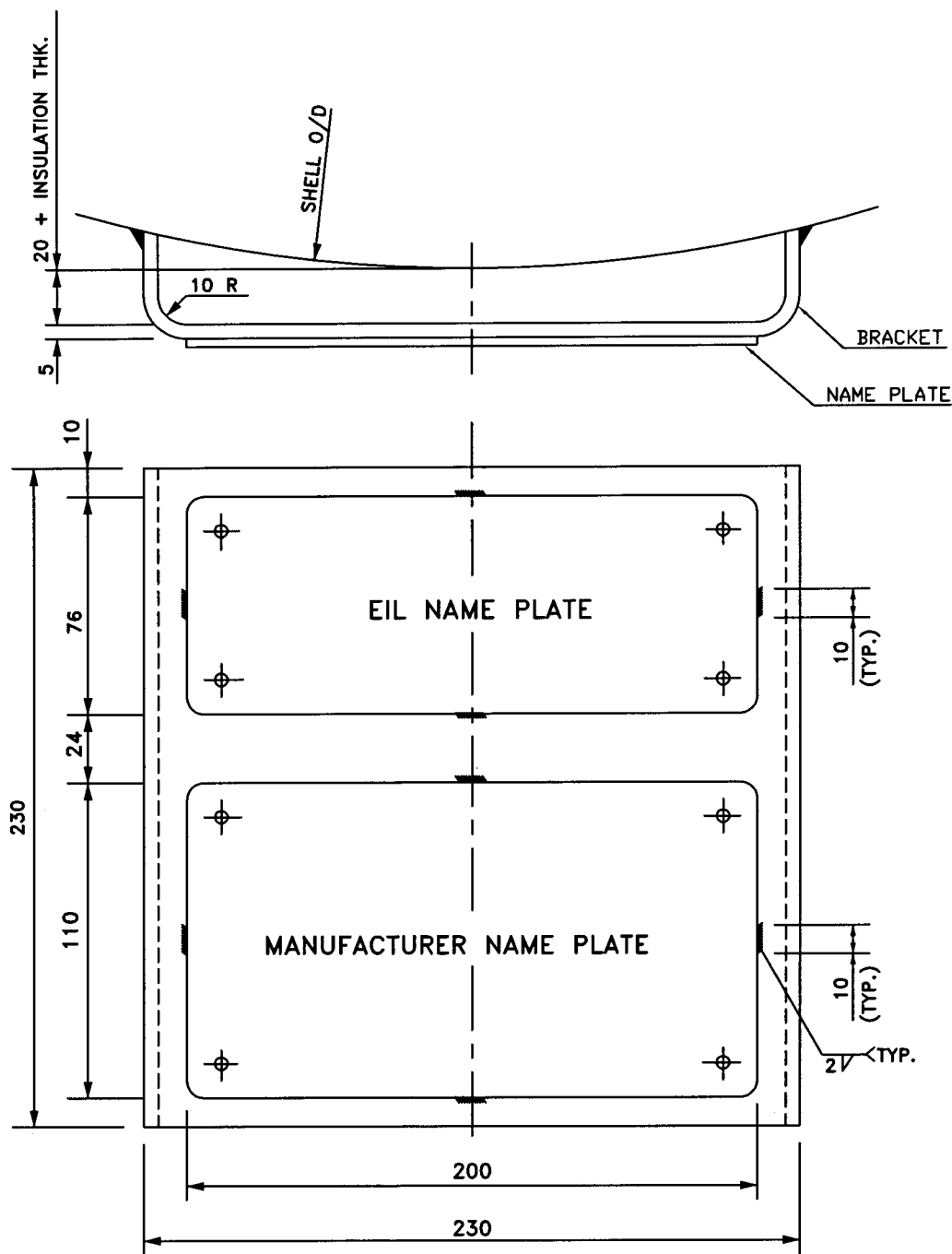
5	31.08.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT	AKM / SC	DM
4	12.10.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKG	AKM	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	



NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
2. ALL LETTERS, BLOCKS AND BORDER SHALL BE OF RAISED POLISHED FACE.
3. BACK GROUND SHALL BE BLACK.
4. NAME PLATE SHALL BE TACK-WELDED TO THE BRACKET. WHERE NOT POSSIBLE IT MAY BE RIVETTED.
5. REFER STANDARD 7-12-029 FOR BRACKET DETAIL OF NAME PLATE.
6. NAME PLATE SHALL BE OF STAINLESS STEEL OF 2mm THICK.

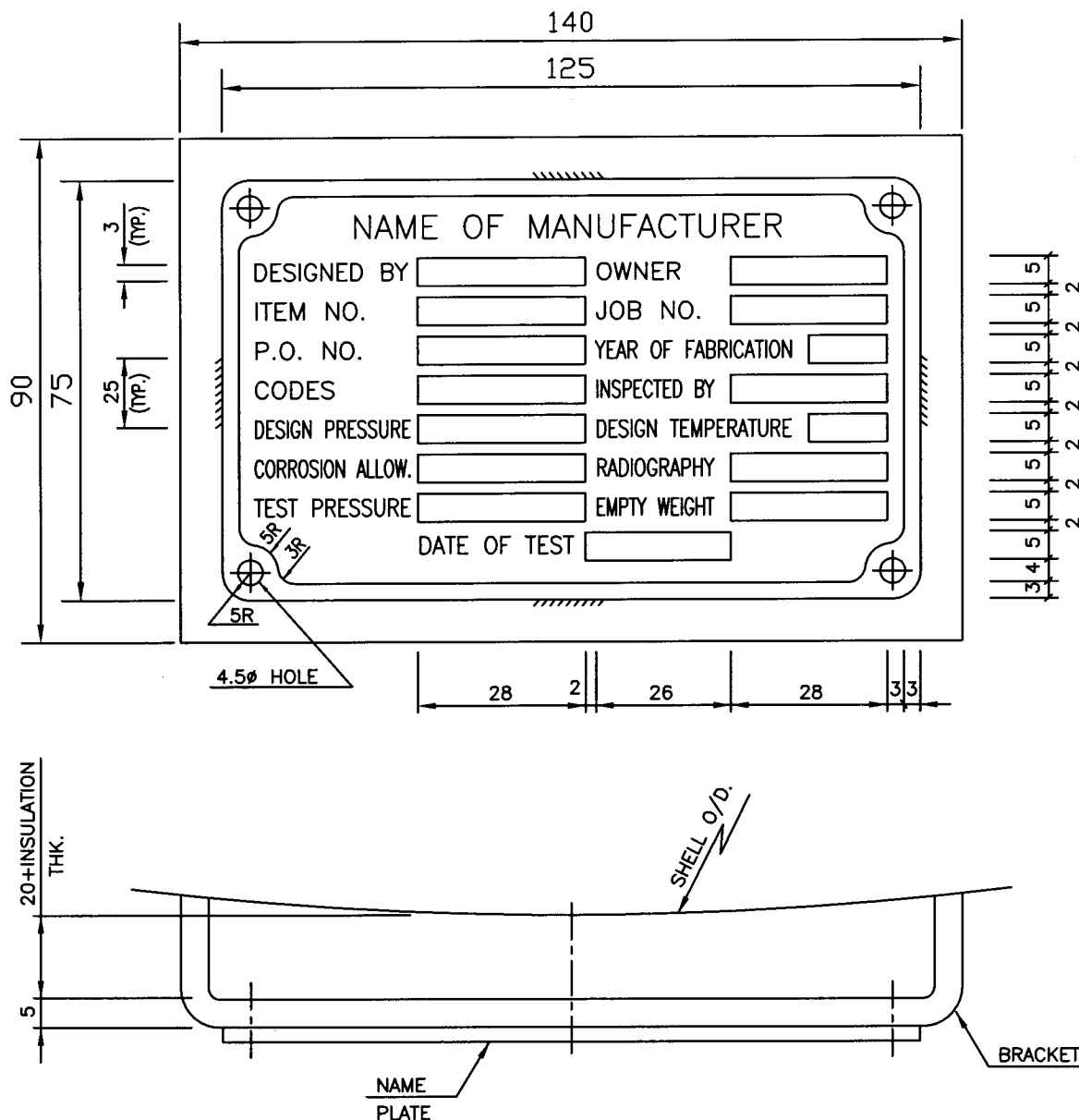
5	31.08.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT	AKM / SC	DM
4	12.10.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKG	AKM	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	



NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
2. BRACKET MATERIAL SHALL BE SAME AS SHELL MATERIAL.

5	31.08.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT	AKM / SC	DM
4	12.10.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKG	AKM	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	



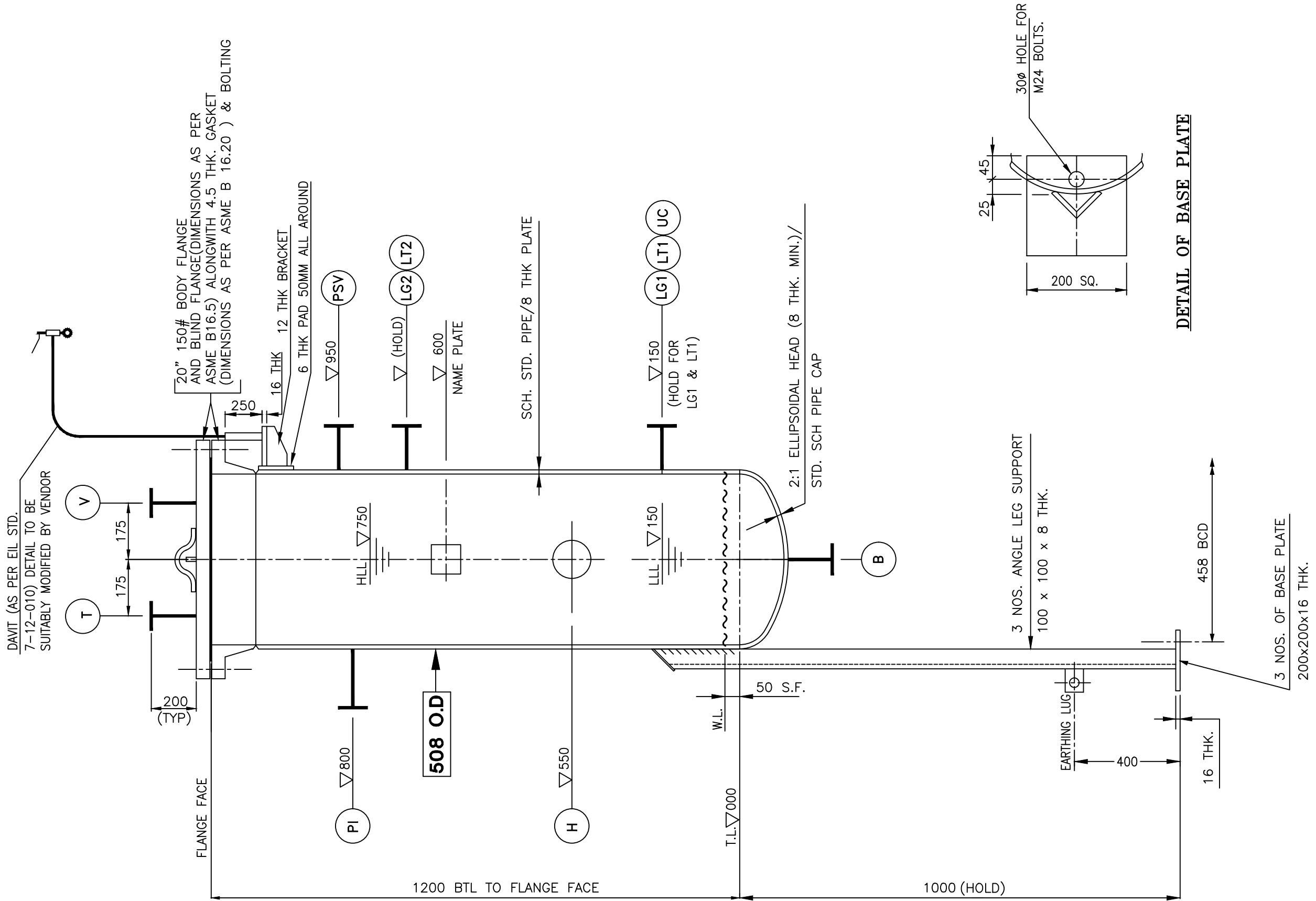
NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED.
2. ALL LETTERS, BLOCKS AND BORDERS SHALL BE RAISED POLISHED FACE.
3. BACKGROUND SHALL BE BLACK.
4. NAME PLATE SHALL BE TACK-WELDED TO THE BRACKET. WHERE NOT POSSIBLE IT MAY BE RIVETTED.
5. NAME PLATE SHALL BE OF STAINLESS STEEL OF 2mm THICK.
6. BRACKET MATERIAL SHALL BE SAME AS SHELL MATERIAL.

4	31.08.2011	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKT	AKM / SC	DM
3	12.10.2006	REAFFIRMED AND REISSUED AS STANDARD	POREL	RKG	AKM	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	

[illegible]

The drawing, design and details given on this format are the property of ENGINEERS INDIA LIMITED. They are merely loaned on the borrower's express agreement that they will not be reproduced, copied, exhibited or used, except in the limited way permitted by a written consent given by the lender to the borrower for the intended use.



CLIENT : BPCL-KOCHI
PLANT : DELAYED COKER UNIT
(INTEGRATED REFINERY EXPANSION
PROJECT (IREP))

C	26-08-2013	ISSUED FOR BIDS/ENGG.	DP	MS/RKM	PVSS	
B	26-08-2013	ISSUED FOR BIDS/ENGG.	DP	MS	PVSS	
A	19-08-2013	ISSUED FOR BIDS/ENGG.	DP	MS	PVSS	
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED

VESSEL DESIGN DATA
 LP STEAM AIR PREHEATER
 CONDENSATE POT
 ITEM NO. ID-V-140A/B

DRAWING NO.
A307-01D-16-46-DS-3047

REV.
C

SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING (NEW CONSTRUCTION)

CLIENT : BPCL – KR

PROJECT : IREP

JOB No. : A307

1	25-06-2013	COLOR CODE SCHEME INCORPORATED AS PER CLIENT	DHANANJAY	SRIDHAR	R.CHAUDHURY
0	18.04.2012	ISSUED AS JOB SPECIFICATION	DIVYA	SRIDHAR	R CHAUDHURY
Rev. No	Date	Purpose	Prepared by	Reviewed by	Approved by

Abbreviations:

AS	:	Alloy Steel
CS	:	Carbon Steel
DFT	:	Dry Film Thickness
DM	:	De-mineralized
GI	:	Galvanized Iron
ID	:	Internal Diameter
IRN	:	Inspection Release Note
LTCS	:	Low Temperature Carbon Steel
MS	:	Mild Steel
NB	:	Nominal Bore
OD	:	Outside Diameter
RCC	:	Reinforced Cement Concrete
SS	:	Stainless Steel
WFT	:	Wet Film Thickness

CONTENTS

SL. NO	DESCRIPTION	PAGE NO.
1.0	General.....	4
2.0	Scope.....	4
3.0	Reference Codes & Standards.....	6
4.0	Equipment.....	7
5.0	Surface Preparation, Shop Primer, Coating Application & Repair and Documentation..	7
6.0	Paint Materials.....	16
7.0	Coating Systems.....	21
8.0	Coating System for Gratings, Rolling & Stationery Ladders, Spiral Stairways and Hand Rails in All Location.....	23
9.0	Coating System for Offsite Area (Inland Plants).....	24
10.0	Coating System For Unit Areas as well as DM, CPP, Cooling Tower of Inland Plants and for All Areas (Unit, Offsite, DM, CPP, etc.) of Coastal Plants.....	25
11.0	Coating System for Effluent Treatment Plant (ETP).....	27
12.0	External Coating Systems for Uninsulated Carbon Steel and Low Alloy Steel Storage Tanks (For All Plant Locations, Coastal or Inland) - All Process Units & Off-Sites	28
13.0	Internal Coating Systems for Carbon Steel and Low Alloy Storage Tanks - All Process Units & Off-Sites.....	30
14.0	Coating Systems for External Side of Underground Carbon Steel Plant Piping and Underground Vessels.....	32
15.0	Coating Under Insulation (Coastal Or Inland Plants). All Units Areas & Off-Sites.....	33
16.0	Coating System for Carbon Steel Components of Coolers / Condensers (Internal Protection) for Fresh Water Service.....	34
17.0	Coating System (Internal Protection) for Galvanized or Non Ferrous or Stainless Steel/ Duplex Stainless Steel Components of Coolers/ Condensers for Fresh Water Service.....	35
18.0	Storage.....	35
19.0	Paint colour code for piping and equipment	35
20.0	Identification of Vessels, Piping etc.....	41
21.0	Painting for Civil Defence Requirements.....	41
22.0	Quality Control, Inspection and Testing.....	42
23.0	Guarantee.....	45
24.0	Qualification Criteria of Painting Contractor/Sub-Contractor.....	45
25.0	Qualification/Acceptance Criteria for Paint Coating System.....	45
26.0	Method of Sampling & Dispatch for Laboratory Testing.....	48

1.0 GENERAL

1.1 This technical specifications shall be applicable for the work covered by the contract, and without prejudice to the provisions of various international codes of practice, standard specifications etc. It is understood that contractor shall carry out the work in all respects with the best quality of materials and workmanship and in accordance with the best engineering practice and instructions of Engineer-In-Charge.

1.2 Wherever it is stated in the specification that a specific material is to be supplied or a specific work is to be done, it shall be deemed that the same shall be supplied or carried out by the contractor.

Any deviation from this standard without written deviation permit from appropriate authority will result in rejection of job.

1.3 This specification covers the requirement for protective coating for new construction.

2.0 SCOPE

2.1 Scope of work covered in the specification shall include, without being limited to the following.

2.1.1 This specification defines the requirements for surface preparation, selection and application of primers and paints on external surfaces of equipment, vessels, machinery, piping, ducts, steel structures, external & internal protection of storage tanks for all services and chimneys if any. The items listed in the heading of tables of paint systems is indicative only, however, the contractor is fully responsible for carrying out all the necessary painting, coating and lining on external and internal surfaces as per the tender requirement.

2.2 Extent of Work

2.2.1 The following surfaces and materials shall require shop, pre-erection and field painting:

- All uninsulated Carbon Steel & Alloy Steel equipments like vessels, Columns, storage Tanks, Exchangers if any, parts of boilers etc.
- All uninsulated carbon steel and low alloy plant and related piping, fittings and valves (including painting of identification marks), furnace ducts and stacks.
- All insulated parts of vessels, boilers, chimneys, stacks, piping and steam piping and if any other insulated items present.
- All items contained in a package unit as necessary.
- All structural steel work, pipe, structural steel supports, walkways, handrails, ladders, platforms etc.
- Flare lines, external surfaces of MS chimney with or without refractory lining and internal surfaces of MS chimney without refractory lining. (If present)

- Identification of colour bands on all piping as required including insulated aluminium clad, galvanized, SS and nonferrous piping.
- Identification lettering/ numbering on all painted surfaces of equipment/piping insulated aluminium clad, galvanized, SS and non-ferrous piping.
- Marking / identification signs on painted surfaces of equipment/piping including hazardous service.
- Supply of all primers, paints and all other materials required for painting (other than Owner supplied materials)
- Over insulation surface of equipments and pipes wherever required.
- Painting under insulation for carbon steel, alloy steel and stainless steel as specified.
- Painting of pre-erection/fabrication and Shop primer.
- Repair work of damaged pre-erection/ fabrication and shop primer and weld joints in the field/site before and after erection as required.
- All CS Piping, equipments, storage tanks and internal surfaces of RCC tanks in ETP plant.
- Quality control, testing and inspection during all stages of work (surface preparation, application of coating and testing of furnished coating).

2.2.2 The following surfaces and materials shall not require painting in general. However, if there is any specific requirement by the owner, the same shall be painted as per the relevant specifications:

- a. Uninsulated austenitic stainless steel.
- b. Plastic and/or plastic coated materials
- c. Non-ferrous materials like aluminum, Cu-Ni alloy, galvanized steel.

2.3 Documents

2.3.1 The contractor shall perform the work in accordance with the following documents issued to him for execution of work.

- a. Bill of quantities for piping, equipment, machinery and structures etc.
- b. Piping Line List.
- c. Painting specifications including special civil defence requirements.

2.4 Unless otherwise instructed, final paint coating (i.e., application of field primer, wherever required, intermediate and top coats) on pre-erection/ shop primed equipments shall be applied at site, only after all welding, testing on systems are completed as well as after completion of steam purging wherever required .

2.5 Changes and deviations required for any specific job due to clients requirement or otherwise shall be referred to EIL for deviation permit.

3.0 REFERENCE CODES & STANDARDS

3.1 Without prejudice to the provision of Clause 1.1 above and the detailed specifications of the contract, latest editions of the following codes and standards are applicable for the work covered by this contract.

IS-5	:	Colour coding
RAL DUTCH	:	International Standard for colour shade (Dutch Standard)
IS-101	:	Methods of test for ready mixed paints and enamels
IS-2379	:	Indian Standard for Pipe line identification-colour code
ISO-12944	:	Corrosion Protection of steel Structures by Protective Paint System
ASTM-Vol 6.01&6.03	:	American standard test methods for Paints and Coatings.
ANSI A 13.1	:	Scheme for identification of piping systems: American National Standards Institution
SSPC	:	Steel Structures Painting Council

3.2 Surface Preparation Standards

The latest editions of any of the following standards shall be followed for surface preparation:

3.2.1 ISO 8501-1 / SIS-05 59 00: ISO standard for Preparation of steel substrates before application of paints and related products. This standard contains photographs of the various standards on four different degrees of rusted steel and as such is preferable for inspection purpose by the Engineer-In-Charge.

3.2.2 Steel Structures Painting Council, U.S.A. (Surface Preparation Specifications (SSPC-SP).

3.2.3 National Association of Corrosion Engineers, U.S.A., (NACE).

3.2.4 Various International Standards equivalent to Swedish Standard for surface preparations are given in Table-I.

3.3 The contractor shall arrange, at his own cost, to keep a set of latest edition of above standards and codes at site.

3.4 The paint manufacturer's instructions shall be followed as far as practicable at all times for best results. Particular attention shall be paid to the following:

- a. Instructions for storage to avoid exposure as well as extremes of temperature.

- b. Surface preparation prior to painting shall be followed as per Table 8.0 to 16.0 of this standard shall be followed.
- c. Mixing and thinning.
- d. Application of paints and recommended limit on time intervals in between coats.

4.0 EQUIPMENT

4.1 All tools, brushes, rollers, spray guns, blast material, hand power tools for cleaning and all equipments, scaffolding materials, shot & grit blasting equipments & air compressors etc. required to be used shall be suitable for the work and all in good order and shall be arranged by the contractor at site and in sufficient quantity. The manufacturer's test certificates / data sheets for all the above items shall be reviewed by Engineer-in-charge at site before start of work.

4.2 Mechanical mixer shall be used for paint mixing operations in case of two pack systems except that the Engineer-In-Charge may allow the hand mixing of small quantities at his discretion in case of specific requirement for touch up work only.

5.0 SURFACE PREPARATION, SHOP PRIMER COATING APPLICATION & REPAIR AND DOCUMENTATION

5.1 General

5.1.1 In order to achieve the maximum durability, one or more of following methods of surface preparation shall be followed, depending on condition of surface to be painted and as instructed by Engineer-In-Charge. Adhesion of the paint film to surface depends largely on the degree of cleanliness of the metal surface. Proper surface preparation contributes more to the success of the paint protective system.

- a. Abrasive blast cleaning
- b. Mechanical or power tool cleaning

5.1.2 Mill scale, rust, rust scale and foreign matter shall be removed fully to ensure that a clean and dry surface is obtained. Unless otherwise specified, surface preparation shall be done as per provisions of relevant tables given elsewhere in this specification. The minimum acceptable standard, in case of thermally sprayed metal coatings, in case of mechanical or power tool cleaning it shall be St. 3 or equivalent. In case of blast cleaning it shall be Sa 2-1/2 as per Swedish Standard SIS-055900 (latest edition) or SSPC-SP or ISO 8501-01. Blast cleaning shall be Sa 3 as per Swedish Standard in case thermally sprayed metal coatings.

Before surface preparation by blast cleaning, the surface shall be degreased by aromatic solvent to remove all grease, oil etc.

5.1.3 Irrespective of whether external or internal surface to be coated, blast cleaning shall not be performed where dust can contaminate surfaces undergoing such cleaning or during humid weather conditions having humidity exceed 85%. In case of internal coating of storage tanks, dehumidifier shall be used, to control humidity level below 60%. Dehumidifier should depress the dew point of air in the enclosed space, sufficient enough so as to maintain it 3°C

below the metal substrate temperature during centre period of blasting and coating application. During the interval time between application of primer coat and subsequent intermediate and top coats or between blast cleaning completion and start of application of primer coat, dehumidifier unit should be in continuous operation to ensure that no condensation occurs on substrate.

Dehumidifier should be able to maintain grain drop (moisture removal) at the rate of 25 grains per pound of air per hour. Dehumidifier should have capacity of at least 2 air changes per hour of the enclosed space. All necessary psychometric data should be collected by contractor for the given site conditions before starting operation of dehumidifier to ensure that desired values of dew point, moisture content in enclosed scope is achieved.

Dehumidification to be maintained round the clock for surface preparation and painting till the total coating application is over.

Dehumidifier shall not be stopped under any condition till the entire blasted surface is primed to the satisfaction of the technical representative of the paint manufacturer interested with quality assurance for the work. In case the dehumidifier breaks down in middle of the job, the same shall be replaced at the risk and the cost of the contractor and the entire unfinished work shall be repeated.

- 5.1.4 The Engineer in-charge shall have the right to disallow usage of dehumidifier if the performance is not meeting the specified requirements. Under such circumstances the contractor shall remove the equipment and replace the same with another equipment to provide satisfactory results without any additional cost to the owner.
- 5.1.5 Irrespective of the method of surface preparation, the first coat of primer must be applied by airless spray/ air assisted conventional spray if recommended by the paint manufacturer on dry surface. This should be done immediately and in any case within 4 hours of cleaning of surface. However, at times of unfavorable weather conditions, the Engineer-In-Charge shall have the liberty to control the time period, at his sole discretion and/or to insist on re-cleaning, as may be required, before primer application is taken up. In general, during unfavorable weather conditions, blasting and painting shall be avoided as far as practicable.
- 5.1.6 The external surface of R.C.C. chimney to be painted shall be dry and clean. Any loose particle of sand, cement, aggregate etc. shall be removed by scrubbing with soft wire brush. Acid etching with 10-15% HCL solution for about 15 minutes shall be carried and surface must be thoroughly washed with water to remove acid & loose particles and then dried completely before application of paint.

5.2 Procedure for Surface Preparation

5.2.1 Air Blast Cleaning with abrasives

The surfaces shall be blast cleaned using one of the abrasives like angular chilled cast iron or steel grit, copper slag or Nickel slag, Al_2O_3 particles at pressure of $7kg/cm^2$ at an appropriate distance and angle depending of nozzle size maintaining constant velocity and pressure. Chilled cast iron or steel shall be in the form of shot or grit of size in the range of G16 – G42 conforming to SSPC AB1 and S250 grade size of steel shots (maximum) to obtain a desired surface profile of 35-50 microns trough to peak. For all other abrasives, size shall be in the range of G16 – G24. The combination of steel grits and shots shall be normally in the ratio of 3:1. The quality of abrasives shall be free from contaminants and impurities and shall meet

the requirements of SSPC AB1. Compressed air shall be free from moisture and oil. The blasting nozzles should be venturi style with tungsten carbide or boron carbide as the materials for liners. Nozzles orifice may vary from 3/16" to 3/4". On completion of blasting operation, the blasted surface shall be clean and free from any scale or rust and must show a grey white metallic luster. Primer/first coat of paint shall be applied within 4 hours of surface preparation. Blast cleaning shall not be done outdoors in bad weather without adequate protection or when there is dew on the metal, which is to be cleaned. Surface profile shall be uniform to provide good key to the paint adhesion (i.e. 35 to 50 microns). If possible vacuum collector shall be installed for collecting the abrasives and recycling.

5.2.2 Mechanical or Power Tool Cleaning

Power tool cleaning shall be done by mechanical striking tools, chipping hammers, grinding wheels or rotating steel wire- brushes. Excessive burnish of surface shall be avoided as it can reduce paint adhesion. On completion of cleaning, the detached rust mill scale etc. shall be removed by clean rags and /or washed by water or steam and thoroughly dried with compressed air jet before application of paint.

5.3 Non-Compatible Shop Coat Primer

For equipments on which application of total protective coating (Primer + Intermediate + top coat) is carried out at shop, compatibility of finish coat with primer should be checked with paint manufacturer. If the shop coat is in satisfactory condition showing no major defect upon arrival at site, the shop coat shall not be removed.

5.4 Shop coated equipments (coated with Primer & finishing coat) should not be repainted unless paint is damaged. Repair shall be carried out as per Table 7.2 of paint systems depending upon compatibility of paint.

5.5 Shop primed equipment and surfaces will only be 'spot cleaned' in damaged areas by means of power tool brush cleaning or hand tool cleaning and then spot primed before applying one coat of field primer unless otherwise specified. If shop primer is not compatible with field primer then shop coated primer should be completely removed before application of selected paint system for particular environment.

5.6 For Package units/equipment, shop primer should be as per the paint system given in this specification. However, manufacturer's standard can be followed after review.

As mentioned in section 2.4, all coating application at field (field primer, intermediate and top coat) on equipments, structures, piping, etc, shall be carried out only after its erection and all welding, testing, steam purging (wherever carried out) have been completed.

5.7 Coating Procedure and Application

All paint coatings shall be applied by airless spray excepting at the following special cases where application can be carried out by brush subject to suitability of the application of the paint product by brush.

- **Spot repair**
- **Stripe coating on edges**
- **Small bore parts not suitable for spray application.**

Irregular surfaces such as sharp edges, welds, small brackets, and interstices may stripe coated to ensure specified DFT is achieved. Paint manufacturer recommendation should be followed before deciding for brush application.

- 5.7.1 Surface shall not be coated in rain, wind or in environment where injurious airborne elements exists, when the steel surface temperature is less than 5°F above dew point when the relative humidity is greater than 85% or when the temperature is below 40°F and when the ambient/substrate temp is below the paint manufacturer's recommended temperature of application and curing. De-humidifier equipment shall be used to control RH and Dew point. The paint application shall not be done when the wind speed exceeds 20km per hour.
- 5.7.2 Blast cleaned surface shall be coated with one complete application of primer as soon as practicable but in no case later than 4 hrs the same day.
- 5.7.3 To the maximum extent practicable, each coat of material shall be applied as a continuous film uniform thickness free of probes. Any spots or areas missed in application shall be recoated and permitted to dry before the next coat is applied. Applied paint should have the desired wet film thickness.
- 5.7.4 Each coat shall be in proper state of cure or dryness before the application of succeeding coat. Material shall be considered dry for recoating when an additional coat can be applied without the development of any detrimental film irregularities, such as lifting or loss of adhesion of the under coat. Manufacturer instruction shall be followed for inter coat interval.
- 5.7.5 When the successive coat of the same colour have been specified, alternate coat shall be tinted, when practical, sufficiently to produce enough contrast to indicate complete coverage of the surface. The tinting material shall be compatible with the material and not detrimental to its service life and shall be recommended by the original paint manufacturer.
- 5.7.6 Airless spray application shall be in accordance with the following procedure: as per steel structure paint Manual Vol.1 & Vol.2 by SSPC, USA, Air less spray relies on hydraulic pressure rather than air atomization to produce the desired spray. An air compressor or electric motor is used to operate a pump to produce pressures of 1000 to 6000 psi. paint is delivered to the spray gun at this pressure through a single hose within the gun, a single paint stream is divided into separate streams, which are forced through a small orifice resulting in atomization of paint without the use of air. This results in more rapid coverage with less over spray. Airless spray usually is faster, cleaner, more economical and easier to use than conventional air spray.

Airless spray equipment is mounted on wheels, and paint is aspirated in a hose that sucks paint from any container, including drums. The unit shall have in built agitator that keep the paint uniformly mixed during the spraying. The unit shall consist of in built strainer. Usually very small quantity of thinning is required before spray. In case of high build epoxy coating (two pack). 30:1 pump ratio and 0.020-0.023" tip size will provide a good spray pattern. Ideally fluid hoses should not be less than 3/8" ID and not longer than 50 ft to obtain optimum results.

In case of gun choking, de-choking steps shall be followed immediately.

- 5.7.7 Brush application of paint shall be in accordance with the following:
- Brushes shall be of a style and quality that will enable proper application of paint.
 - Round or oval brushes are most suitable for rivets, bolts, irregular surface, and rough or pitted steel. Wide flat brushes are suitable for large flat areas, but they shall not have width over five inches.
 - Paint shall be applied into all corners.
 - Any runs or sags shall be brushed out.
 - There shall be a minimum of brush marks left in the applied paint.
 - Surfaces not accessible to brushes shall be painted by spray, doublers, or sheepskin.
- 5.7.8 For each coat the painter should know the WFT corresponding to the specified DFT and standardize the paint application technique to achieve the desired WFT. This has to be ensured in the qualification trial.
- 5.8 Drying of Coated Surfaces**
- 5.8.1 No coat shall be applied until the preceding coat has dried. The material shall be considered dry for re-coating when another coat can be applied without the development of any film irregularities such as lifting or loss of adhesion of undercoats. Drying time of the applied coat should not exceed maximum specified for it as a first coat; if it exceeds the paint material has possibly deteriorated or maxing is faulty.
- 5.8.2 No paint shall be force dried under conditions which will cause chalking, wrinkling, blistering formation of pores, or detrimentally affect the conditions of the paint.
- 5.8.3 No drier shall be added to paint on the job unless specifically called for in the manufacturer's specification for the paint.
- 5.8.4 Paint shall be protected from rain, condensation, contamination, snow and freezing until dry to the fullest extent practicable.
- 5.9 Spot Repair of Damaged Primer**
- 5.9.1 Where pre erection shop primer has been damaged at isolated localized spots during handling and transportation, or after erection / welding, the repair of damaged coating of pre-erection / pre-fabrication or shop primer shall be done as given below and as per the Table 7.2 of this specification.
- 5.9.2 **Repair of damaged inorganic zinc silicate pre-erection / pre-fabrication or shop primer (F9) after erection / welding in the design temperature of -90°C to 400°C and damaged silicone aluminium (F-12) pre-erection / pre-fabrication or shop primer after erection / welding for design temperature range of 401 – 550 °C.**
- Surface Preparation: Quickly remove the primer from damaged area by mechanical scraping and emery paper conforming to SSPC-SP-3 to expose the white metal. Blast clean the surface, if possible. Feather the primed surface over the intact adjacent surface surrounding the damaged area by emery paper.

Primer coating: One coat of F-9 shall be applied wherever damage was observed on pre-erection / pre fabrication or shop primer of inorganic zinc silicate coating (F-9). Similarly one coat of F-12 shall be applied wherever damage observed on pre-erection / pre-fabrication shop primer of silicone aluminium (F-12).

- 5.9.3 Wherever if damaged areas are found extensive and spread over large areas, then entire pre-erection / pre-fabrication or shop primer shall be removed by blasting to achieve SSPC-SP-10 then entire blasted surface shall be primed again with F-9 or F-12 as applicable for the intended design temp. (See note under table 7.2).

5.10 Paint Application

- 5.10.1 Shop priming/pre-erection priming with F9 or F12 shall be done only on blasted surface (SSPC-SP-10)

- 5.10.2 Shop priming / pre-erection priming with F9 or F12 shall be done only with airless spray.

5.10.3 Assessment of Painting Requirement

The paint system to be applied for a specific job shall be arrived at sequentially as given below:

- Identify the environment from area classification details and chose the appropriate table.
- Identify the design temperature from the technical documents
- Identify the specific field paint system and surface preparation requirement from the above identified table and temperature range.
- Identify the shop priming requirement from Table 7.1 based on compatibility of the above paint system.
- Identify the need of repair of shop primer and execute as per Table 7.2.

5.11 Documentation / Records

- 5.11.1 A written quality plan with procedure for qualification trials and for the actual work including test and inspection plan & procedure for approval before start of work.
- 5.11.2 Daily progress report with details of weather conditions, particular of applications, no of coats and type of materials applied, anomalies, progress of work versus program.
- 5.11.3 Results of measurement of temperatures relative humidity, surface profile, film thickness, holiday detection, adhesion tests with signature of appropriate authority.
- 5.11.4 Particulars of surface preparation and paint application during trials and during the work.
- 5.11.5 Details of non-compliance, rejects and repairs.
- 5.11.6 Type of testing equipments and calibration.

5.11.7 Code and batch numbers of paint materials used.

The coating applicator must maintain a job record consisting of all the information as per 5.11.2 -5.11.7 above as well as the approved procedure of work (5.11.1 above). The job record consisting of information as required in accordance to 5.11.2 – 5.11.7 shall be entered on daily basis and should be daily signed by Engineer-in-charge.

TABLE-1 (FOR CLAUSE 5.0)

SURFACE PREPARATION STANDARDS

Sl. No.	DESCRIPTION	VARIOUS INTERNATIONAL STANDARDS (EQUIVALENT)			REMARKS
		ISO 8501-1/ SIS-05 59 00	SSPC-SP, USA	NACE, USA	
1	Manual or hand tool cleaning Removal of loose rust, loose mill scale and loose paint, chipping, scrapping, standing and wire brushing. Surface should have a faint metallic sheen	ST.2	SSPC-SP-2	--	This method is applied when the surface is exposed to normal atmospheric conditions when other methods cannot be adopted and also for spot cleaning during maintenance painting.
2	Mechanical or power tool cleaning Removal of loose rust loose mill scale and loose paint to degree specified by power tool chipping, de-scaling, sanding, wire brushing and grinding, after removal of dust, surface should have a pronounced metallic sheen.	ST.3	SSPC-SP-3	--	
3	Dry abrasive Blast cleaning There are four common grades of blast cleaning				
3.1	White metal Blast cleaning to white metal cleanliness. Removal of all visible rust. Mill scale, paint & foreign matter 100% cleanliness with desired surface profile.	SA 3	SSPC-SP-5	NACE#1	Where extremely clean surface can be expected for prolong life of paint system.
3.2	Near white metal Blast cleaning to near white metal cleanliness, until at least 95% of each element of surface area is free of all visible residues with desired surface profile.	SA 2½	SSPC-SP-10	NACE#2	The minimum requirement for chemically resistant paint systems such as epoxy, vinyl, polyurethane based and inorganic zinc silicate paints, also for conventional paint systems used under fairly corrosive conditions to obtain desired life of paint system.

Sl. No.	DESCRIPTION	VARIOUS INTERNATIONAL STANDARDS (EQUIVALENT)			REMARKS
		ISO 8501-1/ SIS-05 59 00	SSPC-SP, USA	NACE, USA	
3.3	Commercial Blast Blast cleaning until at least two-third of each element of surface area is free of all visible residues with desired surface profile.	SA 2	SSPC-SP-6	NO.3	For steel required to be painted with conventional paints for exposure to mildly corrosive atmosphere for longer life of the paint systems.
3.4	Brush-off Blast Blast cleaning to white metal cleanliness, removal of all visible rust, mill scale, paint & foreign matter. Surface profile is not so important	SA 1	SSPC-SP-7	NO.4	

6.0 PAINT MATERIALS

Paint manufacturers shall furnish the characteristics of all paints materials on original printed literature, along with the test certificate for all specified characteristics given in this specification. All the paint materials shall be of first quality and conform to the following general characteristics as per the tables 6.1, 6.2, 6.3 and 6.4.

PAINT MATERIALS

TABLE No. 6.1 PRIMERS

Sl. No.	DESCRIPTION	P-2	P-4	P-6	P-7
1	Technical name	Chlorinated rubber Zinc Phosphate primer.	Etch primer/wash primer	Epoxy zinc phosphate primer	ZINGA, LOCKTITE or ZRC cold galvanizing
2	Type and composition	Single pack, air drying chlorinated rubber based medium plasticised with unsaponifiable plasticizer, pigmented with zinc phosphate.	Two pack polyvinyl butyral resin medium cured with phosphoric acid solution pigmented with zinc tetroxy chromate.	Two component polyamine cured epoxy resin medium, pigmented with zinc phosphate.	One pack Synthetic Resin based zinc galvanizing containing min 92% of electrolytic zinc dust of 99.95% purity.
3	Volume Solids %	40 ±3	10±1	50±1	37%
4	DFT (Dry Film thickness) per coat in microns	40-45	8-10	40-50	40-50μ
5	Theoretical covering capacity in M ² /coat/ litre	8-10	8-10	8-10	4m ² /kg
6	Weight per litre in kgs/litre	1.3±0.05	1.2±0.05	1.4±0.05	2.67 kg at 15°C
7	Touch dry at 30°C (minimum)	30 minutes	2 hrs.	After 30 min.	10 minutes
8	Hard dry at 30°C (maximum.)	8 hrs.	24 hrs.	8 hrs	24 hrs.
9	Overcoating interval	Min.: 8 hrs	Min: 4-6 hrs.	Min.:8hrs.	Min.:4 hrs
10	Pot life at 30°C for two component paints	Not Applicable	Not applicable	6 - 8 hrs.	Unlimited
11	Temperature (Resistance (minimum)	60 °C Dry service	NA Dry service	80°C Dry service	50°C Dry service

PAINT MATERIALS

TABLE No. 6.2 FINISH PAINTS

Sl. No	DESCRIPTION	F-2	F-3	F-6A/B	F-6C	F-7
1	Technical name	Acrylic Polyurethane finish paint	Chlorinated rubber based finish paint	Epoxy-High Build coating	Solvent less epoxy coating	High build coal tar epoxy coating.
2	Type and composition	Two-pack aliphatic isocyanate cured acrylic finish paint.	Single pack plasticised chlorinated rubber based medium with chemical and weather resistant pigments.	F-6A Two-pack Aromatic amine cured epoxy resin medium suitably pigmented. F-6B: polyamide cured epoxy resin medium suitably pigmented	Two pack, cured with Amine Adduct; catalyzed epoxy resin suitably pigmented	Two pack polyamide cured epoxy resin blended with coaltar medium, suitably pigmented
3	Volume Solids %	40 ± 3	38±2	60±3	99±1	65±3
4	DFT (Dry Film thickness) per coat in microns	30-40μ	30-40	100-125μ	200-500	100-125μ
5	Theoretical covering capacity in M ² /coat/litre	11-15	11-15	5-6	2-3	5.2-6.5
6	Weight per liter in kgs/litre	1.15±0.03	1.15±0.03	1.42±0.03	1.40±0.03	1.40±0.03
7	Touch dry at 30°C	30 minutes	30 minutes.	3 hrs.	3 hrs.	4 hrs.
8	Hard dry at 30°C (max) Full cure at 30°C (for immersion/ high temperature service)	8 hrs	8 hrs	16 hrs 5 days	16 hrs	48 hrs 5 days
9	Over-coating interval at 30 °C	Min.12 hrs.	Min.: Overnight	Min.: Overnight Max.: 5 days	Min.: 8 hrs. Max.: 48 hrs.	Min.: 24 hrs Max.: 5 days.
10	Pot life (approx.) at 30°C for two component paints	6-8 hrs.	Not applicable	4-6 hrs	30 minutes	4-6 hrs.
11	Temperature Resistance (minimum)	80 °C Dry service min	60 °C Immersion service	80°C Dry service	120°C(Dry service), 50°C (Immersion service)	125°C Immersion service

PAINT MATERIALS

TABLE No. 6.3 FINISH PAINTS

Sl. No	DESCRIPTION	F-8	F-9	F-11	F-12
1	Technical name	Self priming type surface tolerant high build epoxy coating (complete rust control coating).	Inorganic zinc silicate coating	Heat resistant synthetic medium based two pack Aluminium paint suitable upto 250°C dry temp.	Heat resistant silicone Aluminium paint suitable upto 500°C dry temp.
2	Type & composition	Two pack epoxy resin based suitable pigmented and capable of adhering to manually prepared surface and old coating.	A two pack air drying self curing solvent based inorganic zinc silicate coating with minimum 80% zinc content on dry film. The final cure of the dry film shall pass the MEK rub test.	Heat resistant synthetic medium based two pack Aluminium paint suitable upto 250°C.	Single pack silicone resin based medium with Aluminium flakes.
3	Volume Solids %	78±3	60±3	38±0.03	20±2
4	DFT (Dry Film thickness) per coat in microns	100-125	65-75µ	15-20µ	15-20µ
5	Theoretical covering capacity in M ² /coat/ litre	6.0-7.2	8-9	10-12	8-10
6	Weight per liter in kgs/litre	1.41±0.03	2.3±0.03	0.95±0.03	1.00±0.03
7	Touch dry at 30°C (maximum)	3 hrs.	30 minutes.	3 hrs.	30 minutes.
8	Hard dry at 30°C (maximum) Full cure 30°C (for immersion /high temperature service)	24 hrs 5days	12 NA	12 hrs NA	24 hrs NA
9	Over-coating interval	Min.: 10 hrs	Min.: 12 hrs.at 20°C & 50 % RH	Min. 24 hrs	Min.: 24 hrs
10	Pot life at 30°C for two component paints	90 minutes.	4-6 hrs.	Not applicable	Not applicable
11	Temperature Resistance (minimum)	80 °C Dry service	400 °C Dry service	250°C Dry service	500°C Dry service

PAINT MATERIALS

TABLE No. 6.4 FINISH PAINTS

Sl. No	DESCRIPTION	F-14	F-15	F-16	F-17
1	Technical name	Polyamine cured coal tar epoxy	Two-component Epoxy phenolic coating cured with Polyamine adduct hardner system (primer + intermediate coat + finish paint)	Ambient temperature curing Poly Siloxane coating/High build cold applied inorganic copolymer based aluminium coating suitable for under insulation coating of CS and SS piping for high temperature service.	Two component solvent free type high build epoxy phenolic/Novalac epoxy phenolic coating cured with Polyamine adduct hardner system
2	Type & composition	Specially formulated polyamine cured coal tar epoxy suitable for application under insulation	Two pack ambient temperature curing epoxy phenolic coating system suitable for application under insulation of CS/SS piping	Amercoat 738 from PPG Protective & Marine Coatings or Intertherm 751 CSA of International (Akzo Nobel). Note: 6	Two component solvent free type high build epoxy phenolic/Novalac epoxy phenolic coating cured with Polyamine adduct hardner system
3	Volume Solids %	70±3	70±3	60±2	98-100
4	DFT (Dry Film thickness) per coat in microns	100-125	75-100	75-100	125- 150
5	Theoretical covering capacity in M ² /coat/ litre	5-8	4-5	7.0- 9.0	6.5 - 8
6	Weight per liter in kgs/litre (mix paint)	1.45±0.03	1.65±0.03	1.3	1.7
7	Touch dry at 30°C (maximum)	4 hrs	3 hrs	1 hr	2 hrs
8	Hard dry at 30°C (maximum) Full cure 30°C (for immersion /high temp. service)	24 hrs 168 hrs (7 days)	24 hrs 168 hrs (7 days)	16 hrs -	24 hrs 168 hrs (7 days)
9	Over-coating interval	Min. 6 hrs Max.5 days	Min. 36 hrs Max.21 days	Min.16 hrs Max. Not applicable	Min. 16 hrs Max.21 days
10	Pot life at 30°C for two component paints	4 hrs	4-6 hrs	1 hr	1 hr
11	Temperature Resistance	-45°C to 125°C under insulation And immersion	-45°C to 150°C under insulation & immersion (Note: 5)	a) upto 400 °C for C. Steel & S. Steel for Intertherm 751 CSA b) upto 480 °C for C. Steel & upto 600 °C for S. Steel for Amercoat 738	-45°C to 150°C for immersion service

NOTES (for tables 6.1 to 6.4):

1. Covering capacity and DFT depends on method of application. Covering capacity specified above are theoretical. Allowing the losses during application, min specified DFT should be maintained.
2. All primers and finish coats should be cold cured and air drying unless otherwise specified.
3. All paints shall be applied in accordance with manufacturer's instructions for surface preparation, intervals, curing and application. The surface preparation, quality and workmanship should be ensured. In case of conflict between this specification and manufacturer's recommendation, the same shall be clarified through EIL SMMS department.
4. Technical data sheets for all paints shall be supplied at the time of submission of quotations.
5. F-15: Two-component Epoxy phenolic coating cured with Polyamine adduct hardner system (primer + intermediate coat + finish paint) suitable upto 225°C (Intertherm 228 from M/s Akzo Nobel Coatings India Pvt Ltd. Bangalore). For all other companies, the temperature resistance shall be a maximum of 150°C.
6. F-16: Ambient temperature curing epoxy poly siloxane Coating or high build cold applied inorganic co-polymer based aluminium coating.

Amercoat 738 from PPG Protective & Marine coatings. Mumbai, is suitable up to 480°C for CS surfaces and 600°C for SS surfaces.

Intertherm 751 from Akzo Nobel Coatings India Pvt Ltd. Bangalore, Inorganic co-polymer cold applied Aluminium spray coating is suitable upto 400°C of CS & SS surfaces.

7.0 COATING SYSTEMS

The coating system should be selected based on the Plant location as given below:

Classification based on Plant Location:

- a) **Plant located in Inland area (more than 50 km from coast);**
Environment Classification – Industrial
 - **For offsite areas: Table 9.0 to be followed**
 - **For all unit areas including DM, CPP and Cooling Tower: Table 10.0 to be followed**
- b) **Plant located on sea coast or within 50 km from sea coast;**
Environment classification- Industrial marine
 - **For offsite area, as well as all unit area including DM, CPP, Cooling Tower: Table 10.0 to be followed**
- c) **For external surface of above ground tanks, table 12.0 to be followed for all locations (Inland or coastal)**

Notes:

1. Coating systems (Primers, Finish Paints etc.) based on Area classification/environments/Applications are tabulated in Table 8.0 to Table 17.0
2. Primers & Finish paints covered in Tables 8.0 to 17.0 are listed in Table 7.1.
3. Repair of Pre-Erection/Pre-Fabrication & Shop priming after erection/ welding shall be done as per Table 7.2.

TABLE 7.1: LIST OF PRIMERS & FINISH COATS COVERED IN TABLE NOS. 8 to 18.0

<u>PRIMERS</u>	
P-2	Chlorinated rubber zinc Phosphate Primer
P-4	Etch Primer/Wash Primer
P-6	Two component Epoxy Zinc Phosphate Primer cured with polyamine hardener
P-7	Single pack, cold galvanizing compounds containing minimum 92% electrolytic zinc in dry film. make ZINGA, LOCKTITE (of HENKEL) or ZRC
<u>FINISH COATS / PAINTS</u>	
F-2	Two component Acrylic – Polyurethane finish paint
F-3	Chlorinated Rubber finish paint
F-6A	High Build Epoxy finish coating cured with polyamine hardener
F-6B	High Build Epoxy finish coating cured with polyamide hardener
F-6C	Solvent less Epoxy Coating cured with poly amine hardener
F-7	High build Coal Tar epoxy coating cured with polyamine hardener
F-8	Self priming surface Tolerant High Build epoxy coating. cured with polyamine hardener
F-9	Two component Inorganic Zinc Silicate coating
F-11	Heat resistant synthetic medium based Aluminium paint
F-12	Two component Heat resistant Silicone Aluminium paint.
F-14	Specially formulated coal tar epoxy coating. cured with polyamine hardener
F-15	Two component Epoxy phenolic coating cured with Polyamine adduct hardener system
F-16	Engineered Epoxy poly Siloxane Coating or high build cold applied inorganic co-polymer based aluminium coating
F-17	Two component solvent free type high build epoxy phenolic/novalac epoxy phenolic coating cured with Polyamine adduct hardener system

TABLE 7.2 REPAIR OF PRE-ERECTION/PRE-FABRICATION OR SHOP PRIMER AFTER ERECTION/WELDING

For all un-insulated CS, LTCS & low allow steel items in all Environments

Sl. No.	Design Temp. in °C	Surface Preparation	Coating System	Total DFT in Microns (min.)	Remarks
7.2.1	-90 to 400	SSPC-SP-3	1 coat of F-9	65-75	See note below and clause 5.9.3
7.2.2	401 to 550	SSPC-SP-3	1 coat of F-12	20	

NOTES:

- The application and repair of pre-erection/pre-fabrication or Shop Primer given in above tables shall be done for all the items to be painted. In case the damages of primer are severe and spread over large area, entire primer shall be removed by blasting to achieve SSPC-SP-10 and surfaces to be primed again with F-9 or F-12 as applicable.

TABLE 8.0 COATING SYSTEM FOR GRATINGS, ROLLING & STATIONERY LADDERS, SPIRAL STAIRWAYS AND HAND RAILS IN ALL LOCATION

Sl. No.	Design Temp. in °C	Coating System	Total DFT in Microns (min.)
8.1	Up to 60	Hot Dip Galvanizing to 80-85 microns (600-610 gm/m ²) as per IS 4759, 2629, 4736, 2633 + 1 coat of P-6 @ 40μ DFT/coat + 1 coat of F-2 @ 40 microns DFT/coat	80 microns of finish coat (excluding the thickness of galvanizing)

NOTES:

- No galvanized specimen shall have thickness less than 80 microns.
- Repair of the damaged area of galvanized coatings due to welding during erection shall be carried out as per recommended practice IS 11759 using cold galvanizing spray process. Organic Paint systems are not acceptable for repair.
- After repair of damaged galvanized coating by Cold Galvanized, the repaired area shall be top coated with paint system as given in Table 8.0 above (i.e., 1 coat of P-6 @ 40μ DFT/coat + 1 coat of F-2 @ 40μ DFT/coat).
- Approved Cold Galvanizing manufacturers are **ZINGA, LOCKTITE** or **Z.R.C.**

TABLE 9.0 COATING SYSTEM FOR OFFSITE AREA (INLAND PLANTS)

For external surfaces of Un-insulated & aboveground (atmospheric exposure) Structures, Piping, Vessels, Equipments, Pumps, etc. (Note-1); (For Carbon Steel, LTCS & Low Alloy Steel). **See Note Below***

Sl. No.	Design Temp. in °C	Surface Preparation & Pre-erection/Shop Primer	Coating System (Post-erection / Field)		Total Final DFT in Microns (min.)	Remarks
			Primer	Finish Coat		
9.1	-90 to -15	SSPC-SP-10; 1coat of F-9 @ 65-75 μ DFT/coat	None	None	65-75	No over-coating to be done on F-9 as it will lead to mud cracking.
9.2	-14 to 60	SSPC-SP-10; 1coat of F-9 @ 65-75 μ DFT/coat	None	1 coat of F-2 @ 40 μ DFT/coat	105-115	
9.3	61 to 80	SSPC-SP-10; 1coat of F-9 @ 65-75 μ DFT/coat	None	1 coat of F-2 @ 40 μ DFT/coat	105-115	
9.4	81 to 250	SSPC-SP-10; 1coat of F-9 @ 65-75 μ DFT/coat	None	2 coats of F-11 @ 20 μ DFT/coat; (2x20=40)	105	F-12 shall be ambient temperature curing type
9.5	251 to 400	SSPC-SP-10; 1coat of F-9 @ 65-75 μ DFT/coat	None	2 coats of F-12 @ 20 μ DFT/coat (2x20=40)	105-115	
9.6	401 to 550	SSPC-SP-10; 1coat of F-12 @ 20 μ DFT/coat	None	2 coats of F-12 @20 μ DFT/coat (2x20=40)	60	

*** Flare line within unit or offsite areas shall be coated as per Clause 10.3 of Table 10.0, but having finish coat of 2 coats of F-12.**

NOTES:

- The list of items given in the heading of the above table is not exhaustive. There may be more items for a particular contract where these specifications are used. The Contractor is fully responsible for completing painting including prefabrication primer for all the items supplied and fabricated through his scope of work as per tender document.
- If the Pre-erection/Pre-fabrication & Shop Primer has already been completed, the same shall not be repeated again in the field. In case the damages of primer are severe and spread over large areas, the engineer-in-charge may decide & advise re-blasting and priming again. Repair of pre-fabrication/pre-erection primer, if required, shall be done as per Table 7.2.
- In case of Paint systems as per Sl. Nos. 9.5 and 9.6, the color bands shall be applied over the Aluminum paint as per the Color coding requirement for specific service of piping given in Clause 19.0.
- All coating system including surface preparation, primer, and finish coat for piping shall be done at field only.

TABLE 10.0 COATING SYSTEM FOR UNIT AREAS AS WELL AS DM, CPP, COOLING TOWER OF INLAND PLANTS AND FOR ALL AREAS (UNIT, OFFSITE, DM, CPP, etc.) OF COASTAL PLANTS

For external surfaces of un-insulated and above ground (atmospheric exposure) structures, piping, vessels, equipments, external surface of MS chimney/stacks, RCC chimney, internal surface of MS chimney without refractory lining, towers, columns, pumps, compressors, blowers etc. of carbon steel, LTCS & low alloy steels (note-1)

Sl. No.	Design Temp. in °C	Surface Preparation & Pre-erection/Shop Primer	Coating System (Post-erection / Field)		Total DFT in Microns (min.)	Remarks
			Primer	Finish Coat		
10.1	-90 to -15	SSPC-SP-10; 1coat of F-9 @ 65-75 μ DFT/coat	None	None	65-75	a) No over-coating to be done on F-9 as it will lead to mud cracking.
10.2	-14 to 80	SSPC-SP-10; 1coat of F-9 @ 65-75 μ DFT/coat	1 coat of P-6 @ 40 μ DFT/coat	2 coats of F-6A @ 100 μ DFT/coat + 1 coat of F-2 @ 40 μ DFT/coat; (2x100 + 40= 240)	345-355	b) F-12 shall be ambient temperature curing type
10.3	81 to 400	SSPC-SP-10; 1coat of F-9 @ 65-75 μ DFT/coat	None	2 coats of F-12 @ 20 μ DFT/coat 2x20=40	105-115	c) Finish coat including primer compatible with finish coat (i.e. field primer) shall be applied at site only.
10.4	401 to 550	SSPC-SP-10; 1coat of F-12 @ 20 μ DFT/coat	None	2 coats of F-12 @ 20 μ DFT/coat; (2x20=40)	60	Finish coating is not permitted at equipment manufacture shop.

NOTES:

- The list of items given in the heading of the above table is not exhaustive. There may be more items for a particular contract where these specifications are used. The Contractor is fully responsible for completing painting including prefabrication primer for all the items supplied and fabricated through his scope of work as per tender document.
- If the Pre-erection/Pre-fabrication & Shop Primer has already been completed, the same shall not be repeated again in the field. In case the damages of primer are severe and spread over large

areas, the engineer-in-charge may decide & advise re-blasting and priming again. Repair of pre-fabrication/pre-erection primer, if required, shall be done as per Table 7.2.

3. For external surface of MS chimney with or without refractory lining and for internal surface without refractory lining, paint system as per 10.3 above shall be followed.
4. For external surface of RCC Chimney, 2 coats of F-6 @ 100 μ DFT/coat to obtain total DFT of 200 μ shall be applied after proper surface preparation as per guidelines in 5.1.6.
5. In case of paint systems as per Sl. Nos. 10.3 and 10.4, the colour bands shall be applied over the Aluminum paint as per the Color coding requirement for specific service of piping given in Clause 19.0.
6. All coating system including surface preparation, primer, finish coat for piping shall be done at site/field only.

TABLE 11.0 COATING SYSTEM FOR EFFLUENT TREATMENT PLANT (ETP)

Sl. No.	Design Temp. in °C	Surface Preparation	Coating System		Total DFT in Microns (min.)	Remarks
			Primer	Finish Coat		
11.1	For External Surfaces of C.S./M.S. items: Screens, Walk way bridges, Baffles, Dual media filters, Vertical pumps, piping in treated effluent sump, bio sludge pump, Screw pump and pump house, CS tanks, sumps and vessels.					
	-14 to 80	SSPS-SP-10	1 coat of F-9 @ 65-75µ DFT/coat	2 coats of F-6A @100µ DFT/coat + 1 coat of F-2 @ 40µ DFT/coat; (2x100+40=240)	305-315	-
11.2	For Internal Surfaces of CS/MS Items: Bio-sludge sump, Filter feed sump, Process sump, Sanitary sump, Transfer sump, Sludge, Slop oil tank, scrapping mechanism in Clarifier					
	-14 to 80	SSPS-SP-10	1 coat of F-9 @ 65-75µ DFT/coat.	3 coats of F-6A @100µ DFT/coat (3x100=300)	365-375	Note:1
11.3	All R.C.C./concrete surfaces exposed to effluent water / liquid such as tanks, structures, drains etc. in Process sump, TPI separator (Process and Oil), Aeration Tank and Transfer sump etc.					
	-14 to 80	Blast cleaning to SSPC-SP guide lines and Acid etching with 10-15% HCl acid followed by thorough water washing.	Epoxy Screed lining		3mm	Epoxy screed lining shall be applied as per specific manufacturer and Engineer-in-Charge instructions
11.4	C.S/M.S Dual media filters (Internal), Chemical dosing tanks(internal) such as Di-Ammonium Phosphate (DAP) and Urea					
	Up to 60	SSPC-SP-10	Natural Rubber Lining (As per IS 4682, Part 1)		4.5mm	Natural Rubber lining shall be applied as per specific manufacturer and Engineer-in-Charge instructions

NOTES

- The paint /coating manufacturers shall provide their Quality control test certificate of coating materials (F-6A) for immersion service of the exposed effluent given in 11.2.

TABLE 12.0 EXTERNAL COATING SYSTEMS FOR UNINSULATED CARBON STEEL AND LOW ALLOY STEEL STORAGE TANKS (For all plant locations, coastal or inland)

All Process Units & Off-sites

Sl. No.	Design Temp. in °C	Surface Preparation (Field)	Coating system (Field) (see note 1 below)		Total DFT in Microns (min.)	Remarks
			Primer	Finish Coat		
12.1	All external surfaces of shell, wind girders, appurtenances, roof tops of all above ground tank including top side of external and internal floating roof and associated external structural works.					
12.1.1	-14 to 80	SSPC-SP-10	1coat of F-9 @ 65-75µ DFT/coat + 1coat of P-6 @ 40µ DFT/ coat ;	2 coats of F-6A @ 100µ DFT /coat + 1 coat of F-2 @ 40µ DFT/ coat;	345-355	F-6 should be suitable for occasional water immersion
12.1.2	81 to 150	SSPC-SP-10	1 coat of F-15 primer @ 80µ DFT/ coat + 1 coat of F-15 intermediate coat @ 80µ DFT/coat ;	1 coat of F-15 finish coat @80µ DFT/ coat + 1coat of F-2 @ 40µ DFT/ coat;	280	-
12.1.3	151 to 500	SSPC-SP-10	1coat of F-9 @ 65-75µ DFT/coat	2 coats of F-12 @20 µ DFT/ coat Or 1 coat of F-16 @ 50 µ DFT / coat	105 or 115	-
12.2	External surfaces of bottom plate (soil side) for all storage tanks.					
12.2.1	-14 to 80	SSPC-SP-10	1 coat of F-9 @ 65-75µ DFT/ coat	3 coats of F-7@ 100µ DFT/coat (3x100=300)	365-375	F-7 should be suitable for immersion service of the products given
12.2.2	81 to 150	SSPC-SP-10	1 coat of F-15 primer @ 80µ DFT/ coat + 1 coat of F-15 intermediate coat @ 80µ DFT/coat ; (80+80=160)	1 coat of F-15 finish coat @ 80µ DFT/ coat	240	-
12.2.3	151 to 550	SSPC-SP-10	1 coat of F-16 @ 125 µ DFT /coat	1 coat of F-16 @ 125 µ DFT /coat	250	-
12.3	For underside of the bottom plate (in case tank is not lifted during PWHT) (see Note 2c)					

12.3.1	-180 to 650	For CS SSPC SP-6 Commercial Blast	1 coat of inert polymeric matrix coating @ 125 μ	2 coats of inert polymeric matrix coating @ 125 μ	350-400	Products from JOTUN or HI-TEMP coatings or SK FORMULA TIONS are recommend ed.
		For SS SSPC SP-1 with non- chloride solvent				

NOTES

- All paint coating application including primer for tankage shall be carried out at field after erection and completion of all welding.
- For underside of bottom plate :
 - Painting shall be carried out before laying of bottom plate for tanks with Non-Post Weld Heat Treatment (PWHT).
 - For tanks with PWHT, painting shall be carried out after PWHT.
 - In case tank is not lifted during PWHT then painting shall be applied before laying of bottom plate, clause no. 12.3.1 shall be followed.

Caution: PWHT temperature shall not exceed 650°C.

TABLE 13.0 INTERNAL COATING SYSTEMS FOR CARBON STEEL AND LOW ALLOY STORAGE TANKS

All Process Units & Off-sites

Sl. No.	Design Temp. in °C	Surface Preparation (Field)	Coating system (Field) (see note 1 below)		Total DFT in Microns (min.)	Remarks
			Primer	Finish Coat		
13.1	CRUDE OIL, ATF, TURPENTINE OIL, LUBRICATING OIL AND VEGETABLE OIL Underside of floating roof, internal surface of cone roof, inside of bottom plate, Internal surfaces of Shell - including wetted and free board height, oil side surfaces of deck plates, oil side surfaces of pontoons, roof structures, structural steel, ladders and other CS internals					
13.1.1	-14 to 90	SSPC-SP-10	1 coat of F-15 primer @ 80µ DFT/ coat	1 coat of F-15 intermediate coat @ 80µ DFT/coat + 1 coat of F-15 finish coat @ 80µ DFT/ coat;	240-300	-
13.2	PETROLEUM PRODUCTS & INTERMEDIATES like LDO, HSD , GAS OIL, FEEDS of FCC-PC, FCC-LCO, VGO-HDT, ISOM, DHDT, REFORMATE, DCU, NHT & GASOLINE, NAPHTHA, ISOMERATE AND KEROSENE. Underside of Floating roofs, internal surface of cone roof, inside of bottom plate, internal surfaces of Bare shell for full height, underside of floating roof, oil side surfaces of deck plates, oil side surfaces of pontoons, support structures and ladders etc.					
13.2.1	-14 to 45	SSPC-SP-10	1 coat of F-9 @ 75 µ DFT/coat	-	75	Note 2
13.2.2	46 to 90	SSPC-SP-10	1 coat of F-15 primer @ 80µ DFT/ coat	1 coat of F-15 intermediate coat @ 80µ DFT/coat + 1 coat of F-15 finish coat @ 80µ DFT/ coat;	240-300	-
13.3	POTABLE AND FIRE WATER All internal surfaces, accessories and roof structures of Cone and Dome roof tanks					
13.3.1	-14 to 60	SSPC-SP-10	1 Coats of P-6 @ 100 µ DFT/coat;	2 Coats of F-6A @ 100µ DFT/ Coat; (2x100=200)	300-350	Note-4
13.4	DE-MINERALIZED (DM) WATER All internal surfaces, accessories and roof structures of Cone and Dome roof tanks					
13.4.1	-14 to 60	SSPC-SP-10	1 Coats of P-6 @ 100µ DFT/coat;	2 coats of F-6C @ 200µ DFT/ coat; (2x200=400)	400-450	-
13.4.2	61 to150	SSPC-SP-10	1 coat of F-15 primer @ 80µ DFT/ coat	1 coat of F-15 intermediate coat @ 80µ DFT/coat + 1 coat of F-15 finish coat @ 80µ DFT/ coat; (80+80=160)	240-300	-
13.5	HYDROCHLORIC ACID (HCl) 10 % All internal surfaces, accessories and roof structures of Cone and Dome roof tanks					
13.5.1	-14 to 60	SSPC-SP-10	None	Natural Rubber Lining	4.5 mm	-

13.6	AGGRESSIVE SOLVENTS LIKE HEXANE, HEXENE, BENZENE, XYLENE AND TOLUENE All internal surfaces, accessories and roof structures of Cone and Dome roof tanks					
13.6.1	-14 to 65	SSPC-SP-10	1 coat of F-9 @ 75μ DFT/ coat	---	75	-
13.7	ETHYLENE GLYCOL (EG) TANKS Internal shell-full height, bottom plate, underside of roof and all accessories					
13.7.1	All	SSPC-SP-10	None	3 coats of vinyl chloride co-polymer AMERCOAT 23 @ 75μ /Coat; (3x75=225)	225	-
13.8	Inside pontoon and inside of double deck of all floating roofs					
13.8.1	-14 to 80	SSPC-SP-3	1 coat of F-8 @ 100μ DFT/coat	1 coat of F-8 @ 100μ DFT/coat	200	-
13.9	WET SLOPS, AMINE solutions, SOUR WATER , WATER DRAW OFF All internal surfaces, accessories and roof structures of Cone and Dome roof tanks					
13.9.1	-14 to 90	SSPC-SP-10	1 coat of F-15 primer @ 80μ DFT/ coat	1 coat of F-15 intermediate coat @ 80μ DFT/coat + 1 coat of F-15 finish coat @ 80μ DFT/ coat; (80+80=160)	240	-
13.10	VACUUM RESIDUE, FUEL OIL , DRY SLOP, BITUMEN AND OTHER HIGH TEMPERATURE HYDROCARBON LIQUIDS Underside of floating roof, internal surface of cone roof, bottom plate, inside of bare shell – including wetted and non wetted surfaces, oil side surfaces of deck plates, oil side surfaces of pontoons, roof structures, structural steel and ladders					
13.10.1	Up to 150°C	SSPC-SP-10	1 coat of F-17 primer @ 125μ DFT/ coat	1 coat of F-17 intermediate coat @ 125μ DFT/coat + 1 coat of F-17 finish coat @ 125μ DFT/ coat; (125+125=250)	375	Note:3
13.11	ALKALIS UP TO 50 % CONCENTRATION All internal surfaces, accessories and roof structures of Cone and Dome roof tanks					
13.11.1	Up to 60°C	SSPC-SP-10	1 coat of F-15 primer @ 80μ DFT/ coat	2 Coats of F-6 A @ 100μ DFT/coat; (2x100=200)	280-100	-

NOTES

1. All paint coating application including primer shall be carried out after erection and completion of all welding work at site.
2. F-6A should be suitable and resistant for immersion service for the respective Hydrocarbons.
3. This system can be used where maximum operating temperature is below 150°C and design temperature is upto 200°C. Cases of operating temperature > 150°C are not covered in this spec, such cases shall be covered in the job specifications.
4. F-6 A shall be suitable for drinking water service and should have competent authority certification.

TABLE 14.0 COATING SYSTEMS FOR EXTERNAL SIDE OF UNDERGROUND CARBON STEEL PLANT PIPING AND UNDERGROUND VESSELS

Sl. No.	Design Temp. in °C	Surface Preparation & Shop Primer	Coating system (Field)		Total Final DFT in Microns (min.)	Remarks
			Surface Preparation & Primer	Finish Coat		
14.1	Underground carbon steel plant piping					
14.1.1	25 to 65	---	SSPC-SP-10; 1 coat of synthetic fast drying primer 25 @μ DFT/ coat	1 layer of coaltar tape coating @ 2mm +1 coat of synthetic fast drying primer 25 @μ DFT/ coat + 1 layer of coal tar tape coating @ 2mm /layer as per EIL Standard Specification .No 6-79-0011	4 mm	The primer DFT is not measurable. Reconciliation primer shall be done by coverage of maximum 10 sq.m/litre
14.2.1	66 to 150	---	SSPC-SP-10; 1 coat of F-17 primer @ 125μ DFT/ coat	1 coat of F-17 intermediate coat @ 125μ DFT/coat + 1 coat of F-17 finish coat @125μ DFT/ coat	375	-
14.2.2	151 to 400	---	SSPC-SP-10; 1 coat of F-16 primer @ 125μ DFT/ coat	1 coat of F-16 finish coat @125μ DFT/ coat	250	-
14.3	External side of un-insulated underground storage vessels					
14.3.1	-40 to 80	SSPC-SP-10; 1 coat of F-9 @ 65-75μ DFT/ coat	---	3 coats of F-7 @ 100μ DFT/coat	365-375	-
14.3.2	81 to 150	SSPC-SP-10; 1 coat of F-17 primer @ 125μ DFT/ coat	---	1 coat of F-17 intermediate coat @ 125μ DFT/coat + 1 coat of F-17 finish coat @125μ DFT/ coat	375	-
14.3.3	151 to 400	SSPC-SP-10; 1 coat of F-16 primer @ 125μ DFT/ coat	---	1 coat of F-16 finish coat @125μ DFT/ coat	250	-

TABLE 15.0 COATING UNDER INSULATION (COASTAL OR INLAND PLANTS). ALL UNITS AREAS & OFF-SITES

For insulated Piping, Equipments, Storage vessels, tanks, Columns etc of Carbon Steel, LTCS, Low Alloy Steel & Stainless Steels

Sl. No.	Design Temp. in °C	Surface Preparation & Pre-erection/Shop Primer	Coating System (Post-erection / Field)		Total Final DFT in Microns (min.)	Remarks
			Primer/ Intermediate	Finish Coat		
15.1	Carbon steel, LTCS and low Alloy steel Piping					
15.1.1	-45 to 120	SSPC-SP-10; 1coat of F-15 @ 75µ DFT/coat	1 coat of F-15 @ 75µ DFT/coat	2 coats of F-15 @ 75µ DFT/coat; (2x75= 150)	225- 250	-
15.1.2	121-540	SSPC-SP-10; 1coat of F-12 @ 20µ DFT/coat	None	2coat of F-12 @ 20µ DFT/coat; (2x20=40)	60	-
15.2	Carbon steel, LTCS and low Alloy steel - Storage vessels, Reactors, Columns & Equipments					
15.2.1	-45 to 120	SSPC-SP-10; 1coat of F-15 @ 75µ DFT/coat	1 coat of F-15 @ 75µ DFT/coat	2 coats of F-15 @ 75µ DFT/coat; (2x75= 150)	300	-
15.2.2	121 to 400	SSPC-SP-10; 1 coat of F-9 @ 65-75 µ DFT/coat	None	3 coats of F-12 @ 20µ DFT/coat OR 1 coat of F-16 @ 60 µ DFT/coat	125-135	-
15.3	Stainless Steel (SS) including Alloy-20 piping (Note:2)					
15.3.1	-180 to Zero	For CS SSPC SP-6 Commercial Blast	1 coat of inert polymeric matrix coating @ 125 µ	2 coats of inert polymeric matrix coating @ 125 µ	350-400	Products from JOTUN or HI-TEMP coatings or SK FORMULATIONS are recommended.
		For SS SSPC SP-1 with non-chloride solvent				
15.3.2	0 to 125	SSPC-SP-10 (15-25µ surface profile) 1 coat of F-15@ 80 µ DFT/coat	1 coat of F-15 intermediate coat @80 µ DFT/coat	1 coat of F-15 finish coat@ 80 µ DFT/coat;	240	If the piping & equipments are already erected then surface shall be prepared by cleaning with emery paper and wash/flush with chloride free DM water followed by wiping with organic solvent
15.3.3	126 to 400	SSPC-SP-10 1 coat of F-16 @ 125 µ DFT/coat	None	1 coat of F-16 @ 125 µ DFT/coat	250	Not recommended for operating temperature

15.3.4	401 to 600	SSPC SP-10; 1 coat of Amercoat 738@ 125 μ DFT/coat	None	1 coat of Amercoat 738@ 125 μ DFT/coat	250	between 60 – 120 °C
15.4	Coating system for Cyclic Service of Carbon Steel, LTCS, Low Alloy Steel & Stainless Steel					
15.4.1	- 40 to 150	SSPC-SP-10 (15-25μ surface profile) 1 coat of F-15 @ 80 μ DFT/coat	1 coat of F-15 intermediate coat @ 80μ DFT/coat	1 coat of F-15 finish coat @ 80μ DFT/coat;	240	Apcothern EPN 200 of M/s Asian Paints Ltd OR Equivalent
15.4.2	-180 to 650	For CS SSPC SP-6 Commercial Blast For SS SSPC SP-1 with non-chloride solvent	1 coat of inert polymeric matrix coating @ 125 μ	2 coats of inert polymeric matrix coating @ 125 μ	350-400	Products from JOTUN or HI- TEMP coatings or SK FORMULATIONS are recommended.
15.5	No painting is required for insulated Monel, Incoloy and Nickel lines.					

NOTES

1. “Cyclic Service” is characterized by rapid temperature fluctuation.
2. The blast cleaning abrasives for SS and Alloy steel surfaces shall be Aluminium oxide grits/shots or garnet.
3. In case of overlapping of temperature ranges as mentioned in 15.4.1 and 15.4.2, clause 15.4.1 shall be followed.

TABLE 16.0 COATING SYSTEM FOR CARBON STEEL COMPONENTS OF COOLERS / CONDENSERS (INTERNAL PROTECTION) FOR FRESH WATER SERVICE
Fresh Water boxes, channels, partition plates, end covers and tube sheets etc.

Sl. No.	Design Temp. in °C	Surface Preparation & Pre-erection/Shop Primer	Coating System (Post-erection / Field)		Total Final DFT in Microns (min.)	Remarks
			Primer	Finish paint		
16.1	Up to 80 °C	SSPC-SP-10	1 coat of F-15 @ 80 microns	2 coats of F-15 @ 80μ DFT/coat;	240	-
16.2	80 to 140	SSPC-SP-10	---	1 coat of Glass Fibre Reinforced Novolac epoxy of 1.5 mm DFT	1500	-

TABLE 17.0 COATING SYSTEM (INTERNAL PROTECTION) FOR GALVANIZED OR NON FERROUS OR STAINLESS STEEL/ DUPLEX STAINLESS STEEL COMPONENTS OF COOLERS/ CONDENSERS FOR FRESH WATER SERVICE

Sl. No.	Design Temp. in °C	Surface Preparation & Pre-erection/Shop Primer	Coating System (Post-erection / Field)		Total Final DFT in Microns (min.)	Remarks
			Primer	Finish paint		
17.1	Up to 80	Sweep Blasting	1 coat of F-15 @ 80µ DFT/coat;	1 coat of F-15 @ 80µ DFT/coat;	160	-
17.2	80 to 140	Sweep Blasting	---	1 coat of Glass Fibre Reinforced Novolac epoxy of 1.5 mm DFT	1500	-

18.0 STORAGE

- 18.1** All paints and painting materials shall be stored only in rooms to be arranged by contractor and approved by Engineer-in-charge for the purpose. All necessary precautions shall be taken to prevent fire. The storage building shall preferably be separate from adjacent building. A signboard bearing the word “PAINT STORAGE – NO NAKED LIGHT – HIGHLY INFLAMABLE” shall be clearly displayed outside. Manufacturer’s recommendation shall be followed for storage of paint materials.

19.0 PAINT COLOUR CODE FOR PIPING AND EQUIPMENT

This specification covers the requirement of colour scheme for the identification of the contents of the pipelines carrying fluids, storage tanks and equipment in refineries. The following colour coding system has been made based on BPCL-KR input document.

19.1 Identification

The system of colour coding consists of a ground colour and secondary colour bands superimposed over the ground colour. The ground colour identifies the basic nature of the service and secondary colour band over the ground colour distinguishes the particular service. The ground colour shall be applied over the entire length of the un-insulated pipes. For insulated lines ground colour shall be provided as per specified length and interval to identify the basic nature of service and secondary colour bands to be painted on these specified length to identify the particular service. Above colour code is applicable for both unit and offsite pipelines.

The following ground colour designation for identification of basis classification of various important services shall be followed.

Post Office Red	Fire protection materials
Off White / Aluminium	Steam (all pressures)
Canary Yellow	Chemicals and dangerous materials

Dark Admiralty Grey	Crude oil, lube oil
Orange	Volatile petroleum products (motor sprit and lighter)
Oxide red	Non-Volatile petroleum products (kerosene and heavier, including waxy distillates and diesel, gas oil)
Black	Residual oils, still bottoms, slop oils and asphalts, fuel oil
Sky blue	Water (all purities and temperatures)
Sea green	Air and its components and Freon

Secondary colours: The narrow bands presenting the secondary colour which identifies the specific service may be applied by painting or preferably by use of adhesive plastic tapes of the specific colour.

19.2 Colour Bands and Identification Lettering

The following specifications of colour bands shall be followed for identifying the piping contents, size and location of bands & letters. The bandwidth and size of letters in legends will depend to some extent upon the pipe diameter. Either white or black letters are selected to provide maximum contrast to the band colour. Bands usually are 100 mm wide and regardless of band width, are spaced 50 mm apart when two bands are employed.

Colour bands and size of lettering for piping:

Outside diameter of pipe or covering in mm	Width of colour bands in mm	Size of legend Letters in mm
19 to 32	200	13
38 to 51	200	19
64 to 150	300	32
200 to 250	600	64
Over 250	800	89

Contrast shall be provided between color field and legend for readability. Use of letters standard style, in sizes, 1/2inch (13mm) and larger, is recommended. See above table for specific size recommendations. For identification of materials in pipes of less than ¾ inch (19mm) in diameter, and for valve and fitting identification, the use of permanently legible tag is recommended.

In addition, ground colour as per specified length should be provided on insulated piping for easy identification of nature of fluid, on which the colour bands should be painted for identification of each service. The length of the ground colour should be 3 times the width of normal bands or 2 meters, whichever is suitable depending on the length of the pipe.

Arrows shall be used to indicate direction of flow. Where flow can be in both directions, arrows in both directions shall be displayed.

Positive identification of the contents of a piping system shall be by lettered legend, giving the name of the contents in full or abbreviated form. Contents shall be identified by a legend with sufficient additional details such as temperature, pressure, etc as are necessary to identify the hazard. Legends shall be brief, informative, pointed and simple of greatest effectiveness. Legends shall be applied close to valves or flanges and adjacent to changes in direction, branches and where pipes pass through walls or floors, where it enters and emerges from road,

culvert and walkway overpasses, unit battery limits and at every 50m intervals on straight pipe runs sufficient for identification. Identification may be accomplished by stencilling, the use of tape, or markers. In any situation, the number and location of identification markers shall be based on the particular piping system.

The letters will be in black on pipes painted with light shade colours and white on pipes painted with dark shade colours to give good contrast.

Only writing of service name shall be done on stainless steel lines. Precautions should be taken while painting by using low chloride content painting to avoid any damage to the stainless steel pipes. It is preferable to use adhesive plastic tapes to protect stainless steel pipes.

Visibility:

Attention shall be given to visibility with reference to pipe markings. Where pipelines are located above or below the normal line of vision, the lettering shall be placed below or above the horizontal centreline of the pipe.

Size of letters stencilled / written for equipment shall be as given below:

Column and vessel	:	150
mm (Height)		
Pump, compressor and other machinery	:	50 mm (Height)

In addition, the contents of the pipe and/or direction of flow may be further indicated by arrows and legend. If a hazard is involved it must be identified clearly by legend.

Colour bands: The location and size of bands, as recommended, when used, shall be applied to the pipe.

- On both sides of the valves, tees and other fittings of importance.
- Where the pipe enters and emerges from walls and where it emerges from road & walkway overpasses, unit battery limits.
- At uniform intervals along long sections of the pipe.
- Adjacent to tanks, vessels and pumps.

Colour band specification:

- a) Bands at intervals of 50 meters for the long stretch of pipelines
- b) Each pipe segment will have minimum one band indication, irrespective of length.
- c) The bands shall also be displayed near walkways, both sides of culverts, tanks dykes, tanks, vessels, suction and discharge of pumps / compressors, unit battery limit, near valves of line, etc.

For alloy steel / stainless steel pipes and fittings in stores / fabrication yard, colour band (Minimum 1/2" wide) should be applied along the complete length of pipe, bends / tees, side-covered surface (on thickness) of flanges as well as valves as per the metallurgy.

Unusual or Extreme situations

When the piping layout creates or occurs in a limited area of inaccessibility or of extreme complexity, such segments of layouts may require substitute techniques shall be limited to such segments and shall not deviate from the concept of identification as defined above.

The specification for application of the complete Piping identification colour code, including base and bands colours, are presented in the below table.

Sl. No.	SERVICE	GROUND COLOUR	FIRST COLOUR BAND	SECOND COLOUR BAND
I WATER				
01	Drinking Water	Sea Green	French Blue	Signal Red
02	DM Water	Sea Green	Gulf Red	
03	Cooling Water	Sea Green	French Blue	
04	Boiler Feed Water	Sea Green	Gulf Red	
05	Steam Condensate	Sea Green	Light Brown	
06	Raw Water	Sea Green	Oxide Red	
07	Tempered Water	Insulated With Green Band		
08	Sour Water	Sea Green	Yellow	
09	Stripped Water	Sea Green	Gulf Red	
10	Fire Water	Fire Red		
11	Wash Water	Sea Green	Canary Yellow	
12	ETP Treated water	Sea Green	Canary Yellow	Canary Yellow
II STEAM				
01	Very High Pressure Steam	Aluminium To IS 2339	Signal Red	
02	High Pressure Steam	Aluminium To IS 2339	French Blue	
03	Medium Pressure Steam	Aluminium To IS 2339	Gulf Red	
04	Low Pressure Steam	Aluminium To IS 2339	Canary Yellow	
05	Very Low Pressure Steam	Aluminium To IS 2339	Grey	
06	Low Medium Pressure Steam	Aluminium To IS 2339	Light Brown	
07	Condensate	Aluminium To IS 2339	Grey	Canary Yellow
III AIR/OTHER GASES				
01	Process Air	Sky Blue	Signal Red	
02	Plant Air	Sky Blue	Silver Grey	
03	Instrument Air	Sky Blue	French Blue	
04	Nitrogen	Canary Yellow	Black	
05	Oxygen	Canary Yellow	White	
06	Freon	Canary Yellow	Light Grey	Dark Violet
07	Sweet Fuel Gas	Canary Yellow	Grey	
08	Sour Fuel Gas	Canary Yellow	Grey	Dark Violet
09	Acid Gas	Orange	Grey	
10	H ₂ S	Canary Yellow	French Blue	
11	Hydrogen	Canary Yellow	Signal Red	French Blue
IV CHEMICALS				
01	Caustic	Smoke Grey	Light Orange	
02	Chlorine	Canary Yellow	Dark Violet	Light Orange
03	Ammonia	Canary Yellow	Dark Violet	
04	Corrosion Inhibitor	Yellow	Aluminium	

05	Sulfolane	Azure Blue	Yellow	
06	Mono Ethanol Amine	Light Yellow	Brown	
07	Lean DEA	Light Yellow	Blue	
08	Rich DEA	Light Yellow	Red	
09	Lo-Cat Solution	Canary Yellow	Smoke Grey	
10	Anti-Foam	Light Yellow	Grey	
11	De-Mulsifier	Light Yellow	Black	
12	DMDS	Black	Gulf Red	
V	HYDROCARBONS			
01	LPG	Dark Ad. Grey	Brilliant Green	Dark Violet
02	Naphtha	Dark Ad. Grey	Light brown	Black
03	Benzene	Dark Ad. Grey	Canary Yellow	
04	Toluene	Orange	Blue	Green
05	Reformate	Dark Ad. Grey	Blue	
06	LAN (Low Aromatic Naphtha)	Dark Ad. Grey	Brilliant Green	
07	Mixed Aromatic Solvent	Orange	Brilliant Green	
08	Motor Spirit (MS)	Orange	Blue	
09	Heavy Naphtha	Light Brown	Brilliant Green	Red
10	Kerosene	Light Brown	Brilliant Green	Dark Violet
11	LGO (Light Gas Oil)	Light Brown	Brilliant Green	
12	HGO (Heavy Gas Oil)	Light Brown	Brilliant Green	
13	High Speed Diesel	Light Brown	Brilliant Green	
14	ATF (Aviation Turbine Fuel)	Light Blue	White	
15	VDO (Vacuum Diesel Oil)	Light Brown	Brilliant Green	
16	VGO (Vacuum Gas Oil)	Steel Grey	Red	
17	Slop Distillate	Steel Grey	Black	Red
18	VR (Vacuum Residue)	Steel Grey	Black	Green
19	Slop	Steel Grey	Black	
20	Crude Oil	Light Brown	Yellow	
21	Fuel Oil	Steel Grey	Yellow	
22	Flushing Oil	Light Brown	Yellow	
23	Flare Line	Heat Resistant Aluminium		
24	Reduced Crude Oil	Steel Grey	Black	Signal Red
25	LCO (Light Cycle Oil)	Light Brown	Brilliant Green	Yellow
26	HCO (Heavy Cycle Oil)	Light Brown	Brilliant Green	Light Orange
27	CLO (Clarified Oil)	Steel Grey	Black	French Blue
28	Propylene	Dark Ad. Grey	Signal Red	Black
29	Reject Olefin	Dark Ad. Grey	Light Grey	French Blue
30	Butane	Dark Ad. Grey	Signal Red	Light Brown
31	Iso Butylene	Dark Ad. Grey	Brilliant Green	Gulf Red
32	SBPS	Dark Ad. Grey	White	Gulf Red
33	MTO	Light Blue	Green	
34	Bitumen	Dark Grey	Signal Red	Brilliant Green
35	HAN	Dark Ad. Grey	Brilliant Green	

36	Heavy Kerosene	Light Blue	Black	
37	RLNG	Canary Yellow	Signal Red	Light Brown

Sl. No. .	SERVICE	RECOMMENDED COLOUR CODE
VI INSULATED HYDROCARBON PIPING		
01	I/O Supply	1 Black ground colour with 1 yellow band in centre
02	I/O Return	1 Black ground colour with 1 green band in centre
03	HPS	1 Black ground colour with 1 red band in centre
04	Bitumen	1 Black ground colour with 2 red band in centre
05	CLO	1 Black ground colour with 1 brown band in centre
06	VB Tar	1 Black ground colour with 2 brown band in centre
07	VR AM (Bitumen / VBU Feed)	1 Black ground colour with 1 blue band in centre
08	VR BH	1 Black ground colour with 2 blue band in centre
09	VAC Slop	1 Black ground colour with 1 white band in centre
10	Slop	1 Steel grey ground colour with 1 black band in centre
11	Crude Sweet	1 Light brown ground colour with 1 yellow band in centre
12	Crude Sour	1 Light brown ground colour with 1 orange band in centre
13	VGO / HCU Feed	1 Oxide red ground colour with 1 steel grey band in centre
14	OHCU Bottom / FCCU Feed	1 Oxide red ground colour with 2 steel grey band in centre
VII UNINSULATED EQUIPMENT, TANKS AND STRUCTURES		
01	Heater Structure	Dark Admiralty Grey
02	Heater Casing	Heat Resisting Aluminium
03	Vessels & Columns	Aluminium
04	Hydrogen Bullets	Pink
05	LPG Vessels	White (Reflective Paint)
06	SO ₂	Canary Yellow
07	Heat Exchangers	Heat Resisting Aluminium
08	FO Tank & Hot Tanks	Black
09	All Other Tanks	Aluminium / Off White
10	Caustic / Amine / Acid Tanks	Golden Yellow
11	Sour Water	Sky Blue
12	Outer Surface In Boiler House	Heat Resisting Aluminium
13	Compressors & Blowers	Dark Admiralty Grey
14	Pumps	Navy Blue
15	Motors & Switch Gear	Bluish Green
16.1	Hand Railing - Hand Railing Middle Rail, Toe Plate	Signal Red
16.2	Hand Railing – Vertical Post	Black
17.1	Ladder - Rungs	Black
17.2	Ladder – Vertical & Cage	Signal Red

18	Load Lifting Equipment & Mono Rails Etc.	Leaf Brown
19	Steel Structure	Dark Admiralty Grey

19.3 PAINTING COLOUR CODE FOR STRUCTURAL STEEL

- | | | |
|----|--|---|
| 1. | GANTRY GIRDER & MONORAIL | DARK GREEN |
| 2. | GANTRY GIRDER & MONORAIL STOPPER | SIGNAL RED |
| 3. | BUILDING STRUCTURAL STEEL COLUMNS,
BRACKETS, BEAMS, BRACINGS, ROOF TRUSS,
PURLINS, SIDEGIRTS, LOUVERS, STRINGERS | DARK ADMIRALITY
GREY |
| 4. | PIPE RACK STRUCTURE & TRESTLES | DARK ADMIRALITY
GREY |
| 5. | CHEQUERED PLATE (BOTH FACES) | BLACK |
| 6. | GRATING | GALVANSIED |
| 7. | LADDER | RUNGS – BLACK
VERTICALS & CAGE – RED |
| 8. | HAND RAILINGS
- HANDRAIL, MIDDLE RAIL, TOE PLATE
- VERTICAL POST | SIGNAL RED
BLACK |

20.0 IDENTIFICATION OF VESSELS, PIPING ETC

- 20.1** Equipment number shall be stencilled in black or white on each vessel, column, equipment & machinery (insulated or uninsulated) after painting. Line number in black or white shall be stencilled on all the pipe lines of more than one location as directed by Engineer-In-Charge; Size of letter printed shall be as below:

Column & Vessels	-	150mm (high)
Pump, compressor & other machinery	-	50mm (high)
Piping	-	40-150 mm

20.2 Identification of Storage Tanks

The storage tanks shall be marked as detailed in the drawing.

21.0 PAINTING FOR CIVIL DEFENCE REQUIREMENTS

- 21.1** Following items shall be painted for camouflaging if required by the client.
- All Columns
 - All tanks in Offsites
 - Large Vessels

d. Spheres

21.2 Two coats of selected finishing paint as per defense requirement shall be applied in a particular pattern as per 20.3 and as per the instructions of Engineer-In-Charge.

21.3 Method of Camouflaging

21.3.1 Disruptive painting for camouflaging shall be done in three colours in the ratio of 5:3:2 (all matte finish).

Dark Green		Light Green		Dark Medium Brown
5	:	3	:	2

21.3.2 The patches should be asymmetrical and irregular.

21.3.3 The patches should be inclined at 30° to 60° to the horizontal.

21.3.4 The patches should be continuous where two surfaces meet at an angle.

21.3.5 The patches should not coincide with corners.

21.3.6 Slits and holes shall be painted in dark shades.

21.3.7 Width of patches should be 1 to 2 meters.

22.0 QUALITY CONTROL, INSPECTION AND TESTING

22.1 All painting materials including primers and thinners brought to site by contractor for application shall be procured directly from manufactures as per specifications and shall be accompanied by manufacturer's test certificates. Paint formulations without certificates are not acceptable (see section 24.0).

22.2 The contractor must produce Test Certificate from Pre Qualified Paint Manufacturer for various tests as detailed out in section 25.1 of this document, for each batch & for each category of product. The Engineer-in-Charge shall have the right to test wet samples of paint from each batch at random for verifying quality of paint supplied. Contractor shall arrange to have such tests, when called for by Engineer-in-Charge, performed at his cost any one of the independent laboratories listed in the 25.1 of this document.

Samples for the test will be drawn at random in presence Engineer-in-Charge or his representations. Following tests to be carried out if called for by Engineer-in-Charge:

- Specific Gravity
- % solids by weight (% zinc content in case of inorganic or organic zinc primer)
- Drying time (touch dry & full curing)
- Adhesion
- Flexibility
- Hardness
- Storage stability (pot life)

Test methods for above tests shall be as per relevant ASTM or ISO Standard.

22.3 The painting work shall be subject to inspection by Engineer-In-Charge at all times. In particular, following stage-wise inspection will be performed and contractor shall offer the work for inspection and approval of every stage before proceeding with the next stage. The record of inspection shall be maintained in the registers. Stages of inspection are as follows:

- (a) Surface preparation
- (b) Primer application
- (c) Each coat of paint

During surface preparation, following tests are to be carried out:

- Test for absence oil & grease after degreasing before blasting as per procedure given in sec 6.7 of Annexure-I of this specification (specification for thermally sprayed Aluminium Coating).
- Tests for surface finish of blasted surface shall be done by visual inspection using SSPC-VIS1. Clear cellophane tape test as per ISO 8502-3 shall be used to confirm absence of dust on blasted surface. Checks shall be done on each component atleast once per 200 m² of blasted surface and minimum of 3 checks per shift.
- Test for presence of soluble salt as per method ISO 8502-9. Maximum allowable salt content shall be considered 20 mg/m² (2 mg/cm²). Checks shall be done on each component atleast once per 200 m² of blasted surface and minimum of 3 checks per shift. In case salt exceeds specified limit, the contaminated surface shall be cleaned by method as per Annexure-C of IS 12944-4 (water cleaning). After cleaning surface shall be retested for salt after drying.
- Blast profile measurement – This shall be done as described in sec 6.2 of Annexure-I of this specification (Specification for thermally sprayed Aluminium).
- Test for blasting Media and Blasting air- this shall be done as described in sec 6.6 of Annexure-I of this specification (Specification for thermally sprayed Aluminium).

In addition to above, record should include type of shop primer already applied on equipment e.g. zinc silicate, or zinc rich epoxy, or zinc phosphate.

Any defect noticed during the various stages of inspection shall be rectified by the contractor to the entire satisfaction of Engineer-In-Charge before proceeding further. Irrespective of the inspection, repair and approval at intermediate stages of work, contractor shall be responsible for making good any defects found during final inspection/guarantee period/defect liability period as defined in general condition of contract. Dry film thickness (DFT) shall be checked and recorded after application of each coat and extra coat of paint should be applied to make-up the DFT specified without any extra cost to owner, the extra coat should have prior approval of Engineer-in-charge.

22.4 Primer Application

After surface preparation, the primer should be applied to cover the crevices, corners, sharp edges etc. in the presence of inspector nominated by Engineer-In-Charge.

22.5 The shades of successive coats should be slightly different in colour in order to ensure application of individual coats, the thickness of each coat and complete coverage should be checked as per provision of this specification. This should be approved by Engineer-In-Charge before application of successive coats.

- 22.6 The contractor shall provide standard thickness measurement instrument with appropriate range(s) for measuring.

Dry film thickness of each coat, surface profile gauge for checking of surface profile in case of sand blasting. Holiday detectors and pinhole detector and protector whenever required for checking in case of immersion conditions.

- 22.7 Prior to application of paints on surfaces of chimneys, the thickness of the individual coat shall be checked by application of each coat of same paint on M.S.test panel. The thickness of paint on test panels shall be determined by using gauge such as 'Elkometer'. The thickness of each coat shall be checked as per provision of this specification. This shall be approved by Engineer-In-Charge before application of paints on surface of chimney.

- 22.8 At the discretion of Engineer-In-Charge, the paint manufacturer must provide the expert technical service at site as and when required. This service should be free of cost and without any obligation to the owner, as it would be in the interest of the manufacturer to ensure that both surface preparation and application are carried out as per their recommendations. The contractor is responsible to arrange the same.

22.9 **Final inspection of finished coating shall consist of measurement of:**

- 1) Paint dry film thickness (DFT),
 - 2) Adhesion, and,
 - 3) Holiday detection check as well as for finish and workmanship.
- 1) **Coating DFT** measurement shall be as per ISO 2808. Type II electromagnetic gauges should be used for ferrous substrates. DFT gauge calibration, number of measurement shall be as per SSPC-DA 2. Measured DFT shall be within + 10% of the dry film thickness, specified in the specifications.
 - 2) **Adhesion** of the primer to the steel substrate and intercoat adhesion of the subsequent coat(s) after curing for at least a week after application of the topcoat shall be examined by a knife test in accordance with ASTM D 6677. For the knife test, if the rating is better than 8, the adhesion is considered acceptable. The adhesion is destructive and tested areas shall be repaired afterward using the spot repair procedure. Alternatively, the applicator may perform the adhesion test on a steel coupon coated using the same surface preparation and coating application procedure as the work piece. Adhesion testing shall be carried out for each component at least once per 200 m² (2000 ft²) of coated surface.
 - 3) **Holiday testing** shall be conducted in accordance with NACE SP 0188. For immersion services, 100% of coated area shall be inspected for holidays. For atmospheric exposure, 10% of coated area which must include weld seams, corners and edges to be holiday tested. Voltage at which test is to be carried out will depend upon DFT of coating being tested and shall be as per NACE SP 0188. Any holiday is unacceptable and should be marked and repaired immediately.

- 22.10 The contractor shall arrange for spot checking of paint materials for Specific gravity, glow time (ford cup) and spreading rate.

22.11 **Final Inspection of coating system**

A final inspection shall be conducted prior to the acceptance of the work. The coating contractor and the facility owner shall both be present and they shall sign an agreed inspection report. Such reports shall include:

General

- Names of the coating contractor and the responsible personnel
- Dates when work was performed

Coating Materials

- Information on coating materials being applied
- Condition of coating materials received

Environmental Conditions

- Weather and ambient conditions
- Coating periods

Surface Preparation

- Condition of surface before preparation
- Tools and methods used to prepare surface
- Condition of surface after preparation

Coating Application

- Equipment used
- Mixing procedure prior to application
- Coating application techniques used

Testing

- Type and calibration of inspection instruments used
- Type of quality control tests performed, and results

23.0 GUARANTEE

- 23.1** The contractor shall guarantee that the chemical and physical properties of paint materials used are in accordance with the specifications contained herein/to be provided during execution of work.

24.0 QUALIFICATION CRITERIA OF PAINTING CONTRACTOR/SUB-CONTRACTOR

Painting contractor who is awarded any job for EIL, Projects under this standard must have necessary equipments, machinery, tools and tackles for surface preparation, paint application and inspection. The contractor must have qualified, trained and experienced surface preparator, paint applicator, inspector and supervisors. The contractor supervisor, inspector, surface preparator and paint applicator must be conversant with the standards referred in this specification.

25.0 QUALIFICATION/ACCEPTANCE CRITERIA FOR PAINT COATING SYSTEM

25.1 Pre-Qualification of Paint Coating Manufacturer and his Products

Paint Coating manufacture meeting the following requirements shall be considered for supply of their products. Contractor is advised to select coating manufacturer. Only after obtaining

prequalification from EIL for the manufacturer based on following requirements. Even those manufacturers, whose names are appearing elsewhere in the tender document, under the list of “EIL’s Recommended or Approved Vendors”, will also be required to meet the following prequalification requirements.

- Manufacturer should have been in continuous business of paint coating formulation and manufacturer for at least past 5 years.
- Manufacturer should possess past experience of supplying his products to hydrocarbon processing industry or offshore platforms in the past 5 years.
- Coating manufacturer should have supplied at least 10000 litre of an individual product to hydrocarbon processing industry or offshore platform.
- The manufacturer’s manufacturing procedure & QA/QC system shall meet ISO 9001 requirements and preferably should possess ISO 14000 certificate.
- The Quality control set up should be manned by qualified paint technologists whose bio data should be sent along with quality control organization chart.
- Pre-Qualification Testing:
Manufacturer should have got his products tested at least one time in last 3 years at a reputed independent laboratory for the following test items. Test certificates which are more than 3 years old will not be considered.

Test	Test Method
Specific gravity	ASTM D 1475
Dipping properties	ASTM D 823
Film characteristics	-
Solids content by weight	ASTM D 2369
Drying time	ASTM D 1640
Flexibility	ASTM D 1737/ D 522
Hardness	ASTM D 3363
Adhesion	ASTM D 2197
Abrasion resistance	ASTM D 968/ D 1044
DFT/coat	As per SSPC guidelines
Storage Stability	ASTM D 1849
Resistance to moisture vapour permeability for 2000 hrs	ASTM D 2247
Cyclic Test for the duration of 4200 h (25 cycles a 168 hours)	ISO 7253, ASTM G53
% Zn in Dry film for Inorganic Zinc Silicate primer	-

Chemical Resistance test - 10% & 40% NaOH (applicable only for F-6 & F-15) - 10% H ₂ SO ₄ (applicable only for F-6 & F-15) - 10 % Nitric Acid test (applicable only for F-6 & F-15) - Benzene / Toluene (applicable only for F-6 & F-15) - Kerosene (applicable only for F-6 & F-15) - Sea water (applicable only for F-6 & F-15) - MIBK test (applicable only for F-6 & F-15)	ASTM D 543
Resistance to water using water immersion (applicable only for F6-, F-7, F-8, F-14 & F-15)	ASTM D 870
Dry Heat Resistance test (applicable only for F-9, F-6A/B, F-2, F-15, F-16, polysiloxane, heat resistance Al silicone)	
Thermal shock resistance test (only for F-9, F-6, polysiloxane)	ASTM D2485 - 91

Each coating product to be qualified shall be identified by the following

- 1) An infrared scan (fingerprint), for Part A and B, each component as per ASTM D 2621**
- 2) Specific gravity of Base and curing agent (Ref. ISO 2811)**
- 3) Ash content (ASTM D1650), volatile and non-volatile matters (ISO 3251) of each component**

The identification shall be carried out on the batch, which is used for the Pre-qualification testing. Pre-qualification of the products shall be carried out at an independent laboratory.

Test shall be carried out at any one of the following laboratories and tests to be witnessed & certified by third party inspection agency (TUV, BV, DNV).

IICT, Hyderabad
HBTI, Kanpur
DMSRDE, Kanpur
BIS Laboratories
UICT, Matunga, Mumbai
RITES, Kolkata
PDIL, Sindri
NTH, Kolkata

Contractor shall furnish to EIL for approval/ acceptance of all necessary documents/information including test certificates to prove that the paint manufacturers, from whom he intends to procure paint products, meet the various requirements for fulfilling the pre-qualification criteria as given under section 25.1 above. The paint manufacturer shall be qualified and approved for supply after review/assessment of the submission made by the contractor.

25.2 Information to be furnished during delivery of coating system:

Contractor along with delivery of paint material has to furnish following information from paint manufacturer to EIL for acceptance/approval of products.

a) Batch test certificates (Batch Testing)

Along with delivery to site of the paint products from pre-qualified coating manufacturer. Contractor has to produce test certificate from paint manufacturer **for each batch and for each category of product** for the following test items. Test to be witnessed & certified by third party inspection agency. All test results must mention clearly the batch no. and category of product tested. Tests to be conducted for following properties:

- Infrared scan for Part A and B, each component
- Specific Gravity
- % solids by weight (% zinc content in case of inorganic or organic zinc primer)

b) Product information sheet/ technical data sheet for each category of product.

26.0 METHOD OF SAMPLING & DISPATCH FOR LABORATORY TESTING

(Pre-Qualification tests (sec. 25.1), Batch testing (sec. 25.2) and Inspection testing (sec. 22.0))

26.1 Samples of coating materials should be submitted to the Govt. laboratory in sealed containers with batch no. and test certificate on regular format of manufacturer's testing laboratory. The sampling shall be certified and sealed by a certifying agency.

26.2 All test panels should be prepared by Govt. testing agency coloured photographs of test panels should be taken before and after the test and should be enclosed along with test report.

Sample batch no. and manufacturer's test certificate should be enclosed along with the report. Test report must contain details of observation and rusting if any, as per the testing code.

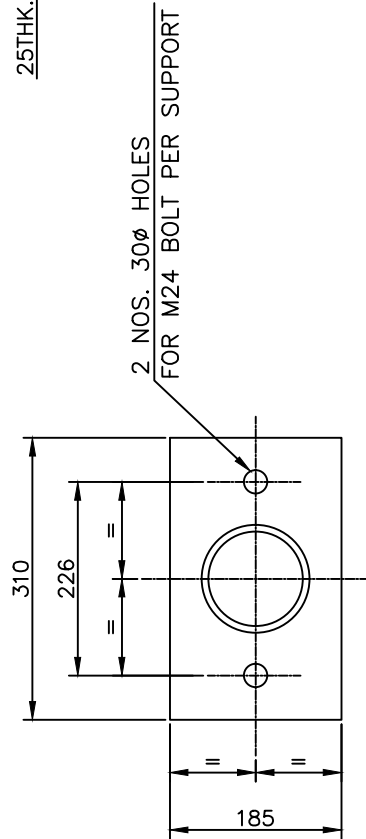
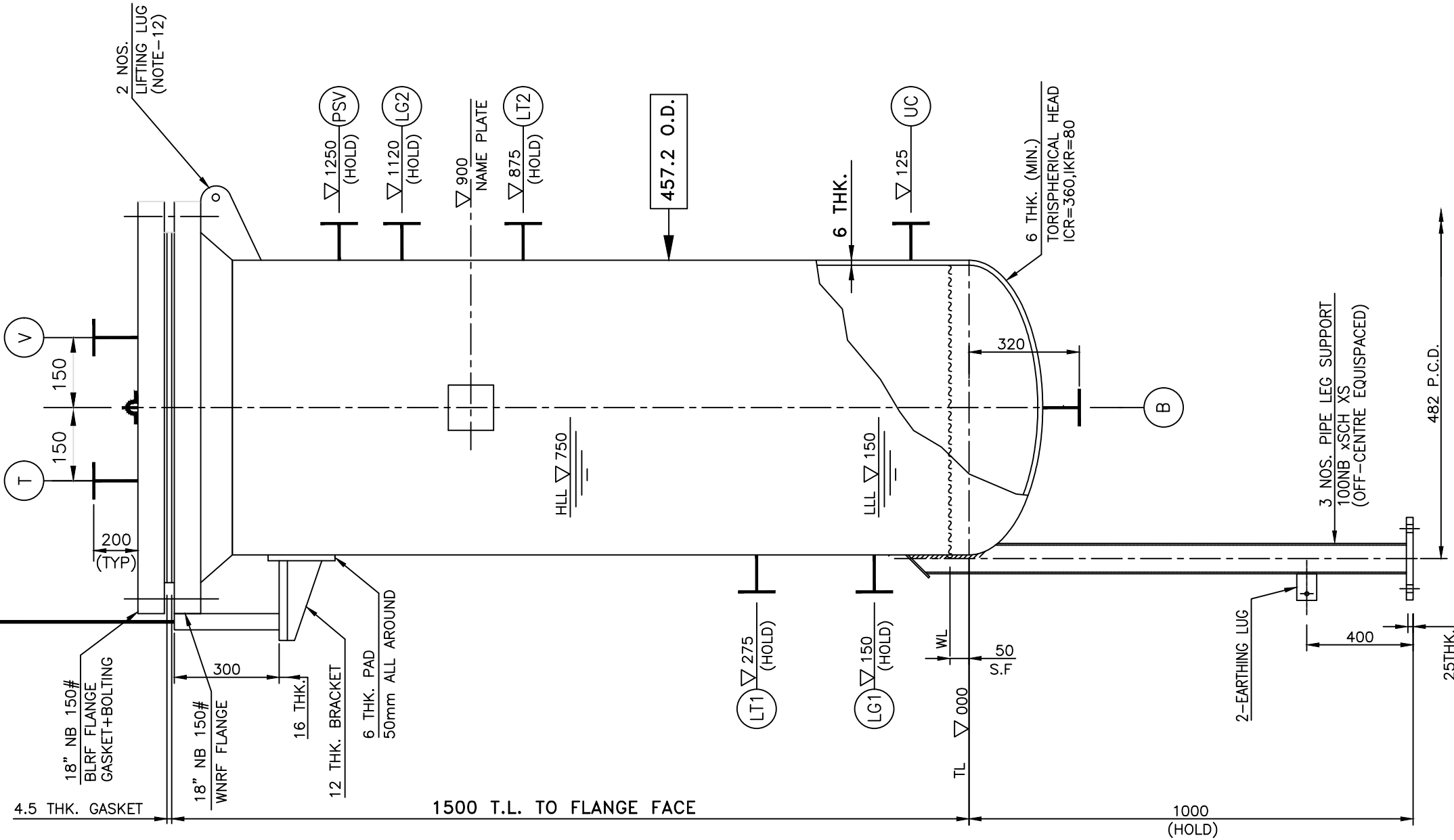
26.3 Manufacturers should intimate the company, details of sample submitted for testing, name of Govt. testing agency, date, contact personnel of the govt. testing agency. At the end of the test the manufacturer should submit the test reports to the company for approval.

26.4 Coating systems for panel test shall be decided after discussion with EIL.

[illegible]

FILE NAME : A307-IC-16-46-DS-3182-B-2

DAVIT (AS PER EIL STD.
7-12-010) DETAIL TO
BE SUITABLY MODIFIED
BY VENDOR



SUPPORT BASE DETAIL



ENGINEERS INDIA LIMITED

NEW DELHI

JOB NO. • A307 UNIT NO. • CDU/VDU
CLIENT • M/S BPCL, KOCHI REFINERY
PLANT • IREP, KOCHI

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
B	27.08.2013	REVISED SHEET 1 OF 2	JBN	RV/VIVEK	TK	
A	06.08.2013	ISSUED FOR BIDS/ENGG.	JBN	PIYUSH/RV	TK	

VESSEL DESIGN DATA
CDU HEATER
LP STEAM APH
CONDENSATE POT
ITEM NO. • IC-V-202

वैसल डिजाइन डाटा
सीडीयू हिटर
एल पी स्टीम एपीएच
कन्डसैट पोट
आइटम नम्बर: आईसी-वी-202

DRAWING NO.

A307-IC-16-46-DS-3182

REV.

B

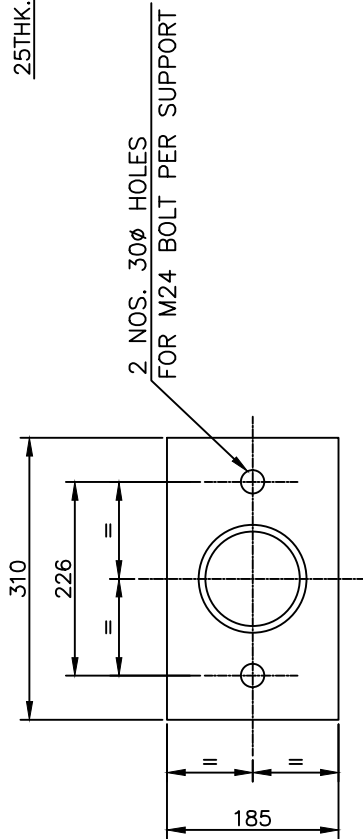
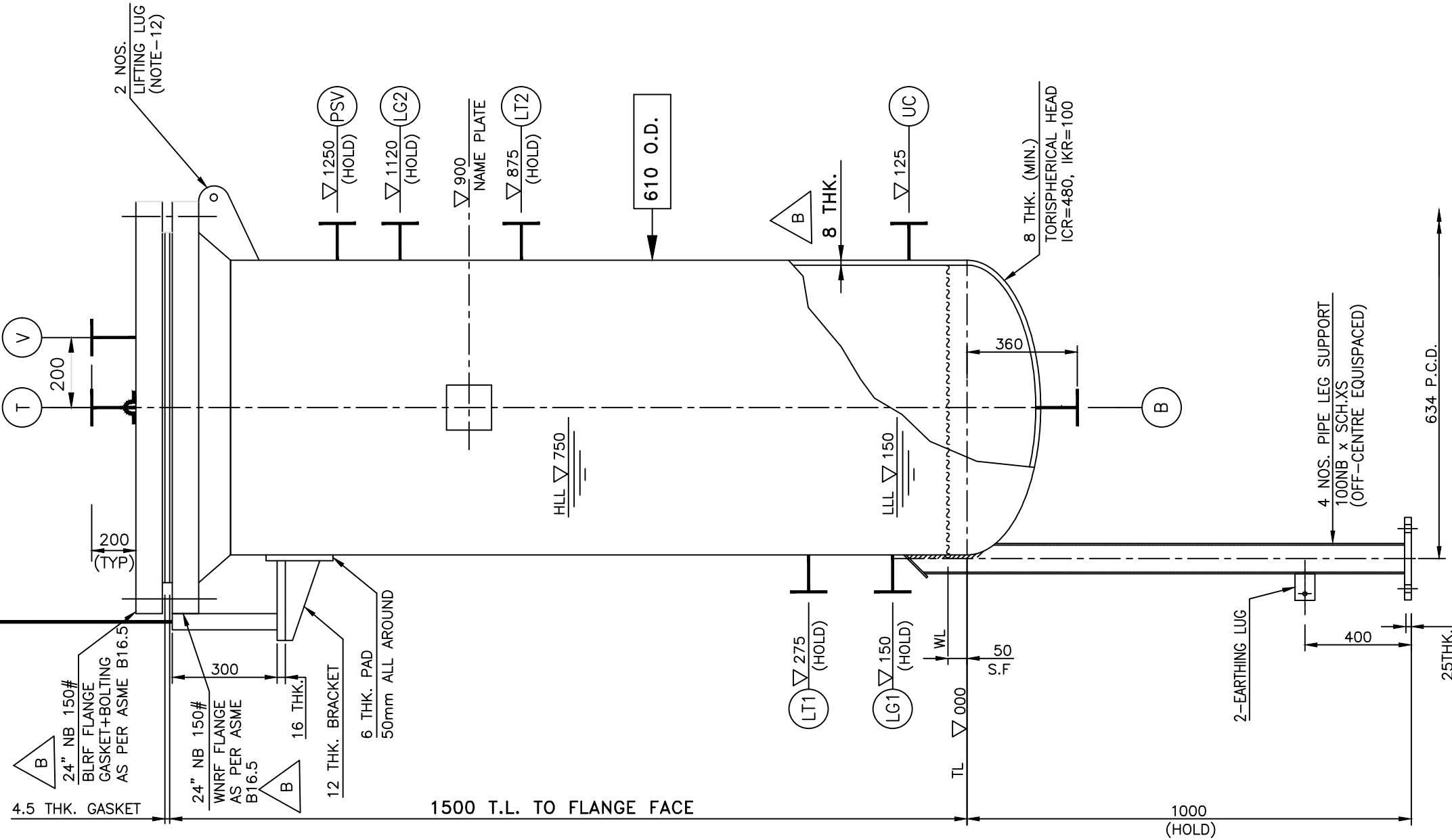
SHEET 2 OF 2



The drawing, design and details given on this format are the property of ENGINEERS INDIA LIMITED. They are merely loaned on the borrower's express agreement that they will not be reproduced, copied, exhibited or used, except in the limited way permitted by a written consent given by the lender to the borrower for the intended use.

FILE NAME : A307-IC-16-46-DS-3181-B-2

DAVIT (AS PER EIL STD.
7-12-010) DETAIL TO
BE SUITABLY MODIFIED
BY VENDOR



SUPPORT BASE DETAIL



ENGINEERS INDIA LIMITED

NEW DELHI

JOB NO. • A307 UNIT NO. • CDU/VDU
CLIENT • M/S BPCL, KOCHI REFINERY
PLANT • IREP, KOCHI

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
B	27.08.2013	REVISED AS MARKED	JSN	RV/VIVEK	TK	
A	06.08.2013	ISSUED FOR BIDS/ENGG.	JSN	PIYUSH/RV	TK	

VESSEL DESIGN DATA
CDU HEATER
LP STEAM APH
CONDENSATE POT
ITEM NO. • IC-V-201

वर्सेल डिजाइन डाटा
सीडीयु हिटर
एल पी स्टीम एपीएच
कन्डसैट पोट
आइटम नम्बर: आईसी-वी-201

DRAWING NO.

A307-IC-16-46-DS-3181

REV.

B

SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297