



S. Mark Oil Field Engineering Pvt Ltd

THERMAX	SMOF/THERMAX/TANK/21-22/01/2023	Date: 25.01.2022
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TECHNICAL PROPOSAL

To, THERMEX LIMITED Power Division Pune, India	
Kind Attn:	Mr. Juber Ahmed
Subject:	Quotation for tank
Reference:	Inquiry via Email: "inquiry for storage tank, ABRPL/EIL consultant " dated 18 TH Jan 2022.

REVISION TABLE

REV. NO.	DATE	DESCRIPTION	PREP BY	CHK BY	RWD BY
01	25.01.2022	Technical Proposal	PP	MS	KB





S. Mark Oil Field Engineering Pvt Ltd

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INQUIRY CHECKLIST					
Product	Storage Tank				
S. MARK SCOPE					
Scope		Remarks	Scope		Remarks
Material	✓		Gratings	X	
Fabrication	X		E & I	X	
Structure	X		E & I Labor	X	
DOCUMENTS					
Documents	Received or not received		Remarks		
DATASHEET	✓				
GAD	X				
Piping BOM	X				
Structure GAD	X				
Structure BOM	X				
P & ID	✓				
PMS	X				
AVL	X				
QAP/ITP	X				



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SCOPE MATRIX (Annexure – I)			
Sr. No.	Description	Scope	
		THERMAX	S. Mark
Design and Engineering			
01	Supply of Stillage syrup storage tank as per specs		✓
02	Fabrication of tank as pre-attached specs		✓
03	Design of tank		✓
04	Mechanical design including Pressure loss calculation or any other type of calculations	NA	NA
05	Process design calculation including Stress analysis or any other type of analysis	NA	NA
Piping			
06	Supply of Vessel piping material	✓	
07	Fabrication of tank piping	✓	
08	Blasting and painting of tank		✓
09	Supply of Testing Blinds and hydro-testing gasket	✓	
10	Supply of insulating gasket (if required)	✓	
11	Supply and fabrication of RF pad	NA	NA
Structure			
12	Supply and fabrication of structure (for pipe support only) (IS 2062)	✓	
13	Supply and fabrication of equipment support (IS 2062)	NA	NA
14	Supply of gratings.	NA	NA
15	Supply of Tag Plates for pipes	NA	NA
16	Supply of Junction box stands, instrument supports, etc. (IS 2062)	NA	NA
17	Supply of earthing bosses (SS) and lifting lugs. (IS 2062)		✓
Electrical & Instrumentation			
18	Supply of instrument gauges, and mechanical valves	NA	
19	Supply of differential pressure & temperature transmitters, temperature Thermo wells, meters & flow conditioners. JB and cables etc.	NA	NA



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20	Supply of Electrical accessories	NA	
21	Supply of Instrumentation tube fitting (if applicable)		
22	Supply of Cable & electrical and instrumentation cabling accessories		
Testing			
23	RT (spot), UT, PT, MPI & other non-destructive examinations of welds. (If required by standards/codes)		✓
24	Charpy Test	NA	NA
25	Hydrostatic test.		✓
26	System leak test.	NA	NA
27	PMI Testing (if applicable as per code)	NA	NA
28	Calibration of equipment	NA	NA
29	Calibration wet test and additional equipment required for wet calibration test	NA	NA
30	Material Certification EN 10204 3.1 (Pressure Parts) 2.2 for non-pressure parts		✓
31	Material Certification EN 10204 3.2	NA	NA
32	TPI	✓	
33	Factory acceptance test		✓
34	Site acceptance test	✓	
Documentation			
35	Standard WPS/PQR		✓
36	Inspection report		✓
37	Calibration reports	NA	NA
38	SAT documentation (as per provided list)	NA	NA
39	Inspection test plan or Quality control plan	✓	✓
40	Document dossier	✓	✓
General			
41	PWHT	NA	NA
42	Sunshades	NA	NA



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43	Guarantee on the functioning of instruments and other equipment	NA	NA
44	Grouting	NA	NA
45	Packing (Plastic Wrapping)		✓
46	Sea-worthy packing	NA	NA
47	Insulation	NA	NA
48	Any kind of civil work	✓	
49	Painting		✓



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SPECIAL NOTES (ANNEXURE-II)

SCOPE OF WORK

- Supply of stillage syrup storage tank

Sr No	Description	Capacity	MOC	Qty in No.
01	stillage syrup storage tank	65M3 (Dia 1.85 X Height 6.2 X 6 mm (T))	SS316 L	2

QA-QC DOCUMENT DOSSIER

1. Procedure for Handling of Welding Consumables
2. Procedure for Materials traceability & Identification
3. Procedure for Material Handling
4. WPS & PQR
5. Procedure for Welder Qualification Test
6. Procedure for Weld repairs
7. NDT Procedures (UT, MPT, DPT)
8. Procedure for PWHT
9. Procedure for PMI
10. Procedure for Hydro Test
11. Procedure for Pneumatic Test
12. Procedure for Coating & Repair (Painting)
13. Inspection & Test Plans

PAINTING

Not Applicable

STRUCTURE

- Structure material IS 2062 Gr. B
- Structure makes: SAIL, Vizag, Essar, OR Equivalent Indian Make

S. MARK CONSIDERED VENDOR LIST

Flange

Fittings

Fasteners

Pipe make

Gasket

Structure makes

Paint

Prioritize the vendor selection Criteria

1. S. Mark Approved Vendor list
2. EIL approved
3. Supply Experience to similar client



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Price Schedule (Annexure-III)

S/N	ITEM	UNIT RATE (INR)	QTY (NOS)	TOTAL (INR)
01	Supply of stillage syrup storage tank	Quoted	2	Quoted

TERMS & CONDITIONS	
Offer Validity:	
<ul style="list-style-type: none"> The quoted prices will remain firm for 30 days after the date of submission 	
Payments Terms:	
<ul style="list-style-type: none"> 10 % advance against order acceptance 20% against the issuance of the purchase order to vendors (plates, flanges, fittings) 15 % against major raw material identification (Plates) 50 % against submission of TPI IRN before dispatch 5 % against submission of final documents 	
Taxes and Duties:	
<ul style="list-style-type: none"> Taxes and duties shall be charged additionally at actual prevailing rates at the time of dispatch/invoicing. GST to be considered as actual at the time of invoicing. 	
Price Basis:	
<ul style="list-style-type: none"> All Prices are quoted in Indian Rupees (INR) net, Ex-works 	
Delivery:	
<ul style="list-style-type: none"> Ex-works, within 16-18 weeks from date of receipt of fabrication drawing. 	
Cancellation :	
<ul style="list-style-type: none"> Within 1 week from the date of PO – 5 % of the actual contract value. Within 3 weeks from the date of PO – 10 % of the actual contract value. After 4 weeks from the date of PO – Actual amount of completion including procured material cost 	

We thank you for the opportunity to submit our proposal. If you require any further clarification, please do not hesitate to contact us.

Best Regards.

For, S. Mark Oil Field Engineering Pvt. Ltd

Bhavin Gole

BDM - Executive

Mail ID: bdm1@smark.in

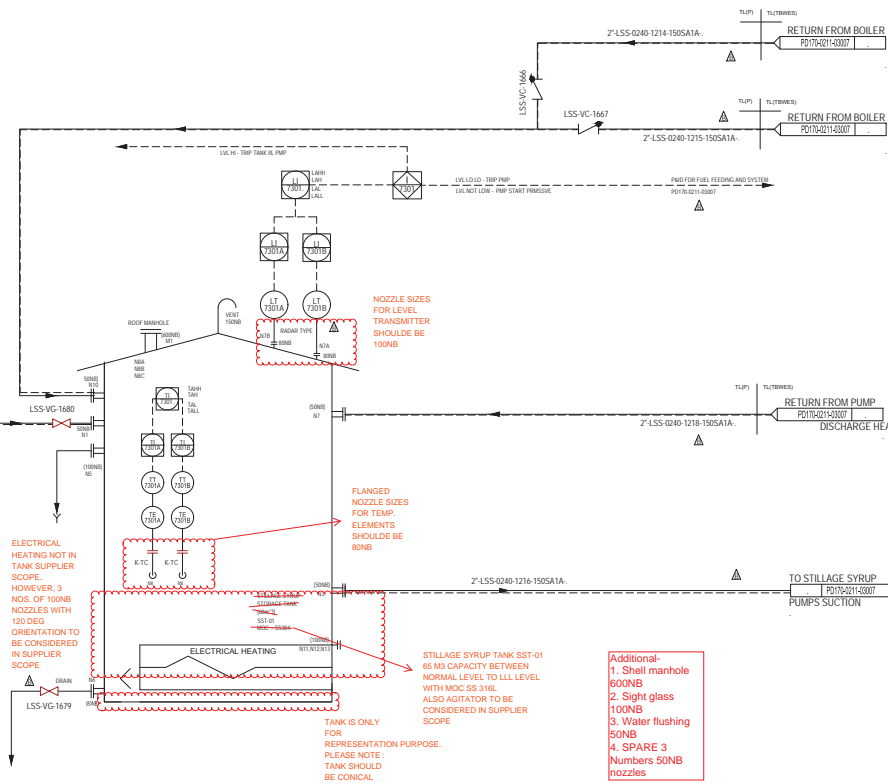


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Annexure A (P&ID) and Datasheet


THE INFORMATION ON THIS DOCUMENT/DRAWING IS THE PROPERTY OF THERMAX LIMITED AND SHOULD NOT BE USED, COPIED, REPRODUCED OR EXHIBITED IN ANYWAY DETRIMENTAL TO THE INTEREST OF THE COMPANY WITHOUT WRITTEN CONSENT.



REFERENCE DOCUMENTS/DRAWINGS :—

PURCHASERS JOB NO	B 215
UNIT NO	2
TENDER NO/MR/PR NO	B215-000-80-44-PG-T-7490
PROJECT LOCATION	NUMALIGARH, ASSAM
ITEM NO/TAG NO.	-
QUANTITY OF EQUIPMENT	-

CLIENT :	ASSAM BIO REFINERY PVT. LTD. NUMALIGARH, ASSAM.	THERMAX LIMITED POWER DIVISION SAI CHAMBERS	
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OWNER'S CONSULTANT :	DRAWN PDB 30/06/2017		
 ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)	DESIGNED	NNT	30/06/2017
	CHECKED	NNT	30/06/2017
	APPROVED	ARG/RDS	30/06/2017

PROJECT :	COMBINED HEAT AND POWER PACKAGE BIO REFINERY PROJECT	DEC :			
TITLE :	P&ID FOR STILLAGE SYRUP HANDLING SYSTEM	GROUP :	MECH.	OC No.:	DC170
		SCALE :	NTS		
		DWG.NO.	PD170-0240-03173		

B	02/07/2021	SECOND ISSUE	APPROVAL								PDB	-	NNT	-	-	MK	A
A	26/10/2020	FIRST ISSUE	APPROVAL								PDB	-	SSK	-	-	MK	A
REV. NO.	DATE	DESCRIPTION	STATUS	PPD. BY	CHECK	CIVIL	ELEC.	C & I	APP. BY	PPD. BY	PLPD	PROC.	CIVIL	ELEC.	C & I		
							CRD. BY							CRD. BY			

THERMAX LTD [POWER DIVISION]

Wakadewadi, Shivajinagar, Pune, Maharashtra 411003, INDIA



Customer: ASSAM BIO REFINERY PRIVATE LIMITED
Consultant: ENGINEERS INDIA LTD.

Specification No: PD 170 M 127 2
Rev no: 0

Product	Capacity	Pressure	Temperature	No of Units
BIOCOAL FIRED BOILER	98.5 TPH [BMCR]	87 Kg/cm ² (g)	480 +/-5 Deg C	2

SPECIFICATIONS FOR STILLAGE SYRUP STORAGE TANK

Format No: DE-0

GENERAL NOTES:

- All latest codes and standards to be followed.
- Finished product should be asbestos free.
- Items marked as [X] means **APPLICABLE**, and [] means **NOT-APPLICABLE**.

GENERAL DATA

Quantity	1 No.	[Common for both boilers]	Application	For Stillage syrup storage
Climatic conditions	Max	Min	Normal	-
Ambient Temp. (deg. C)	38	5	35	Vendor to specify
Relative humidity (%)	-	-	85	Refer to Annexures AS PER API 650 [Appendix: S]
Installation	Outdoor		Corrosion allowance	Refer to Annexures
Site Conditions	Normal		Elevation	Ground
Site Location	Numaligarh, Assam		Area Classification	Hot & Humid
Altitude	90 meters above MSL		Earthquake intensity : ZONE 5	
			Earthquake Design factor (Code IS-1893 Zone-III/ Site spectra whichever is governing): As per IS 1893, Seismic factor = 0.04	
Power Supply	415±10 V AC, 50HZ ± 5 % ,combined variation on frequency and voltage is ± 10%		Prevailing wind direction	NE TO SW
			Mean wind velocity	Normal: 36 km/h, Maximum: 140 km/h
			Wind load	IS : 875 (Part 3) Code of Practice for design loads Wind Loads.

TECHNICAL PARAMETERS

Sr. No.	Parameter	Unit	
1	Type of tank		Vertical Cylindrical tank with conical bottom
2	Fluid handled		Stillage syrup (52 % Concentration)
3	Stillage syrup Flow	TPH	2.7 [Operating case]
4	Tank Capacity	m ³	65 (Between NL to LLL)
5	Operating Pressure	kg/cm ² (g)	Atm
6	Design Pressure	kg/cm ² (g)	Atm
7	Hydro Test Pressure	kg/cm ² (g)	As per IBR Water fill & leakage test only
8	Operating Temperature	oC	96
9	Design Temperature	oC	115
10	Ph		4
11	Motor driven Agitator		to be provided
12	Heat tracing for tank		NA
13	Inlet Nozzle	no	3 nos [As per reference P&ID]
14	Outlet Nozzle	no	2 no [As per reference P&ID] and other nozzles as mentioned in reference P&ID
Ultimate Analysis of Stillage syrup Viscous Liquid (52% Concentration)			
	Carbon	%	42
	Hydrogen	%	8
	Oxygen	%	45
	Nitrogen	%	6
	Sulfur	%	Minor
Proximate Analysis of Stillage syrup Viscous Liquid (52% Concentration)			
	H ₂ O	%	48
	Organic solids	%	52
	Ash	%	Minor
	GCV	Kcal/Kg	2200

Properties of Stillage syrup Viscous: For 52 % w/w concentration (Concentration can vary from 48 % to 52%)

Temperature (Deg C)	27	85							
Viscosity (cP):	154	20							
Specific Gravity:	1.29	1.25							

MATERIAL OF CONSTRUCTION (Vendor to Crosscheck the MOC details from Attachment)

Sr. No.	Parameter	Material		
1	Storage tank shell	SS 316L	4	Structure
2	Storage tank conical bottom	SS 316L	5	Thickness of the Bottom plate
3	Tank top cover	SS 316L		IS 2062
				VTS

DIMENSIONS AND WEIGHT

1)	Storage tank	Vendor to furnish.	4)	Dry weight	Vendor to furnish.
2)	Storage tank shell thickness	Vendor to furnish.	5)	Flooded weight	Vendor to furnish.
3)	Storage tank Roof and bottom thickness	Vendor to furnish.			

NOTE -

Entire scope of Tank design, material purchase, manufacturing, installation is in Supplier scope.

SCOPE OF SUPPLY -Supplier scope

[X] Storage tank .	[X] Top Railing	[] Heating arrangement, excluded from supplier
[X] Set of nozzle connections along with flanges	[X] Ladder and operating platform	
[X] Air vent	[X] Venting arrangement	
[X] Manhole	[] Level Indicator excluded from supplier	
[X] Gear Box	[X] Insulation cleats only	
[] Isolation Valve For Outlet excluded from supplier	[X] Drain Point with isolation valve	

TESTING & INSPECTION REQUIREMENTS - Supplier scope

- [X] Hydraulic test to be carried out at Vendor's factory.
- [X] Inspection/Test certificate.

GUARANTEES REQUIRED Supplier scope

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Wakadewadi, Shivajinagar, Pune, Maharashtra 411003, INDIA



Customer: ASSAM BIO REFINERY PRIVATE LIMITED
Consultant: ENGINEERS INDIA LTD.

Specification No: P D 170 M 127 2
Rev no: 0

Product	Capacity	Pressure	Temperature	No of Units
BIO COAL FIRED BOILER	98.5 TPH	87 Kg/cm ² (g)	480 +/-5 Deg C	2

SPECIFICATIONS FOR STILLAGE SYRUP STORAGE TANK

Format No: DE-0

- 1) Mechanical Workmanship.
- 2) Stillage syrup liquid temperature at outlet of tank
- 3) Heating steam consumption.[not applicable]

PAINTING AND PACKAGING REQUIREMENTS As per Client requirement Refer annexure painting specification

- 1) Painting- Primer
- 2) Painting as per Customer specification
- 3) ~~SSPC-SP-10, 1coat of F-15 @ 75p DFT/coat of painting at shop.~~
- 4) All packing must be made and clearly marked.
- 5) Corresponding packing lists must be issued for each package & container at least one month in advance.

ADDITIONAL REQUIREMENTS

- 1) The tank shall be provided with heating arrangement (electric heating) to maintain the viscosity suitable for combustion in boiler. However, this is not in vendor scope.
- 2) The tank shall have a pumpable storage capacity (between normal level to Low Low level : minimum 85% of Tank height) of 24 hrs of rated flow.

DETAILS TO BE FURNISHED BY VENDOR ALONG WITH QUOTATION

- 3) Detailed datasheet mentioning all the information asked for in this specification.
- 4) Vendor GA drawing, and other relevant details.
- 5) List of makes for Vendor's bought out items.
- 6) Painting and Packing Details.
- 7) Mechanical calculation.

DATA REQUIRED AFTER PLACEMENT OF ORDER As per Client requirement Refer annexure for vendor data requirement.

- 1) GA drawings with necessary cross sectional views, design and all other technical data, Bill of materials indicating the entire scope supply - (")_ sets for approval & _ (")_ sets of final approved drawing within 7 days of LOI/PO.
- 2) Vendor to get drawing approved by Th~~erma~~x/ Customer before fabrication.
- 3) Vendor to provide inspection/ Test certificate.
- 4) All the data as mentioned in EIL Vendor data requirements.

EXCLUSIONS Following is excluded from Supplier scope

- 1) All civil work
- 2) Local clearances
- 3) Final painting & insulation at site. However, Insulation lugs required for 50mm insulation shall be provided by vendor.

LIST OF ATTACHMENTS / APPLICABLE DOCUMENTS

1. Standard specification for storage tank for package item
2. Standard specification for Mechanical agitator
3. Standard specification for Stainless steel plates
4. Paint Selection_BOP_ABRPL
5. Vendor data requirement
6. ABRPL-44-Ts_LV Motors - Rev B-1- FLP
7. Misc specification
8. Deviation schedule
9. Mandatory spares
10. Approved vendor list
11. Qualification criteria & PTR
12. QAP
13. Reference P&ID

DEVIATION / CLARIFICATION STATEMENT

- 1) Deviations to the specifications / design if any to be furnished clause wise by vendors alongwith quotation . for purchaser's approval with statement of compliance except deviations.
- 2) Also submit clausewise list with reference to design codes specified for which specific purchase approval . if any is required as per codes
- 3) In case of conflict between this spec and the attachments or any other referenced document, vendor should get clarification in writing from the purchaser.

0	FIRST ISSUE	VSK	SC	AG / RO	27-09-2021
REV NO.	DESCRIPTION	MADE BY	CHKD BY	APPROVED BY	DATE

All revisions are marked in the right column by a number in bold & italics. The respective revision is also shown in bold & italics.