

LSTK-A PACKAGE : TANKAGE AND ASSOCIATED CIVIL, MECHANICAL, PIPING, ELECTRICAL, INSTRUMENTATION & FIRE FIGHTING WORKS **ADDENDUM 05**



ADDENDUM 05

<u>To</u>

MRPL Tender No. 3200000495 dated 26.03.2021

TENDER FOR: TANKAGE AND ASSOCIATED CIVIL, MECHANICAL, PIPING, ELECTRICAL, INSTRUMENTATION & FIRE FIGHTING WORKS

(LSTK-A PACKAGE) MRPL MARKETING TERMINAL PROJECT

AT DEVANGONTHI, BANGALOREMARKETING INFRASTRUCTURE PROJECTS, MRPL

With reference to the above tender and subsequent Addendum 1, Addendum 2, Addendum 3 and Addendum 4 Bidders are requested to note the following:

The items, conditions, specification and stipulations of the Bidding Documents are modified to the extent indicated as follows

a. Annexure 01 – Technical Addendum.

The implications of the same, elsewhere in the tender shall be taken care of appropriately by the bidders. All other terms and conditions, stipulations and specifications of tender shall remain unaltered.

Note:

Bidders shall upload the copy of these documents along with the technical- commercial bid, **<u>Digitally Signed</u>**, as a token of having read and understood the same.



LSTK-A PACKAGE: TANKAGE AND ASSOCIATED CIVIL, MECHANICAL, PIPING, ELECTRICAL, INSTRUMENTATION & FIRE FIGHTING WORKS ADDENDUM 05



ANNEXURE 01 -TECHNICAL ADDENDUM

Sl. No.	Volume	Section No./Clause No.	Page No.	Existing Tender Clause	Addition / Deletion / Modification
1.	Volume II, Technical Section Part 28	C.3.51	3184- 3187 of 3638	20005-GEN-M-DS- 4036-1 Rev 0	Modification Replaced with Rev 1. 20005-GEN-M-DS-4036-1 Rev01
2.	Volume II, Technical Section Part 28	C.3.52	3188- 3191 of 3638	20005-GEN-M-DS- 4036-2 Rev 0	Modification Replaced with Rev 1. 20005-GEN-M-DS-4036-2 Rev01
3.	Volume II, Technical Section Part 30	D.38	3267 of 3638	20005-GEN-P-PID-1005 Rev 2.	Modification Replaced with Rev. 1 20005-GEN-P-PID-1005 Rev 3.
4.	Volume II, Technical Section Part 28	C.3.25	3022 to 3029 of 3638	20005-GEN-P-SPE-1001 Rev0	Modification Replaced with Rev.1 20005-GEN-P-SPE-1001 Rev 1.
5.	Volume_II_T echnical_Sect ion_Part_1	Part II – Technical Part,/ Part B MARKETING TERMINAL DESIGN BASIS / 3.19.1	1093 f 3638	Coalescer & separator (1W+1S) Filters with micron filters are to be provided	Modification Coalescer & separator (2W+1S) Filters with micron filters are to be provided
6.	Volume_II_T echnical_Sect ion_Part_1	Part II – Technical Part,/ Part B MARKETING TERMINAL DESIGN BASIS / 3.20.1.	1093 f 3638	Coalescer & separator filter package with Micron filter (1W +1SB) to be provided on 14" ATF`receipt pipeline in PLT Manifold to ATF storage tanks.	Modification Coalescer & separator filter package with Micron filter (2W +1SB) to be provided on 14" ATF receipt pipeline in PLT Manifold to ATF storage tanks.



LSTK-A PACKAGE : TANKAGE AND ASSOCIATED CIVIL, MECHANICAL, PIPING, ELECTRICAL, INSTRUMENTATION & FIRE FIGHTING WORKS



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Sl. No.	Volume	Section No./Clause No.	Page No.	Existing Tender Clause	Addition / Deletion / Modification
7.	Volume_II_T echnical_Sect ion_Part_1	Part II – Technical Part,/ Part B MARKETING TERMINAL DESIGN BASIS /6.12.1	1110 of 3638	Coalescer & separator filters along with Micro filters (1W+1S) to be provided	Coalescer & separator filters along with Micro filters (2W+1S) to be provided.
8.	Volume_II_T echnical_Sect ion_Part_1	Part II – Technical Part,/ Part B MARKETING TERMINAL DESIGN BASIS /7.5.1.	1218 of 3638	For removal of dirt and water, Coalescer & Separator Filters (1W+1S) along with micron filters to be provided on 1) Common receipt header to ATF tanks 2) Common ATF delivery pipeline to truck loading bays.	Modification For removal of dirt and water, Coalescer & Separator Filters along with micron filters to be provided on i) Receipt header to ATF tanks, 2 working+1 standby. ii) ATF delivery pipeline to truck loading bays, 1 working+1 standby.
9.	Volume_II_T echnical_Sect ion_Part_1	Part II – Technical Part,/ Part B MARKETING TERMINAL DESIGN BASIS /7.5.4.	1218 of 3638	Coalescer & separator filter package units shall be designed as per API-1581 Category C Type S and shall meet the DGCA/OISD requirement for supply of ATF to civil aviation.	Modification Coalescer & Separator filter package units shall be designed as per EI-1581 Category C Type S and shall meet the DGCA/OISD requirement for supply of ATF to civil aviation. The Coalescer Separator filter package units shall also comply with EI-1582 and EI-1596. The micron filter units shall be designed as per EI-1590.
10.	Volume_II_T echnical_Sect ion_Part_1	Part II – Technical Part, PACKAGE SCOPE OF WORK / 16. 16. SCOPE OF WORK FOR MECHANICAL (TANK,	1386 of 3638	For removal of dirt and water, Coalescer & Separator Filters (1W+1S) along with	Modification



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Sl. No.	Volume	Section No./Clause No.	Page No.	Existing Tender Clause	Addition / Deletion / Modification
		PACKAGE AND PUMPS)/16.2.4.3.1		micron filters to be provided on 1) Common receipt header to ATF tanks 2) Common ATF delivery pipeline to truck loading bays.	For removal of dirt and water, Coalescer & Separator Filters along with micron filters to be provided on iii) Receipt header to ATF tanks, 2 working+1 standby. iv) ATF delivery pipeline to truck loading bays, 1 working+1 standby.
11.	Volume_II_T echnical_Sect ion_Part_1	Part II – Technical Part, PACKAGE SCOPE OF WORK / 16. 16. SCOPE OF WORK FOR MECHANICAL (TANK, PACKAGE AND PUMPS)/16.2.4.3.1	1387 of 3638	Coalescer & Separator filter package units shall be designed as per API-1581 Category C Type S and shall meet the DGCA/OISD requirement for supply of ATF to civil aviation.	Modification Coalescer & Separator filter package units shall be designed as per EI-1581 Category C Type S and shall meet the DGCA/OISD requirement for supply of ATF to civil aviation. The Coalescer Separator filter package units shall also comply with EI-1582 and EI-1596. The micron filter units shall be designed as per EI-1590.
12.	Volume_II_T echnical_Sect ion_Part_1	Part II – Technical Part, PACKAGE SCOPE OF WORK / 14. APPLICABLE CODES, STANDARDS AND SPECIFICATIONS	1354 of 3638	90. API-1581 - Specifications and qualification procedures for aviation jet fuel filter/separators	<u>Deleted</u>
13.	Volume_II_T echnical_Sect ion_Part_1	Part II – Technical Part, PACKAGE SCOPE OF WORK / 14. APPLICABLE CODES,	1357 of 3638	-	Addition EI -1581 - Specifications and qualification procedures for aviation jet fuel filter/separators.

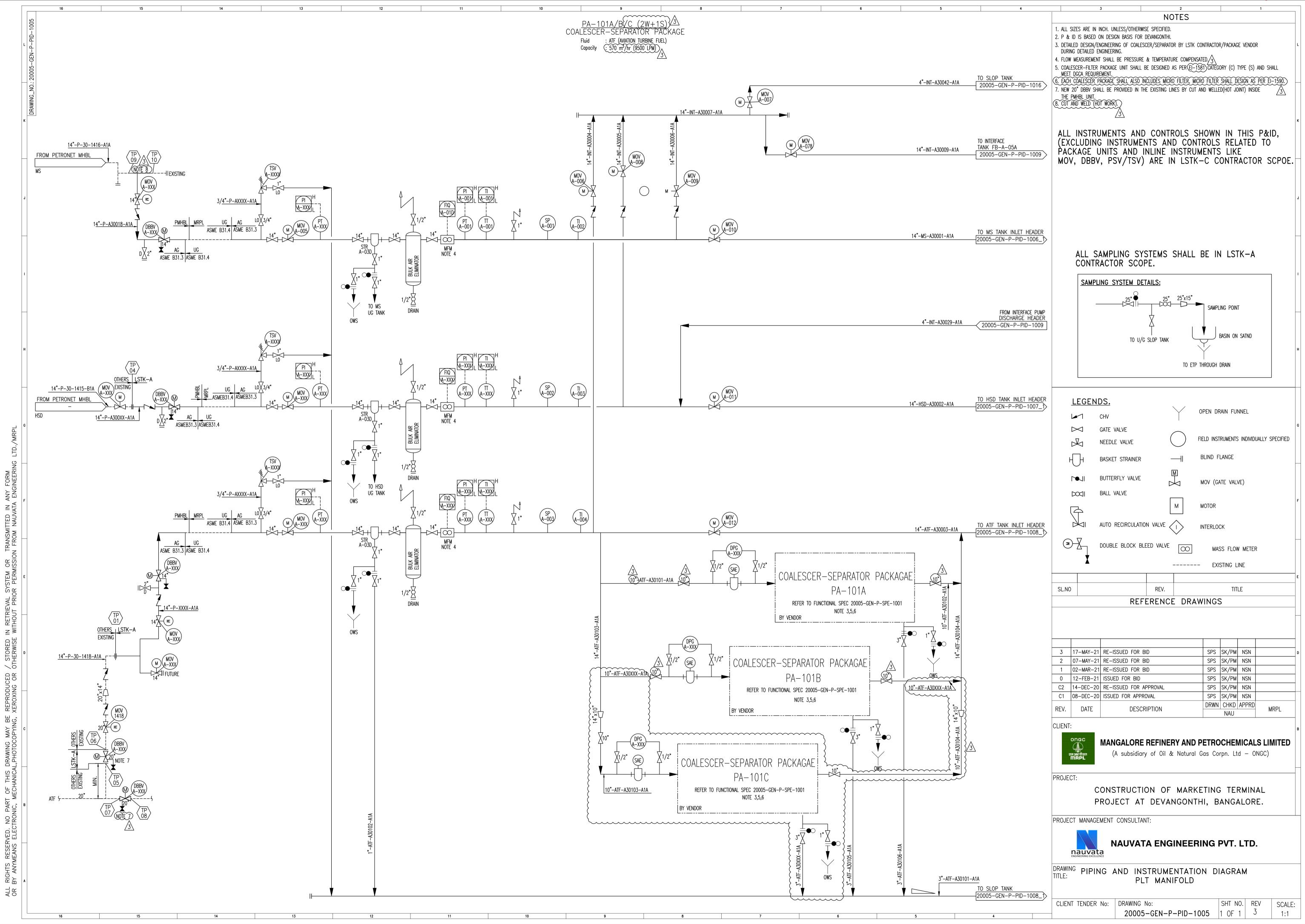


LSTK-A PACKAGE: TANKAGE AND ASSOCIATED CIVIL, MECHANICAL, PIPING, ELECTRICAL, INSTRUMENTATION & FIRE FIGHTING WORKS

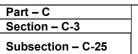


ADDENDUM 05

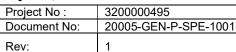
Sl. No.	Volume	Section No./Clause No.	Page No.	Existing Tender Clause	Addition / Deletion / Modification
		STANDARDS AND SPECIFICATIONS			EI-1582 - Specification for similarity for EI 1581 aviation jet fuel filter/water separators. EI-1596 - Design and construction of aviation fuel filter vessels. EI-1590 - Specifications and qualification procedures for aviation filter fuel microfilters.







FUNCTIONAL SPECIFICATION-COALESCER SEPERATOR FILTER PACAKGE





C-3	SPECIFICATIONS AND DATASHEETS
C-25	FUNCTIONAL SPECIFICATION-COALESCER SEPERATOR FILTER
	PACAKGE

MRPL Marketing Terminal Project at Devangonthi, Bangalore

PROJECT: Marketing Infrastructure Projects, MRPL

OWNER: MANGALORE REFINERY AND PETROCHEMICALS LTD

PMC : Nauvata Engineering Pvt. Ltd.

JOB NO. : JBG20005

1	17-05-2021	Re-issued for Bid	SK	NSN	ASN
0	09-03-2021	Issued for Bid	SK	NSN	ASN
Rev. No.	Date	Description	Prepared By	Checked By	Approved By



Part – C	FUNCTIONAL
Section - C-3	SPECIFICATION-COALESCER
Cubaatian C 25	SEPERATOR FILTER
Subsection – C-25	PACAKGE

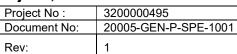


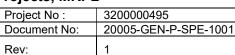


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Part – C	FUNCTIONAL
Section - C-3	SPECIFICATION-COALESCER
Subsection C 25	SEPERATOR FILTER
Subsection – C-25	PACAKGE





1. INTRODUCTION

This document describes the functional specification for the selection design, installation, commissioning and start-up of Coalescer-Separator filter packages PA-101A/B and PA-102A/B at MRPL Devangonthi Marketing terminal, Bengaluru

2. GENERAL

This Functional specification has been produced in order to specify the requirements for the design, Engineering, Manufacturing & supply of Coalescer-separator filter PACAKGE for ATF (Aviation Turbine fuel).

Contractor shall ensure the hydraulic and performance guarantee of the coalescerseparator filter package. If required Bidder to make necessary design changes to achieve performance guarantees without any additional cost and time implication to Owner.

Notwithstanding that this document sets out the specification for coalescer—separator filter package and is the CLIENT's preferred solution, its use does not absolve CONTRACTOR from any responsibility for the design, manufacture and supply, neither does its existence constrain the Equipment/Package VENDOR from using alternatives, provided such alternatives can be demonstrated to provide a result of equal safety, quality and cost effectiveness.

It is not the intention of this document to completely specify all details required during design engineering, manufacture and construction. Nevertheless, the equipment supplied shall conform to the highest standards in a manner acceptable to Owner/PMC.

2.1 GENERAL REQUIREMENTS

2.1.1 Environmental conditions

The complete package equipment shall be designed for outdoor installation. Items shall be unaffected by frost, tropical rain and high humidity and shall be suitable for the ambient temperatures stated in the data sheets.

2.1.2 Design pedigree

Only standard designs in current production, with a proven history of reliable operation in ATF fuels / hydrocarbon service should be offered. Prototype or unproven designs will not be considered.

2.1.3 Preservation

The complete package shall be prepared for dispatch to site as follows:

All openings to atmosphere shall be closed by means of flanges or plugs securely bolted or screwed in place oil filled compartments or equipment shall be emptied and a rust inhibitor applied suitable supports shall be provided for internal parts, which might become damaged in transit.

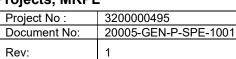
Any special requirements for the removal of preservative shall be clearly indicated on the equipment and repeated in the commissioning instructions.

2.1.4 Special tools and spare parts

The equipment manufacturer shall provide one set of commissioning spares and special tools, together with a list of recommended operating spares, for two-year period.



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3. SCOPE

3.1 APPLICATION

Coalescer-separator package used to remove dirt, particulate and water contamination from hydrocarbons. The separator is of a two-stage design, the first set of elements coalesce water droplets in the fuel, whilst the second removes particulate matter.

3.2 SCOPE OF SUPPLY

The filter water separator manufacturer's scope of supply shall include, but not be limited to, the following for each separator:

- Separator
- Set of coalescer and separator elements
- Differential pressure gauge
- Relief valve
- Automatic air vent
- Automatic water drain valve
- Inspection and testing
- Painting and preservation
- Documentation
- Special tools and spare parts.

3.3 DOCUMENTATION REQUIREMENTS

Proposal requirements:

- General arrangement drawing showing overall dimensions, weights, location, type and size of all termination points; foundation requirements and element removal distances
- Completed data sheets
- Cross-sectional drawing showing internal layout of all elements and flow paths.

'As-installed' requirements:

- All of the documentation submitted at the time of the proposal but revised to indicate a true record of the equipment supplied
- Relief valve test certification
- Differential pressure gauge calibration certificate
- Hydrostatic test certification
- Installation and commissioning procedures
- Operation and maintenance manuals.

3.4 PRESSURE CONTAINMENT

Coalescer-separator filter packages pressure vessels shall be designed and constructed to meet the specification ASME section VIII, Div. 1.

The design pressure and temperature shall be as defined on the data sheet.

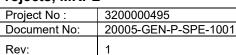
Any element or part of the vessel, which will be subjected to differential pressure due to normal flow of fuel, shall be capable of being tested at twice the differential pressure without any damage.

3.5 FLANGE TERMINATIONS

All termination flanges shall be in accordance with ASME 16.5 (up to 24") and as per ASME B16.47 (Above 24") for Steel Flanges. Flanges shall be Class 150 unless otherwise stated on the data sheet. Bolt holes shall straddle centerlines.



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3.6 AUXILIARY PIPING

Auxiliary piping, pipe fittings and valves shall be in accordance with Project specific PMS and VMS (Refer to documents 20005-GEN-L-SPE-31001 and 20005-GEN-L-SPE-31002)

AUXILIARY EQUIPMENT

The coalescer- separator shall be fitted with the following:

- Automatic air vent.
- Pressure relief valve
- Differential pressure gauge
- An armored sight glass shall be installed on the sump to observe the level of water accumulation. The sight glass shall extend to; as close as possible to or below the bottom of the sump and shall contain a colored density sensitive ball that floats on water and sinks in fuel. The sight glass shall be equipped with stainless steel isolation valves and a bottom drain cock.
- Inlet and outlet sample points
- Manual drain valve
- An automatic drain valve
- Differential pressure-sensing instrument shall be fitted, which shall be capable of providing an audible and visual alarm in the control room. The instrument shall be certified for the hazardous area classification, gas grouping and environmental protection as defined on the data sheet.

3.8 ACCESS

The equipment design shall allow access for the inspection of all interior surfaces when opened for maintenance purposes.

MATERIALS OF CONSTRUCTION

Materials in contact with the fuel shall not be affected by the fuel, by water, or by water containing soluble fuel additives nor shall the materials have any effect upon the fuel. Metals and alloys that are fuel wetted shall be corrosion resistant or protected by a coating system in accordance with DGCA requirements about Internal Coating of Aviation Fuel Tanks. Dissimilar metals that will initiate and promote corrosion, if in contact, shall not be allowed. Copper, copper alloys, light metal alloys containing more than 4% copper, zinc or zinc alloys, cadmium, lead and lead alloys shall not be used in components exposed to the fuel.

4. DESIGN DATA

4.1 Design pressure and design temperature

Design Pressure: 10 kg/cm2g Design Temperature: 65 Deg C

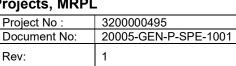
Allowable pressure Drop: Not more than 0.3 kg/cm2 for filter water separator and Not more than 0.2 kg/cm2 for micro filter

4.2 Number of Package units

3 sets (2W+1S) package units are to be provided on ATF receipt line and 02 sets (1W+1S) on ATF delivery pipeline for removal of water and dirt. Each package unit shall have micro filter and filter water separator.



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Subsection C.25	SEPERATOR FILTER
Subsection - C-25	PACAKGE





4.2.1 Package units PA-101A/101B for ATF product on Receipt line

Coalescer-separator-filter package units PA-101A/B/C (2W+1S) with design flow rate of 570 m3/h (9500 LPM) shall be provided on the ATF receipt pipeline in PLT Manifold to ATF storage tanks.

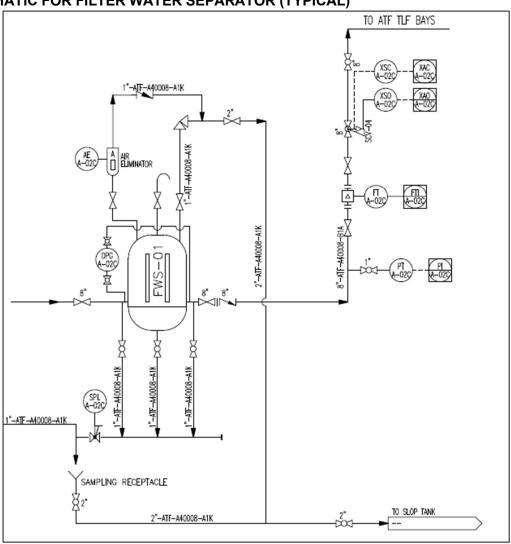
As a minimum the each coalescer separator filter package will have separate equipment for Micro filter and filtered water separator (FWS). Each filtered water separator (FWS) and Micro filter shall have PSVs, associated instruments and piping.

4.2.2 Package Units PA-102A/102B for ATF product on delivery line

Coalescer-separator-filter package units PA-102A/B (1W+1S) with design flow rate of 360 m3/h shall be provided on the 10" ATF delivery line from TLF pumps discharge header to truck loading bays.

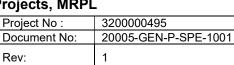
As a minimum the each coalescer separator filter package will have separate equipment for Micro filter and filtered water separator (FWS). Each filtered water separator (FWS) and Micro filter shall have PSVs, associated instruments and piping.

5. SCHEMATIC FOR FILTER WATER SEPARATOR (TYPICAL)





Part – C	FUNCTIONAL
Section - C-3	SPECIFICATION-COALESCER
Subsection C 25	SEPERATOR FILTER
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The pipe size indicated in the schematic are for Filter Water separators for the packages PA-102A/B and are tentative and minimum. LSTK contractor/package vendor shall be responsible for piping and equipment sizing for FWS and Micro filter based on the design flow rates and allowable pressure drop specified for each Coalescer-separator-filter package units PA-101A/B/C and PA-102A/B.

6. CODES & STANDARDS

The Micro Filter (MF) shall be designed as per EI-1590 and Filter Water separator (FWS) shall be designed as per EI-1581 Category C Type S and shall meet the DGCA/OISD requirement for supply of ATF to civil aviation.

7. ABBREVIATION AND DEFINATION

7.1 ABBREVIATION

MRPL	Mangalore Refinery & Petrochemical Limited
ESD	Emergency Shut Down
OISD	Oil Industry Safety Directorate
DGCA	Directorate General of Civil Aviation
NFPA	National Fire Protection Association
DCP	Dry chemical Powder
AFFF	Aqueous Film forming foam
BIS	Bureau of Indian standards
QBD	Quartzoid Bulb Detectors
TAC	Tariff Advisory Committee
FZ	Fire zone
PMHBL	Petronet Mangalore-Hassan-Bangalore Ltd
IOCL	Indian Oil Corporation limited
OWS	Oily water Sever
MS	Motor Spirit (Gasoline)
HSD	High Speed Diesel
ATF	Aviation Turbine Fuel
MOV	Motor Operated Valve
ROSOV	Remote Operated Shut-Off Valve
FWS	Filter water separator

6.2. DEFINITION

The CLIENT / COMPANY / OWNER where used in this specification shall mean the ultimate user / owner of the plant and facilities.

The LSTK CONTRACTOR / PURCHASER where used in this specification shall mean the party, who undertake LSTK / EPC contract for the above project.

The VENDOR / SUPPLIER where used in this specification shall mean the party, who manufactures or supplies the equipment and services specified.

The INSPECTOR / TPIA / TPI where used in this specification shall mean the PURCHASER / COMPANY or their authorized Third Party Agency for carrying out the inspection.

The PMC where used in this specification shall mean the party, who perform Project



		<u> </u>	
Part – C	FUNCTIONAL	Project No :	3200000495
Section - C-3	SPECIFICATION-COALESCER	Document No:	20005-GEN-P-SPE-1001
Subsection - C-25	SEPERATOR FILTER PACAKGE	Rev:	1



Management for COMPANY.

COMPANY / OWNER: Mangalore Refinery & Petrochemical Limited (MRPL)

SUBCONTRACTOR The party(s) which carry(s) out all or part of the design, procurement, installation and testing of the system(s) as specified by the CONTRACTOR

SHALL The word indicates a mandatory requirement

8. DOCUMENT PRECEDENCE

In case of conflict, the order of precedence in general shall be as follows:

- Local Authority and Statutory Regulations.
- MRPL Project Philosophies & Specifications for Devangonthi Project.
- MRPL General Specifications.
- International Codes & Standards.

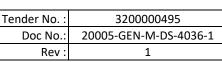
However, in case of conflict, it shall be referred to COMPANY for clarifications and the decision of COMPANY shall be final and binding on



MRPL Marketing Terminal Project at Devangonthi, Bangalore

Marketing Infrastructure Projects, MRPL

Part – C	DATASHEET FOR
Section – C-3	COALESCER & SEPARATOR
Subsection – C-3.51	PACKAGE -1





C-3	SPECIFICATION AND DATASHEETS
C-3.51.	DATASHEET FOR COALESCER & SEPARATOR PACKAGE
	-1

MRPL Marketing Terminal Project at Devangonthi, Bangalore

PROJECT: Marketing Infrastructure Projects, MRPL

OWNER : MANGALORE REFINERY AND PETROCHEMICALS LTD

PMC : Nauvata Engineering Pvt. Ltd.

JOB NO. : JBG20005

1	17-05-2021	RE-ISSUED FOR BID	YG	KSH	KSH
0	09-03-2021	ISSUED FOR BID	YG	KSH	KSH
C1	18-01-2021	ISSUED FOR REVIEW/COMMENTS	YG	KSH	ASN
Rev No.	Date	Description	Prepared By	Checked by	Approved by

	DATASHEET FOR CO	ALESCER &	PAGE NO.: 1	×	
NAUVATA ENGINEERING	SEPARATOR PAGE	CKAGE -1	TENDER NO.: 3200000495	REVISION MARK	
PRIVATE LIMITED			SHT. 2 OF 7 REV. : 1	┨╴	
DOC.NO. : 20005-GEN-M-DS-4	1036-1	EQUP. NO.: FWS-101A/101B/101C QTY.: 3			
PROJECT : CONSTRUCTION OF	MARKETING TERMINAL PROJE	CT AT DEVANGONT	HI, BANGALORE.	∄ا	
1 TAG NO./ NO. OF UNITS		PA-101A/101B/1010	3 UINTS (2W+1S)	72	
2 TYPE / SERVICE			,		
3	OPERATING CO				
4 FLUID / GAS HANDLED		ATF (Aviation Turbin	ne Fuel)	+	
5 FLUID / GAS COMPOSITION	NT/DATOU)	CONTINUOUS		╁	
6 DUTY (CONTINUOUS/INTRERMITTE 7 INLET GAS/VAPOUR FLOW RATE (CONTINUOUS -		╁	
8 INLET LIQUID FLOW RATE (MIN./NO	,	-/570(9500 LPI	M)/-	1	
9 INLET GAS/VAPOUR DENSITY	kg/m³	-		1	
10 INLET LIQUID DENSITY	kg/m³	840		L	
11 INLET GAS/VAPOUR VISCOCITY	сР	-		╀	
12 INLET LIQUID VISCOCITY 13 GAS/VAPOUR MOL.WT.	cP kg/kg.mole	1.68		╁	
14 TURNDOWN RATIO	kg/kg.mole			╁	
15 OPERATING PRESSURE MAX. / NO	DR. kg/cm²g	- / 4 to 8		+	
16 OPERATING TEMPERATURE MAX.		- / 5 to 45		T	
17 ALLOW. PRESS. DROP ACROSS FI	LTER kg/cm²	NOT MORE THAN (0.3	1	
18 MAX. ALLOWABLE PRESSURE DR	OP ACROSS ELEMENT kg/cm ² g	*			
19 CORROSIVE DUE TO		-		4	
20 TOXIC DUE TO 21 FLAMMABLE/EXPLOSIVE		-			
22 SOLIDS IN FEED / MAX. PARTICLE	SIZE %wt/wt / microns	FLAMMABLE		+1-	
23 ALLOW. LIQUID ENTRAINMENT IN				╁	
24 PARTICALE SIZE TO BE REMOVED		> 1 microns		1	
25 FILTRATION EFFICIENCY	%			1	
26 WATER SEPERATION /REMOVAL		≤15ppm free water in ou	ıtlet	1	
27	DESIGN AND CON				
28 DESIGN CODE		ASME SEC VIII DIV. 1 8	& El-1581	1	
29 CODE STAMPING	1.7	-		╁	
30 DESIGN PRESSURE	kg/cm2g ° C	10		╁	
31 DESIGN TEMPERATURE		65 *		╁	
32 DESIGN DIFFERENTIAL PRESSURI 33 RADIOGRAPHY (SHELL/HEAD)	E DROP FOR ELEMENT Kg/cm g	AS PER CODE		╁	
34 JOINT EFFICIENCY (SHELL/HEAD)	%	AS PER CODE		1	
35 CORROSION ALLOWANCE	mm	3		_	
36 PWHT					
37 WIND DESIGN		AS PER CODE			
		AS PER CODE		ŧ	
38 EARTH QUAKE DESIGN		AS PER CODE IS 1893 (Part I) 2016: II,		‡ ‡	
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT		AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V		1	
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS	mm	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V		1	
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT	mm	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE	mm	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS		AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA	TION	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI	.TION ROOFING	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI 47 OVERALL DIMENSION (O.D.X HEIG	.TION ROOFING	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO *			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI 47 OVERALL DIMENSION (O.D.X HEIG 48 INSPECTION BY	TION ROOFING HT) mm	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI 47 OVERALL DIMENSION (O.D.X HEIG 48 INSPECTION BY 49 EMPTY WEIGHT	TION ROOFING HT) mm	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO *			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI 47 OVERALL DIMENSION (O.D.X HEIG 48 INSPECTION BY 49 EMPTY WEIGHT 50 OPERATING WEIGHT	TION ROOFING HT) mm kgs	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO *			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI 47 OVERALL DIMENSION (O.D.X HEIG 48 INSPECTION BY 49 EMPTY WEIGHT	TION ROOFING HT) mm	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO *			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI 47 OVERALL DIMENSION (O.D.X HEIG 48 INSPECTION BY 49 EMPTY WEIGHT 50 OPERATING WEIGHT	TION ROOFING HT) mm kgs	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO *			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI 47 OVERALL DIMENSION (O.D.X HEIG 48 INSPECTION BY 49 EMPTY WEIGHT 50 OPERATING WEIGHT	TION ROOFING HT) mm kgs	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO *			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI 47 OVERALL DIMENSION (O.D.X HEIG 48 INSPECTION BY 49 EMPTY WEIGHT 50 OPERATING WEIGHT	TION ROOFING HT) mm kgs	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO *			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI 47 OVERALL DIMENSION (O.D.X HEIG 48 INSPECTION BY 49 EMPTY WEIGHT 50 OPERATING WEIGHT	TION ROOFING HT) mm kgs	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO *			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI 47 OVERALL DIMENSION (O.D.X HEIG 48 INSPECTION BY 49 EMPTY WEIGHT 50 OPERATING WEIGHT	TION ROOFING HT) mm kgs	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO *			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI 47 OVERALL DIMENSION (O.D.X HEIG 48 INSPECTION BY 49 EMPTY WEIGHT 50 OPERATING WEIGHT	TION ROOFING HT) mm kgs	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO *			
38 EARTH QUAKE DESIGN 39 TYPE OF SUPPORT 40 INSULATION THICKNESS 41 QUICK OPENING CLOSURE 42 PROVIDE 43 LIFTING LUGS 44 EARTHING CLEATS 45 SUPPORTS FOR INSULA 46 SUPPORTS FOR FIRE PI 47 OVERALL DIMENSION (O.D.X HEIG 48 INSPECTION BY 49 EMPTY WEIGHT 50 OPERATING WEIGHT	TION ROOFING HT) mm kgs	AS PER CODE IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO *			

_		DATACHET FOR CO.	N FOOED 0	DAGE NO. 4	-
	NAUVATA ENGINEERING	DATASHEET FOR COA		PAGE NO.: 1	- X
	PRIVATE LIMITED	SEPARATOR PAC	KAGE -1	TENDER NO.: 3200000495	REVISION MARK
L				SHT. 3 OF 7 REV. : 1	- 18
	OC.NO.: 20005-GEN-M-DS-4 OJECT: CONSTRUCTION OF I			'S-101A/101B/101C QTY.: 3	⊣ §
\vdash	OJECT : CONSTRUCTION OF			HI, BANGALORE.	ᆌ
1		SUPPLIER DI	E I AILS		╀
-	MAKE		*		╀
-	MODEL DESIGN FLOW	m³/hr	*		╁
\vdash	DESIGN FLUX RATE	m³/m²/hr	*		+
-	FILTERATION AREA	m²	*		╁
7		FILTERING ELEME	NT DETAILS		1
8	FILTERING ELEMENT TYPE		AS PER CODE EI-1581	1	T
9	NO. OF ELEMENTS		*		
-	ELMENT DIMENSION (O.D X I.D X L	.) mm	*		_
-	DIRECTION OF FLOW		*		4
-	ELEMENT FIXING DETAILS	3n	*		+
H	RECOMMENDED FLOW RATE PER I	ELEMENT m³/hr.	*		+
-	EXPECTED LIFE OF ELEMENT DIRT HOLDING CAPACITY		*		+
-	BURSTING PRESSURE	kg/cm ² g	*		+
			*		+
18		BACKWAS			十
_	MODE OF BACKWASH		N/A.		╁
_	BACKWASH MEDIUM		N/A.		I
21	BACK WASH FLOW RATE	m²/hr	N/A.		
-	INTERVAL BETWEEN TWO SUCCES		N/A.		_
-	DURATION OF BACKWASH APPROX				+
_	QTY. OF FLUID/GAS REQUIRED FOR PRESSURE OF BACKWASH FLUID /		N/A. N/A.		╁
26	TRESCORE OF BACKWASHT EOID?	Ng/ciii g	14/5.		╁
27		MATERIAL OF CONSTRU	JCTION (NOTE - 6)		1
28	HOUSING (SHELL / HEAD)		CS		1
29	FILTER ELEMENT		SS316		1
30	ELEMENT SUPPORTS		*		
31	FLANGES		* CS		
-	NOZZLES		* CS		
-	RF PADS		*		4
-	INTERNALS IF ANY		SS316		╄
-	STUDS / NUTS (EXTERNAL) BOLTS / NUTS (INTERNAL)		AS PER PMS AS PER PMS		+
	GASKET		AS PER PMS		╁
-	EXT. SUPPORTS & MISC. STRUCTU	RALS	*		1
39		INSPECTION &	TESTING		1
	HYDROTEST		AS PER CODE		I
\vdash	ANY OTHER REQUIREMENTS		AS PER CODE		Ţ
42		PAINTIN	IG		4
_	PAINTING STANDARD				\vdash
44 45	INTERNAL: SURFACE PREPA	RATION			-
46	PRIMER	INATI VII			\vdash
47	INTERMEDIATE				\vdash
48	FINISH				
49	TOTAL PAINT THI	CKNESS		Design Basis Surface Preparation And oating (20005-GEN-G-EDB-9122)	
50	EXTERNAL:		1 101001146 01		
51	SURFACE PREPA	RATION			-
52	PRIMER				\vdash
53 54	INTERMEDIATE FINISH				\vdash
55	TOTAL PAINT THI	CKNESS			\vdash
56	TOTAL FAINT THE				+
57					土
58					Ι
59 60					+
61					+
62					T

MARK

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DATASHEET FOR COALESCER & SEPARATOR PACKAGE -1

PAGE NO.: 1
TENDER NO.: 3200000495
SHT. 4 OF 7 REV.: 1

DOC.NO.: **20005-GEN-M-DS-4036-1** . **EQUP. NO.**: FWS-101A/101B/101C **QTY.**: 3

PROJECT: CONSTRUCTION OF MARKETING TERMINAL PROJECT AT DEVANGONTHI, BANGALORE.

												œ
I	NOZZLE DATA											
I	MARK	QTY.	SIZE	SCH./		FL	ANGE	R.F.	PAD	PROJ. FROM	SERVICE/REMARKS	
I				THK.	RATING	TYPE	FACING	O/D.	THK.	CENT. LINE		
I	*	*	*	*	*	*	*	*	*	*	*	

GENERAL NOTES:

- 1 ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED.
- 2 VENDOR TO FILL THE DATAS WHEREEVER MARKED " * '
- 3 COALESCER-SEPARATOR FILTER PACKAGESHALL COMPLY WITH THE PROJECT SCOPE OF WORK, DESIGN BASIS, SPECIFICATIONS ATTACHED ELSE WHERE IN THE BID. CONTRACTOR TO INDICATE THE RELEVANT DOCUMENTS DURING DETAIL ENGINEERING.
- 4 ALL INTERNALS SHALL BE SECTIONALISED FOR INSTALLATION AND REMOVAL THROUGH MANHOLE / TOP COVER.
- 5 OPERATING CONDITIONS INDICATED ARE PRELIMINARY AND TO BE VERIFIED AND UPDATED BY CONTRACTOR DURING DETAIL ENGINEERING.
- 6 MATERIALS INDICATED ARE PRELIMINARY AND CONTRACTOR TO VERIFY AND PREPARE MATERIAL SELECTION CHART AND SUBMIT FOR PMC APPROVAL.
- 7 THE COALESCER-SEPARATOR FILTER PACKAGE UNITS SHALL BE DESIGNED AS PER EI-1581 CATEGORY C TYPE S AND SHALL MEET THE DGCA/OISD REQUIREMENT FOR SUPPLY OF ATF TO CIVIL AVIATION.
- 8 CONTRACTOR TO SUBMIT INSPECTION TEST PLAN DURING DETAIL ENGINEERING FOR PMC APPROVAL.
- 9 NOZZLES DATA SHALL BE FILLED BY VENDOR & VENDOR TO DECIDE BASED ON PROCESS PERFORMANCE.
- 10 COALESCER-SEPARATOR FILTER'S PRESSURE VESSEL SHALL BE DESIGNED AND CONSTRUCTED TO MEET THE SPECIFICATION ASME SECTION VIII, DIV. 1.(LATEST EDITION)
- 11 VENDOR SHALL PROVIDE ALLOWABLE NOZZLELOADS DURING DETAIL ENGG.
- 12 VENDOR SHALL FURNISH THE PRESSURE DROP CALCULATIONS FOR PMC REVIEW AND APPROVAL
- 13 THIS DATASHEET SHALL BE READ IN CONJUCTION WITH FUNCTIONAL SPECIFICATION FOR COALESCER-SEPERATOR PACKAGE (20005-GENP-SPE-1001) AND ENGINEERING DESIGN BASIS FOR STATIC EQUIPMENTS (20005-GEN-M-EDB-4002).
- 14 THE COALESCER-SEPARATOR FILTER PACKAGE UNITS SHALL ALSO COMPLY WITH EI-1582 & EI-1596.
- 15 BIDDER MUST SUBMIT BACK-UP AUTHORIZATION LETTER FROM LICENSOR FOR FILTER COALESCER SEPARATOR.
- 16 MICRON FILTER SHALL BE PROVIDED UPSTREAM OF COALSCER FILTER WATER SEPARATOR, REFER PAGE 5 TO 7 OF 7 OF THIS DATA SHEET FOR MICRON FILTER TECHNICAL DETAILS.
- 17 COALESCER-SEPARATOR FILTER VESSEL SHALL BE PROVIDED WITH MANUAL DRAIN.
- 18 COALESCER-SEPARATOR AND MICRON FILTER PACKAGE TAG NO. (PA-101A/101B/101C)

	NAUVATA ENGINEERING	DATASHEET FOR MICRO	ON FILTER FOR	PAGE NO.: 1		1	
	NAUVATA ENGINEERING	COALESCER & SEPARAT	OR PACKAGE -1	TENDER NO.: 3200000495			
	PRIVATE LIMITED	OOALLOOLK & OLI AKAI	OKTAONAOL T	SHT. 5 OF 7	REV. : 1		
DC	C.NO. : 20005-GEN-M-DS-4	1036-1	EQUP. NO.: MF	-101A/101B/101C	QTY. : 3	٦	
	OJECT : CONSTRUCTION OF					1	
	TAG NO./ NO. OF UNITS		PA-101A/101B/2 UII			4	
2	TYPE / SERVICE		17(1017(1015/2 011	1410 (144110)		+	
3		OPERATING CO	NDITIONS			┪	
-	FLUID / GAS HANDLED		ATF (Aviation Turbir	ne Fuel)		7	
5	FLUID / GAS COMPOSITION		,	,		T	
6	DUTY (CONTINUOUS/INTRERMITTE	ENT/BATCH)	CONTINUOUS				
	INLET GAS/VAPOUR FLOW RATE (<u> </u>	-				
	INLET LIQUID FLOW RATE (MIN./No	· · · · · · · · · · · · · · · · · · ·	,	'M)/-			
	INLET GAS/VAPOUR DENSITY INLET LIQUID DENSITY	kg/m³				4	
	INLET CIQUID DENSITY INLET GAS/VAPOUR VISCOCITY	kg/m³ cP				-	
	INLET LIQUID VISCOCITY	cP				+	
	GAS/VAPOUR MOL.WT.	kg/kg.mole				7	
14	TURNDOWN RATIO					J	
15	OPERATING PRESSURE MAX./NO					J	
_	OPERATING TEMPERATURE MAX.		, , , , , ,				
17	ALLOW. PRESS. DROP ACROSS FI		NOT MORE THAN	0.2			
	MAX. ALLOWABLE PRESSURE DR	OP ACROSS ELEMENT kg/cm ² g	*			4	
	CORROSIVE DUE TO		-			_	
	TOXIC DUE TO FLAMMABLE/EXPLOSIVE		FLAMMABLE			-	
	SOLIDS IN FEED / MAX. PARTICLE	SIZE %wt/wt / microns				-	
	ALLOW. LIQUID ENTRAINMENT IN					7	
24	PARTICALE SIZE TO BE REMOVED	microns	> 5 microns			٦	
	FILTRATION EFFICIENCY	%					
26	WATER SEPERATION /REMOVAL						
27		DESIGN AND CON					
	DESIGN CODE		ASME SEC VIII DIV. 1 /	El-1590		4	
	CODE STAMPING		-			4	
	DESIGN PRESSURE	kg/cm2g				4	
	DESIGN TEMPERATURE	° C				4	
	DESIGN DIFFERENTIAL PRESSURI RADIOGRAPHY (SHELL/HEAD)	E DROP FOR ELEMENT kg/cm ² g	AS PER CODE			4	
	JOINT EFFICIENCY (SHELL/HEAD)	%	AS PER CODE			-	
	CORROSION ALLOWANCE	mm				7	
	PWHT		AS PER CODE			7	
37	WIND DESIGN		AS PER CODE				
38	EARTH QUAKE DESIGN		IS 1893 (Part I) 2016: II,	Zone factor 0.1			
	TYPE OF SUPPORT		* LEG SUPPORTS (\)	/ERTICAL VESSEL)			
	INSULATION THICKNESS	mm				4	
	QUICK OPENING CLOSURE		YES, WITH DAVIT			4	
42	PROVIDE LIFTING LUGS		YES			\dashv	
44	EARTHING CLEATS		YES			\dashv	
45	SUPPORTS FOR INSULA	TION	NO			┪	
46	SUPPORTS FOR FIRE P	ROOFING	NO			J	
47	OVERALL DIMENSION (O.D.X HEIG	HT) mm					
48	INSPECTION BY		TPIA				
	EMPTY WEIGHT	kgs	*				
	OPERATING WEIGHT	kgs	*				
	HYDROTEST WEIGHT	kgs	*				
51						4	
51				<u> </u>		لـ	
51	T T			1 1			
51				- I		_	
51						_	
51						_	
51						_	
51						_ _ _	

					DAGE NO. 4	_
1	NAUVATA ENGINEERING	DATASHEET FO	OR MICRO	N FILTER FOR	PAGE NO.: 1	MARK
ı	PRIVATE LIMITED	COALESCER & S	SEPARATO	OR PACKAGE -1	TENDER NO.: 3200000495	_ ₹
L	0.110	1000 4			SHT. 6 OF 7 REV. : 1	اح اح
	OC.NO.: 20005-GEN-M-DS-4 ROJECT: CONSTRUCTION OF				F-101A/101B/101C QTY.: 3	− ĕ
_	OJECT : CONSTRUCTION OF				ITII, BANGALORE.	REVISION
1	14415	SUP	PPLIER DI	ETAILS I*		+
-	MAKE			*		╬
-	MODEL DESIGN FLOW		m³/hr	*		╁
-	DESIGN FLUX RATE		m³/m²/hr	*		+
<u> </u>	FILTERATION AREA		m ²	*		╅
7		FILTERIN	G ELEME	NT DETAILS		╅
8	FILTERING ELEMENT TYPE			AS PER CODE EI-159	0	Ī
9	NO. OF ELEMENTS			*		┸
_	ELMENT DIMENSION (O.D X I.D X I	L)	mm	*		┸
-	DIRECTION OF FLOW			*		╀
-	ELEMENT FIXING DETAILS	EI EMENT	311	*		+
_	RECOMMENDED FLOW RATE PER	ELEMENI	m³/hr.	*		+
-	DIRT HOLDING CAPACITY			*		+
-	BURSTING PRESSURE		kg/cm ² g	*		+
	ELEMENT CHANGE OUT PRESSUR	RE ΔP	kg/cm²			十
18			ACKWAS			十
	MODE OF BACKWASH			N/A.		十
	BACKWASH MEDIUM			N/A.		1
_	BACK WASH FLOW RATE		m²/hr			
-	INTERVAL BETWEEN TWO SUCCES		hr			4
_	DURATION OF BACKWASH APPRO		hr			+
_	QTY. OF FLUID/GAS REQUIRED FO PRESSURE OF BACKWASH FLUID		m²/hr kg/cm²g			╁
26	TREGORE OF BACKWACITY ESID	7 GAG	ng/om g	14/74		╅
27		MATERIAL OF	CONSTR	UCTION (NOTE-6)		1
28	HOUSING (SHELL / HEAD)			CS		1
29	FILTER ELEMENT			SS316		
30	ELEMENT SUPPORTS			*		
31	FLANGES			* CS		
-	NOZZLES			* CS		_
-	RF PADS			*		+
	INTERNALS IF ANY STUDS / NUTS (EXTERNAL)			SS316 AS PER PMS		╫
	BOLTS / NUTS (EXTERNAL)			AS PER PMS		╁
_	GASKET			AS PER PMS		╁
	EXT. SUPPORTS & MISC. STRUCTU	URALS		*		1
39		INSPE	CTION &	TESTING		1
	HYDROTEST			AS PER CODE		
_	ANY OTHER REQUIREMENTS			AS PER CODE		_
42			PAINTIN	IG		4
_	PAINTING STANDARD					<u> </u>
44 45	INTERNAL : SURFACE PREPA	ARATION		1		\vdash
46	PRIMER			1		\vdash
47	INTERMEDIATE			1		
48	FINISH			A-F	n Danisa Basis C. (
49	TOTAL PAINT TH	IICKNESS			g Design Basis Surface Preparation And Coating (20005-GEN-G-EDB-9122)	
50					3 ()	
51	SURFACE PREPA	AKATION				\vdash
	PRIMER					\vdash
52 53	INTERMEDIATE FINISH			1		\vdash
53				ł		\vdash
53 54		IICKNESS				
53	TOTAL PAINT TH	HICKNESS				
53 54 55 56 57		HICKNESS				\pm
53 54 55 56 57 58		HICKNESS				\pm
53 54 55 56 57 58 59		HICKNESS				#
53 54 55 56 57 58		HICKNESS				+

NAUVATA ENGINEERING PRIVATE LIMITED

DATASHEET FOR MICRON FILTER FOR **COALESCER & SEPARATOR PACKAGE -1**

PAGE NO.: TENDER NO.: 3200000495 **SHT.** 7 **OF** 7 **REV.:1** MF-101A/101B/101C **QTY.:** 3

MARK

DC	C.NO.	: 200	05-GE	EN-M-	DS-4036	6-1			EQUP. N	IO. : MF-10	1A/101B/101C	QTY .: 3	
PR	PROJECT: CONSTRUCTION OF MARKETING TERMINAL PROJECT AT DEVANGONTHI, BANGALORE.												
	NOZZLE DATA												
	MARK	QTY.	SIZE	SCH./		FLANGE			. PAD	PROJ. FROM	SERVICE/R	EMARKS	
				THK.	RATING	RATING TYPE FACING			THK.	CENT. LINE			
	*	*	*	*	*	*	*	*	*	*	*		

GENERAL NOTES:

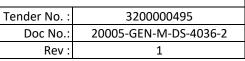
- 1 ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED.
- 2 VENDOR TO FILL THE DATAS WHEREEVER MARKED " * "
- 3 MICRON FILTER PACKAGESHALL COMPLY WITH THE PROJECT SCOPE OF WORK, DESIGN BASIS, SPECIFICATIONS ATTACHED ELSE WHERE IN THE BID. CONTRACTOR TO INDICATE THE RELEVANT DOCUMENTS DURING DETAIL ENGINEERING.
- 4 ALL INTERNALS SHALL BE SECTIONALISED FOR INSTALLATION AND REMOVAL THROUGH MANHOLE / TOP COVER.
- 5 OPERATING CONDITIONS INDICATED ARE PRELIMINARY AND TO BE VERIFIED AND UPDATED BY CONTRACTOR DURING DETAIL ENGINEERING.
- 6 MATERIALS INDICATED ARE PRELIMINARY AND CONTRACTOR TO VERIFY AND PREPARE MATERIAL SELECTION CHART AND SUBMIT FOR PMC APPROVAL .
- 7 THE MICRON FILTER UNITS SHALL BE DESIGNED AS PER EI-1590.
- 8 CONTRACTOR TO SUBMIT INSPECTION TEST PLAN DURING DETAIL ENGINEERING FOR PMC APPROVAL.
- 9 NOZZLES DATA SHALL BE FILLED BY VENDOR & VENDOR TO DECIDE BASED ON PROCESS PERFORMANCE.
- 10 MICRON FILTER'S PRESSURE VESSEL SHALL BE DESIGNED AND CONSTRUCTED TO MEET THE SPECIFICATION ASME SECTION VIII, DIV. 1.(LATEST EDITION)
- 11 VENDOR SHALL PROVIDE ALLOWABLE NOZZLELOADS DURING DETAIL ENGG.
- 12 VENDOR SHALL FURNISH THE PRESSURE DROP CALCULATIONS FOR PMC REVIEW AND APPROVAL
- 13 THIS DATASHEET SHALL BE READ IN CONJUCTION WITH FUNCTIONAL SPECIFICATION FOR COALESCER-SEPERATOR PACKAGE (20005-GENP-SPE-1001) AND ENGINEERING DESIGN BASIS FOR STATIC EQUIPMENTS (20005-GEN-M-EDB-4002).
- 14 MICRON FILTER SHALL BE PROVIDED WITH MANUAL DRAIN VALVE.



MRPL Marketing Terminal Project at Devangonthi, Bangalore

Marketing Infrastructure Projects, MRPL

Part – C	DATASHEET FOR
Section – C-3	COALESCER & SEPARATOR
Subsection – C-3.52	PACKAGE -2





C-3	SPECIFICATION AND DATASHEETS
C 2 F2	DATASHEET FOR COALESCER & SEPARATOR PACKAGE -
C-3.52.	2

MRPL Marketing Terminal Project at Devangonthi, Bangalore

PROJECT: Marketing Infrastructure Projects, MRPL

OWNER : MANGALORE REFINERY AND PETROCHEMICALS LTD

PMC : Nauvata Engineering Pvt. Ltd.

JOB NO. : JBG20005

1	17-05-2021	17-05-2021 RE-ISSUED FOR BID		KSH	KSH
0	09-03-2021	ISSUED FOR BID	YG	KSH	KSH
C1	18-01-2021	ISSUED FOR REVIEW/COMMENTS	YG	KSH	ASN
Rev No.	Date	Description	Prepared by	Checked by	Approved by

NAUVATA ENGINEERING	DATASHEET FOR	CO	ALESCER &	PAGE NO.: 1		ž	
PRIVATE LIMITED	SEPARATOR	PAG	CKAGE -2	TENDER NO.: 3200000495			
TRIVATE CHANTED				SHT. 2 OF 7	REV.: 1	REVISION MARK	
DOC.NO. : 20005-GEN-M-DS-4				VS-102A/B	QTY. : 2	SIO	
PROJECT : CONSTRUCTION OF	MARKETING TERMINAL PI	ROJ	ECT AT DEVANGONT	HI, BANGALORE.		EVI	
1 TAG NO./ NO. OF UNITS			PA-102A/102B/2 UI	NTS (1W+1S)		R	
2 TYPE / SERVICE							
3	OPERATING	CO					
4 FLUID / GAS HANDLED			ATF (Aviation Turbin	ne Fuel)		-	
5 FLUID / GAS COMPOSITION	NIT/DATOUN		001711110110			╂	
6 DUTY (CONTINUOUS/INTRERMITTE 7 INLET GAS/VAPOUR FLOW RATE (I		m³/hr	CONTINUOUS			╂	
8 INLET LIQUID FLOW RATE (MIN./NO		m³/hr	-/360/360			+	
9 INLET GAS/VAPOUR DENSITY		cg/m³	-			1	
10 INLET LIQUID DENSITY	k	cg/m³	840				
11 INLET GAS/VAPOUR VISCOCITY		сР	-				
12 INLET LIQUID VISCOCITY		сР	1.68				
13 GAS/VAPOUR MOL.WT.	kg/kg.	mole	=			-	
14 TURNDOWN RATIO 15 OPERATING PRESSURE MAX. / NO	R kali	cm²g	3-5			╂	
16 OPERATING TEMPERATURE MAX.		° C	5-45			╂	
17 ALLOW, PRESS, DROP ACROSS FII		J/cm²	0.30			1	
18 MAX. ALLOWABLE PRESSURE DRO	-	cm²g	0.30 *			+	
19 CORROSIVE DUE TO	OF ACKUSS ELEMENT Kg/	un g	-			╁	
20 TOXIC DUE TO						╁	
21 FLAMMABLE/EXPLOSIVE			FLAMMABLE			1	
22 SOLIDS IN FEED / MAX. PARTICLE	SIZE %wt/wt / mic	rons				1	
23 ALLOW. LIQUID ENTRAINMENT IN \	/APOUR m	ıg/m³					
24 PARTICALE SIZE TO BE REMOVED	mic		> 1 microns			1	
25 FILTRATION EFFICIENCY		%	.45			1	
26 WATER SEPERATION /REMOVAL			≤15ppm free water in ou	itlet		1	
27	DESIGN AND (CON				4	
28 DESIGN CODE 29 CODE STAMPING			ASME SEC VIII DIV. 1 8 YES	& EI-1581		1	
	l /					+	
30 DESIGN PRESSURE	kg/c	cm2g ° C	10			+	
31 DESIGN TEMPERATURE	DROD FOR EL EMENT Ical	cm ² g	65 *			+	
32 DESIGN DIFFERENTIAL PRESSURE 33 RADIOGRAPHY (SHELL/HEAD)	DROP FOR ELEMENT Kg/	cm g	AS PER CODE			╂	
34 JOINT EFFICIENCY (SHELL/HEAD)		%	AS PER CODE			╁	
35 CORROSION ALLOWANCE		mm	0			1	
36 PWHT			AS PER CODE				
37 WIND DESIGN			AS PER CODE				
38 EARTH QUAKE DESIGN			IS 1893 (Part I) 2016: II,			_	
39 TYPE OF SUPPORT			* LEG SUPPORTS (V	(ERTICAL VESSEL)		1	
40 INSULATION THICKNESS		mm				-	
41 QUICK OPENING CLOSURE 42 PROVIDE			YES, WITH DAVIT			1	
42 PROVIDE 43 LIFTING LUGS			YES			╂	
44 EARTHING CLEATS			YES			╁	
45 SUPPORTS FOR INSULA	TION		NO			┪	
46 SUPPORTS FOR FIRE PR	OOFING		NO			I	
47 OVERALL DIMENSION (O.D.X HEIGI	HT)	mm	*				
48 INSPECTION BY			TPIA				
49 EMPTY WEIGHT		kgs	*				
50 OPERATING WEIGHT		kgs	*				
51 HYDROTEST WEIGHT		kgs	*				
<u> </u>					T	1	
 				+			
				- - - - - - - - - - 			
				 			
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				1 1 1		_	

	NALIVATA ENGINEEDING	DATASHEET FOR CO	ALESCER &	PAGE NO.: 1	PAGE NO.: 1			
1	NAUVATA ENGINEERING	SEPARATOR PAC	KAGE -2	TENDER NO.: 3200	0000495	REVISION MARK		
	PRIVATE LIMITED		- -	SHT. 3 OF 7	REV. : 1	†≧		
DC	C.NO. : 20005-GEN-M-DS-4	1036-2	EQUP. NO.: F	WS-102A/B	QTY .: 2	٦ġ		
	OJECT : CONSTRUCTION OF					∃≋		
1		SUPPLIER D				₹		
-	MAKE	OOT I EIER D	*			╁		
_	MODEL		*			╁		
-	DESIGN FLOW	m³/hr	*			╁		
-	DESIGN FLUX RATE	m³/m²/hr				╁		
-	FILTERATION AREA	m ²	*			╁		
7		FILTERING ELEME	NT DETAILS			╁		
8	FILTERING ELEMENT TYPE		AS PER CODE EI-15	581		1		
9	NO. OF ELEMENTS		*			T		
10	ELMENT DIMENSION (O.D X I.D X I	L) mm	*			Т		
11	DIRECTION OF FLOW		*			T		
12	ELEMENT FIXING DETAILS		*					
13	RECOMMENDED FLOW RATE PER	ELEMENT m ³ /hr.	*					
14	EXPECTED LIFE OF ELEMENT		*			Т		
15	DIRT HOLDING CAPACITY		*			T		
16	BURSTING PRESSURE	kg/cm²g	*			Т		
17	ELEMENT CHANGE OUT PRESSUR	E ΔP kg/cm²	*			Т		
18		BACKWAS	HING			T		
19	MODE OF BACKWASH		N/A.			T		
20	BACKWASH MEDIUM		N/A.			Т		
21	BACK WASH FLOW RATE	m²/hr	N/A.					
22	INTERVAL BETWEEN TWO SUCCES	SSIVE BACKWASHING hr	N/A.					
_	DURATION OF BACKWASH APPRO							
-	QTY. OF FLUID/GAS REQUIRED FO	7				┸		
25	PRESSURE OF BACKWASH FLUID	/ GAS kg/cm²g	N/A.			+		
26		MATERIAL OF CONCTRI	ICTION (NOTE	C \		+		
27		MATERIAL OF CONSTRI	`	0)		╀		
-	HOUSING (SHELL / HEAD)		CS			╀		
-	FILTER ELEMENT		SS316			╀		
-	ELEMENT SUPPORTS		* 00			╀		
-	FLANGES		* CS			╀		
-	NOZZLES RF PADS		* CS			╁		
	INTERNALS IF ANY		00040			╁		
-	STUDS / NUTS (EXTERNAL)		SS316					
	BOLTS / NUTS (INTERNAL)		AS PER PMS					
	GASKET		AS PER PMS AS PER PMS					
	EXT. SUPPORTS & MISC. STRUCTU	IRAI S	AS PER PMS *					
39	Extract Forter a miles. officer	INSPECTION &	TESTING			╅		
	HYDROTEST	וווטו בטווטוו ע	AS PER CODE			╁		
			AS PER CODE			╈		
42		PAINTIN				1		
	PAINTING STANDARD					T		
44	INTERNAL:		1					
45	SURFACE PREPA	ARATION]					
46	PRIMER							
47	INTERMEDIATE							
48	FINISH		Ac Por Engineeri	ing Design Basis Surface Pr	roparation And			
49	TOTAL PAINT TH	IICKNESS		Coating (20005-GEN-G-ED				
50	EXTERNAL :			3 (,	L		
51	SURFACE PREPA	ARATION				-		
52	PRIMER					H		
53	INTERMEDIATE		-			\vdash		
54	FINISH	HOLANEOO	-			\vdash		
55 56	TOTAL PAINT TH	IICKNESS				+		
57						+		
58						T		
59						1		
60								
61						Ţ		
			i e					

PROJECT : CONSTRUCTION OF MARKETING TERMINAL PROJECT AT DEVANGONTHI, BANGALORE. NOZZLE DATA		1VII/\V.	TAEN	ICINI	EDIN	G	D	ATASHEET FO	OR CO	ALESCE	PAGE NO.:	1			
SHT. 4 OF 7 REV.:1 DOC.NO.: 20005-GEN-M-DS-4036-2 EQUP. NO.: FWS-102A/B QTY.: 2 PROJECT: CONSTRUCTION OF MARKETING TERMINAL PROJECT AT DEVANGONTHI, BANGALORE. NOZZLE DATA							SEPARATOR PACKAGE -2 TENDER NO.: 3200000495						MARK		
PROJECT : CONSTRUCTION OF MARKETING TERMINAL PROJECT AT DEVANGONTHI, BANGALORE. NOZZLE DATA			•AIL	L								SHT. 4 OF 7		REV.: 1	
MARK														QTY. : 2	\neg 8
MARK QTY. SIZE SCH./ THK. FLANGE R.F. PAD PROJ. FROM SERVICE/REMARKS *	PR	OJECT	: CON	ISTRU	CTION	OF MAI	RKETIN	G TERMINAL PRO	OJECT A	T DEVANO	GONTHI, BANG	GALORE.			
MARK QTY. SIZE SCH./ THK. FLANGE R.F. PAD PROJ. FROM SERVICE/REMARKS *															REVISION
THK. RATING TYPE									NOZZL	E DATA					7
* * * * * * * * * * * * * * *	MARK QTY. SIZE SCH./						FLANGE			. PAD	PROJ. FROI	M S	SERVICE/REMARKS		
* * * * * * * * * *					THK.	RATING	TYPE	FACING	O/D.	THK.	CENT. LINE				
GENERAL NOTES :		*	*	*	*	*	*	*	*	*	*		*		
GENERAL NOTES :															
GENERAL NOTES :															_
GENERAL NOTES :															<u> </u>
GENERAL NOTES.	ΛE	NEDAL	NOT	EC.											⊢
	GE	INERAL	NOI	<u> </u>											
1 ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED.	1	ALL DIME	NSION	IS API	= INI mm	LINI ESS	OTHER	WISE SPECIFIED							
2 VENDOR TO FILL THE DATAS WHEREEVER MARKED " * "				-											

- ATTACHED ELSE WHERE IN THE BID. CONTRACTOR TO INDICATE THE RELEVANT DOCUMENTS DURING DETAIL ENGINEERING.
- 4 ALL INTERNALS SHALL BE SECTIONALISED FOR INSTALLATION AND REMOVAL THROUGH MANHOLE / TOP COVER.
 5 OPERATING CONDITIONS INDICATED ARE PRELIMINARY AND TO BE VERIFIED AND UPDATED BY CONTRACTOR DURING DETAIL ENGINEERING.
- 6 MATERIALS INDICATED ARE PRELIMINARY AND CONTRACTOR TO VERIFY AND PREPARE MATERIAL SELECTION CHART AND SUBMIT FOR PMC APPROVAL .
- 7 THE COALESCER-SEPARATOR FILTER PACKAGE UNITS SHALL BE DESIGNED AS PER EI-1581 CATEGORY C TYPE S AND SHALL MEET THE DGCA/OISD REQUIREMENT FOR SUPPLY OF ATF TO CIVIL AVIATION.
- 8 CONTRACTOR TO SUBMIT INSPECTION TEST PLAN DURING DETAIL ENGINEERING FOR PMC APPROVAL.
- 9 NOZZLES DATA SHALL BE FILLED BY VENDOR & VENDOR TO DECIDE BASED ON PROCESS PERFORMANCE.
- 10 COALESCER-SEPARATOR FILTER'S PRESSURE VESSEL SHALL BE DESIGNED AND CONSTRUCTED TO MEET THE SPECIFICATION ASME SECTION VIII, DIV. 1.(LATEST EDITION)
- 11 VENDOR SHALL PROVIDE ALLOWABLE NOZZLELOADS DURING DETAIL ENGG.
- 12 VENDOR SHALL FURNISH THE PRESSURE DROP CALCULATIONS FOR PMC REVIEW AND APPROVAL
- 13 THIS DATASHEET SHALL BE READ IN CONJUCTION WITH FUNCTIONAL SPECIFICATION FOR COALESCER-SEPERATOR PACKAGE (20005-GENP-SPE-1001) AND ENGINEERING DESIGN BASIS FOR STATIC EQUIPMENTS (20005-GEN-M-EDB-4002).
- 14 THE COALESCER-SEPARATOR FILTER PACKAGE UNITS SHALL ALSO COMPLY WITH EI-1582 & EI-1596.
- 15 BIDDER MUST SUBMIT BACK-UP AUTHORIZATION LETTER FROM LICENSOR FOR FILTER COALESCER SEPARATOR.
- 16 MICRON FILTER SHALL BE PROVIDED UPSTREAM OF COALSCER FILTER WATER SEPARATOR, REFER PAGE 5 TO 7 OF 7 OF THIS DATA SHEET FOR MICRON FILTER TECHNICAL DETAILS.
- 17 COALESCER-SEPARATOR FILTER VESSEL SHALL BE PROVIDED WITH MANUAL DRAIN.
- 18 COALESCER-SEPARATOR AND MICRON FILTER PACKAGE TAG NO. (PA-102A/102B)

1 1	MALIWATA ENGINEERING	DATASHEET FOR MICRO	ON FILTER FOR	PAGE NO.: 1				
1	NAUVATA ENGINEERING	COALESCER & SEPARAT	OR PACKAGE -2	TENDER NO.: 3200000495				
	PRIVATE LIMITED			SHT. 5 OF 7 REV.:1				
DO	C.NO. : 20005-GEN-M-DS-4	1036-2	EQUP. NO.: MF	-102A/B QTY. : 2				
	OJECT : CONSTRUCTION OF							
1	TAG NO./ NO. OF UNITS		PA-102A/102B/2 UIN	NTS (1W+1S)				
	TYPE / SERVICE			(1111)				
3		OPERATING CO	NDITIONS					
	FLUID / GAS HANDLED		ATF (Aviation Turbin	ne Fuel)				
-	FLUID / GAS COMPOSITION							
	DUTY (CONTINUOUS/INTRERMITTE		CONTINUOUS					
_	INLET GAS/VAPOUR FLOW RATE (INLET LIQUID FLOW RATE (MIN./N	,						
_	INLET GAS/VAPOUR DENSITY	kg/m³						
10	INLET LIQUID DENSITY	kg/m³						
_	INLET GAS/VAPOUR VISCOCITY	сР						
_	INLET LIQUID VISCOCITY	CP						
	GAS/VAPOUR MOL.WT. TURNDOWN RATIO	kg/kg.mole	-					
_	OPERATING PRESSURE MAX. / NO	OR. kg/cm²g	3-5					
-	OPERATING TEMPERATURE MAX.							
-	ALLOW. PRESS. DROP ACROSS FI			0.2				
18	MAX. ALLOWABLE PRESSURE DR	OP ACROSS ELEMENT kg/cm ² g	*					
	CORROSIVE DUE TO		-					
	TOXIC DUE TO		-					
	FLAMMABLE/EXPLOSIVE SOLIDS IN FEED / MAX. PARTICLE	SIZE %wt/wt / microns	FLAMMABLE					
_	ALLOW. LIQUID ENTRAINMENT IN							
_	PARTICALE SIZE TO BE REMOVED		> 5 microns					
25	FILTRATION EFFICIENCY	%						
26	WATER SEPERATION /REMOVAL							
27		DESIGN AND CON						
_	DESIGN CODE		ASME SEC VIII DIV. 1					
-+	CODE STAMPING	1.7	YES					
-	DESIGN PRESSURE	kg/cm2g						
-+	DESIGN TEMPERATURE	° C E DROP FOR ELEMENT kg/cm²g						
_	DESIGN DIFFERENTIAL PRESSURI RADIOGRAPHY (SHELL/HEAD)	E DROP FOR ELEMENT REJUIN 9	AS PER CODE					
	JOINT EFFICIENCY (SHELL/HEAD)	%	AS PER CODE					
_	CORROSION ALLOWANCE	mm						
	PWHT		AS PER CODE					
	WIND DESIGN		AS PER CODE					
				7 () 0 1				
38 I	EARTH QUAKE DESIGN		IS 1893 (Part I) 2016: II,					
38 I	TYPE OF SUPPORT	mm	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V					
38 I 39 ⁻ 40 I	TYPE OF SUPPORT INSULATION THICKNESS	mm	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V					
38 39 40 41	TYPE OF SUPPORT	mm	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V					
38 39 40 41	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS	mm	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES					
38 39 40 41 42 43 44	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS		IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES					
38 39 40 41 42 43 44 45	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA	TION	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO					
38 39 40 41 642 43 44 45 46	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA SUPPORTS FOR FIRE PI	TION ROOFING	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO					
38 39 40 41 42 43 44 45 46 47 6	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA SUPPORTS FOR FIRE PE	TION ROOFING	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO *					
38 39 40 41 6 42 43 44 45 46 47 6 48 1	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA SUPPORTS FOR FIRE PI	TION ROOFING HT) mm	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO * TPIA					
38 40 41 42 43 44 445 446 449	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA SUPPORTS FOR FIRE PI OVERALL DIMENSION (O.D.X HEIG INSPECTION BY	TION ROOFING HT) mm	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO * TPIA *					
38 40 40 41 42 43 44 45 46 48 49 550 6	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA SUPPORTS FOR FIRE PI OVERALL DIMENSION (O.D.X HEIG INSPECTION BY EMPTY WEIGHT	kTION ROOFING HT) mm kgs kgs	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO * TPIA *					
38 40 40 41 42 43 44 45 46 48 49 550 6	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA SUPPORTS FOR FIRE PI OVERALL DIMENSION (O.D.X HEIG INSPECTION BY EMPTY WEIGHT OPERATING WEIGHT	TION ROOFING HT) mm	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO * TPIA *					
38 40 40 41 42 43 44 45 46 48 49 550 6	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA SUPPORTS FOR FIRE PI OVERALL DIMENSION (O.D.X HEIG INSPECTION BY EMPTY WEIGHT OPERATING WEIGHT	kTION ROOFING HT) mm kgs kgs	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO * TPIA *					
38 40 40 41 42 43 44 45 46 48 49 550 6	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA SUPPORTS FOR FIRE PI OVERALL DIMENSION (O.D.X HEIG INSPECTION BY EMPTY WEIGHT OPERATING WEIGHT	kTION ROOFING HT) mm kgs kgs	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO * TPIA *					
38 40 40 41 42 43 44 45 46 48 49 550 6	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA SUPPORTS FOR FIRE PI OVERALL DIMENSION (O.D.X HEIG INSPECTION BY EMPTY WEIGHT OPERATING WEIGHT	kTION ROOFING HT) mm kgs kgs	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO * TPIA *					
38 40 40 41 42 43 44 45 46 47 48 49 50 60	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA SUPPORTS FOR FIRE PI OVERALL DIMENSION (O.D.X HEIG INSPECTION BY EMPTY WEIGHT OPERATING WEIGHT	kTION ROOFING HT) mm kgs kgs	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO * TPIA *					
38 40 40 41 42 43 44 45 46 47 48 49 50 60	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA SUPPORTS FOR FIRE PI OVERALL DIMENSION (O.D.X HEIG INSPECTION BY EMPTY WEIGHT OPERATING WEIGHT	kTION ROOFING HT) mm kgs kgs	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO * TPIA *					
38 40 40 41 42 43 44 45 46 48 49 550 6	TYPE OF SUPPORT INSULATION THICKNESS QUICK OPENING CLOSURE PROVIDE LIFTING LUGS EARTHING CLEATS SUPPORTS FOR INSULA SUPPORTS FOR FIRE PI OVERALL DIMENSION (O.D.X HEIG INSPECTION BY EMPTY WEIGHT OPERATING WEIGHT	kTION ROOFING HT) mm kgs kgs	IS 1893 (Part I) 2016: II, * LEG SUPPORTS (V - YES, WITH DAVIT YES YES NO NO * TPIA *					

	NATA ENGINEEDING	DATASHEET FOR MICRO	N FILTER FOR	PAGE NO.: 1	کج			
	NAUVATA ENGINEERING	COALESCER & SEPARATO	OR PACKAGE -2	TENDER NO.: 3200000495	REVISION MARK			
	PRIVATE LIMITED	OUNCEDOLING OLIVIER	JK I AUKAGE E	SHT. 6 OF 7 REV.:1	≥			
		1036-2	EQUP. NO.: MF		ŏ			
			ECT AT DEVANGONTHI, BANGALORE.					
_	OJECT : GONOTING GITTER OF			TTII, DAITOREOITE.	R			
1		SUPPLIER DI	E I AILS		┡			
-	MAKE		<u>^</u>		▙			
-	MODEL		*		▙			
4	DESIGN FLOW	m³/hr	*		▙			
5	DESIGN FLUX RATE	m³/m²/hr	*		L			
6	FILTERATION AREA	m²	*					
7		FILTERING ELEME						
-	FILTERING ELEMENT TYPE		AS PER CODE EI-159	90	L			
9	NO. OF ELEMENTS		*					
10	ELMENT DIMENSION (O.D X I.D X L	L) mm	*					
11	DIRECTION OF FLOW		*					
12	ELEMENT FIXING DETAILS		*					
13	RECOMMENDED FLOW RATE PER	ELEMENT m ³ /hr.	*					
14	EXPECTED LIFE OF ELEMENT		*					
15	DIRT HOLDING CAPACITY		*					
16	BURSTING PRESSURE	kg/cm ² g	*					
17	ELEMENT CHANGE OUT PRESSUR	RE ΔP kg/cm²	*					
18		BACKWAS	HING					
-	MODE OF BACKWASH		N/A.		H			
	BACKWASH MEDIUM		N/A.		t			
-	BACK WASH FLOW RATE	m²/hr	N/A.					
22	INTERVAL BETWEEN TWO SUCCES	SSIVE BACKWASHING hr	N/A.					
23	DURATION OF BACKWASH APPRO	X. hr	N/A.					
24	QTY. OF FLUID/GAS REQUIRED FO	R BACKWASH m²/hr	N/A.					
25	PRESSURE OF BACKWASH FLUID	/ GAS kg/cm ² g	N/A.					
26								
27		MATERIAL OF CONSTRU	JCTION (NOTE - 6	6)				
28	HOUSING (SHELL / HEAD)		CS					
29	FILTER ELEMENT		SS316					
30	ELEMENT SUPPORTS		*		Ħ			
-	FLANGES		* CS					
-	NOZZLES		* CS					
-	RF PADS		*					
_	INTERNALS IF ANY		SS316					
-	STUDS / NUTS (EXTERNAL)		AS PER PMS					
-	BOLTS / NUTS (INTERNAL)							
	GASKET	-	AS PER PMS AS PER PMS					
-	EXT. SUPPORTS & MISC. STRUCTU	IRAI S	*					
39	ZXII GOI I GRITG G IMIGGI GTROGTG	INSPECTION &	L R TESTING					
	HYDROTEST	INSI ECTION &	AS PER CODE		Ͱ			
	ANY OTHER REQUIREMENTS		AS PER CODE		H			
42		PAINTIN			H			
\vdash	PAINTING STANDARD	TAINTIN			Ͱ			
-	INTERNAL :				┢			
45	SURFACE PREPA	ARATION			H			
46	PRIMER	AICH TOIL			H			
47	INTERMEDIATE		┥ !					
48	FINISH				H			
49	TOTAL PAINT TH	ICKNESS	As Per Engineering Design Basis Surface Preparation And Protective Coating (20005-GEN-G-EDB-9122)					
	EXTERNAL :	ICKNESS						
51	SURFACE PREPA	ARATION			H			
52	PRIMER				H			
53	INTERMEDIATE				H			
54	FINISH				H			
-		HOWHERD			H			
55 56	TOTAL PAINT TH	IUNINESS			Ͱ			
57					H			
58					H			
59					H			
60		-			Г			
61					Γ			
62					Г			

NALIV	ΛΤΛ EI	NGINE	EDIN	G	DATASHEET FOR MICRON FILTER FOR						NO.:	1		
NAUVATA ENGINEERING PRIVATE LIMITED					COALESCER & SEPARATOR PACKAGE -2					TENDE	TENDER NO.: 3200000495			
• • •										SHT. 7	OF 7		REV.: 1	
DOC.NO	: 200	05-GI	EN-M-	DS-403	6-2			EQUP. N	10.:	MF-102A/B	}		QTY. : 2	
PROJEC	T : CO1	NSTRU	ICTION	OF MA	RKETIN	IG TERMINAL PF	ROJECT A	T DEVAN	GONTHI, B	ANGALORE.				
							NOZZI	E DATA						
MAR	MARK QTY. SIZE SCH./				ZE SCH./ FLANGE		R.F. PAD PRO			ROM	SE	RVICE/REMAR	KS	
			THK.	RATING	TYPE	FACING	O/D.	THK.	CENT. I	LINE				
*	*	*	*	*	*	*	*	*	*			*		
							-							_

GENERAL NOTES:

- 1 ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED.
- 2 VENDOR TO FILL THE DATAS WHEREEVER MARKED " * "
- 3 MICRON FILTER PACKAGESHALL COMPLY WITH THE PROJECT SCOPE OF WORK, DESIGN BASIS, SPECIFICATIONS ATTACHED ELSE WHERE IN THE BID. CONTRACTOR TO INDICATE THE RELEVANT DOCUMENTS DURING DETAIL ENGINEERING.
- 4 ALL INTERNALS SHALL BE SECTIONALISED FOR INSTALLATION AND REMOVAL THROUGH MANHOLE / TOP COVER.
- 5 OPERATING CONDITIONS INDICATED ARE PRELIMINARY AND TO BE VERIFIED AND UPDATED BY CONTRACTOR DURING DETAIL ENGINEERING.
- 6 MATERIALS INDICATED ARE PRELIMINARY AND CONTRACTOR TO VERIFY AND PREPARE MATERIAL SELECTION CHART AND SUBMIT FOR PMC APPROVAL .
- 7 THE MICRON FILTER UNITS SHALL BE DESIGNED AS PER EI-1590.
- 8 CONTRACTOR TO SUBMIT INSPECTION TEST PLAN DURING DETAIL ENGINEERING FOR PMC APPROVAL.
- 9 NOZZLES DATA SHALL BE FILLED BY VENDOR & VENDOR TO DECIDE BASED ON PROCESS PERFORMANCE.
- 10 MICRON FILTER'S PRESSURE VESSEL SHALL BE DESIGNED AND CONSTRUCTED TO MEET THE SPECIFICATION ASME SECTION VIII, DIV. 1.(LATEST EDITION)
- 11 VENDOR SHALL PROVIDE ALLOWABLE NOZZLELOADS DURING DETAIL ENGG.
- 12 VENDOR SHALL FURNISH THE PRESSURE DROP CALCULATIONS FOR PMC REVIEW AND APPROVAL
- 13 THIS DATASHEET SHALL BE READ IN CONJUCTION WITH FUNCTIONAL SPECIFICATION FOR COALESCER-SEPERATOR PACKAGE (20005-GENP-SPE-1001) AND ENGINEERING DESIGN BASIS FOR STATIC EQUIPMENTS (20005-GEN-M-EDB-4002).
- 14 MICRON FILTER SHALL BE PROVIDED WITH MANUAL DRAIN VALVE.