SPECIFICATION

Customer:	Specification NO.:	Dated:	Enquiry Ref:
	070-00198S	15, Dec. 2023	A

1.0 Technical Characteristics:

1.1 Tank Type : Swap Body frame T11 tank

1.2 Design regulations: (For undated references, the latest edition of the referenced document (including any amendments) applies.)

Tank	:	ASME Ⅷ Div 1 (NCS) & EN 14025 where applicable
Frame	:	CSC
General	:	ADR/RID-L4BN, IMDG-T11, UIC, TIR, TC

1.3 Classification Society : ABS or LR

1.4 Capacity (Nominal: ±1%) : 35,000 liters

1.5 Dimensions and Thickness

Frame Dimensions	:	7,820 mm long x 2,550 mm wide x 2,670 mm high
Tank Dimensions	:	Φ2454 mm (I/DA) x 7790 mm (L)
Shell Calculated Thickness	:	4.2 mm
Shell Corrosion	:	0.2 mm
Shell Design Thickness	:	4.4 mm
Head Calculated Thickness	:	4.3 mm
Head Corrosion	:	0.2 mm
Head After Forming Thickness	:	4.5 mm

1.6 Products : General purpose liquids.

1.7 Rating

Tare (Nominal:±3%)	:	4, 600 kg / (10, 140 lbs)
Max. Payload	:	34, 400 kg / (75, 840 lbs)
Max. Gross	:	39, 000 kg / (85, 980 lbs)
Stacking	:	3 Stacking weight @ 39000kg(1+2 high)

1.8 Pressure and Temperature

Tank M.A.W.P	:	4.0 bar / 58.0 psi
Tank Test Pressure	:	6.0 bar / 87.0 psi

ADR Calculation pressure	:	4.0 bar / 58.0 psi
Tank External Pressure	:	0.41 bar / 5.9 psi
Tank Design Temperature	:	-40 ℃ to 130 ℃
Ambient Temperature	:	-20 ℃ to 65 ℃
Steam Tube M.A.W.P	:	4.0 bar / 58.0 psi
Steam Tube Test Pressure	:	6.0 bar / 87.0 psi

2.0 Material of Construction:

2.1 Vessel Material

Shell	:	SANS 50028-7:1.4402. Equivalent to 316L. Max. carbon content 0.03%. Cold rolled.
Dished Ends	:	SANS 50028-7:1.4402. Equivalent to 316L. Max. carbon content 0.03%. Hot rolled.
Steam Tubes	:	Duplex stainless steel S32101

2.2 Baffle

Quantity	:	Four
Material	:	SANS 50028-7:1.4402. Equivalent to 316L.
Type	:	Welded V-Type
Coverage area	:	About 70%

2.3 Vacuum Stiffening Ring : Not fitted.

2.4 Framework Material : SPA-H or equivalent.

2.5 Corner Castings : To ISO 1161,
Top: standard ISO castings.
Bottom: European overland corner castings with chamfered lower outer edge.

2.6 Non Destructive Examination : Radiography:
Shell: spot (Including all 'T' Joints)
Ends: full (100%)
Joint efficiencies:
Shell: 0.85(ASME VIII) / 0.8(EN 14025)
Ends: 1.0

3.0 Surface Finish and Cleaning:

3.1 Surface Finish

Shell	:	Cold Rolled 2B Finish

	Dished Ends	:	Polished internally to Ra≤1.2μm
	Longitudinal Welds	:	As welded
	Circumferential Welds	:	As welded but with 400mm ground flush and polished on to Ra≤1.2μm bottom centre line
	Internal Nozzle Welds	:	As welded
3.2	**Cleaning**	:	On completion of fabrication, the vessel's internal surface is degreased, pickled, passivated and neutralized. The opening points are sealed so that the tank is supplied clean and ready for use. A Cleaning Certificate will be issued by JJAP and placed in document holder before ex-works.

4.0 <u>Tank Fittings:</u>

4.1	**Manlid**	:	**(3rd spillbox)**
	Dimension	:	Φ500mm ID
	Quantity	:	One
	Description	:	Stainless steel, manlid open to 135° Max. from rear to front. 8 point brass alloy wing nuts, low profile with TIR.
	Gasket	:	PTFE with EPDM core.
	Dipstick and Bracket	:	Not fitted.
4.2	**Cleaning Hatch**		**(1st, 2nd, 4th, 5th spillbox)**
	Dimension	:	Φ300mm ID
	Quantity	:	Four
	Description	:	Stainless steel, lid open to 135° Max. from rear to front. 4 point brass alloy wing nuts, low profile with TIR.
	Gasket	:	PTFE with EPDM core.
4.3	**Safety Relief Valve**	:	**(3rd spillbox)**
	Dimension	:	3” (DN80)
	Quantity	:	One
	Description	:	Stainless steel, 4.4 bar pressure safety relief valve, without flame proof gauze. Provision for future fitment of bursting disc and pressure gauge.
	Weld-in flange	:	Fitted tangentially off center line, drilled/tapped - 4 x M16 on 152.4mm PCD.
	Gasket	:	Envelope PTFE.

4.4	**GLO-Airline Assembly**	:	**(5th spillbox)**
	Dimension	:	1.5” (DN40)
	Quantity	:	One
	Description	:	Stainless steel, 1.5” recessed weld-in flange fitted with
		:	1.5” BSP ball valve and 1.5” stainless steel pipeline. The pipeline extend from the ball valve to lower rear end right hand side. The end of the pipeline connection fitted with ¾” 4 bar safety relief valve, pressure gauge and 1.5” full bore ball valve, end with dust cap, held captive with stainless steel chain. The pipeline fitted over the cladding. Fitted with cable activation mechanism to lower right hand side of tank.
	Weld-in flange	:	Fitted horizontally off center line, drilled/tapped-4 x M10 on 103.5mm PCD.
	Gasket	:	No applicable.
4.5	**Top Discharge Provision**	:	**(5th spillbox)**
	Dimension	:	3” (DN80)
	Quantity	:	One
	Description	:	Stainless steel, 3” recessed weld-in flange complete with blank flange. Siphon tube retaining plate fitted.
	Weld-in flange	:	Fitted horizontally on center line, dual drilled/tapped-6 x M12 on 168mm PCD and 4 x M16 on 160mm PCD.
	Gasket	:	Envelope PTFE.
4.6	**Bottom Discharge**	:	**(Bottom cabinet)**
	Dimension	:	3” BSP (DN80)
	Quantity	:	One
	Description	:	Stainless steel, 3” 45° highlift footvalve and 3” clamped butterfly valve connected with 3” BSP terminal connection and dust cap, held captive with a stainless steel chain.
	Weld-in flange	:	Weld-in flanges, drilled/tapped-8 x M12 on 177.8mm PCD.
	Gasket	:	Envelope PTFE.
	Remote Control	:	Footvalve complete with cable remote closure system.

5.0 Other Accessories:

5.1 Spillage Boxes

Quantity	:	Five
Description	:	1st spill box contains cleaning hatch. 2nd spill box contains cleaning hatch. 3rd spill box contains manlid and safety relief valve. 4th spill box contains cleaning hatch. 5th spill box contains cleaning hatch, GLO-airline assembly and top discharge provision.
Material	:	Stainless steel
Drain pipes	:	Each box is completed with DN25 PVC plastic drain tubes.
Covers	:	Each spill box fitted with aluminum folding covers, opening from right to left.
Remark	:	Fittings identified with stainless steel label plates.

5.2 Bottom Cabinet

Quantity	:	One
Description	:	Bottom cabinet contains the bottom discharge assembly.
Material	:	Stainless steel.
Cover and Floor	:	Stainless steel cover and floor are fitted, and the cover can open ≥170°.
Remark	:	Fittings identified with stainless steel label plates.

5.3 Heating Exchange System

Ducts Quantity	:	8 runs
Ducts' Material	:	Duplex stainless steel
Inlet Diameter	:	1" BSP
Outlet Diameter	:	3/4" BSP
End Cap	:	Stainless steel with chains.
Description	:	Inlet and outlet connection positioned on the left hand side of the rear end frame bottom cross member, fitted with caps. Condensate drain on outlet lowest point 3/8" with valve pointed to below.
Remark	:	Connections identified with decal.

5.4 Top Longitudinal Member : Not fitted.

5.5	**Bottom A-Frame Assembly**	:	Lower diagonal A-frame square tube members to barrel mount fitted. Diagonal member fitment to allow for required clearance to bottom ISO.
5.6	**Miss Stacking Protection**		
	Top	:	Miss-stacking corner plates fitted adjacent to top corner castings.
	Bottom	:	Bottom cross-members recessed adjacent to corner castings.
5.7	**Side Lifting Pickets**	:	Side lifting pockets provided in top of each post for fitting in empty condition.
5.8	**Crash frame**	:	
	Material	:	Stainless steel.
	Type	:	Tubular crash
	Position	:	Front and rear framework external
5.9	**Walkway**		
	Width	:	475mm & 400mm
	Material	:	Aluminum alloy
	Type	:	Full type
	Description	:	Full platform walkway, consisting of full length left and right hand side longitudinal walkways, with area between closed by transverse walkways.
5.10	**Handrail**		
	Quantity	:	One
	High	:	1000mm
	Material	:	Stainless steel
	Type	:	Collapsible with telescopic extension.
	Description	:	Fitted to right hand longitudinal walkway. The handrail operated from ground level Bolted fasteners to be tack welded to prevent theft.
5.11	**Ladder**		
	Quantity	:	One
	Width	:	300mm
	Material	:	Stainless steel
	Description	:	Fitted to rear crash frame right side. Bolted fasteners to be tack welded to prevent theft.

5.12 Insulation

Material	:	Glasswool
Barrel	:	50mm Glasswool, where possible.
Ends	:	Glasswool, thickness to suit for the shape of end.
Under the cladding overlap	:	PU foam.
Cladding	:	1.8mm thk. glass reinforced plastic over barrel, overlap joints sealed. 3.0mm thk. glass reinforced plastic shaped over ends. Color: White. (RAL9010)

5.13 Earth Connection

Quantity	:	One
Material	:	Stainless steel
Dimension	:	40 x 30 x 3mm with φ9 mm hole
Position	:	Fitted to rear corner post, adjacent to the ladder.

5.14 Document Holder

Quantity	:	One
Material	:	Plastic
Dimension	:	Ø75mm x 325mm
Position	:	Fitted adjacent to the rear corner post.

5.15 Thermometer

Quantity	:	One
Description	:	Dual scales contact type analogue thermometer with two stainless steel protection bars, range from -40℃ to +160℃ and -40℉ to +320℉.
Position	:	Rear end left hand side.

5.16 Data Plate

Quantity	:	One.
Material	:	Stainless steel
Description	:	Data to code requirements indicate applicable and ADR code
Position	:	Rear A-frame square tube member right hand side, adjacent to the corner post.

5.17 Calibration : One stainless steel calibration plate marked in cm/litres will be tack welded to the inside neck of the manlid spill box.

5.18 Statutory Decals : Supplied and fitted by manufacturer.

5.19 Owner Logos : Supplied and fitted by manufacturer.

6.0 Panting

6.1 Framework Treatment : All carbon steel frame parts will be blast cleaned in accordance with ISO 8501-1; 2007 SA 2½.

6.2 Painting of Frame

Primer Coat	:	Epoxy zinc rich primer, 30 microns DFT.
Intermediate coat	:	Epoxy primer, 40 microns DFT.
Top coat	:	Polyurethane, 50 microns DFT.
Total DFT	:	120 microns DFT.
Color	:	Suit to customer.

6.3 Vessel : Anti-stress corrosion paint 60 microns DFT applied wherever as deemed appropriate by manufacturer.

MODIFY DESCRIPTION		
Revision Issue	Date	Description Of Revision
A	15,Dec.2023	New Drawing

Compiled by: Patrick Checked by: Anthony Approved by: Robin