SPECIFICATION

Customer:	Specification NO.:	Dated:	Enquiry Ref:
	040-00446S	04, Oct. 2024	B2

1.0 Technical Characteristics:

1.1 Tank Type : 20' ISO full frame, UN portable 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, ISO 1496/3(1CC)
General	:	IMDG/ADR/RID/US DOT(CFR49)-UN Portable tank T11, RID/ADR-L4BN, UIC, TIR, TC

1.3 Classification Society : LR or ABS

1.4 Capacity (Nominal: ±1.5%) : 26,000 liters

1.5 Dimensions and Thickness

Frame Dimensions	:	6,058 mm long x 2,438 mm wide x 2,591 mm high	
Tank Dimensions	:	ϕ2414 mm (I/DA) x 6020 mm (L)	
Shell Calculated Thickness	:	4.18 mm	
Shell Corrosion	:	0.42 mm	
Shell Manufacture Thickness	:	4.6 mm	
Head Calculated Thickness	:	4.4 mm	B1
Head Corrosion	:	0.2 mm	
Head After Forming Thickness	:	4.6 mm	B1

1.6 Products : General purpose liquids

1.7 Rating

Tare (Nominal:±3%)	:	3, 760 kg / (8, 290 lbs)	B2
Max. Payload	:	32, 240 kg / (71, 075 lbs)	B1
Max. Gross	:	36, 000 kg / (79, 365 lbs)	B
Stacking	:	Stacking weight @216000 kg	B1

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.
Frame to Shell Material	:	ASME SA240 304 or equivalent.
Steam Tubes	:	Duplex stainless steel S32101

2.2 Baffle : Not fitted.

2.3 Vacuum Stiffening Ring

Quantity	:	3 off
Material	:	ASME SA240 304 or equivalent
Remark	:	Not used for steam heating

2.4 Framework Material : SPA-H or equivalent.

2.5 Corner Castings : To ISO 1161, standard ISO castings.

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≤1.2 μ m
	Longitudinal Welds	:	As welded
	Circumferential Welds	:	As welded but with 400mm ground flush and polished to Ra≤1.2 μ m on 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**		**(Centre spillbox)**
	Supplier	:	FV
	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	**Safety Relief Valve**	:	**(Centre spillbox)**
	Supplier	:	FV
	Dimension	:	2.5”BSP(DN65)
	Quantity	:	One
	Description	:	Stainless steel, 4.4 bar pressure safety relief valve, without flame proof gauze.
	Weld-in flange	:	Fitted tangentially off center line, drilled/tapped - 6 x M10 on 105mm PCD.
	Gasket	:	No applicable.
4.3	**Safety Relief Valve Provision**	:	**(Centre spillbox)**
	Supplier	:	FV
	Dimension	:	2.5”BSP(DN65)
	Quantity	:	One
	Description	:	Stainless steel, 2.5” weld-in flange complete with blank flange.

	Weld-in flange	:	Fitted tangentially off center line, drilled/tapped - 6 x M10 on 105mm PCD.
	Gasket	:	Envelope PTFE.
4.4	**Air Inlet**	:	**(Rear spillbox)**
	Supplier	:	FV
	Dimension	:	1.5”BSP (DN40)
	Quantity	:	One
	Description	:	Stainless steel, ball valve with 1.5”BSP outlet. A dust cap connect outlet with a stainless steel chain. Tapped hole and plug fitted for future fitting of a pressure gauge. Gauge guard not fitted.
	Weld-in flange	:	Fitted tangentially off center line, drilled/tapped-4 x M10 on 103.5mm PCD.
	Gasket	:	No applicable.
4.5	**Top Discharge Provision**	:	**(Rear spillbox)**
	Supplier	:	FV
	Dimension	:	3” (DN80) flanged
	Quantity	:	One
	Description	:	Stainless steel, 3” low profile weld-in flange complete with blank flange. Siphon tube retaining plate fitted.
	Weld-in flange	:	Fitted horizontally on center line, drilled/tapped-6 x M12 on 168mm PCD.
	Gasket	:	Envelope PTFE.
4.6	**Bottom Discharge**	:	**(Bottom Cabinet)**
	Supplier	:	FV
	Dimension	:	3” (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 flange 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	:	Two
Description	:	Centre spill box contains manlid, safety relief and safety relief provision. Rear spill box contains air inlet, top discharge provision and spare provision.
Material	:	Stainless steel
Drain pipes	:	Each box is completed with DN25 PVC plastic drain tubes.
Covers	:	Lockable stainless steel covers are fitted and open to about 180 °from rear to front.
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, the cover can open ≥170°.
Remark	:	Fittings identified with stainless steel label plates.

5.3 Heating Exchange System

Ducts Quantity	:	10 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. Outlet pipe fitted with 3/8" depressurization ball valve.
Remark	:	Connections identified with decal.

5.4 Top Longitudinal Member : Top longitudinal rectangular members connected the front and rear end frame top corner castings.

5.5 Bottom Longitudinal Member : Bottom longitudinal I-beam members connected the front and rear end frames, above bottom corner castings.

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 Walkway

Width	:	475mm or 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. Two full length longitudinal walkways divided into three individual pieces for maintenance purpose.

5.8 Handrail

Quantity	:	One
High	:	1000mm
Material	:	Stainless steel
Type	:	Collapsible
Description	:	Fitted to right hand side of longitudinal walkway. Bolted fasteners to be tack welded to prevent theft.

5.9 Ladder

Quantity	:	One
Width	:	300mm
Material	:	Stainless steel
Description	:	Fitted to rear end right side. Bolted fasteners to be tack welded to prevent theft.

5.10 Insulation

Material	:	Rockwool + Glasswool
Barrel	:	50mm Rockwool, where possible.
Ends	:	Glasswool, thickness to suit for the shape of end.
Under the cladding overlap	:	PU foam.
Cladding	:	2.0mm thk. glass reinforced plastic over barrel, overlap joints sealed. 2.0mm thk. glass reinforced plastic over ends. Color: White (RAL 9010)

5.11 Earth Connection

Quantity	:	One
Material	:	Stainless steel
Dimension	:	40 x 30 x 3mm with φ9 mm hole
Position	:	One fitted to rear bottom cross member, adjacent to the ladder.

5.12 Document Holder

Quantity	:	One
Material	:	Plastic
Dimension	:	Ø110mm x 310mm
Position	:	Fitted to inside of the right hand side longitudinal member, adjacent to the rear corner post.

5.13 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.

5.14 Data Plate

Quantity	:	One.
Material	:	Stainless steel
Description	:	Data to code requirements indicate applicable UN Portable instruction.
Position	:	Rear end left hand side.

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

5.16 Statutory Decals : Supplied and fitted by manufacturer.

5.17 Owner Logos : Supplied and fitted by manufacturer.

6.0 Painting

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	:	Blue (RAL5013).

6.3 Vessel : Anti-stress corrosion paint 40 microns DFT applied wherever as deemed appropriate by manufacturer.

MODIFY DESCRIPTION

Revision Issue	Date	Description Of Revision
A	16,Jan.2019	New Drawing
B	26,Apr.2021	Item1.7: Change Max Gross to 36000kg. Change stacking weight to 213360kg.
B1	20,Apr.2023	1. Item1.5: Change the thickness of dish head. 2. Item1.7: Change tare weight from 3780kg to 3720kg. Change stacking weight to 216000kg.
B2	04,Oct.2024	1. Item1.7: Change tare weight from 3720kg to 3760kg. 2. Item5.1: Add spill box covers. 3. Item5.2: Add bottom cabinet cover and floor.

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