TECHNICAL SPECIFICATION

CLIENT : OCI
SPECIFICATION NO. : HO3-24.4.36-ENQH6421

®2 **DESCRIPTION : 20 x 24000 LITRE UN PORTABLE TANK WO 8112 REV2 (AS BUILT)**
SERIAL NUMBERS TASU 214801 TO TASU 214820

1.0 Technical Characteristics

1.1 Design & Testing

Tank	- in accordance with:	IMDG, CFR49, RID/ADR
	- type:	T11 UN Portable Tank
Frame	- in accordance with:	ISO Standard 1496/3
	- type:	HO3 Protected Beam Tank with RHS bottom side rails

		SI		US	
1.2	**Nominal Capacity (–0,5;+0,75% Tolerance)**	**24000**	ℓ	**6340**	**US gal**

1.3 Frame Dimensions And Mass

	MPGM	**36000**	**kg**	**79365**	**lbs**
®2	Tare Mass (As built)	**3670**	**kg**	**8090**	**lbs**
	Length	6058	mm	20	ft
	Width	2438	mm	8	ft
	Height	2591	mm	8 ft 6	in

1.4 Tank Dimensions

Internal Diameter	2330	mm	91,732	in
Tan to Tan	5020	mm	197,638	in
Shell Minimum Calculated Thickness	4,2	mm	0,165	in
Shell Construction Thickness	4,3	mm	0,169	mm
Head Minimum Calculated Thickness	4,4	mm	0,173	in
Head Construction Thickness	4,5	mm	0,178	in
Corrosion Allowance (Heads)	0,1	mm	0,004	in
Dished Ends- Torispherical	Crown 2030	mm	Knuckle 250	mm
Reference Mild Steel Thickness	6	mm		

1.5 Pressure & Temperature Rating

Metallurgical Design Temp for Tank	: Max	**130**	**°C**	**266**	**°F**
	: Min	**-40**	**°C**	**-40**	**°F**
Maximum Allowable Working Pressure		4,0	bar	58,0	psig
Hydrostatic Test Pressure		6,0	bar	87,0	psig
Maximum External Pressure		0,40	bar	5,8	psig

1.6 NDE (Non Destructive Examination)

Shell	J.E.	=	0,85	Radiography	= spot
Ends	J.E.	=	1,00	Radiography	= full (100%)

Nozzle to shell junction welds to be dye penetrant tested.

1.7 **Material Of Construction**

Framework	:	Hollow section	EN 10210 S355 J2H / Supraform TM 380
		Plates	EN 10025 S355 K2G3C / Supraform TM 380
		Rolled section	EN 10025 S355 K2G3
Corner Castings			ISO Standard 1161
Shell			Columbus TCG 316L C ≤ 0,03% **Cold Rolled 2B**
Heads			Columbus TCG 316L C ≤ 0,03% **Hot Rolled Polished**
Vacuum Stiffening Rings (2 off 3mm thick)			ASTM A240 Gr 304

2.0 **Tank Fittings And Accessories**

2.1 **Manhole**
- Supplier Swift
- Quantity One
- Dimensions 500mm ID
- Specification Stainless steel 316; 4 bar pressure rating; 8 point fixing, Part No STM700201
- Gasket Genuine PTFE braided gasket

2.2 **Safety Relief Valve Assembly**
- Supplier Fort Vale
- Quantity One
- Dimensions 2½" BSP MKIII Super Maxi Highflow, part No 010/16300
- Specification +4,4 bar (+63,8 psi) - pressure only valve without a gauze
- Gasket Adaptor flange = Klinger SIL C-4430/PTFE
- Remarks Provision is made for future fitting of a rupture disc and manometer

2.3 **Air Inlet Assembly**
- Supplier BTR / Gestra
- Quantity One
- Dimensions DN 40 (1½")
- Specification Stainless steel 316 ball valve, with 1½" BSP outlet and cap
- Gasket PTFE

2.4 **Top Discharge Provision**
- Supplier Consani
- Quantity One
- Dimensions DN 80 (3")
- Specification Stainless steel 316
- Gasket Klinger SIL C-4430 / PTFE
- Remarks Provision is made for the future fitting of a clamped 3" butterfly valve and a 3" syphon tube

2.5 **Thermometer**
- Supplier Consani
- Quantity One
- Dimensions 80mm dial diameter
- Specification Surface type. Dual scale - 20°C to 200°C / 0°F to 400°F

2.6 **Bottom Discharge**
- Supplier Fort Vale
- Quantity One
- Dimensions DN 80 (3") opening diameter
- Specification Internal valve - 30° Highlift foot valve, part No 830/3200 bolted to a steam heated tank pad.
  External valve - clamped butterfly valve, part No 368/7000B, with a 3" BSP threaded connector closed by a stainless steel cap & retaining cable
- Gasket Klinger SIL C-4430 / PTFE
- Remarks A cable remote control is connected to the internal valve handle. Provision is made for the future fitting of a fusible link.

2.7 **Protective Housing / Spillbox**

- Supplier Consani
- Quantity Two
- Location Rear: Air inlet / top discharge
  Centre: Relief valve / manhole
- Specification ASTM A240 - 304 housings with insulated lids and necks. Each housing is provided with surface mounted PVC tubes draining to the bottom part of the container.

2.8 **Steam Heating**

- Supplier Consani
- Quantity Equivalent total area of 8m²
- Dimensions 8 Runs 110mm x 4700mm longitudinal channels with ¾" BSP male threaded inlet and outlet connections
- Specification ASTM A240 - 316; 6 bar working pressure, hydrostatically tested at 10 bar

2.9 **Insulation And Cladding**

- Supplier Consani
- Quantity The complete tank is coated with anti-stress corrosion lacquer (15-25 micron DFT) prior to insulation
- Specification Insulation: Shell: Mineralwool (55kg/m³) to a nominal overall thickness of 50mm
  Ends: Glasswool ,density 16kg/m³, thickness to suit.
  Cladding: Shell: 0,8mm thick mill finish aluminium (grade5251) with sealed lapped joints
  Ends: 2mm GRP, white RAL9010

2.10 **Walkways**

- Supplier Consani
- Quantity One longitudinal, two lateral sections
- Dimensions 475mm wide
- Specification Marine resistant aluminium

2.11 **Ladder**

One ladder 300mm wide is provided on the right hand side of the rear end frame. The ladder rungs have an anti slip surface. The ladder is hot dip galvanised. A handgrip is provided at the top of the frame adjacent to the ladder.

2.12 **Corner Protection**

4-off per tank located at the top frame corners.

2.13 **Earthing Connection**

1 off stainless steel lug 60 x **40** x 2,5mm with 20mm hole, is located at the rear bottom end of the frame.

2.14 **Document Holder**

1-off clear PVC document holder is provided. The holder is water-resistant and is fixed in a position that affords adequate protection.

2.15 **Decals**

One set per tank as per code requirements. Owner logos supplied by client and applied by Consani.

2.16 **Data Plates**

One set of stainless steel data plates per tank as per code requirements

2.17 **Calibration**

Two calibration plates, one marked in cm/litres and the other in inches/US gallons, are mounted to the spillbox neck. A calibrated dipstick, marked in cm/inches, is mounted to the manhole neck. Top of tank is full which corresponds to zero on the calibration plate and dipstick.

2.18 **Top Rails**

Top longitudinal protection rails are integral with the frame. The rails are lowered by 10mm.

®2 2.19 **Electrical Heating**

A Mannings 15kW dual voltage (220V) / (380 - 415V) heating system is fitted to the tank. One control box is fitted to the right rear behind the top of the ladder. (To be recessed as far as possible to afford maximum protection). The system to be protected with a thermostat with settings visible without opening the door. Plugs and matching socket to reefer standard (3H, 32A, 4 pin)

2.20 **Valve Cabinet**

An insulated stainless steel 304 valve protection box houses the bottom discharge assembly. An insulated, hinged and lockable lid is fitted.

3.0 Finish

3.1	**Shell**	Internal Shell Surface	2B finish
		Longitudinal Welds	As welded.
		Circular Welds	Bead penetrant fused, with bottom **500mm** ground flush and polished to Ra = 1,3um max
3.2	**Dished Ends**	Internal Surface	Polished to Ra = 1,3um max
		Weld Seams	Ground flush

3.3 **Cleaning**

On completion of fabrication, the vessel's internal surface is degreased, pickled, passivated and neutralised. A white cloth test will be performed on the internal surface to check for cleanliness. The opening points are sealed so that the tank is supplied clean and ready for use.

3.4 **Painting (Hempel or Consani approved system)**

The carbon steel frame components are shotblasted to SA 2½ and painted as follows:

First coat	Hempadur Zinc (1536)	30 micron min DFT
Intermediate coat	Hempadur Primer (1530)	30 micron min DFT
Final coat	Hempatex Hibuild (4641)	70 micron min DFT
	TOTAL	130 micron min DFT

Colour: Jet Black, RAL 9005

4.0 Test and Homologations

1. These tank containers are constructed according to an approved design.

2. Each production unit is subject to testing and non-destructive examination as required by ASME VIII Division 1, UIC and Consani's own quality requirements. Each unit is inspected by the independent Inspection Authority, Bureau Veritas.

3. The container has been subjected to a stacking test load of 86400kg per corner post and is approved for 9-high stacking (8 x 24000kg).

4. The UN portable tank fulfils the performance specification of the following International Organisation's regulations and recommendations and is supplied with their Approvals.

   IMDG-IMO
   US DOT-CFR49
   RID/ADR

   Additional approvals:
   AAR 600
   CSC
   TC
   TIR / Customs
   UIC (34000kg with a superheavy decal)

5.0 **Documentation**

The following documentation will be provided:

1. Certificate of cleaning (placed in the document holder).
2. Initial Inspection Certificate for each tank.

6.0 **Products**

Approved for products in classes 3, 6.1, 8 and 9 as applicable.

DESIGN: Compiled by : …… Reviewed by: ……..……

SALES/CONTRACTS : ……..…….

CUSTOMER APPROVAL :_____

BY :_____

DATE :_____

From Enq H6421 to WO 8112 (08/07/2002)

1) Specification changed to a WO, serial numbers added.
2) Head calculated and construction thickness revised, was 4.6mm & 4.6mm, now 4.4mm & 4.5mm respectively. Corrosion allowance on heads added(1.4)
3) Maximum external pressure was 0.41 bar, now 0.40 bar (1.5)
4) Head construction material was DIN 17440–W1.4406, now Columbus TCG 316L C $\leq$ 0,03% Hot Rolled (1.7)
5) Steam heated tank pad added to bottom discharge assembly (2.6)
6) Spillbox lids and necks are now insulated (2.7)
7) Details for electrical heating system revised (2.19)
8) Insulated bottom discharge cabinet added (2.20)

From WO 8112 to WO 8112 REV1 (28/08/2002)

1) Insulation details corrected (2.9)

From WO 8112 REV1 to WO 8112 REV2 (18/11/2002)

1) As built tare mass added (1.3)
2) Details of power plugs added (Plug specification changed at clients request) (2.19)