



1 Technical Characteristics

1.1 Design and Testing

Tank	in accordance with:	RID/ADR, IMDG & ASME VIII Div 1
	Type:	T75 UN Portable Tank / R14.3BN
Frame	in accordance with:	ISO 1496/3
	Type:	TBD (Gooseneck design optional)
Piping	in accordance with:	ASME B31.3
Corner Castings		ISO 1161
Size and type code		42K8

1.2 Capacity

Nominal Capacity ($\pm 1\%$ Tolerance)	≥ 46000 Liter
---	--------------------

1.3 Frame dimensions and Mass

MPGM	36	tons
Tare Mass ($\pm 3\%$ Tolerance)	TBD	kg
Length	12 192 mm	40 ft
Width	2 438 mm	8 ft
Height	2 591 mm	8 ft 6 in

1.4 Tank Dimensions

Inner Vessel

Inside Nominal Diameter	(TBC by manufacturer)
Tan to Tan	(TBC by manufacturer)
Corrosion Allowance	0 mm

Outer Vessel

Inside Diameter	(TBC by manufacturer)
Tan to Tan	(TBC by manufacturer)

1.5 Baffles

Six (6) sets of stainless steel baffles plates should be fitted (according ADR)

1.6 Pressure and temperature Rating

Inner Vessel

Design Pressure ASME VIII	7 Barg (101,5 PSIG)
Design Pressure EN13530	10 Barg (145 PSIG)
Design Temperature Range	-196 to +20 °C

Outer Vessel

Internal Design Pressure	-1,0 barg
External Design Pressure	1,0 barg
Design Temperature Range	-196 to +50 °C



1.7 Performance

Under standard conditions as defined in clause 3.3 of BS EN 12213-1999: Methods of Performance
Evaluation of Thermal Insulation:

Product	Holding Time(days)	Payload at max. Holding time Kg	Initial/ Filling Pressure (Barg)
UN1977 -LIN	TBD	TBD	0
UN1073-LOX	TBD	TBD	0
UN1951-LAR	TBD	TBD	0
UN1972-LNG (CH ₄)	TBD	TBD	0
UN1961-Ethane (C ₂ H ₆)	TBD	TBD	0
UN1038-Ethylene (C ₂ H ₄)	TBD	TBD	0

1.8 Insulation

Insulation type
Vacuum level warm
Vacuum level cold
Theoretical k-Value

Super insulation
<10 microns
<1 microns
TBC by manufacturer

1.9 Material of construction

Framework:	Hollow section	EN 10210 S355 J2H or equivalent
	Plates	EN 10025 S355 K2G3 or equivalent
	Rolled section	EN 10025 S355 K2G3 or equivalent
Valve cabinet doors and frame		SA240/EN10028-7 – 1.4301 304L Stainless Steel
Inner tank		SA 240/EN10028-7 1.4301 304L Stainless Steel (preferably NON COLD STRETCHED)
Baffles		A 240/EN 10028-7 1.4301 304L Stainless Steel
Outer tank		SA 240/EN 10028-7 1.4301 304L Stainless Steel

1.10 NDE (Non destructive Examination)

Visual	100% All welds	Before and After Hydro test
Radiography	100% All long. and Circ. Welds	Before Hydro



2 Tank fittings And Accessories

Valve types Fire safe Design Stainless Steel Cryogenic with extended spindle
Thermal relief valves fitted at all possible liquid traps.

Valve supports Valve and pipe supports connected to vacuum rings.

2.1 Bottom fill / Liquid line

Valve Supplier	Herose
Quantity	1 x DN50 (2") Firesafe Globe Valve Pneumatically Actuated
Valve Supplier	Herose
Quantity	1 x DN50 (2") Globe
Valve Supplier	Herose
Quantity	1 x DN15 (½") Globe
Line Size	DN50 (2") – Optional 65 NB (2.5")
End Connection	DN50 (2") - PN16 Flange + Blind Flange
Gasket	PTFE Bottom fill / Liquid line 2 (Optional)

2.2 Bottom fill / Liquid line provision (Optional)

Valve Supplier	N/A provision only (pipe ends blinded)
Quantity	1 x DN50
Line Size	DN50 (2")
End Connection	Blinded by welding

2.3 Top Fill / Gas Line (Spray line)

Valve Supplier	Herose
Quantity	1 x DN40 (1 ½") Firesafe Globe Valve Pneumatically Actuated
Valve Supplier	Herose
Quantity	1 x DN40 (1½") Globe
Valve Supplier	Herose
Quantity	1 x DN15 (½") NB Globe
Line Size	DN40 (1½")
End Connection	DN40 (1½") PN16 Flange + Blind Flange
Gasket	PTFE



2.4 Balance Line

Valve Supplier	Herose
Quantity	1 x DN40 (1½")Globe
Line Size	DN40 (1½")

2.5 Vent Line

Valve Supplier	Herose
Quantity	1 x DN40 (1½")Globe
Line Size	DN40 (1 ½")
End Connection	1½" NPT socket

2.6 Safety Relief Valve Assembly

Valve Supplier	Herose
Quantity	4 x ?" x ?" bronze safety relief valves
Specification	Set pressure, 2 x 7 Bar + 2 x 10 Bar
Valve Supplier	Herose
Quantity	1 x ¾" x 4 port 3 way diverter ball valve

2.7 Try-cocks

Valve	Supplier Herose
Quantity	2 x DN15(½") Globe— Optional 3rd trycock on 90%.
Specification	82% and 95% of gross volume
Line Size	DN15 (½")

2.8 Vapor recovery Line

Valve Supplier	Herose
Quantity	1 x DN40 (1½")Globe
Valve Supplier	Herose
Quantity	1 x DN15 (½") Globe
Line Size	DN40 (1½")
End Connection	DN40 (1½") PN16 Flange + Blind Flange
Gasket	PTFE

2.9 Sampling Lines

Valve Supplier	Tech Tube or equivalent.
Quantity	2 x DN6 (⅛") Needle valves— Liquid and Gas.
End Connection	¼ "NPT + ¼" NPT Plug.



2.10 Level Gauge

Supplier	WIKA
Quantity	One
Specification	Calibrated + 4-20mA ATEX transmitter fitted.
Valve Supplier	Generant or equivalent
Quantity	2 x 6 NB Needle valves– Liquid and Gas Isolation

2.11 Pressure Gauge

Supplier	WIKA
Quantity	One
Specification	Scale in BAR and PSI + 4-20mA ATEX transmitter fitted.

2.12 DELETED.

2.13 Pressure build up unit (PBU)

Valve Supplier	Herose
Quantity	1 x DN25 (1") Globe + 1 x DN40 (1½") Globe
Line Size	Tank-out to PBU-in (Liquid) DN25 (1")
Line Size	PBU-out to Tank-in (Vapor) DN40 (1½")

Aluminum fins with stainless steel pipe reinforcement or similar design TBD by manufacturer.
Capacity should be shown as well the length and amount of the different units.

2.14 Vent Stack

All blow down and relief valves exhaust into one single vent stack to the top of the tank.

2.15 Pneumatic Controls panels

- "Alfons Haar" or equivalent Pneumatic valves
- Indicators when "on"
 - Emergency Shut Down (ESD) valve closure when button is pushed "in"
 - Manual reset required to operate valve after air pressure is lost.

2.16 Thermocouple

A Hastings DV6R thermocouple for vacuum measurement is fitted.

2.17 Pump provision (optional)

Valve circuit built to allow pump fitment through flanged connections. Extra cabinet fitted.

2.18 Earthing connection

2-off stainless steel lug LxBxT with a 20mm hole, is located at the rear of the tank frame.



2.19 Document Holder

1-off clear water-resistant PVC document holder is fitted to the frame.

2.20 Decals

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

2.21 Data Plates

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

2.22 Valve Cabinet

Stainless steel valve protection cabinets, complete with stainless steel doors and fixation provisions to keep the doors open.

3 Finish

3.1 Internal

Internal Shell Surface No 1 finish
Weld Seams As welded

3.2 External

External Surface No 1 finish
Weld Seams As welded

3.3 Fittings

All fittings, including valves and pipe sections shall be degreased and then stored in clean sealed plastic bags until fitted to the tank. Cleaned for oxygen service, CGA4.1.

3.4 Cleaning

On completion of fabrication, the inner vessels internal surface shall be degreased, pickle and passivated. A cleaning certificate is to be provided in the document folder.

3.5 Leak Test and Nitrogen Purge

A helium mass-spectrometer leak test will be performed on inner and outer vessels. The vessel need to be delivered in a Nitrogen purged condition. Dry nitrogen need to be used (O₂ < 1% residual oxygen, 1,0 bar pressure, Nitrogen dew point - 40°C).

3.6 Painting

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



UN Portable T75 - 40' LNG SPECIFICATION Rev. 2017-10R1 Page 7 of 8

Primer coat	Hempadur Zinc	30 micron min DFT
Intermediate coat	Hempadur Primer	30 micron min DFT
Final coat	Hempatex/Hempathane	60 micron min DFT

TOTAL 120 micron min DFT

Colour: RAL 3009

The stainless steel outer barrel is cleaned and painted as follows:

Intermediate coat	Hempadur Primer	40 micron min DFT
Final coat	Hempathane	50 micron min DFT

TOTAL 90 micron min DFT

Colour: RAL 9010

4 Test and Homologations

These tank containers are constructed according to an approved design.

Each production unit is subject to testing and non-destructive examination as required by ASME VIII Div 1 and/or EN13530 UIC and manufacturers own quality requirements. Each unit is inspected by the independent inspection authority Bureau Veritas or Lloyd's.

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

The UN Portable Tank complies with the performance specification of the following International Organization's regulations and recommendations and is supplied with their Approvals.

IMDG - T75

RID/ADR – T75 + R14.3BN

Additional Approvals:

CE approval (PED)

TIR/Customs

CSC

UIC (36000Kg, in case of MPGM 39 tons a super heavy decal is needed as well as a decal mentioning UIC 36000Kg)

TC Impact Approved

US DOT (CFR49) – T75



5 Documentation

The following documentation need to be provided:

Operation manual
Certificate of cleaning (placed in the document holder).
Initial Inspection Certificate for each tank.
Approval documentation such as type approval certificates.
As build documentation (Specification, full set of drawings etc.)
Name plate details.
List of transportable products.

6 Products

UN1972 Natural Gas, refrigerated liquid. (CH_4)
UN1038 Ethylene, refrigerated liquid. (C_2H_4)
UN1961 Ethane, refrigerated liquid. (C_2H_6)
UN1977, Nitrogen, refrigerated liquid. (optional)
UN1073, Oxygen, refrigerated liquid. (Optional)
UN1951, Argon, refrigerated liquid. (Optional)

7 General

Internal piping stainless steel 304 / 304L
External piping stainless steel 316 / 316L

WWW.TRIFLEET.COM