

DORBYL HEAVY ENGINEERING
A Division of Dorbyl Limited

CONTAINER DIVISION

22 BAR (WP) 24 700 LITRE

GAS CONTAINERS

CARBON STEEL ISO TANK WITH BOTTOM DISCHARGE

A7. MATERIALS OF CONSTRUCTION

Tank shell	:	SA 612 Minimum thickness 19,1 mm
Tank ends	:	SA 612 Hot formed Minimum thickness 17,7 mm
Framework	:	Grades of low carbon steel, main structural elements BS 4360 Grade 50C or 43C or equivalent
Manhole and flanges	:	SA 350 LF 2
Internal piping	:	Stainless steel 304L 50 NB, sched 40
Sunshield	:	Marine Grade Aluminium
Baffle supports	:	SA 612 (6 mm)
Baffles (3 sets, removable flat)	:	300 WA

A8. MOUNTING

The tank container is mounted using the unique and patented Containereering multi-directional suspension system, allowing for the isolation of movement between frame and tank.

A9. MODULE DIMENSIONS

To ISO	:	Length 6 058 mm (20'0")
	:	Width 2 438 mm (8'0")
	:	Height 2 591 mm (8'6")

A10. RADIOGRAPHY

Ends	:	100 %
Shells	:	100 %

A11. JOINT EFFICIENCY

Ends	:	1.00
Shell	:	1.00

A12. CORNER CASTINGS

To ISO 1161

SECTION B: MANLID/SAFETY RELIEF VALVES

B1. MANLID ASSEMBLY

Tank fitted with : 500 NB diameter manlid

B2. SAFETY RELIEF ASSEMBLY

- | | | |
|---------------------|---|---|
| 1. Relief valve | : | Mecathermic 140370 or Fort Vale 004/2. |
| Pressure Setting | : | 22 Bar |
| Valve size | : | 80 mm (3") |
| 2. Rupture Discs : | | Elfab Hughes or Continental Disc in Stainless Steel |
| 3. Manometer | : | Yes - Graduation 0 - 30 Bar |
| 4. Protection cover | : | Yes |

SECTION C: DISCHARGE SYSTEMS

BOTTOM DISCHARGE

All valves are fitted below the liquid level and grouped together on the vessel side, enclosed by a bolt on TIR closure.

VALVES

C1. GAS LINE

- 1 x Fisher C427T-16-10 2" internal safety valve with Fisher P651 cable controls.
 - 1 x Fisher N310T-16 2" ball valve.
 - 1 x 1 3/4" flanged connector in S/S 304L.
 - All gaskets and sealing in Teflon (PTFE).
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5. Loctite PTFE sealer to be used on threaded connections.
6. Remote control latches (10 m stainless cable) will be located in the valve compartment.
7. A Fisher fire safe fuse on the remote controls will be provided
8. A ½" bleed valve is fitted between the ball valve and the flanged connector.

C2. LIQUID LINE

1. 1 x Fisher C427T-16-25 2" internal safety valve with Fisher P651 cable controls.
2. 1 x Fisher N310T-16 2" ball valve.
3. 1 x 3 1/4" flanged connector in S/S 304L.
4. All gaskets and sealing in Teflon (PTFE).
5. Loctite PTFE sealer to be used on all threaded connections.
6. Remote control latch (10 m stainless cable) will be located inside the valve compartment.
7. A Fisher fire safe fuse on the remote controls will be provided.
8. A ½" bleed valve is fitted between the ball valve and the flanged connector.

C3. INTERNAL PIPING

All internal piping is in stainless steel 304L 50 NB schedule 40. The internal piping will be flanged connected to the reducer in order to make it fully demountable.

SECTION D: HEAT TREATMENT

The complete vessel will be stress relieved after manufacture.

SECTION E: SUNSHIELD

A Marine Grade Aluminium sunshield (2 mm) with a 120 degree included angle at spacing 40 mm from vessel is provided.

SECTION F: ACCESS LADDER/WALKWAY

F1. ACCESS LADDER

One on the rear end.

F2. WALKWAY

One ¼ length longitudinal walking grid.

SECTION G: ACCESSORIES

G1. DOCUMENT BOX

A PVC Document Box is fitted on left lower rear of frame.

G2. EARTH CONNECTION

One (1) stainless steel strap connecting tank to frame is fitted.

G3. EARTH POINT

Tank frame fitted with a stainless steel earthing point on the lower rear.

G4. VOLUME

The capacity of each container is determined and used for data plate marking.

G5. CUSTOMS SEALING

Manhole, discharge valves and relief valves are provided with Customs sealing devices.

G7. TEMPERATURE GAUGE

Provision to fit a temperature gauge : Yes

G8. PRESSURE GAUGE

Oil filled 0 to 40 bar mounted to the tank through an orifice of 1 mm and ½" ball valve or equivalent.

G9. VOLUMETRIC GAUGE

Provision to fit Rochester gauge.

SECTION H: FINISHING / PAINTING OF VESSEL AND FRAME

H1. INTERIOR FINISH

The interior of the vessel will be shotblasted to SA 2.5 and will be delivered in a nitrogen purged condition. Dry Nitrogen (0,2 < 1 % residual oxygen, 1 bar pressure, dew point Nitrogen -20°C) will be used for purging.

H2. EXTERIOR FINISH

All external tank welds to be left "as welded".
The external surface of the vessel will be shotblasted to SA 2.5 before the application of the primer.

Prime coat	:	Hempadur Zinc 1856 - 40 micron dft
Top coat	:	Hempatex Hi-Build 4641 - 90 micron dft

H3. FRAME FINISH

Shotblast	:	The entire framework shotblast to be carried out in warm dry weather, utilising air free of moisture to a shotblast condition equivalent to Grade SA 2,5.
Prime coat	:	Hempadur Zinc 1856 - 40 microns dft
Top coat	:	Hempatex Hi-Build 4641 - 90 micron dft

SECTION I: INSPECTION

All tank containers are produced under a Quality Management System approved by the SABS in 1990 to be in conformance with ISO 9002.

Each container to be certified by Lloyds Register.

SECTION J: APPROVALS AND DOCUMENTS

J1. APPROVALS

- a) UIC
- b) RID/ADR/RTMDR:F
- c) CSC
- d) DOT E-11196
- e) IMDG / IMO
- f) AAR 600
- g) FRA
- h) TC impact improved
- i) TIR

J2. OTHER DOCUMENTS

- a) Initial inspection certificate for each tank issued by BV.
- b) Name plate details
- c) List of transportable products and flow calculations.
- d) U-1A form.

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**PRODUCT LIST FOR 24 600 LITRE 22 BAR
IMO 5 TANK CONTAINER**

Identifi- cation No.	Hazardous Material Description Proper Shipping Name	IMDG	ADR / RID	DOT	Hazard Class Division	Filling Ratio kg/l
UN1005	Ammonia Anhydrous	x	x	x	2.3	0.53
UN1010	Butadienes	x	x	x	2.1	0.55
UN1011	Butane	x	x	x	2.1	0.51
UN1012	Butylene	x	x	x	2.1	0.53
UN1018	Chlorodifluoromethane (R22)	x	x	x	2.2	1.03
UN1020	Chloropentafluoroethane (R115)	x	x	x	2.2	1.06
UN1027	Cyclopropane, liquefied	x	x	x	2.1	0.53
UN1028	Dichlorodifluoromethane (R12)	x	x	x	2.2	1.15
UN1030	1,1 Difluoro Ethane (R152a)	x	x	x	2.1	0.79
UN1032	Dimethylamine, Anhydrous	x	x	x	2.1	0.59
UN1033	Dimethyl Ether	x	x	x	2.1	0.58
UN1036	Ethylamine Anhydrous	x	x	x	2.1	0.61
UN1037	Ethyl Chloride	x	x	x	2.1	0.80
UN1055	Isobutylene	x	x	x	2.1	0.52
UN1060	Methyl Acetylene and Propadiene (Mixtures stabilised)	x	x	x	2.1	0.43
UN1061	Methylamine, Anhydrous	x	x	x	2.1	0.58
UN1063	Methyl Chloride	x	x	x	2.1	0.81
UN1064	Methyl mercaptan	x	x	x	2.3	0.78
UN1075	Petroleum gases liquefied	x	x	x	2.1	0.95
UN1077	Propylene	x	x	x	2.1	0.43
UN1083	Trimethylamine Anhydrous	x	x	x	2.1	0.56
UN1086	Vinyl Chloride	x	x	x	2.1	0.81
UN1087	Vinyl Methyl Ether Inhibited	x	x	x	2.1	0.67
UN1965	Petroleum gases liquefied	x	x	x	2.1	0.95
UN1969	Isobutane or Isobutane Mixture	x	x	x	2.1	0.49
UN1978	Propane	x	x	x	2.1	0.42
UN2517	Chlorodifluoroethanes (R142b)	x	x	x	2.1	0.99
UN2602	Dichlorodifluoromethane and difluoroethane azeotropic mixture (R500)	x	x	x	2.2	1.01
UN3159	1,1,1,2 Tetrafluoroethane (R134a)	x	x	x	2.2	0.99