

# CO<sub>2</sub> Storage

## ASCO 20' ISO Tank Containers



**ASCO CO<sub>2</sub>** and Cryogenic 20' ISO Tank Containers include a high quality vacuum multi-laminar super insulation and are supplied complete with all pipework, valves, safety devices, liquid level indicator, pressure gauge and optional with transfer pump and filling hoses.

All tank containers are designed for transportation by road, ship and rail.

The models are also available on semi-trailer and/or with tractor.

Inner vessels and pipework are made of stainless steel-used for multipurpose transportation of CO<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub> and Ar.

ASCO reserves the right to modify all specifications without prior notice.

## Specifications:

### 1. Main Data

Commodity	approx. 19'650 l (5'191 gal)
Gross water volume:	19'650 l
Max. allowed working pressure:	22 bar (319 psi)
Tare weight:	approx 8'600 kg (18'960 lb)
Max. gross weight:	36'000 kg (79'366 lb)
Max. payload:	LCO2: approx. 19'600 kg (43'211 lb)
	LIN: approx. 14'950 kg (32'959 lb)
	LOX: approx. 21'240 kg (46'826 lb)
	LAR: approx. 26'130 kg (57'607 lb)
Tolerances:	on volume 1 %, on weight 2 %
Codes and regulations:	ADR / RID / IMDG / (UN-T75) / UIC
Insulation:	Vacuum with multi-layer insulation
Height:	approx. 2'600 mm (102 in)
Width:	approx 2'440 mm (96 in)
Overall length:	6'060 mm (239 in)
ISO-corner castings:	20' x 8' x 8'6" ISO dimensions (508 x 203.2 x 218.4 mm)

### 2. Tank

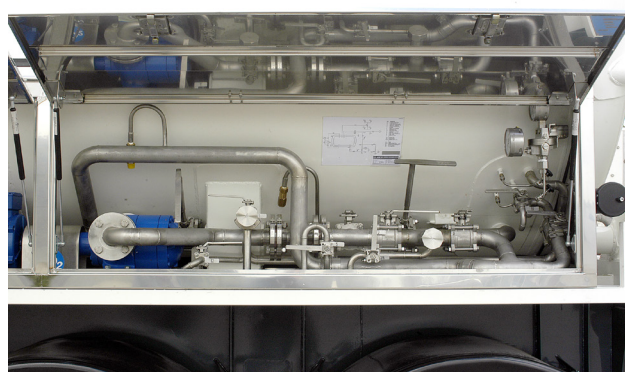
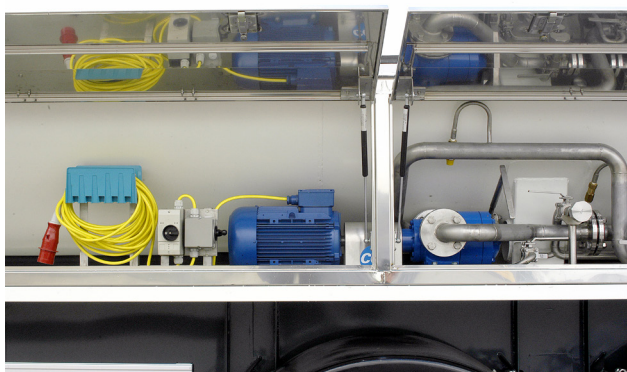
<b>Inner Vessel</b>	
Max. allowed working pressure:	22 bar (319 psi)
Pressure vessel code:	AD 2000-Regelwerk
Test and calculation pressure:	29.9 bar (434 psi)
Design temperature:	-196 / +50 °C
Outer diameter:	2'200 mm (87 in)
Number of baffles:	2
<b>Outer Vessel</b>	
Design pressure:	-1 bar (-14.5 psi) (full vacuum)
Design temperature:	-20 / +50 °C
Outer diameter:	2'420 mm (95.28 in) (not protruding over the frame members)
Overall length:	6'000 mm (236.22 in) (not protruding over the frame members)
<b>Insulation</b>	
Type	vacuum + multi-layer insulation (super insulated)
<b>Materials</b>	
Inner vessel of CO <sub>2</sub> tanks:	Stainless steel type 1.4311/EN 10028-7 or equivalent
Inner vessel of cryogenic tanks:	Stainless steel type 1.4311/DIN 17440 or equivalent
Outer vessel:	Carbon steel S235JRG2/EN 10025 or equivalent
Piping:	Stainless steel type 304 (L)
Valves for CO <sub>2</sub> tanks:	Ball valves, stainless steel, for CO <sub>2</sub>
Valves for cryogenic tanks	Cryogenic valves

### 3. Frame

The frame is of „Beam Type“, consisting 8' x 8'6"-frame at each end, connected to each end. Handling to be done by means of the corner castings only. The container can be secured by twist locks on rail and road vehicles complying to the relevant requirements of ISO 668 freight containers.



## Lockable Machinery Compartment:



All stainless steel pipework and valves neatly arranged in a lockable machinery compartment. Outside of the machinery compartment is a lockable document holder installed.

## Available Types:



ASCO's 20' ISO Tank Containers are optionally available on semi-trailer and/or tractor.

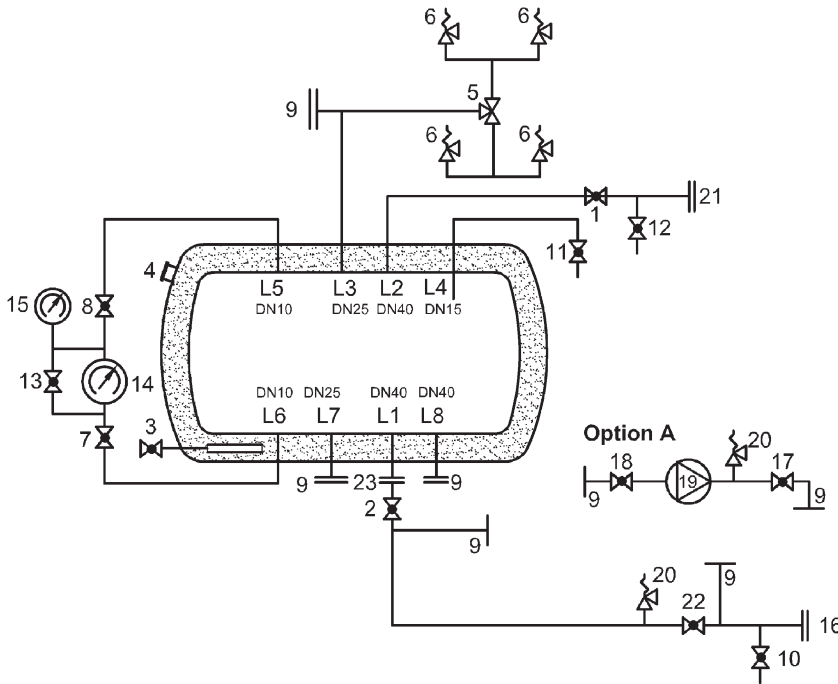
All ISO tank containers include:

- inner vessel made of **stainless steel**
- all pipe work made of **stainless steel**
- all valving necessary for proper operation (stainless steel ball valves for CO<sub>2</sub> and bronze globe valves for cryogenic)
- all necessary safety equipment
- all instruments and safety lines that form part of the tank, including pressure and level gauge
- transfer pump and filling hoses (optional)

Larger sizes also available. Please ask for details!

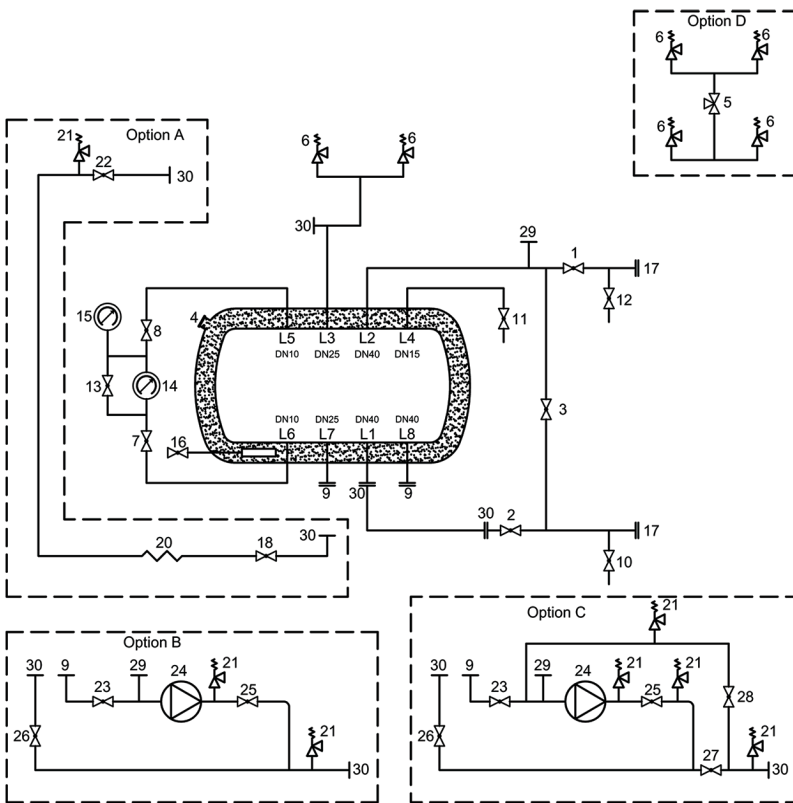
# ASCO 20' ISO Tank Container

Typical flow diagram for 20' ASCO ISO Tank Cryogenic Container



- 1 Vapour balance line valve
- 2 Main bottom isolation valve
- 3 Vacuum point
- 4 Bursting disc vacuum jacket
- 5 Divertor valve
- 6 Safety valve
- 7 Instrument liquid valve
- 8 Instrument gas valve
- 9 Flange connection with blindflange (without option)
- 10 Fill and discharge line purge valve
- 11 Trycock nett capacity 95% valve
- 12 Vapour line purge valve
- 13 Level gauge balance line valve
- 14 Liquid gauge level
- 15 Pressure gauge
- 16 Connection fill and discharge line (flange coupling)
- 17 Liquid from pump delivery valve
- 18 Pump isolation valve
- 19 Pump
- 20 Thermal relief valve
- 21 Connection vapour line (flange coupling)
- 22 Fill and discharge valve
- 23 Flange connection

Typical flow diagram for 20' ASCO ISO Tank CO<sub>2</sub> Container



- 1 Vapour balance line valve
- 2 Bottom fill isolation valve
- 3 Top fill isolation valve
- 4 Bursting disc vacuum jacket
- 5 Divertor valve
- 6 Safety valve
- 7 Instrument liquid valve
- 8 Instrument gas valve
- 9 Flange connection with blindflange (without option)
- 10 Fill line purge valve
- 11 Trycock nett capacity 95% valve
- 12 Vapour line purge valve
- 13 Level gauge balance line valve
- 14 Liquid gauge level valve
- 15 Pressure gauge
- 16 Vacuum point
- 17 Flange connection with blindflange
- 18 Liquid to pressure build up valve
- 19 Pump
- 20 Fin vaporiser
- 21 Thermal relief valve
- 22 Pressure build up gas return valve
- 23 Liquid to pump fill valve
- 24 Pump
- 25 Liquid from pump delivery valve
- 26 Pump by-pass valve
- 27 Liquid from pump delivery valve
- 28 Bottom fill pump isolation valve
- 29 Coupling with plug
- 30 Flange connection

## 20' ASCO ISO Tank Container: Available standard capacities

Pos. 001

### ASCO CO<sub>2</sub> 20' ISO Tank Container

Vacuum super insulated 20' ISO tank container (UN-T75) with stainless steel inner vessel, including hose box.

Gross water volume: approx. 19'650 l

Max allowed working pressure: 22 bar (319 psi)

Tare weight: approx. 8'600 kg (18'960 lb)

Max. gross weight: 36'000 kg (79'366 lb)

Max. payload: approx: **LCO<sub>2</sub>: 19'600 kg (43'211 lb)**

part no. 4046396



Optionally available on semi-trailer and/or tractor.

All ISO tank container include:

- inner vessel made of stainless steel
- all pipework made of stainless steel
- all valving necessary for proper operation
- all necessary safety equipment
- all instruments and safety lines that form part of the tank, including pressure and level gauge
- optionally transfer pump and filling hoses are available

Pos. 002

### Cryogenic ASCO 20' ISO Tank Container

Vacuum super insulated 20' ISO tank container (UN-T75) with stainless steel inner vessel, including hose box.

Gross water volume: approx. 19'650 l

Max allowed working pressure: 22 bar (319 psi)

Tare weight: approx. 8'600 kg (18'960 lb)

Max. gross weight: 36'000 kg (79'366 lb)

Max. payload: approx: **LIN: 14'950 kg (32'959 lb)**

**LOX: 21'240 kg (46'826 lb)**

**LAR: 26'130 kg (57'607 lb)**

part no. 4046398



Optionally available on semi-trailer and/or tractor.

All ISO tank container include:

- inner vessel made of stainless steel
- all pipework made of stainless steel
- all valving necessary for proper operation
- all necessary safety equipment
- all instruments and safety lines that form part of the tank, including pressure and level gauge
- optionally transfer pump and filling hoses are available