CRYOTEKNİK

CRYOGENIC PRESSURE VESSELS
KRİYOJENİK BASINÇLI KAPLAR

WHO
WE ARE?

Cryoteknik was established in 2009 at Manisa city of Turkey.Our company has been serving in the cryogenic equipment production and installation.Cryoteknik has grown up to be a major manufacturer especially on transport and storage tanks for LPG, cryogenics, CO2 and LNG.

Cryoteknik has a proactive, dynamic and progressive approach to keep its leader position and international reputation. Our R&D professionals follow the global developments and adapts to our designs and key processes. We benefit the advantages of high technology to create value for our customers.

CRYOTEKNİK

ABOUT US

Quality Management

Total quality is our primary concept while forming our production; covering all aspects from technology to human. We have accomplished all employees to feel themselves as a part of our quality management system.

Inspection: A brief list of inspection methods and equipment Cryoteknik uses are as follows:
X-Ray
Ultrasonic Test
Magnetic Particle Test
Industrial Endoscopy
Leak Test with Helium Detector
Vacuum Measurement
Hygrometry for Dew Point
UV Lamp

Approval: Cryoteknik has achieved the level of international quality standards and has been awarded international quality certificates

- ISO 9001
- GOST TR
- GOST RTN
- UKR SEPRO
- 2010/35/EU (TPED).

Standards: Cryoteknik is capable to design and manufacture pressure vessels and submit certificates according to the following design codes and standards.

-BS 5500
-EN STANDARDS
-ADR, ADR Part 9

Quality Management

Our approach is to offer service in time, without compromising high quality standards and never leave our customers with unsolved problems. Our services include the following and we offer more comprehensive, location and product specific service packages upon agreement:

- Engineering services to analyze customer's requirements and advice the best solution

- Announcing system upgrades and improvements through the entire service life of the product

- Providing commissioning, operating and maintenance instructions

- Remote help and technical support for in-site repair or requalification

- Training programs for operators, maintenance personnel and engineers

CRYOGENIC

CRYOTEKNIK cryogenic tanks are designed and manufactured for all types of cryogenic applications with the requirements for safe, easy and economical operation. The highlights of CRYOTEKNIK tanks are:

- Storage tanks are equipped by economizer circuit, routing the boil off gas into the main system, which prevents wastage of gas. The mono-bloc pressure building economizer-regulator offers easy pressure adjustment and maintains operational reliability.

- Storage tanks are designed and manufactured in accordance with and conforming to EC directives and EN standarts. Other national pressure vessel codes, or standarts are applicable upon customer's requirement.

- CRYOTEKNIK can provide a wide range of tailer made solutions; with sizes design pressrures and other specifications as required by the customer.

- CRYOTEKNIK's cryogenic tank manufacturing facilty is ISO 9000 approved, to assure the best quality in all aspects of our operation.

PROOUCTS
* LPG / LNG / LIN / LOX / LAR / CLO2 / NH3 / SEMI TRAILERS
* LPG / LNG / LIN / LOX / LAR / CLO2 / NH3 / OVER TRUCK AND TRANSPORT TANK
* LPG / LNG / LIN / LOX / LAR / CLO2 / NH3 / STORAGE TANKS
* LOW PRESSURE EVAPORATORS
* HIGH PRESSURE EVAPORATORS
* CRYOGENIC LIQUID TRANSPORT AND STORAGE CONTAINERS
* AIR TANKS
* FUEL TANKS / STORAGE AND TRANSPORT TANKS
* PROCESS TANKS
* INDUSTRIAL TANKS
* SPECIAL PRODUCTION PROJECT TANKS FOOD TANKS
* MEDICAL PROCESS TANKS
* CHEMICAL TANKS
* PETRO CHEMICAL TANKS
* MANUFACTURING VACUUM CRYOGENIC PIPE

-The support legs are calculated according to UBC, Eurocode standards to resist high wind and seismic loads.

- Standard equipment includes dual safety relief valves with diverter valve, stainless steel pressure gauge and differential pressure contents gauge; with optional switches, transmitters and/or telemetry unit. Horizontal storage tanks can be equipped with load cells.

- Carefully designed stainless steel pipe work reduces operation time. Appropriate bending of stainless steel pipe work means fewer connections, minimizing potential leaks, higher operability and less servicing.

-Rugged internal supports to resist loads and stresses druing transportation.

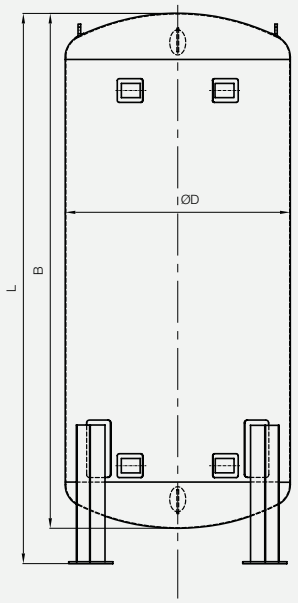
- Ergonomic design of valves, outlets, lifting lugs and other components enables safe and easy installation, operation, maintenance and servicing.

- Air gas tanks and their components are cleaned for oxygen service.

SERVICES
* INDUSTRIAL GAS DIVING FACILITIES LIQUID PUMP INSTALLATION AND PURCHASE
* LPG / LNG / LIN / LOX / LAR / LCO2 / NH3 / PLANT FACILITIES INSTALLATION
* DOMESTIC PERIODIC CONTROL AND SERVICE
* PERIODIC CONTROL AND SERVICE ABROAD
* SYSTEM TRAININGS
* PRODUCTION AND INSTALLATION TRAININGS
* SHIPMENT INFORMATION
* FIELD INSTALLATION TRAININGS
* SERVICE EDUCATION

CRYOGENIC LIN / LOX / LAR
AIR GAS STORAGE TANKS

DESIGN CODE	EN 13458 - PED 2018/68/EU
MAX. ALLOWABLE WORKING PRESSURE	16 BAR/37 BAR
DESIGN TEMPERATURE	-196°C
INNER VESSEL MATERIAL	Stainless Steel (According to EN 10028-7)
OUTER VESSEL MATERIAL	Carbon Steel (According to EN 10025/EN 10028-3)
INSULATION	Perlite & Vacuum

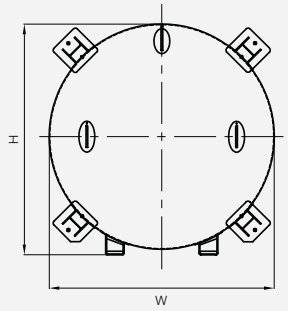


Air Gas Standard Storage Tanks Dimensions

16 BAR CRYOGENIC LIN/LOX/LAR STORAGE TANKS

MAWP	Gross Capacity	Net Capacity (%95 Filling)	Daily Evap. Rate (02)	ØD	B	L	W	H	Empty Weight
bar	liters	liters	% / day	mm	mm	mm	mm	mm	kg
16	2150	2040	0.34	1700	3055	3755	1920	1980	2000
	3450	3280	0.32	1830	3320	4020	2050	2120	2500
	6200	5890	0.30	1830	5210	5910	2050	2120	3750
	8200	7790	0.30	1830	6695	7395	2050	2120	4800
	10450	9930	0.29	2400	4640	5340	2400	2690	5300
	14850	14110	0.28	2400	6130	6830	2400	2690	6950
	20450	19430	0.26	2400	8425	9125	2400	2690	8750
	24750	23510	0.24	2400	9925	10625	2400	2690	10800
	31300	29735	0.23	2680	9600	10300	2680	3020	11750
	46100	43790	0.20	3050	10560	11260	3050	3420	18700
	50000	47500	0.19	3050	11300	12000	3050	3420	20500
	56450	53630	0.18	3050	12370	13070	3050	3420	22200
	66800	63460	0.15	3050	14370	15070	3050	3420	25750

Data given on the table are nominal volumes and actual capacity may vary from these due to manufacturing tolerances.



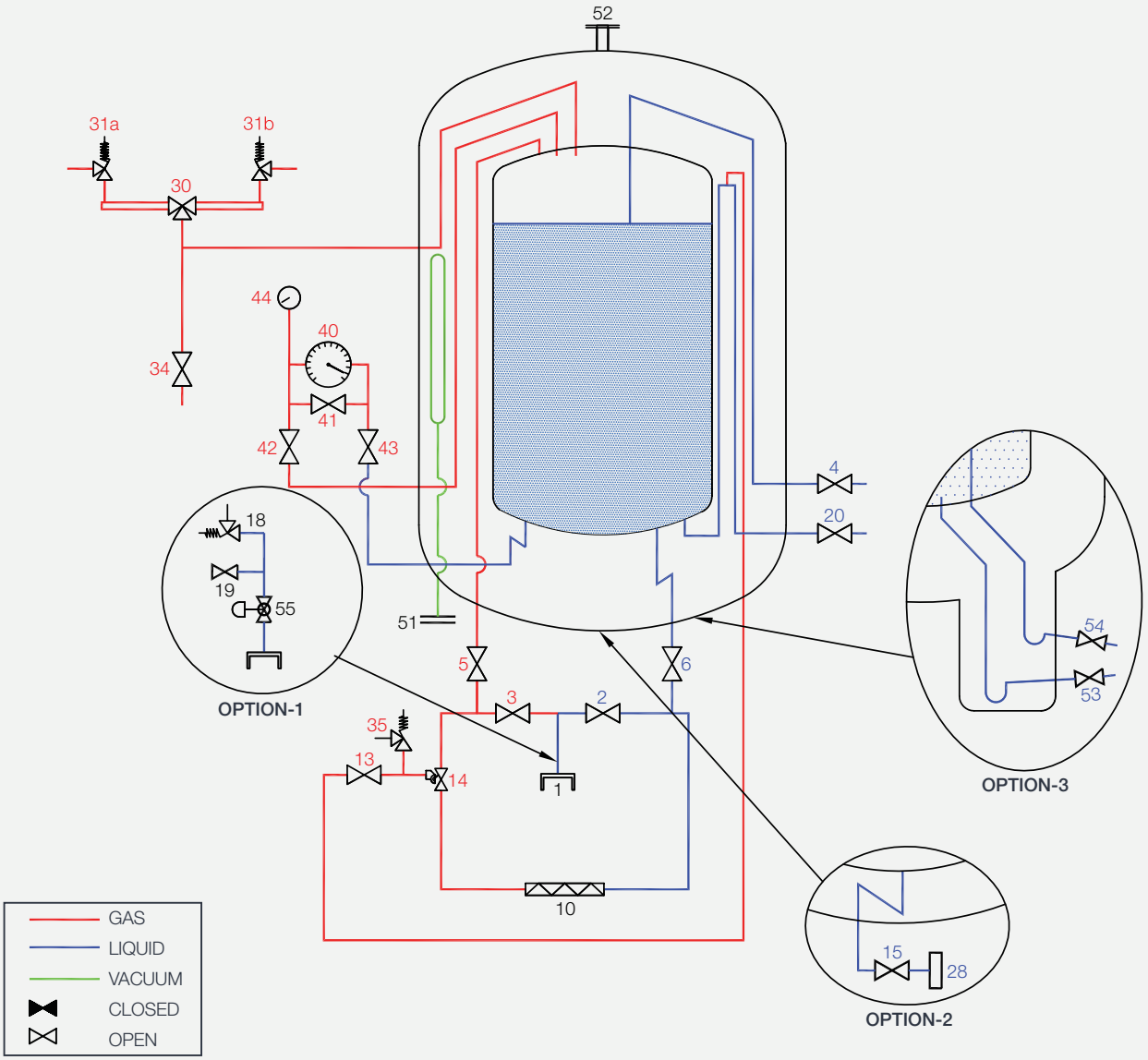
37 BAR CRYOGENIC LIN/LOX/LAR STORAGE TANKS

MAWP	Gross Capacity	Net Capacity (%95 Filling)	Daily Evap. Rate (02)	ØD	B	L	W	H	Empty Weight
bar	liters	liters	% / day	mm	mm	mm	mm	mm	kg
37	3550	3370	0.20	1650	4260	4960	1950	1950	2950
	7300	6940	0.18	1930	5420	6120	2200	2250	5200
	10500	9980	0.16	1930	7740	8440	2200	2250	6900
	15500	14730	0.14	2220	7920	8620	2220	2500	9700
	20100	19100	0.13	2220	9915	10615	2220	2500	12200
	25170	23910	0.12	2500	10300	11000	2500	2780	15000
	31300	29730	0.10	2500	11040	11740	2500	2780	17000

Data given on the table are nominal volumes and actual capacity may vary from these due to manufacturing tolerances.

CRYOGENIC LIN / LOX / LAR
AIR GAS STORAGE TANKS

Air Gas Standard Storage Tanks P&ID



CRYOTEKNİK reserves the right to change above specifications without prior notice.

NOMENCLATURE

1	Fill connection
2	Bottom fill valve
3	Top fill valve
4	Try cock valve
5	Top fill isolating valve
6	Bottom fill isolating valve
10	Pressure building coil
13	Economizer isolating valve
14	Combine valve (Filter, Regulator, Economizer, Non return valve)
20	Liquid withdrawal valve
30	Three way valve
31	Inner vessel safety relief valve (a/b)
34	Vapor vent valve
35	Thermal relief valve
40	Level indicator
41	Equalizer valve
42	Low pressure shut off valve
43	High pressure shut off valve
44	Pressure indicator
51	Evacuation connection
52	Vacuum safety device

Option-1 Overfilling protection

18	Thermal relief valve
19	Purge valve
55	Overfilling protection device

Option-2 Liquid withdrawal line

15	Liquid withdrawal valve
28	Liquid withdrawal connection

Option-3 Thermosyphon

53	Pump feed valve
54	Pump return valve

CRYOGENIC LIN / LOX / LAR
AIR GAS STORAGE TANKS

DESIGN CODE	EN 13530 - ADR
MAX. ALLOWABLE WORKING PRESSURE	3 bar / 16 bar
DESIGN TEMPERATURE	-196°C
INNER VESSEL MATERIAL	Stainless Steel (According to EN 10028-7)
OUTER VESSEL MATERIAL	Carbon Steel (According to EN 10025/ EN10028-3)
INSULATION	Super Insulation & Vacuum

HIGH PRESSURE SERIES AIR GAS TRANSPORT TANK

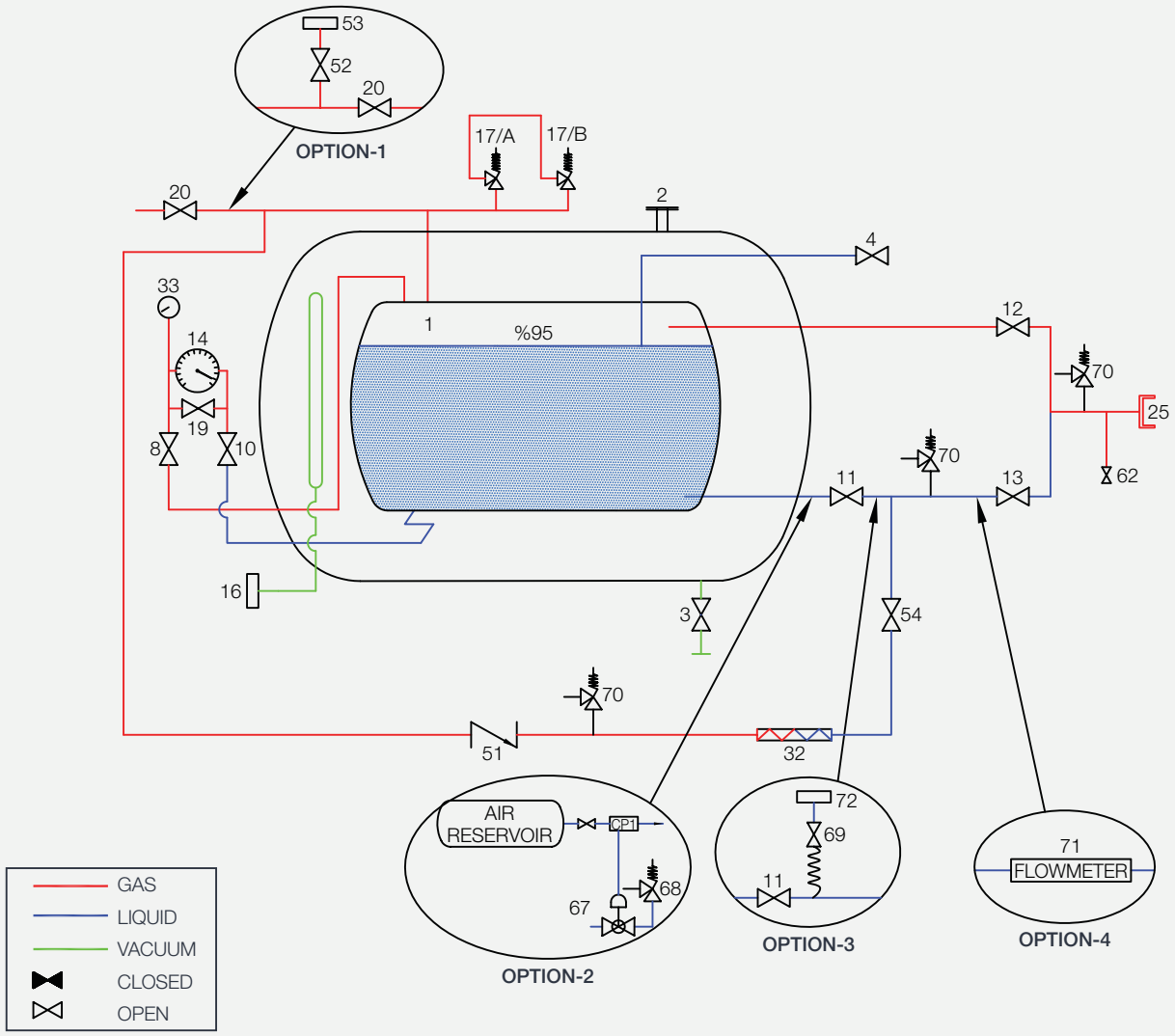
		LOX	LOX	LOX	LOX
TANK VOLUME	lt	6500	9000	11500	14000
NET WATER CAPACITY	lt	6350	8900	11450	14040
TANK EMPTY WEIGHT	kg	4200	5020	6065	7490
LIQUID (0.5 barg)	kg	6800	9450	12160	14920

LOW PRESSURE SERIES AIR GAS TRANSPORT TANK

		LIN	LIN	LOX	LOX	LAR
TANK VOLUME	lt	33500	30000	24500	22000	18600
NET WATER CAPACITY	lt	33490	29800	24250	21780	18620
TANK EMPTY WEIGHT	kg	9800	10400	9250	9200	8800
LIQUID (0.5 barg)	kg	25200	22450	25750	23150	24200
TOTAL	kg	42000	39850	42000	39350	40000

CRYOGENIC LIN / LOX / LAR
AIR GAS STORAGE TANKS

Air Gas Transport Tanks P&ID High Pressure Series



NOMENCLATURE

1	Jacketed pressure vessel
2	Vacuum safety device
3	Evacuation valve
4	Try cock valve
8	Low pressure shut-off valve
10	High pressure shut-off valve
11	Bottom fill isolating valve
12	Top fill valve
13	Bottom fill valve
14	Level indicator
16	Evacuation connection
17/A	Inner vessel safety relief valve
17/B	Inner vessel safety relief valve
19	Equalizer valve
20	Vapor vent valve
25	Fill connection
32	Pressure building coil
33	Pressure indicator
51	Non-return valve
54	Pressure build-up valve
62	Purge valve
70	Thermal relief valve

Option-1

52	Gas analysis valve
53	Gas analysis connection

Option-2

67	Emergency shut-off valve
68	Thermal relief valve

Option-3

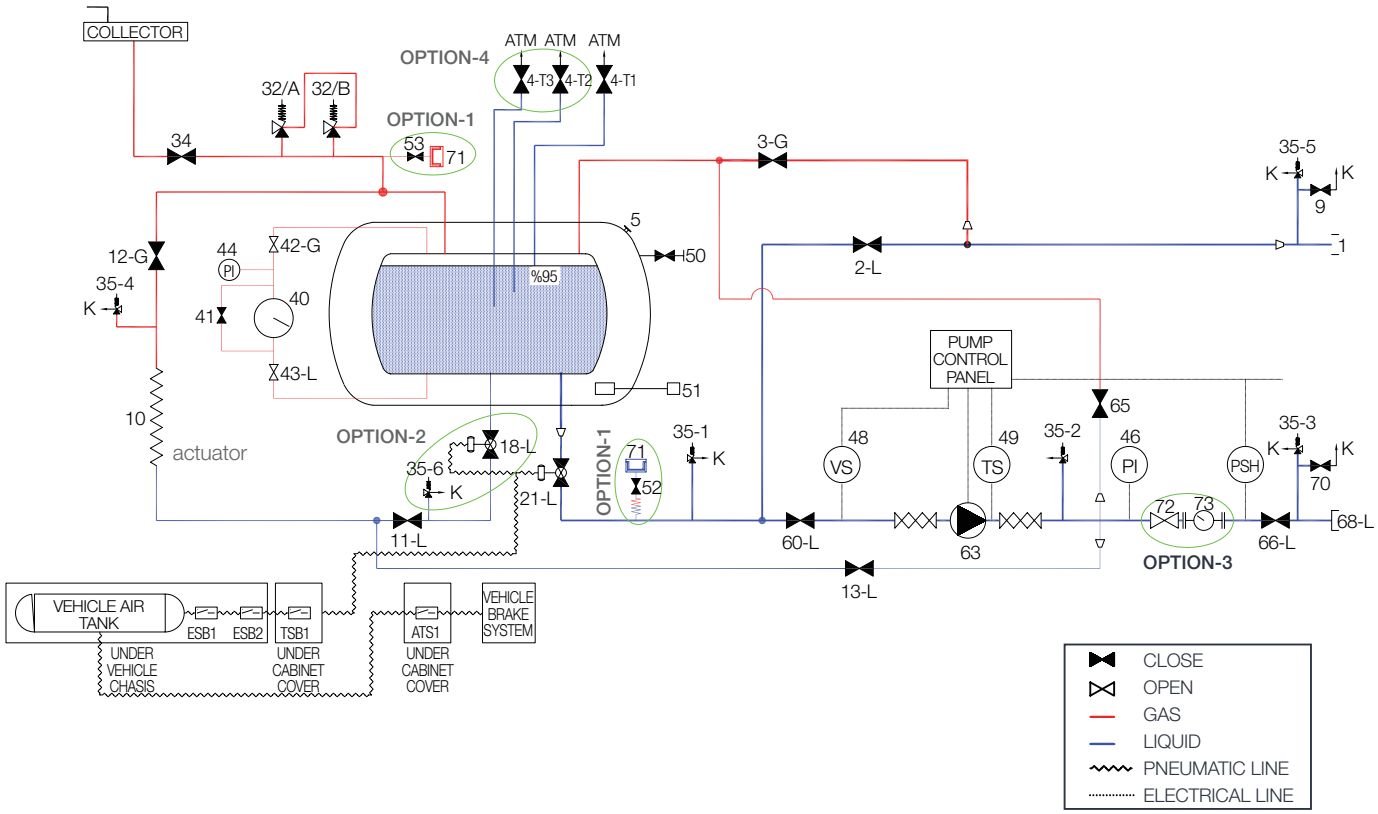
69	Liquid analysis valve
72	Liquid analysis connection

Option-4

71	Flowmeter

CRYOGENIC LIN / LOX / LAR
AIR GAS STORAGE TANKS

Air Gas Transport Tanks P&ID Low Pressure Series



"K" outlets will be connected to collector.

PNEUMATIC CONTROL SYSTEMS
- ESB1 Emergency stop button
- ESB2 Emergency stop button
- TSB1 Transport cruising button
- ATS1 Anti-tow away system

VACUUM CONNECTION
- 5 Vacuum safety device
- 50 Evacuation valve
- 51 Evacuation connection

INDICATOR (LEVEL, PRESSURE) LINE
- 40 Level indicator
- 41 Equalizere valve
- 42-G Low pressure shut-off valve
- 43-L High pressure shut-off valve
- 44 Pressure indicator
- 46 Pump pressure gauge
- 47 Pump high pressure switch
- 48 Pump vacuum switch
- 49 Temperature probe safety device

FILL LINE
- 1 Fill connection
- 2-L Bottom fill valve
- 3-G Top fill valve
- 4-T1 Try cock valve (%95)
- 4-T2 Try cock valve (optional)
- 4-T3 Try cock valve (optional)
- 9 Drain line valve
- 10 Pressure building coil
- 11-L Pressure buil-up valve
- 12-G Vapor outlet valve PBC
- 13-L Pump PBC inlet valve
- 18-L Emergency shut-off valve (optional)
- 52 Liquid anaysis valve (optional)
- 53 Gas analysis valve (optional)

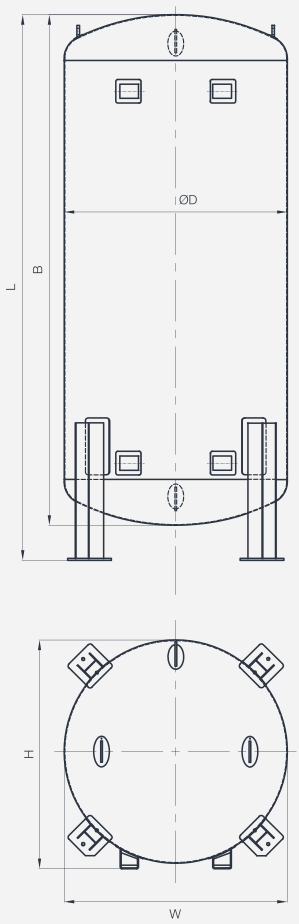
CONSUMPTION LINE
- 21-L Emergency shut-off valve

SAFETY RELIEF LINE EQUIPMENTS
- 32/A Inner vessel safety relief valve
- 32/B Inner vessel safety relief valve
- 35-1 Thermal relief valve
- 35-2 Thermal relief valve
- 35-3 Thermal relief valve
- 35-4 Thermal relief valve
- 35-5 Thermal relief valve
- 35-6 Thermal relief valve (optional)
- 34 Vapor vent valve

PUMP SUCTION LINE
- 60-L Pump suction valve
- 63 Pump
- 65 Pump by-pass valve
- 66-L Pump outlet valve
- 68-L Pump outlet connection
- 70 Purge valve
- 71 Analysis adapter (optional)
- 72 Flowmeter isolating valve (optional)
- 73 Flowmeter (optional)

CRYOGENIC LNG TANKS
STORAGE TANKS

DESIGN CODE	EN 13458 - PED 2014/68/EU
MAX. ALLOWABLE WORKING PRESSURE	5 bar
DESIGN TEMPERATURE	-196°C
INNER VESSEL MATERIAL	Stainless Steel (According to EN 10028-7)
OUTER VESSEL MATERIAL	Carbon Steel (According to EN 10025/ EN10028-3)
INSULATION	Perlite & Vacuum

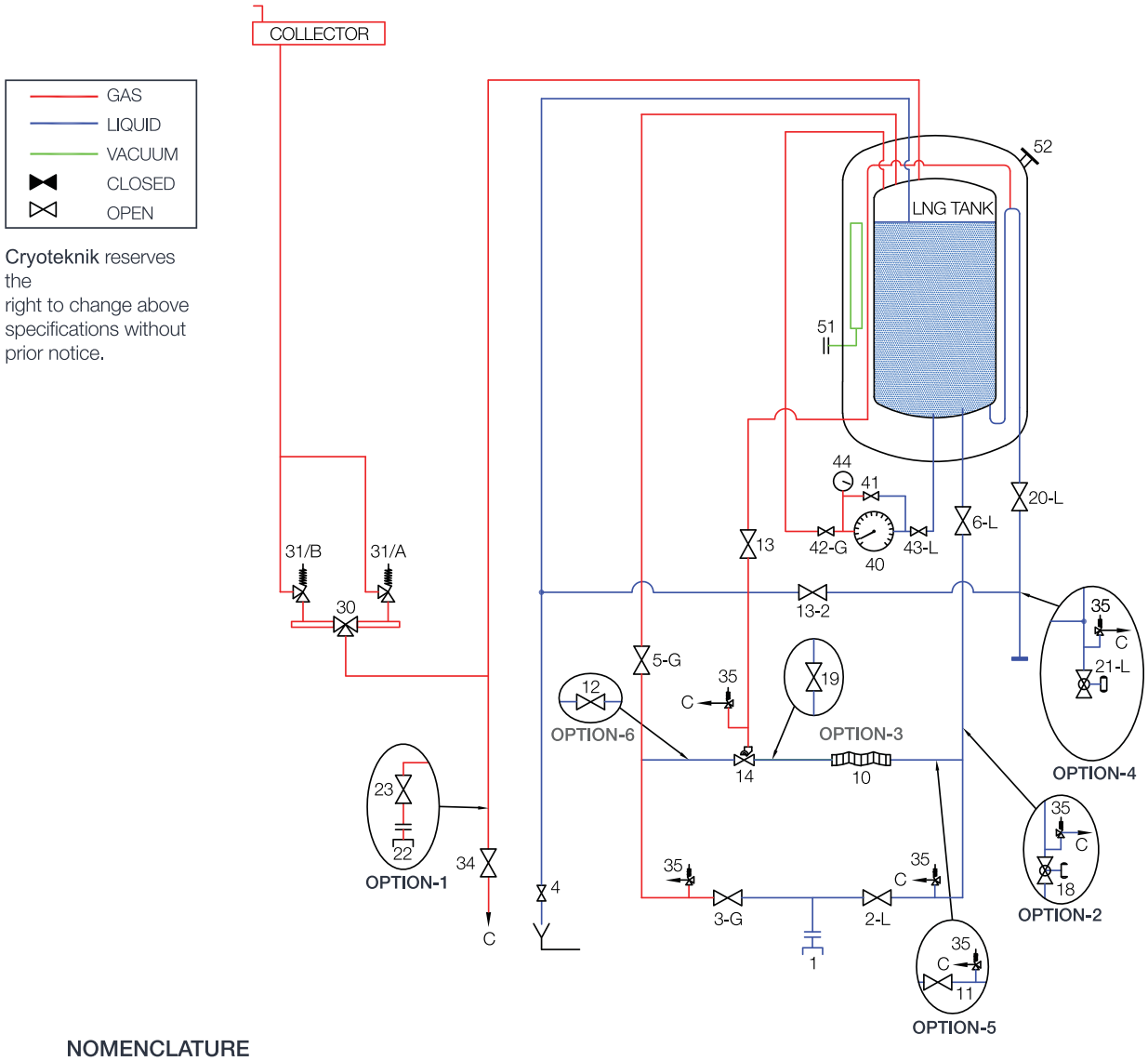


MAWP	Gross Capacity	Net Capacity (%95 Filling)	Daily Evap. Rate (N_2)	ØD	B	L	W	H	Empty Weight
bar	liters	liters	% / day	mm	mm	mm	mm	mm	kg
5	6100	5795	0.27	2000	3820	4520	2200	2190	2700
	10000	9500	0.25	2000	5765	6300	2200	2190	3500
	16000	15200	0.22	2750	4620	5320	2950	3050	4700
	22000	20900	0.2	2750	6100	6800	3070	3050	6200
	32000	30400	0.15	2750	8330	9030	3070	3050	10000
	53000	50350	0.13	2750	13570	14270	3400	3050	14400
	60000	57000	0.11	3350	9900	10600	3920	2830	17000
	67000	63650	0.10	3350	10870	11570	3920	3120	19000
	95000	90250	0.10	3350	14650	15350	3350	3850	25000

Data given on the table are nominal volumes and actual capacity may vary from these due to manufacturing tolerances.

CRYOGENIC LNG TANKS
STORAGE TANKS

LNG Storage Tanks P&ID



Cryoteknik reserves the right to change above specifications without prior notice.

NOMENCLATURE

1	Fill connection
2-L	Bottom fill valve
3-G	Top fill valve
4	Try cock valve
5-G	Top fill isolating valve
6-L	Bottom fill isolating valve
10	Pressure building coil
13	Economizer valve
13-2	Manual economizer valve
14	Combine valve (Filter, Regulator, Economizer, Non return valve)
20-L	Liquid withdrawal valve
30	Change over valve
31/A	Inner vessel safety valve
31/B	Inner vessel safety valve
34	Vapor vent valve
35	Thermal relief valve
40	Level indicator
41	Equalizer valve
42-G	Low pressure shut off valve
43-L	High pressure shut off valve
44	Pressure indicator
51	Evacuation connection
52	Vacuum safety device

Option-1 Vapor equalizing line

22	Vapor equalizing connection
23	Vapor equalizing valve

Option-2 Emergency shut off system

18	Emergency shut off valve
35	Thermal relief valve

Option-3 Line purging

19	Purge valve

Option-4 Emergency shut off system

21-L	Emergency shut off valve
35	Thermal relief valve

Option-5 PBC Isolation valve

11	Liquid inlet valve for PBC
35	Thermal relief valve

Option-6 PBC Outlet valve

12	Liquid outlet valve for PBC

CRYOGENIC LNG TANKS
TRANSPORT TANKS

DESIGN CODE	EN 13530 + ADR
MAX. ALLOWABLE WORKING PRESSURE	6 bar
DESIGN TEMPERATURE	-196°C
INNER VESSEL MATERIAL	Stainless Steel (According to EN 10028-7)
OUTER VESSEL MATERIAL	Carbon Steel (According to EN 10025/ EN10028-3)
INSULATION	Super Insulation & Vacuum

BOBTAIL

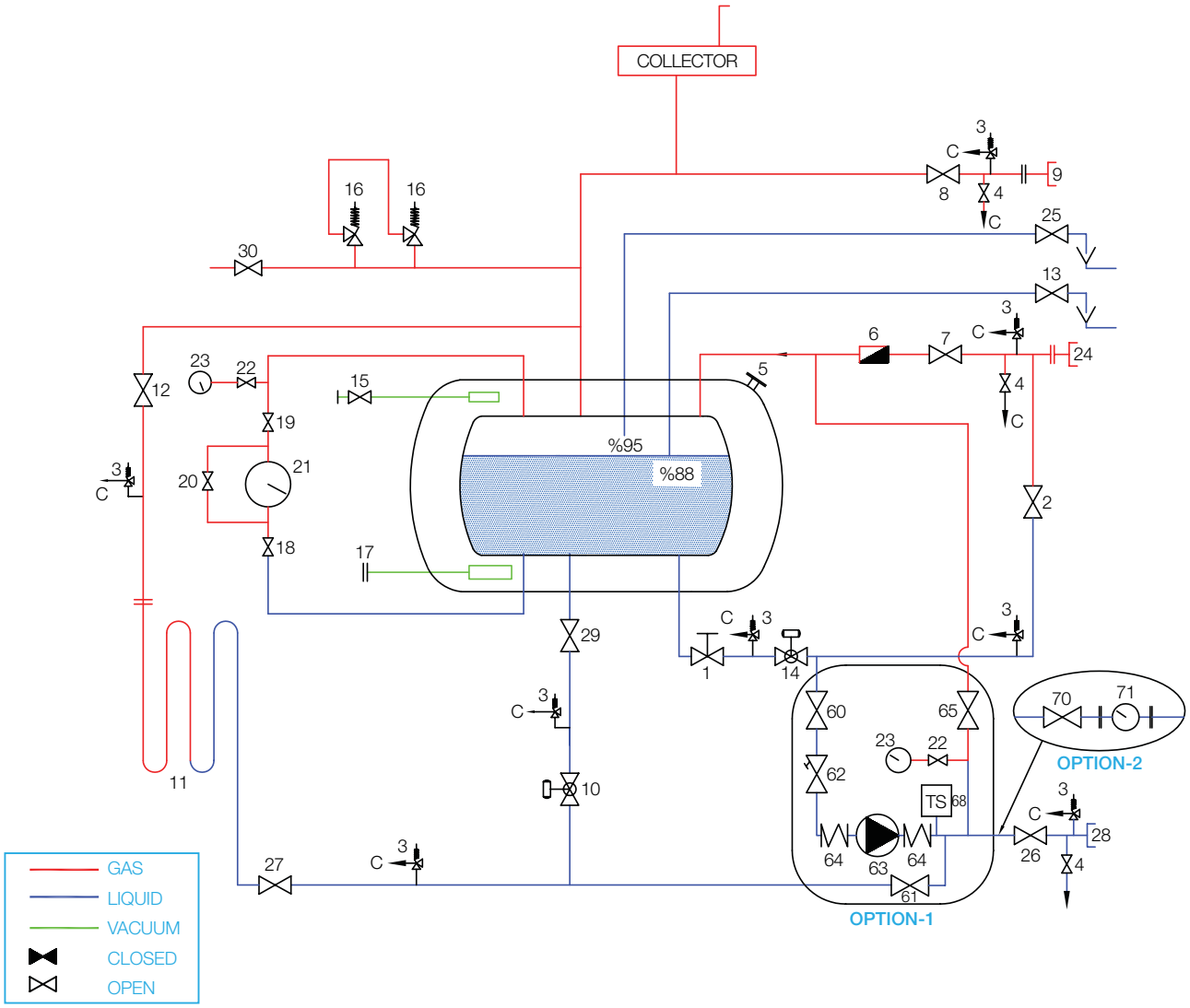
TANK VOLUME	m^3	**25**	**30**
NET WATER CAPACITY	lt	25230	30000
TANK EMPTY WEIGHT	kg	6400	7500
LIQUID (0.5 barg)	kg	10320	12276

SEMI-TRAILER

TANK VOLUME	m^3	**50**	**52**
NET WATER CAPACITY	lt	49600	51950
TANK EMPTY WEIGHT	kg	12700	13400
LIQUID (0.5 barg)	kg	20300	21260
TOTAL	kg	40000	41660

CRYOGENIC LNG TANKS
TRANSPORT TANKS

LNG Transport Tanks P&ID



Cryoteknik reserves the right to change above specifications without prior notice.

NOMENCLATURE

1	Bottom fill isolating valve
2	Bottom fill valve
3	Thermal relief valve
4	Purge valve
5	Vacuum safety device
6	Non return valve
7	Top fill valve
8	Vapor equalizing valve
9	Vapor equalizing connection
10	Emergency shut off valve
11	Pressure building coil
12	Vapour outlet valve for (PBC)
13	Try cock valve
14	Emergency shut-off valve
15	Evacuation valve
16	Inner vessel safety relief valve
17	Evacuation connection
18	High pressure shut off valve
19	Low pressure shut off valve
20	Equalizer valve
21	Level indicator
22	Pressure indicator valve
23	Pressure indicator
24	Fill connection
25	Try cock valve
26	Liquid withdrawal valve
27	Pressure build-up valve
28	Liquid withdrawal connection
29	Isolating valve for PBC
30	Vapor vent valve

Option-1 Pump system

22	Pressure indicator valve
23	Pressure indicator
60	Pump suction valve
61	Pressure build-up valve
62	Filter
63	Pump
64	Expansion joint
65	Gas purge valve
68	Temperature probe safety device

Option-2 Flow meter system

70	Flow meter isolating valve
71	Flow meter

CRYOGENIC
AMBIENT AIR VAPORIZER

Ambient air vaporisers requires no external source of energy; and enables vaporization through exchange of heat with the surrounding air. The liquefied gas is vaporized, and warmed to almost the surrounding temperature, and finally led to the users in its gaseous state.

The vaporisers are for use with liquid :

NITROGEN | **OXYGEN** | **ARGON** | **CARBON DIOXIDE** | **NITROUS OXIDE** | **LNG**

Design Specifications

CRYOTEKNIK offers a full range of ambient air vaporizers in different versions and for different applications. Our ambient air vaporisers have the following properties:

- Designed and manufactured according to PED 2014/68/EU

- Has CE marking

- Max. allowable working pressure 40 bar

- Cleaned for oxygen service

- Seismic requirements acc. to uniform building code-zone 4

- Low pressure drop

- Efficient fin tube design

- Optimised external and internal surfaces for optimum convection

Vaporiser Options

Ambient air vaporisers options are :

- Fin tube vaporisers

- Fan assisted vaporisers

- Fin tube vaporisers rely on natural convection while fan assisted models are equipped with an electric motor operated fan to enchance air flow and increase efficiency.

CRYOGENIC ISO TANK CONTAINER

1. Rating

Type	20000l
Gross Volume (l)	19650
Container gross weight (kg) Carbon Dioxide	28200
Container gross weight (kg) Oxygen	29840
Tare Container (kg) Incl. Pump	8600
Payload (kg) LCO2	19600
Payload (kg) LIN	14950
Payload (kg) LOX	21240
Payload (kg) LAR	26130
Length (mm)	6058
Width (mm)	2438
Height (mm)	2591
Voidage	5 %

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

CRYOGENIC ISO TANK CONTAINER

Design Range

This latest generation of the CRYOTEKNİK ISO container offers a market leading capacity of 22000 litres for the transport and storage of cryogenic liquids. The container is available in working pressure from 4 to 22bar, with optimized units for Nitrogen, Oxygen and Argon as well as more specialized units for CO2, Ethylene, Nitrous Oxide and LNG.

Typical Design Specification	4Bar Type	10Bar Type	17Bar Type
Tank Container Type	IMO T75	IMO T75	IMO T75
Capacity	22000 litres nominal	22000 litres nominal	22000 litres nominal
Tare Weight	5600 kg	6600 kg	7990 kg
Maximum Gross Weight	34000 kg	34000 kg	34000 kg
Maximum Working Pressure	4 bar	10 bar	17 bar
Hydraulic Test Pressure	6.5 bar	14.3 bar	23.4 bar
Design Temperature	-196 deg C to +50 deg C	-196 deg C to +50 deg C	-196 deg C to +50 deg C
Design Code Approval	ADR, RID, IMP, CSG, UIC, TIR, ISO, TPED, UNT75		

Tank Container Details

Inner Vessel construction	Austenitic Stainless Steel 304L
Outer Jacket construction	Austenitic Stainless Steel 304
Baffles	In accordance with ADR
Insulation	Vacuum Insulated
Mounting System	Proven and tested to 5g
Instrumentation Pipes	Stainless Steel construction
Valves	Bronze bodied screw in type, or Stainless Steel weld in type with inter-changeable valve internals

Framework Details

Type	İntegral with base support frame
Material	Stainless Steel throughout
Overall Size	6058x2438x2591 mm High

Options

Pumping System	Optional to facilitate rapid discharge of product
Flow Meter	Provision for Flowmeter in delivery line
Gas Return	To facilitate closed filling

CRYOGENIC ISO TANK CONTAINER

Design Range

The CRYOTEKNİK 40ft LNG Container offers a market leading capacity of 46,000 litres. Available in working pressures of 6, 10 and 17 bar, the container can be used for the transport and storage of LNG with optional designs for site power generation and vehicle refuelling.

Typical Design Specification	6Bar Type	10Bar Type	17Bar Type
Tank Container Type	IMO T75	IMO T75	IMO T75
Capacity	46000 litres nominal	45000 litres nominal	44500 litres nominal
Tare Weight (ASME)	10700 kg	6600 kg	17500 kg
Tare Weight (EN code)	10100 kg	11900 kg	14000 kg
Maximum Cross Weight	6 bar	10700 kg	36000 kg
Maximum Working Pressure	9.1 bar	36000 kg	17 bar
Hydraulic Test Pressure	-196 deg C to +50 deg C	10 bar	23.4 bar
Design Temperature	ADR, RID, IMP, CSG, UIC,	14.3 bar	-196 deg C to +50 deg C
Design Code Approval	TIR, ISO, TPED, UNT75	-196 deg C to +50 deg C	

Tank Container Details

Inner Vessel construction	Austenitic Stainless Steel 304L
Outer Jacket construction	Austenitic Stainless Steel 304 - Carbon Steel option available
Baffles	In accordance with ADR
Insulation	Vacuum Insulated
Mounting System	Complete Stainless Steel Proven and tested to 5g
Instrumentation Pipes	Stainless Steel construction
Valves	Stainless Steel weld in type

Framework Details

Type	İntegral with base support frame
Material	Stainless Steel throughout - Carbon Steel option available
Overall Size	12192x2438x2591 mm High

Options

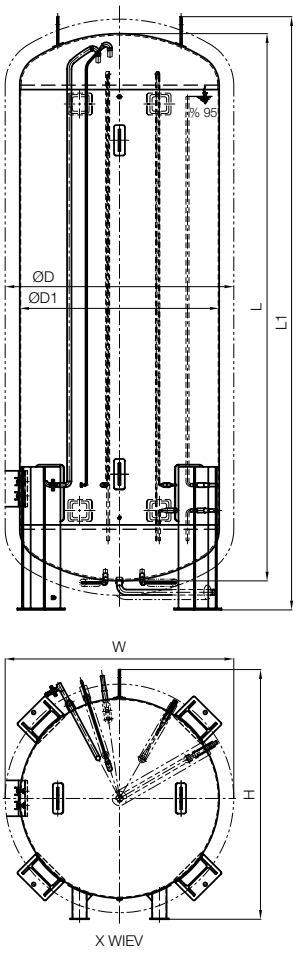
Pumping System	Optional to facilitate rapid discharge of product
Flow Meter	Provision for Flowmeter in delivery line
Gas Return	To facilitate closed filling

CO_2 TANKS FOAM INSULATED **STORAGE TANKS**

DESIGN CODE	AD2000/EN13445 CODE PED 2014/68/EU
DESIGN PRESSURE	22 bar
DESIGN TEMPERATURE	-40 /+50 °C
MATERIAL	Carbon Steel
INSULATION	Foam Insulation

22 BAR FOAM INSULATED CO_2 STORAGE TANKS

MAWP	Gross Capacity	Net Capacity (%95 Filling)	ØD	ØD1	L	L1	W	H	Empty Weight
bar	liters	liters	mm	mm	mm	mm	mm	mm	kg
22	6600	6270	1550	1950	3870	4610	1950	2190	2400
	10000	9500	1850	2250	4060	4750	2300	2540	3500
	13620	12939	1850	2250	5560	6240	2300	2540	4400
	17600	15200	1850	2250	7090	7740	2300	2540	5300
	21500	20425	1850	2250	8560	9240	2300	2540	6200
	25460	24187	1850	2250	10060	10740	2300	2540	7200
	34000	31160	2300	2700	8820	9470	2700	2970	9400
	40000	36765	2300	2700	10320	10970	2700	2970	10800
	41000	38950	2750	3150	7540	8180	3150	3440	10700
	46000	42370	2300	2700	11820	12470	2700	2970	12200
	50000	47500	2300	3150	12920	13570	2700	2970	13200
	50000	47500	2750	3150	9040	9680	3150	3440	12500
	58000	55100	2750	3150	10540	11180	3150	3440	14200
	80000	76000	3200	3600	10780	11740	3600	3890	20000
	103000	97850	3200	3600	13780	14740	3600	3890	24600
	150000	142500	3200	3600	19780	20740	3600	3890	33500
	199000	189050	4000	4400	17500	18430	4400	4690	40200
	254000	241300	4000	4400	22000	22930	4400	4690	51000
	300000	285000	4000	4400	25750	26680	4400	4540	61500



CO_2 TANKS FOAM INSULATED **TRANSPORT TANKS**

TRANSPORT TANKS

DESIGN CODE	EN 14398 / EN 14025 + ADR	
INNER VESSEL MATERIAL	Duplex Stainless Steel	Carbon Steel (EN 10028-3)
MAX. ALLOWABLE WORKING PRESSURE	23 bar	24 Bar
DESIGN TEMPERATURE	-40 / +50°C	
INSULATION	Foam Insulation, with Aluminium Jacket	

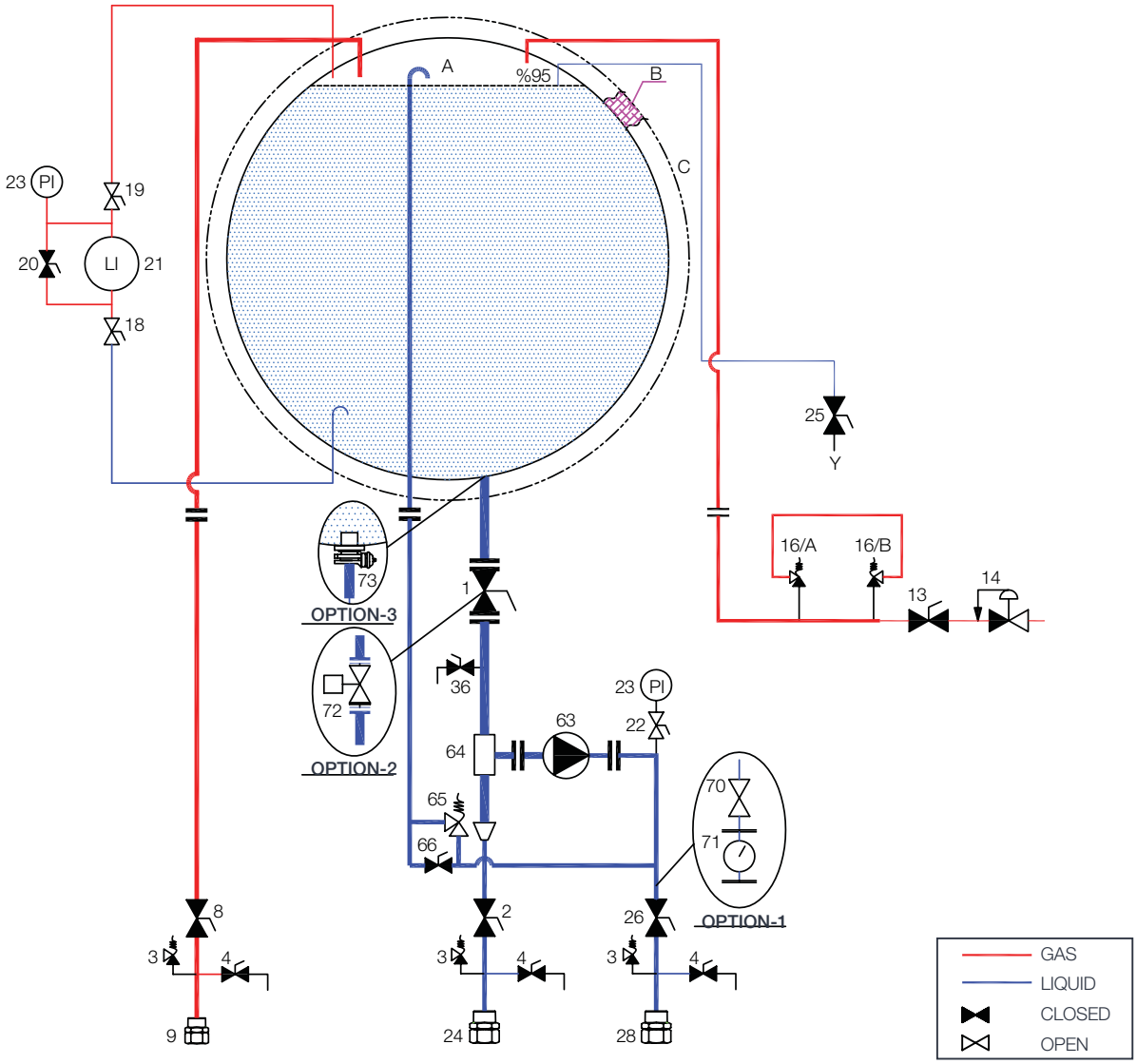
SEMI TRAILER

INNER VESSEL MATERIAL		Duplex Stainless Steel			Carbon Steel		
TANK VOLUME	m^3	**20**	**23**	**25**	**20**	**23**	**24,5**
NET WATER CAPACITY	lt	20000	23100	24750	20000	23030	24530
TANK EMPTY WEIGHT	kg	9200	9700	10200	10000	10700	10900
LIQUID (0.5 barg)	kg	19380	22380	23980	19380	22300	23770
TOTAL	kg	35580	39100	41200	36380	40000	41670

*Volume may vary according to local traffic regulations, truck model and capacity.

CO_2 TANKS FOAM INSULATED
TRANSPORT TANKS

CO_2 Transport Tanks P&ID



NOMENCLATURE

1	Liquid fill valve
2	Bottom fill valve
3	Thermal relief valve
4	Purge valve
8	Vapor equalizing valve
9	Vapor equalizing connection
13	Regulator isolating valve
14	Back pressure regulator
16/A	Inner vessel safety relief valve
16/B	Inner vessel safety relief valve
18	High pressure shut off valve
19	Low pressure shut off valve
20	Equalizing valve
21	Level indicator
22	Manometer valve
23	Manometer
24	Fill connection
25	Try cock valve
26	Liquid withdrawal valve
28	Liquid withdrawal connection
36	Analysis liquid valve
63	Pump
64	Filter
65	Automatic by-pass valve
66	Manuel by-pass valve

Option-1 Flow Meter System

70	Flow meter isolating valve
71	Flow meter

Option-2 Main Liquid Valve with Actuator

72	Main liquid valve with actuator instead of 1

Option-3 Internal Valve

73	Internal valve
A	Inner vessel
B	Foam insulation
C	Outer jacket

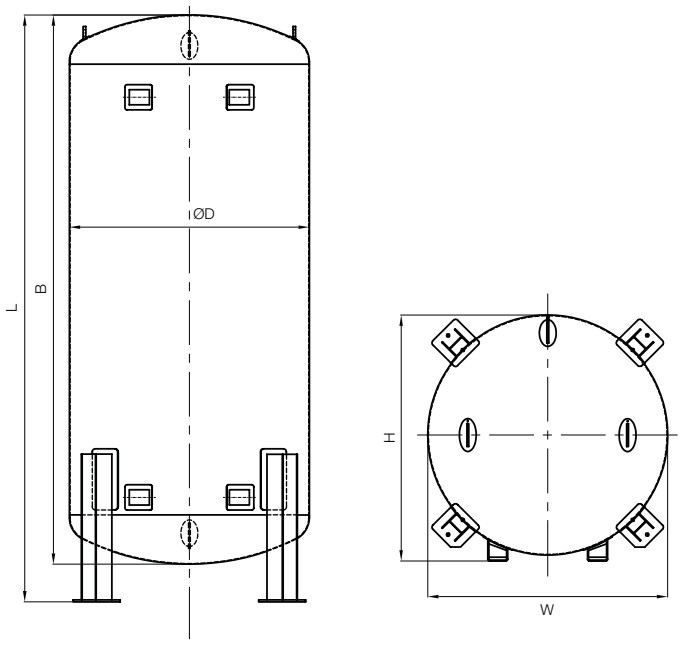
CO_2 TANKS VACUUM INSULATED **STORAGE TANKS**

VACUUM INSULATED CO_2 TANKS

DESIGN CODE	EN 13458 - PED 2014/68/EU
MAX. ALLOWABLE WORKING PRESSURE	22 bar
DESIGN TEMPERATURE	-196°C
INNER VESSEL MATERIAL	Stainless Steel (According to EN 10028-7)
OUTER VESSEL MATERIAL	Carbon Steel (According to EN 10025/ EN10028-3)
INSULATION	Perlite & Vacuum

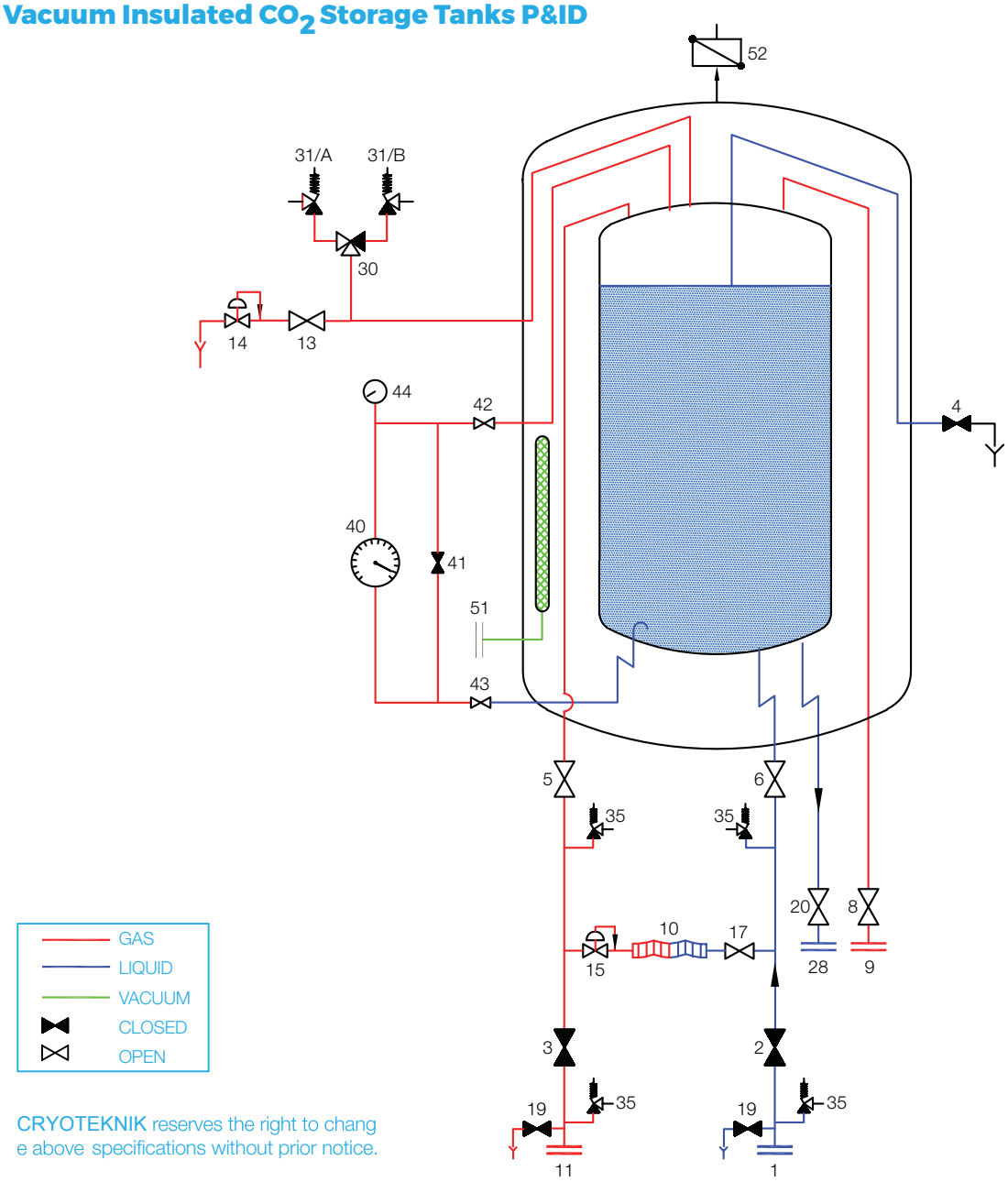
22 BAR VACUUM INSULATED CO_2 STORAGE TANKS

MAWP	Gross Capacity	Net Capacity (%95 Filling)	Daily Evap. Rate (CO_2)	ØD	B	L	W	H	Empty Weight
bar	liters	liters	% / day	mm	mm	mm	mm	mm	kg
22	25000	23750	0.12	2750	7740	8490	3030	2870	14000
	30000	28500	0.11	2750	8880	9630	3030	2870	17000
	35000	33250	0.10	2750	10130	10880	3030	2870	19500
	43000	40850	0.10	2500	14110	14560	2770	2700	23500
	50000	47500	0.10	2650	14200	14650	2920	2700	26000



CO_2 TANKS VACUUM INSULATED **STORAGE TANKS**

Vacuum Insulated CO_2 Storage Tanks P&ID



CRYOTEKNIK reserves the right to chang e above specifications without prior notice.

NOMENCLATURE

1	Fill connection	13	Economizer isolating valve	35	Thermal relief valve
2	Bottom fill valve	14	Back pressure regulator	40	Level indicator
3	Gas equalizing valve	15	Pressure regulator	41	Equalizer valve
4	Try cock valve	17	Pressure building coil valve	42	Low pressure shut off valve
5	Gas equalizing isolating valve	19	Purge valve	43	High pressure shut off valve
6	Bottom fill isolating valve	20	Liquid withdrawal valve	44	Pressure indicator
8	Liquid return valve	28	Liquid withdrawal connection	51	Evacuation connection
9	Liquid return connection	30	Three way valve	52	Vacuum safety device
10	Pressure building coil	31/A	Inner vessel safety relief valve		
11	Gas equalizing connection	31/B	Inner vessel safety relief valve		

SEMI-TRAILER TANKS

- The lightest weight yet most durable semi-trailers; fuel saving and environment friendly.

- Certification according to 2007/46/EC.

- Design and manufacturing according to ADR, TPED, EN 12252, EN 12493.

- Upon customer's requirement, design and manufacturing can be done according to ASME, CODAP or other standards.

- LPG tanks are manufactured and tested under independent inspection, using fine grain, normalized pressure vessels steels. Metallurgical and mechanical properties of steels are verified.

- All welded joints are tested according to the manufacturing standard. A combination of X-ray, ultrasonic, dye penetrant and magnetic particle tests; hydrostatic pressure test, and pneumatic test of all connections, using nitrogen.

- All welded joints are tested according to the manufacturing standard. A combination of X-ray, ultrasonic, dye penetrant and magnetic particle tests; hydrostatic pressure test, and pneumatic test of all connections, using nitrogen.

- Different axle and suspension combinations to suit any type of road;
• from single to four axles
• single or tandem wheels
• mechanical leaf or air suspension

- Excellent braking, load distribution and roll stability performance.
• Drum or disk brake options.
• ABS, EBS, RSP systems
available on request.

- High performance coating with premium quality paints, to offer highest performance during the whole service life.

- Safety relief valves
- Loading and unloading connections
- Emergency stop
- Pneumatic internal valves
- Level gauges
- Equipment cabin made of metal, with long-life and ergonomic design
- Anti tow-away system
- Earthing rod
- Fire extinguisher
- Reflector, safety marking and labeling
- Side protection bars

Volumes 45 m^3 - 47 m^3 - 48,5 m^3 - 50 m^3 - 55 m^3 - 57 m^3 - 62,2 m^3 - 65 m^3

Optional Equipment

- LPG pump
- Hydraulic driven
- Electric driven

- LPG hose reel; liquid phase, vapor phase or both (only with LPG pump)

- Electric power rewind

- Hydraulic power rewind

- Pneumatic power rewind

- Selector (only with LPG pump)

- Remote emergency stop

- Light fixture (inside or outside of cabin)

- Earthing cable reel

- Dead man button

- Hydraulic operated internal valves

- Sunshield

- Logo

- Aluminum rims

SEMI TREYLER

55m³
3 Axles
Air Suspension

45m³
3 Axles
Air Suspension

65m³
EN12493-TPED-ADR Certification
4 Axles
Mechanical + Air Suspension

50m³
EN12493-TPED-ADR Certification
3 Axles
Air Suspension

48m³
EN12493-TPED-ADR Certification
3 Axles
Air Suspension

45m³
3 Axles
Air Suspension

BOBTAIL TANKS

- The lightest weight yet most durable road tankers; fuel saving and environment friendly.

- Design and manufacturing according to ADR, TPED, EN 12252, EN 12493.

- Upon customer's requirement, design and manufacturing can be done according to ASME, CODAP, or other standards.

- LPG tanks are manufactured and tested under independent inspection, using fine grain, normalized pressure vessels steels. Metallurgical and mechanical properties of steels are verified.

- All welded joints are tested according to the manufacturing standard. A combination of X-ray, ultrasonic, dye penetrant and magnetic particle tests; hydrostatic pressure test, and pneumatic test of all connections, using nitrogen.

- Tank accessories and LPG equipment from most prestigious brands, which has worldwide certifications and proven performance.

- Optimum tank design and right configuration of equipment to suit the truck's specifications, the customer's requirements, and the local market conditions.

- Our vast experience and rigorous practices guarantee a safe and quality ride; excellent braking, load distribution and roll stability performance and will not pose a negative effect on truck's components.

- High performance coating with premium quality paints, to offer highest performance during the whole service life.

Standard Configuration

- Safety relief valves
- Loading and unloading connections
- Internal valves, pneumatic operated & with excess flow feature
- Level gauges
- Equipment cabin made of metal, with long-life and ergonomic design
- Anti tow-away system
- Earthing rod
- Fire extinguisher
- LPG pump
- Hydraulic drive
- Electric drive
- Shaft drive
- Reflectors, safety marking and labeling

Optional Equipment

- Hose reel; liquid, vapor or both
  - Electric power rewind
  - Hydraulic power rewind
  - Pneumatic power rewind
- Hose fixture, rust-free
- LPG meter and ticket printer
- Hydraulic operated internal valves
- Selector

Volumes

Tank capacities are determined by truck model and capacity; and standard sizes are as follows:

2 axle trucks

4x2 or 4x4

10 m^3
14 m^3
17 m^3

3 axle trucks

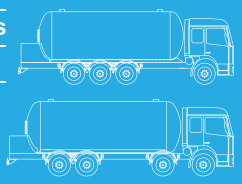
6x2 or 6x4

17 m^3
23 m^3

4 axle trucks

8x2

32 m^3
34 m^3



34m³
EN12493-TPED-ADR Certification with Pump (shaft driven) and Meter

34m³
EN12493-TPED-ADR Certification with Pump (shaft driven) and Meter

34m³
EN12493-TPED-ADR Certification with Pump (shaft driven) and Meter

34m³
EN12493-TPED-ADR Certification with Pump (shaft driven) and Meter

23m³
EN12493-TPED-ADR Certification with Pump (hydraulic driven) and Meter

STORAGE TANKS

Design Temperature : –20°C / +50°C

Design Pressure : 17,16 bar

Test Pressure : 24,54 bar

Head Type : Ellipsoidal / Hemispherical

Material : P355, EN 10028-3 Fine grain, normalized pressure vessel steel

Manufacturing Standard (*) : EN 13445 / PED, with CE marking

Industrial Tank Volumes	
17 m^3	22 m^3
30 m^3	35 m^3
45 m^3	50 m^3
60 m^3	76 m^3
93 m^3	113 m^3
118 m^3	135 m^3
164 m^3	192 m^3

Domestic Tank Volumes
500 lt
1.000 lt
1.750 lt
3.000 lt
5.000 lt
10.000 lt

Manufacturing Standard (*): EN 13445 / PED, with CE marking

- **Manufacturing and testing under supervision of an independent inspection body.**
- **Metallurgical and mechanical properties of steels are tested and verified.**
- **All welded joints are tested according to the manufacturing standard. A combination of X-ray, ultrasonic, dye penetrant and magnetic particle tests are utilized.**
- **All tanks are subjected to hydrostatic pressure test; then all connections pass a pressure test, made by using nitrogen.**
- **Models for above ground and under ground installation.**
- **Tanks are sand blasted and coated with premium quality paints; offering highest performance during the whole service life of tank.**

(*) Upon customer's requirements design and manufacturing can be done according to AD2000 Merkblatter, ASME, CODAP, BS 5500 or other standards; ASME U or U2 stamps can be provided.

CRYOTEKNİK

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