

Cryogenic Storage Tanks



SOXAL Vacuum Insulated Evaporators (VIE)



SOXAL vacuum insulated evaporators (VIE) are designed primarily for the storage and distribution of liquefied gases, particularly oxygen, nitrogen, argon and carbon dioxide.

The VIE is basically a cryogenic storage tank. It is a compact, self-contained automatic system which serves as a central supply of gas into a customer's piping system.

Liquid Filling

Liquid gas is charged into the VIE from a pressurized road tanker or from a low pressure tanker equipped with a liquid transfer pump.

Pressure Building System

Tank pressure is maintained by an automatic pressure building circuit.

Safety Devices

Each VIE is incorporated with several pressure relief safety valves and a trycock to ensure safe operation and prevent from over-filling.

Vaporiser

Liquid from the VIE can be fully converted to gas by means of an ambient vaporizer. In the case of exceptionally high demands, warm water or steam may be used as a heat source.

Who can use the VIE?

Any gas consumer whose demand is sufficiently large where the use of portable gas cylinders or containers becomes impractical, can derive economic and operational benefits from the use of a VIE.

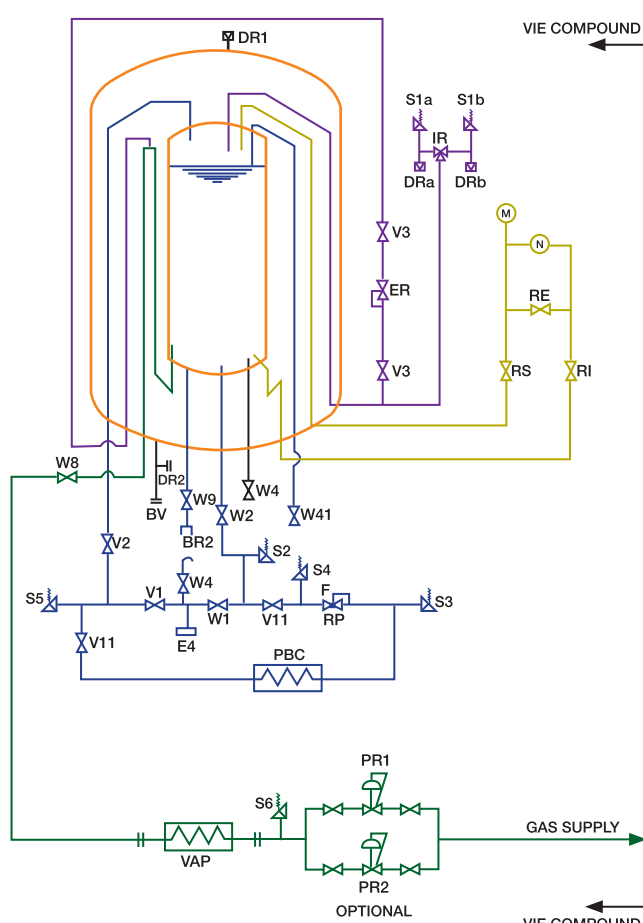




VIE installations consist of one or more storage tanks of various pressures, ambient vaporizers and pressure regulation equipment.

LEGEND

W1	Bottom filling valve
W2	Liquid shut off valve
W4	Drain cock
W8	Vapour withdrawal valve
W9	Liquid withdrawal valve
W41	Full trycock valve
V1	Top filling valve
V2	Gas shut-off valve
V3	Economiser shut-off valve
V11	Pressurising valve
RE	Equalizer valve
RS	Low pressure shut-off valve
RI	High pressure shut-off valve
RP	Pressure building regulator
PBC	Pressure building coil
CAR	Check valve
M	Pressure gauge
N	Content gauge
F	Filter
IR	Three-way valve
ER	Economizer
E4	Filling coupling
BV	Vacuum Measuring and evacuation device
DR1/DR2	Safety device on jacket
DRa/DRb	Inner vessel bursting disc
S1a/S1b	Inner vessel safety valve
S2/S3/S4	Line safety valve
BR1/BR2	Vaporizer coupling
VAP	Vaporizer
PR1/PR2	Pressure regulator



VIE FLOW DIAGRAM

General Layout Of VIE And Vaporiser



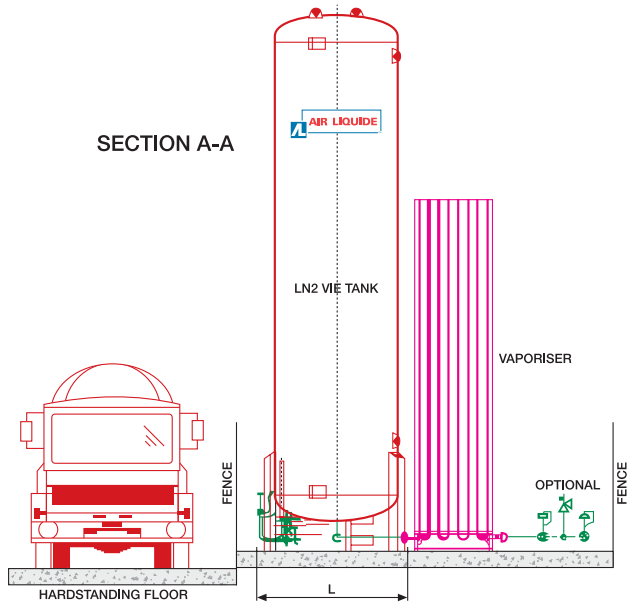
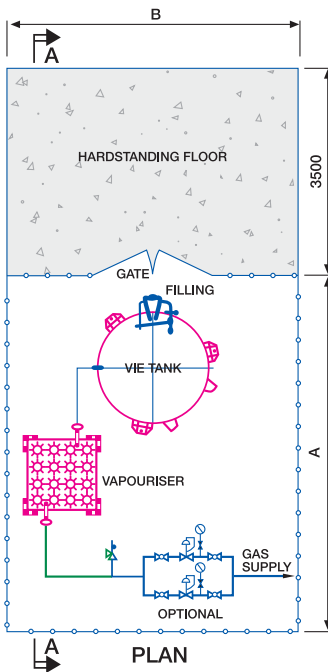
Our gases are stored at our production facility in liquid phase and delivered directly to customers in insulated cryogenic trucks.

Concrete Plinth

The concrete plinth should be constructed in accordance with Civil/ Structural Engineers' design.

Access Road

The gas compound should be accessible to liquid supply tanker with roadway of at least 3,500 mm wide. A hardstanding area is required in front of the gas compound and should be able to withstand a load of a 30-ton tanker. For liquid oxygen service, the hardstanding area should be concreted for safety reasons.



VIE Loading Capacity

VIE Size (Litres)	Net Capacity (M ³)		Weight Empty (Tonne)	Weight Full (Tonne)			HT (M)	DIA (M)	L* (M)	Plinth Area Required (A x B)
	O ₂	N ₂		Ar	O ₂	N ₂				
3,000	2,692	2,180	2.80	6.31	5.29	7.08	1.90	2.40	5.0 x 4.0	
6,000	5,080	4,112	4.30	10.91	8.94	12.37	1.90	2.40	5.0 x 4.0	
10,000	8,332	6,745	5.80	16.64	13.48	19.04	1.90	2.40	6.5 x 5.0	
20,000	16,751	13,561	9.60	31.40	25.04	36.21	2.20	2.80	7.0 x 5.0	
35,000	28,222	22,848	15.88	52.57	41.88	60.70	2.50	2.75	8.5 x 5.0	
50,000	38,413	31,098	18.80	68.78	54.20	79.82	2.84	3.60	9.0 x 5.0	

L* Outermost dimension of VIE taking into consideration filling valves and tank legs (refer to drawing).

Conversion Factors

Gas Type	M ³ at 27°C & 1 atma		Weight in Kg
	1 Kg	1 Litre	
Argon	0.615	0.858	1.390
Carbon Dioxide	0.557	-	-
Oxygen	0.769	0.877	1.140
Nitrogen	0.878	0.710	0.808

LEGEND

Ar	Argon	N ₂	Nitrogen	O ₂	Oxygen
HT	Height	DIA	Diameter	L	Length

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