



IndianOil

Indian Oil Corporation Limited

IBP Division

Business Group (Cryogenics)

*Operational
Economy
&
Engineering
Excellence*



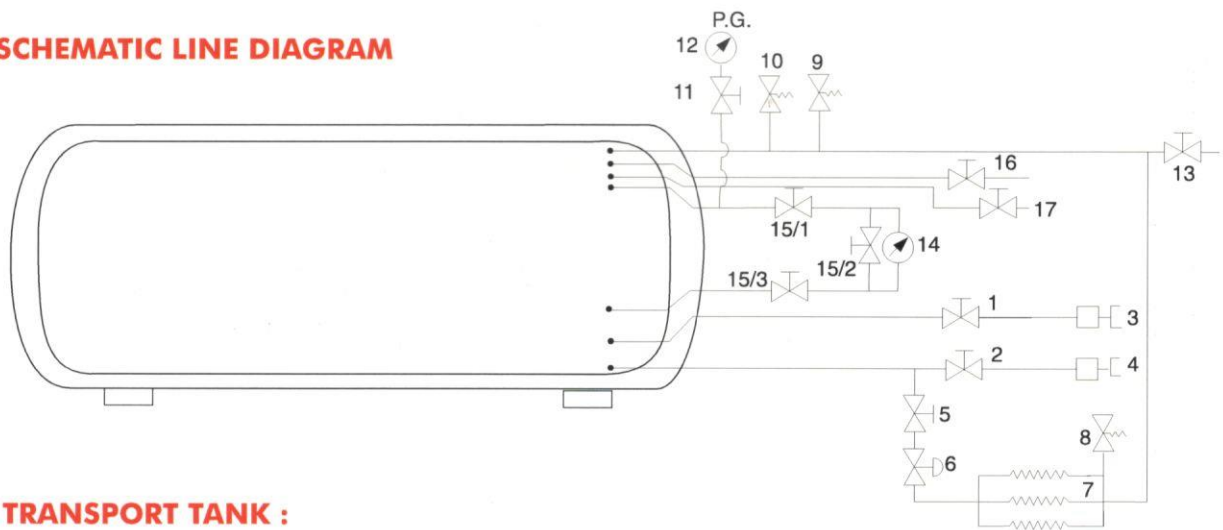
SUPER INSULATED CRYOVESSEL

TRANSPORT TANKS

Sr. No	Model	T3K6K (LIN)	T6K6K	T10K6K (LIN)	T18K17K (Lox) / (Lar)
1	Capacity Gross In Litres	3160	6300	10765	17530
2	Capacity Net In Litres	3002	6000	10226	16654 Lox/13439 Lar
3	Empty Weight In Kgs. (Approx)	1950	2950	3950	8120
4	Overall Length In mm	4045	4177	5382	7154
5	Vessel Outer Diameter In mm	1412	1712	2012	2216
6	Pressure (MAWP) Kg/cm ² (g)	6	6	6	17
7	Static Evaporation loss rate per day of Liquid Nitrogen as %	0.8	0.7	0.65	0.4
8	Recommended, Chassis :	TATA LPT 909	TATA LPT 1109 EX/42	TATA LPT 2518 EX	TATA LPT 3718 TC

TRANSPORT TANKS : Features : Super insulation and high vacuum ensures lowest evaporation rate. • Super insulation results in lower vessel weight, thus maximising payload capacity. • Antisloshing baffles minimises liquid shift load. • Dual Safety Release valve for extra protection. • Inner and outer vessels are made of stainless steel and carbon steel respectively. • External vessel fitted with unique pressure release device. • The Pressure Vessel is designed using ASME / ENCode under third party inspection, PESO clearance and as per SMPV rules. • Ergonomically designed control panel for ease of operation and maintenance. • Optional pressure build regulator. • Designed to suit the Indian road conditions.

SCHEMATIC LINE DIAGRAM



TRANSPORT TANK :

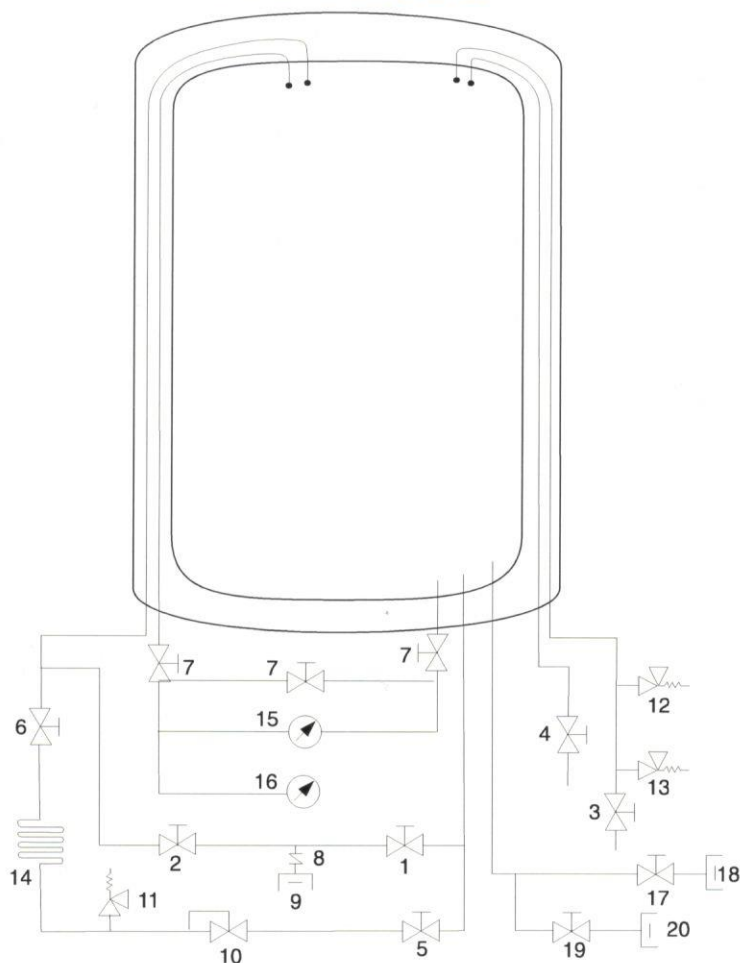
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|--|----------------------------|---|
| 1. Liquid withdrawal valve. | 8. Safety valve (optional) | 15/1to15/3. 3 way valve |
| 2. Front fill valve. | 9. Safety valve. | 16. Try cock / overflow valve (Ln ₂ , LO ₂). |
| 3. 1" NPT end connection (32 O.D.) | 10. Safety valve | 17. Try cock valve / overflow valve (Lar) (optional) |
| 4. 1" NPT end connection (32 O.D.) | 11. Hand Shut Off Valve. | |
| 5. Pressure Build valve. | 12. Pressure gauge. | |
| 6. Pressure build regulator (optional) | 13. Vent valve. | |
| 7. Pressure build coil. | 14. D.P. Level indicator. | |

STORAGE TANKS / COLD CONVERTERS :

Sr. No	Model	V3K2K	V6K2K	V10K2K	V13K18K (T)
1	Capacity Gross In Litres	3211	6335	10531	13718
2	Capacity Net In Litres	3050	6018	10004	13032
3	Empty Weight In Kgs. (Approx)	1345	2150	2848	5650
4	Full Weight In Kgs. With LIN	3806	7007	10921	16167
5	Overall Length In mm	3058	4784	7195	6697
6	Vessel Outer Diameter In mm	1712	1712	1712	2212
7	Pressure (MAWP) Kg/cm ² (g)	2	2	2	18
8	Static Evaporation loss rate per day of Liquid Nitrogen as %	0.6	0.6	0.5	0.5

STORAGE TANKS / COLD CONVERTERS : Features : Super insulation small foot print, maximising liquid storage. • Super insulation and high vacuum keeps loss by evaporation to the minimum. • Dual Safety Release Valve for extra protection. • Inner and outer vessels are made of stainless steel and carbon steel respectively. • External vessel fitted with unique pressure release device. • The Pressure Vessel is designed using ASME / ENCode under third party inspection, PESO clearance and as per SMPV rules. • Automatic pressure build regulator.

SCHEMATIC LINE DIAGRAM



STORAGE TANKS / COLD CONVERTERS :

1. Bottom fill valve.
2. Top fill valve.
3. Vent valve
4. Try cock / overflow valve
5. Pressure building valve.
6. P. B. isolation valve.
7. 3 way valve.
8. Check valve (optional)
9. Fill connection.
10. Pressure building regulator
11. Relief valve-line.
12. Relief valve-tank
13. Relief valve-tank.
14. Pressure building coil.
15. Liquid level gauge.
16. Pressure gauge.
17. Liquid withdrawal valve
18. Liquid withdrawal connection.
19. External vaporiser valve (optional)
20. Vaporiser connection (optional)

WIDE MOUTH FREEZING CUM BULK STORAGE CONTAINERS

CRYOVESSEL wide mouth cryogenic containers of 340 & 550 liter capacity are available for bulk preservation of semen, vaccines and biological samples etc.

Each **CRYOVESSEL** is manufactured with top class technology and raw materials and is backed with proven R & D efforts and rigorous quality assurance tests. meet specified performance standards.



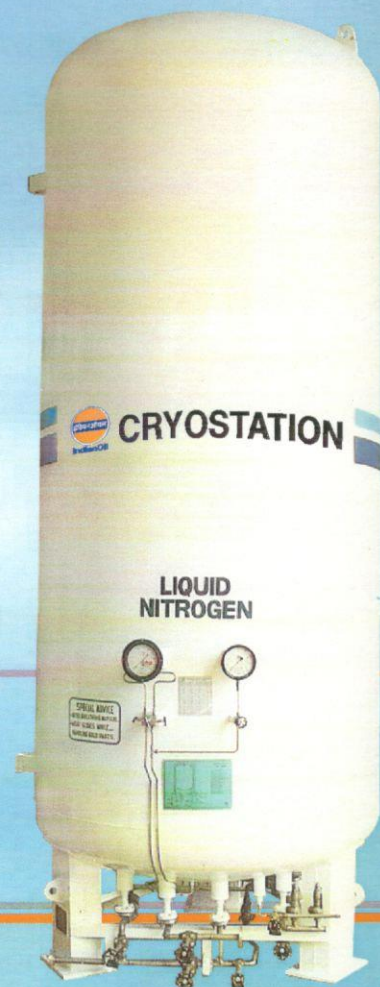
MODEL	OM 320	OMR 550
Capacity	340 Ltrs	550 Ltrs
Height (Approx)	1125 mm	1250 mm
Outer Diameter	900 mm	1110 mm
Neck Opening	810 mm	370 mm (eccentric)
Material of Construction	Stainless steel grade SS304	Stainless steel grade SS304
Empty Weight Without Accessories	155 Kgs.(Approx)	300kgs(Approx.)
Empty Weight With Canisters & Accessories	225 kgs(Approx.)	375 kgs(Approx.)
Static Evaporation Loss Rate Per Day at STP	7 ltrs.	7 ltrs
Canister OD (mm)	70	70
Canister Height (mm)	520	520
Number of Canisters Storage	100	126
	4 Nos	6 Nos
	Stationary compartments	Revolving compartments
Storage Capacity (In Four Levels)		
0.5ml	146000 Nos	183960 Nos
0.25ml	328000 Nos	413280 Nos
Standard Accessories	Canisters with Lifters (100sets) Divider (1 set) Freezing Grill (1No) Freezing Tray (0.5ml)(2Nos.) Distribution Ramp(0.5ml)(1No)	Canisters with Lifters 126(sets) Divider
		Acrylic Top Cover (1No)

● STATIC EVAPORATION RATE IS CALCULATED AS PER INTERNATIONAL STANDARD, FIELD FACTOR WHICH INFLUENCES THE EVAPORATION LOSS RATE MAY VARY FROM 1.6 TO 2.0 TIMES OR MORE DEPENDING ON WORKING CONDITIONS. ● IOC RESERVES THE RIGHT TO MAKE IMPROVEMENTS IN DESIGN AND CHANGES IN SPECIFICATIONS WITHOUT NOTICE AND WITHOUT INCURRING OBLIGATIONS AS TO UNITS ALREADY SOLD

In nearly a century of its existence, the internationally renowned **IOCL**, IBP Div., BG (Cryogenics) has evolved into a dynamic organisation with versatile product range.

IOCL has, today, assumed leadership in the highly sophisticated field of cryogenic engineering. In fact, **IOCL's** Cryovessel is today the undisputed market leader in high capacity super insulated (Stationary and truck mounted) cryogenic containers, and offers a wide range of sizes meeting customers' needs. **IOCL's** Cryovessels, having unmatched features, are ideally suited for transportation as well as storage of liquid Oxygen, Nitrogen and Argon. The storage tanks can be used for either withdrawal of cryogenic liquid product or supply of gas through the use of vaporisers. The transport tanks are optimally designed for carrying higher payload on the truck chassis.

- Tanks of other capacities and pressures available on request.
- External vaporiser available on request.
- Specifications subject to change without notice in view of continuous improvement in design.
- Static Evaporation Loss Rate may vary according to atmospheric conditions.
- Empty Weights are Tare Weights.



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IBP Division, Business Group (Cryogenics)

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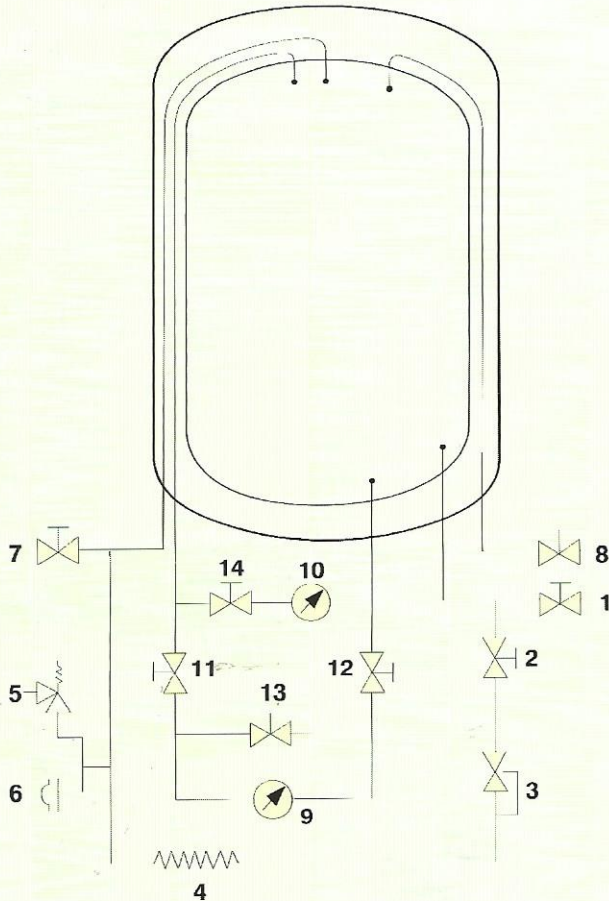
Regd. Office : G-9, Ali Yavar Jung Marg, Bandra (East), Mumbai - 400 051 (India)

CRYOVESSEL - VERTICAL SERIES - SPECIFICATIONS

Indian Oil Corporation Limited (IOCL), IBP Division's Cryovessel is India's most efficient cryogenic vessel as it has the lowest evaporation loss rate due to super insulation and high vacuum. Our considerable experience in this field ensures trouble free service.

Applications : The self-pressurizing Cryovessel is ideally suited for storage and distribution of cryogenic gases like liquid Nitrogen/Argon and form an important accessory in several industrial, research and biological applications like cryosurgery, shrink fitting, high vacuum systems and environmental test chambers as well as for LN₂ distribution in Animal Husbandry sectors.

SCHEMATIC LINE DIAGRAM



VLP - 950

- | | |
|----------------------------------|-------------------------------------|
| 1. Liquid fill/withdrawal valve. | 8. Overflow valve. |
| 2. Pressure building valve. | 9. Liquid level gauge. |
| 3. Pressure building regulator. | 10. Pressure gauge. |
| 4. Pressure building coil. | 11. Gas phase valve. (low) |
| 5. Safety valve. | 12. Liquid phase valve. (high) |
| 6. Rupture disc. | 13. Equilization valve. |
| 7. Vent valve. | 14. Pressure gauge isolation valve. |

Model	VLP-950
Net capacity in litres	940
Gross capacity in litres	995
Overall length in mm	2645
Outside dia of outer vessel in mm	1100
Empty weight in Kg	715
Full weight in Kg	1474
Max allowable working pressure in Kg/cm ²	3.3
Static evaporation rate for LN ₂ as %	0.75
Material of construction for Inner / Outer	SS304/CS
Transfer hose (optional)	15 NB x 2mtr long
Notes :	
1. Specifications subject to change without notice in view of continuous improvement in design.	
2. Static evaporation loss rate may vary according to atmospheric conditions.	

Features :

- Pressure building regulator for automatic pressure regulation at preset level.
- Dual pressure relief valves / burst disc fitted for extra protection.
- Easy to read D.P. gauge
- Transfer hose
- For Oxygen service, containers available on request.



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CRYOVESSEL - HORIZONTAL SERIES - SPECIFICATIONS

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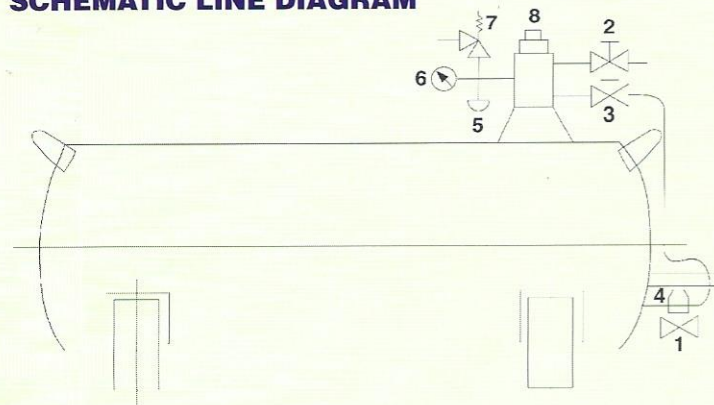
Applications : The self-pressurizing Cryovessel is ideally suited for storage and distribution of cryogenic gases like liquid Nitrogen/Argon and form an important accessory in several industrial, research and biological applications like cryosurgery, shrink fitting, high vacuum systems and environmental test chambers. For Artificial Insemination Centers it provides a reliable storage and distribution facility.

CRYOVESSEL					
Sr.No	Model	HLP 200	HLP 300	HLP 500	HLP 950
1.	Net capacity in litres	200	300	500	950
2.	Gross capacity in litres	228	330	550	997
3.	Overall length in mm	1635	2200	1880	2500
4.	Empty weight in kgs.	180	210	320	785
5.	Outer diameter in mm	650	650	900	1100
6.	Full weight in kgs. for LN ₂	341	452	724	1552
7.	Pressure (MAWP) Kg./cm ² (g)	3	3	3	3
8.	Static evaporation loss rate per day for LN ₂ as %	2.8	2.2	1.8	1.2
9.	Material of construction for Inner and Outer	SS304	SS304	SS304S	S304/CS

Notes : 1. Specifications subject to change without notice in view of continuous improvement in design.
2. Static evaporation loss rate may vary according to atmospheric conditions.

Features : Pressure building regulator for automatic pressure regulation at preset level. ● Dual pressure relief valves / burst disc fitted for extra protection. ● Easy to use dip stick for level indication available upto 500 litre capacity. ● Differential pressure gauge for level indication available for 950 litre capacity. For other capacities available on request. ● Designed to suit Indian road conditions. ● For Oxygen service, containers available on request.

SCHEMATIC LINE DIAGRAM



HLP - 200 / 300 / 500

1. Liquid in/out valve.
2. Vent cum overflow valve.
3. Pressure building valve.
4. Pressure regulator.
5. Bursting disc.
6. Pressure gauge.
7. Pressure relief valve.
8. Gravity filling port.



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