

VS-01 SERIES

PREMIER VERTICAL STORAGE SYSTEMS

Chart's VS-01 Series Storage Systems, available in liquid nitrogen, oxygen or argon service are offered in a wide range of sizes for applications requiring Maximum Allowable Working Pressures of 175 and 250 psig (12 and 17 barg) as standard.

Our proprietary Composite Super Insulation™ system gives you the competitive edge with high thermal performance, extended hold times, low life-cycle costs and lower weight to reduce operational and installation costs. Chart leads the industry with an innovative modular piping system designed for performance, durability and low maintenance.



PRODUCT ADVANTAGES

- Sizes, pressures and configurations to meet most applications
- Backed by an industry-leading 5-year vacuum warranty
- Leg design provides better access to anchor bolts for quicker installation
- Plumbing built in accordance with ASME B31.3 code and leak tested at 1.1 times the MAWP
- Long-life urethane paint system
- Inner vessel designed and built to ASME Section VIII Division 1 code
- Tank mounted vaporizer optional on the 525, 900 and 1500 gallon models (2000 SCFH)

MODULAR PIPING ADVANTAGES

- Reduces your life-cycle costs by reducing the number of external piping joints, minimizing the risk of external piping leaks and the cost to repair.
- Simple by design yet robust and able to support a broad range of customer applications.
- Combination pressure building/economizer regulator for easy pressure adjustment and extended bonnet bronze control valves for ease of operation.
- Piping modules designed for ease-of-access to all operational control valves with stainless steel interconnecting piping for improved durability.



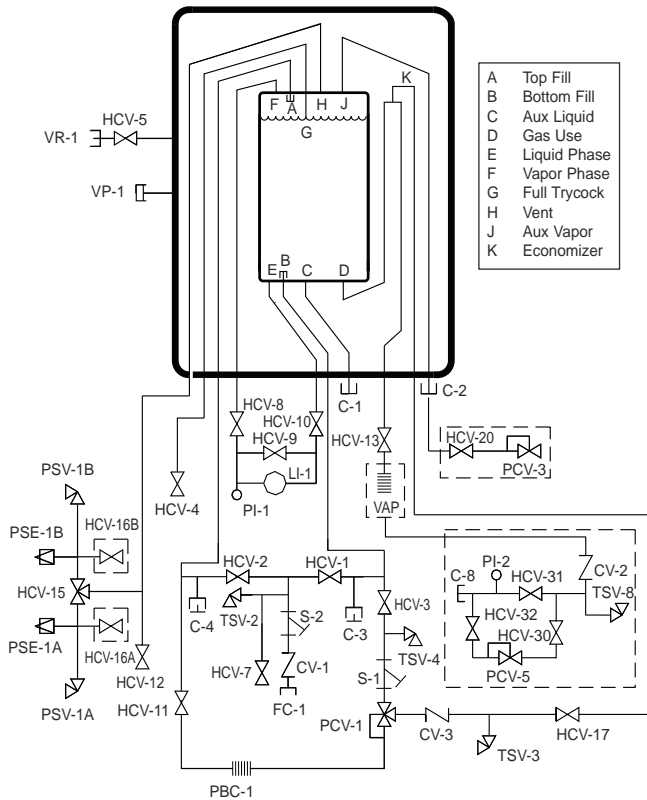
Innovation. Experience. Performance.®

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PREMIER VERTICAL STORAGE SYSTEMS

Model	Gross Capacity		Net Capacity		MAWP*		Flow Capacity**		Diameter		Height		Weight***		NER %/day in O ₂ / Ar	NER %/day in N ₂
	Gal	Liters	Gal	Liters	psig	bar	SCFH	Nm ³ /hr	in	mm	in	mm	lbs.	Kg		
VS 525SC	570	2,158	510	1,931	250	17.2	9,000	237	66	1,676	105	2,667	3,300	1,500	.55	.89
VS 900SC	940	3,558	850	3,218	250	17.2	9,000	237	66	1,676	136	3,454	4,400	2,000	.45	.73
VS 1500SC	1,640	6,208	1,580	5,981	250	17.2	9,000	237	66	1,676	196	4,978	6,200	2,818	.35	.56
VS 3000SC	3,150	11,924	3,030	11,470	175	12.1	18,000	473	86	2,184	228	5,791	11,100	4,990	.25	.40
					250	17.2							12,800	5,806		
VS 6000SC	6,010	22,750	5,770	21,842	175	12.1	18,000	473	86	2,184	383	9,728	19,900	9,026	.15	.24
					250	17.2							21,500	9,752		
VS 9000SC	9,360	35,431	8,990	34,031	175	12.1	42,000	1,104	114	2,896	348	8,840	29,400	13,364	.10	.16
					250	17.2							32,300	14,682		
VS 11000SC	11,410	43,192	10,960	41,488	175	12.1	42,000	1,104	114	2,896	407	10,338	35,200	16,000	.10	.16
					250	17.2							38,700	17,591		
VS 13000SC	13,470	50,989	13,060	49,437	175	12.1	42,000	1,104	114	2,896	466	11,837	41,700	18,955	.10	.16
					250	17.2							45,700	20,773		
VS 15000SC	15,520	58,750	15,060	57,008	175	12.1	42,000	1,104	114	2,896	525	13,335	48,000	21,818	.10	.16
					250	17.2							52,600	23,909		

* MAWP - Maximum Allowable Working Pressure. 400, 500 psig tanks are available upon request ** Flow capacity rating down to a 20% contents level with a maximum fall of in tank operating pressure of 15 psig (bar) *** Weights are for ASME designs (NER) = Normal Evaporation Rate



- A Top Fill
- B Bottom Fill
- C Aux Liquid
- D Gas Use
- E Liquid Phase
- F Vapor Phase
- G Full Trycock
- H Vent
- J Aux Vapor
- K Economizer

Nomenclature

C-1	Connection, Aux Liquid	S-1	Strainer, Pressure Building
C-2	Connection, Aux Vapor	S-2	Strainer, Fill
C-3	Connection, Secondary Aux Liq.	TSV-2	Thermal Safety Valve, Fill
C-4	Connection, Secondary Aux Vapor	TSV-3	Thermal Safety Valve, Economizer
CV-1	Check Valve, Fill	TSV-4	Thermal Safety Valve, PB Circuit
CV-3	Check Valve, Economizer	VP-1	Vacuum Port
FC-1	Connection Fill	VR-1	Vacuum Readout, Outer Vessel
HCV-1	Valve, Bottom Fill		
HCV-2	Valve, Top Fill		
HCV-3	Valve, PB Inlet		
HCV-4	Valve, Full Trycock		
HCV-5	Valve, Vacuum Gauge Tube		
HCV-7	Valve, Fill Line Drain		
HCV-8	Valve, LI-1 Vapor Phase		
HCV-9	Valve, LI-1 Equalization		
HCV-10	Valve, LI-1 Liquid Phase		
HCV-11	Valve, PB Outlet		
HCV-12	Valve, Vapor Vent		
HCV-13	Valve, Product Supply		
HCV-15	Valve, Safety Relief Selector		
HCV-17	Valve, Economizer		
LI-1	Level Indicator, Inner Vessel		
PBC-1	Pressure Building Coil, Inr. Ves.		
PCV-1	Pressure Control Valve		
PI-1	Pressure Indicator, Inner Vessel		
PSE-1A	Pressure Safety Element, Inr Ves		
PSE-1B	Pressure Safety Element, Inr Ves		
PSV-1A	Pressure Safety Valve, Inr Ves		
PSV-1B	Pressure Safety Valve, Inr Ves		
S-1	Strainer, Pressure Building		
S-2	Strainer, Fill		
TSV-2	Thermal Safety Valve, Fill		
TSV-3	Thermal Safety Valve, Economizer		
TSV-4	Thermal Safety Valve, PB Circuit		
VP-1	Vacuum Port		
VR-1	Vacuum Readout, Outer Vessel		

NOTE: Optional valves (not shown)

HCV-18	Valve, Liquid Withdrawal (From C-1)
HCV-19	Valve, Vapor Return (From C-2)
HCV-21	Valve, Sec Aux Liquid (From C-3)
HCV-22	Valve, Sec Aux Vapor (From C-4)

*Dashed lines represent optional components

C-8	Connection, Customer Housetine
CV-2	Check Valve, Housetine
HCV-16A	Valve, Relief Line Purge
HCV-16B	Valve, Relief Line Purge
HCV-20	Valve, Economizer Vent
HCV-30	Valve, Inlet Housetine
HCV-31	Valve, Bypass Housetine
HCV-32	Valve, Outlet Housetine
PCV-3	Pressure Control Valve, Econo Vent
PCV-5	Pressure Control Valve, Housetine
PI-2	Pressure Indicator, Housetine
TSV-8	Thermal Safety Valve, Housetine
VAP	Vaporizer, Product Withdrawal

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