

PERMA-CYL® 7000 VHP

HIGH CAPACITY MICROBULK STORAGE SYSTEM

The innovative Perma-Cyl® 7000 MicroBulk Storage System is the latest addition to the Perma-Cyl product line of fast-fill onsite MicroBulk storage vessels. Designed for configuration to any LIN, LAR or LOX gas or liquid application, the Perma-Cyl 7000 MicroBulk tank is available with a standard VHP maximum allowable working pressure. It is engineered to supply up to 10,000 SCFH for short periods of time to satisfy the most demanding gas applications. With our industry-exclusive *configure to order* plumbing (offered in LP, MP, HP and VHP operating pressures), you can build your own Perma-Cyl 7000 MicroBulk tank to meet your business plan and your customer's requirements.

The Perma-Cyl 7000 MicroBulk tank comes with many of the standard Perma-Cyl features including the FlexFill™ Piping and dual safety tree. Additionally, this model comes with a standard dual-fin external PB vaporizer and an optional side-mounted vaporizer rated at 4000 SCFH. This package optimizes the platform for high capacity/high flow applications.

When filled with the Orca™ MicroBulk Delivery System, the Perma-Cyl 7000 MicroBulk tank is designed for a safe automatic shut-off with no filling losses under normal operating conditions. The Perma-Cyl series is designed to store liquefied gas contents for long periods of time without venting, limiting product losses during periods with little or no use.



Perma-Cyl 7000 VHP Model
Patent No. 20,130,139,925

PRODUCT HIGHLIGHTS

- Fast, accurate fills
 - Automatic fill shut-off works with Orca delivery system
 - FlexFill™ top and bottom fill piping standard
 - Large fill piping provides up to 70 GPM fill rate
- WIKA liquid level gauge with connections for telemetry and phase line isolation valves
- Easy to use instruments and controls
 - Located at user height
 - Dual safeties and rupture disc with diverter valve (standard)
 - 1" FPT bottom withdrawal port
 - Bulk 1½" CGA fill fitting
 - Isolation valves for regulator and liquid level gauge
 - Vacuum thermocouple (standard)
- Long life, low maintenance
 - Stainless steel piping, outer top head and bottom plate
 - Heavy-duty galvanized pallet base standard
 - High performance epoxy enamel finish (outer shell)
- Application ready
 - Choice of configurations to meet customer needs
 - Choice of options to meet your requirements
 - On-board high efficiency pressure-builder vaporizer supports up to 10,000 SCFH gas supply for short periods of time with fast pressure recovery
 - Service: LIN, LAR, LOX
- Easy economical installation
 - Ships upright
 - No crane required
 - Indoors or outdoors (local codes permitting)

PRODUCT OPTIONS

- Cyl-Tel® Digital Liquid Level Gauge
- Isolation valves for remote telemetry
- 4,000 SCFH mounted vaporizer*
- 5,000 SCFH free standing Thermax® vaporizer*
- 10,000 SCFH free standing Thermax® vaporizer*

* Process vaporizers do not come standard. Customer must specify either the 4,000 SCFH hang on style, the 5,000 or 10,000 SCFH stand alone, or the vaporizer can be supplied by the customer. The Perma-Cyl 7000 VHP MicroBulk tank is capable of flowing up to 10,000 SCFH for short periods, 4-5 hours, with a properly sized stand alone vaporizer.



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CAPACITIES		Perma-Cyl 7000 VHP	
Gross Volume	6965 liters	1840 gal	
Net Volume	6662 liters	1760 gal	
Gas Storage Capacity (@ 1 Atm & 68° F / 20° C)*			
Oxygen	202,500 scf	5323 Nm ³	
Nitrogen	163,800 scf	4306 Nm ³	
Argon	197,900 scf	5202 Nm ³	
GENERAL SPECIFICATIONS			
MAWP	500 psig	34.5 barg	
Operating Pressure / Relief Valve Settings LP, MP, HP & VHP			
Overall Height w/ Piping & Lab Base	123 in	313 cm	
Width w/ Lab Base	102 x 120 in	259 x 305 cm	
Tank Diameter	98 in	249 cm	
Tare Weight w/ Pallet Base & 4000 SCFH Vap	13,300 lbs	6033 kg	
PERFORMANCE			
Normal Evaporation Rate (% per day)**			
Nitrogen	.70%		
Oxygen & Argon	.43%		
Gas Supply Rate (Onboard Vaporizer)***	4000 SCFH	113 Nm ³ H	
Gas Supply Rate (Standalone Vaporizer)****	5000 SCFH	141 Nm ³ H	
Gas Supply Rate (Standalone Vaporizer)*****	10,000 SCFH	282 Nm ³ H	
CONSTRUCTION			
Design & Manufacturing Code	ASME Sec.VIII Div. 1		
Outer Vessel - Shell	Painted Carbon Steel		
Outer Vessel - Head & Plate	Stainless Steel		
Vaporizer (Onboard)	Aluminum		



Photo shows the OPTIONAL 4000 SCFH hang on process vaporizer. (Needs to be specified when ordered.)

Footnotes: Specifications subject to change without prior notice.

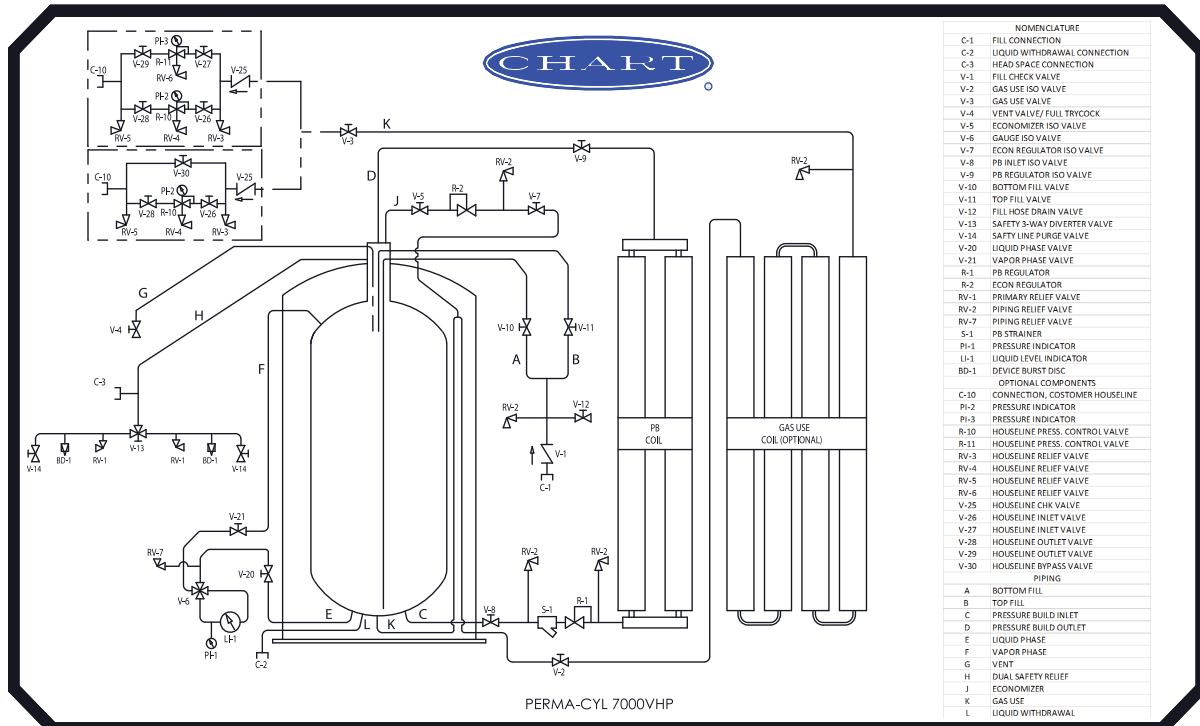
*Values are based on net capacity at 0 psig (0 barg). See the inside back cover of the MicroBulk Systems Product Catalog (P/N 11926802) for conversion densities and Chart's Tank Sizing App.

**Values are based on gross volume.

***Eight hours continuous flow @ 70°F with LN₂ down to 20% contents level with a maximum falloff in tank operating pressure of 15 psig (1 barg), and a minimum exit gas temperature of 6°F.

****Eight hours continuous flow @ 70°F with LN₂ down to 20% contents level with a maximum falloff in tank operating pressure of 30 psig (2 barg).

*****Four hours continuous flow @ 70°F with LN₂ down to 20% contents level with a maximum falloff in tank operating pressure of 30 psig (2 barg).



NOMENCLATURE	
C-1	FILL CONNECTION
C-2	LIQUID WITHDRAWAL CONNECTION
C-3	HEAD SPACE CONNECTION
V-1	FILL CHECK VALVE
V-2	GAS USE ISO VALVE
V-3	GAS USE VALVE
V-4	VENT VALVE/ FULL TRYCOCK
V-5	ECONOMIZER ISO VALVE
V-6	GAUGE ISO VALVE
V-7	ECON REGULATOR ISO VALVE
V-8	PB INLET ISO VALVE
V-9	PB REGULATOR ISO VALVE
V-10	BOTTOM FILL VALVE
V-11	TOP FILL VALVE
V-12	FILL HOSE DRAIN VALVE
V-13	SAFETY 3-WAY DIVERTER VALVE
V-14	SAFETY LINE PURGE VALVE
V-20	LIQUID PHASE VALVE
V-21	VAPOR PHASE VALVE
R-1	PB REGULATOR
R-2	ECON REGULATOR
RV-1	PRIMARY RELIEF VALVE
RV-2	PIPING RELIEF VALVE
RV-7	PIPING RELIEF VALVE
S-1	PB STRAINER
PI-1	PRESSURE INDICATOR
LI-1	LIQUID LEVEL INDICATOR
BD-1	DEVICE BURST DISC
OPTIONAL COMPONENTS	
C-10	CONNECTION, CUSTOMER HOUSELINE
PI-2	PRESSURE INDICATOR
PI-3	PRESSURE INDICATOR
R-10	HOUSELINE PRESS. CONTROL VALVE
R-11	HOUSELINE PRESS. CONTROL VALVE
RV-3	HOUSELINE RELIEF VALVE
RV-4	HOUSELINE RELIEF VALVE
RV-5	HOUSELINE RELIEF VALVE
RV-6	HOUSELINE RELIEF VALVE
V-25	HOUSELINE CHK VALVE
V-26	HOUSELINE INLET VALVE
V-27	HOUSELINE INLET VALVE
V-28	HOUSELINE OUTLET VALVE
V-29	HOUSELINE OUTLET VALVE
V-30	HOUSELINE BYPASS VALVE
PIPING	
A	BOTTOM FILL
B	TOP FILL
C	PRESSURE BUILD INLET
D	PRESSURE BUILD OUTLET
E	LIQUID PHASE
F	VAPOR PHASE
G	VENT
H	DUAL SAFETY RELIEF
J	ECONOMIZER
K	GAS USE
L	LIQUID WITHDRAWAL