

PERMA-MAX™

FAST FILL MICROBULK STORAGE FOR CO₂ SERVICE

The Perma-Max™ 2200, 3300, 4400, 6000 HP and 12,000 VHP MicroBulk Storage Systems are specifically designed for CO₂ service. One notable performance improvement is the fast fill feature – at least three times the fill rate over our standard Perma-Cyl® MicroBulk Storage Series from a typical beverage delivery truck. The upsizing and redesign of the top fill eductor circuit reduces the overall fill time, and it also reduces the amount of vent gas during delivery for a more efficient fill. Other new design features include all stainless steel ball valves, and larger internal pressure builder and vaporizer coils, allowing for faster pressure recovery and increased gas flow rates. Dedicated pressure builder and economizer regulators also contribute to this improved performance.

The Perma-Max tank comes with many of the standard features found on the Perma-Cyl Series for easy installation and fast start-up. The Perma-Cyl series is well known for holding its liquefied gas contents for long periods of time without venting, limiting product loss during periods of little or no gas use.

PRODUCT HIGHLIGHTS

The better alternative to full-for-empty cylinders

- Replaces HP cylinders
- Extended hold time over liquid cylinders
- Easy low-cost installation – indoors or outdoors (local codes permitting)
- Safety devices pipe-away required for indoor installation

Fast, efficient fills

- Efficient fill circuit reduces fill times and vent losses
- Fill rates up to 170 lbs/min*

High-performance vaporizer

- Perma-Max 2200 - 6000
 - Up to 51 lbs/hr with internal coils**
 - Up to 70lbs/hr with external vaporizer**
- Perma-Max 12,000 - see Product Options

Dedicated Pressure Builder (1/2") and economizer regulators

WIKA Liquid Level Gauge with connection for telemetry

Phase line isolation valves

Cyl-Tel® Liquid Level Gauge (Optional)

- Digital and accurate
- Built-in user selectable scales
- Telemetry ready

Ergonomic instruments and controls

- Located at user height
- Isolation valves for regulators and level gauge

Long life, low maintenance

- Stainless Steel bottle and welded piping
- Heavy-duty galvanized pallet base

Beverage Quick Disconnect Fill Fitting

* Pressure transfer performance from 33% full at 125 psig to 90% full in 12 minutes with delivery vessel at 295 psig starting pressure without Perma-Cyl storage tank venting.

** Based on 12 hours per day of continuous duty at 68°F and 50% RH ambient conditions.



Perma-Max 4400 HP

PRODUCT OPTIONS

- Cyl-Tel Digital Liquid Level Gauge
- Isolation valves for remote telemetry
- 1-1/2" CGA fill fitting
- 1" CGA Vapor Balance
- Pressure cap (Fill either with beverage quick disconnect or 1-1/2" CGA bulk fill)
- 1,333 SCFH or 2,000 SCFH mounted vaporizer***
- 1,667 SCFH free standing Thermax vaporizer***

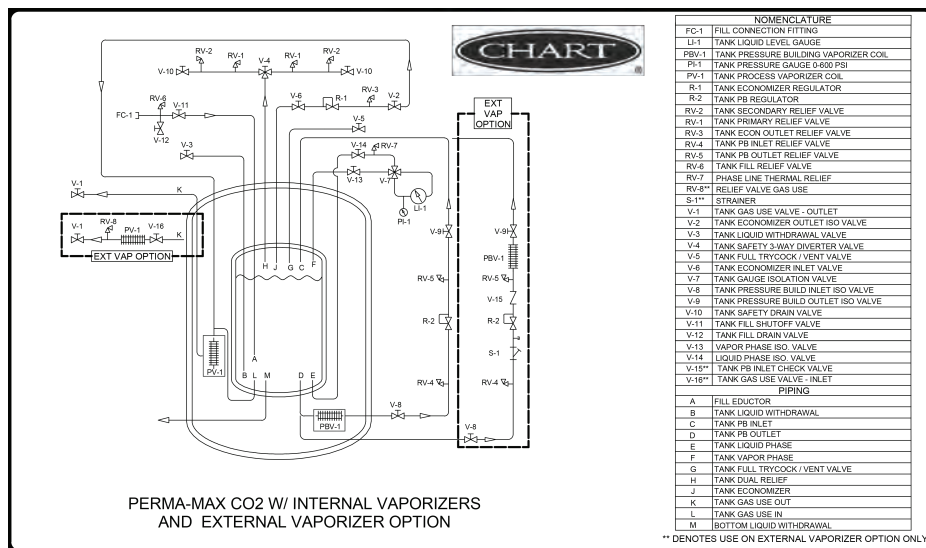
*** Perma-Max 12,000VHP does not come standard with a process vaporizer. Customer must specify either 1,333 SCFH or 2,000 SCFH hang-on style, the 1,667 SCFH standalone or the vaporizer can be supplied by the customer.

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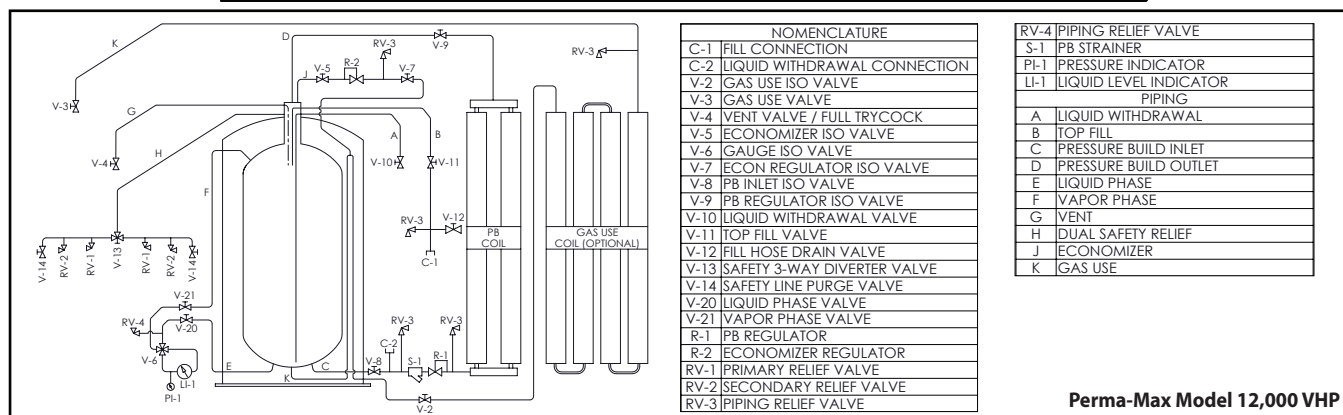
FAST FILL MICROBULK STORAGE FOR CO₂ SERVICE

| GENERAL SPECIFICATIONS | 2200 HP | 3300 HP | 4400 HP | 4400 HP w/vap | 6000 HP | 6000 HP w/vap | 12,000 VHP |
|---|-------------------------|--------------|---------------|---------------|---------------|---------------|---------------------------|
| Relief Valve Setting / MAWP (psig/barg) | 350 / 24.1 | 350 / 24.1 | 350 / 24.1 | 350 / 24.1 | 350 / 24.1 | 350 / 24.1 | 350 / 24.1 ⁽⁴⁾ |
| Overall Height (in/mm) | 84 / 2134 | 90 / 2286 | 116 / 2946 | 118 / 2997 | 122 / 3099 | 124 / 3150 | 119 / 3020 |
| Width with Pallet Base (in/mm) | 46.6 / 1184 | 53 / 1346 | 53 / 1346 | 53 / 1346 | 60.5 / 1537 | 60.5 / 1537 | 86 / 2180 |
| Length with Pallet Base (in/mm) | 50.6 / 1285 | 67 / 1702 | 67 / 1702 | 67 / 1702 | 75.5 / 1918 | 75.5 / 1918 | 102 / 2590 |
| Tank Diameter (in/mm) | 42 / 1067 | 48 / 1219 | 48 / 1219 | 48 / 1219 | 58 / 1473 | 58 / 1473 | 80 / 2030 |
| Tare Weight ⁽¹⁾ (lbs/kg) | 1849 / 835 | 2270 / 1030 | 2695 / 1222 | 2838 / 1287 | 3450 / 1544 | 3593 / 1630 | 9100 / 4128 |
| CAPACITIES | | | | | | | |
| Gross Volume (gal/liters) | 279 / 1056 | 409 / 1550 | 539.5 / 2042 | 539.5 / 2042 | 769 / 2911 | 769 / 2911 | 1435 / 5434 |
| Net Volume (gal/liters) | 251 / 950 | 384 / 1455 | 513.9 / 1945 | 513.9 / 1945 | 715 / 2707 | 715 / 2707 | 1350 / 5110 |
| Gas Storage Capacity ⁽²⁾ (scf/Nm ³) | 19,960 / 564 | 29,340 / 830 | 38,048 / 1000 | 38,048 / 1000 | 52,954 / 1390 | 52,954 / 1390 | 99,954 / 2627 |
| Liquid Storage Capacity ⁽²⁾ (lbs/kg) | 2283 / 1035 | 3356 / 1522 | 4353 / 1974 | 4353 / 1974 | 6058 / 2747 | 6058 / 2747 | 11,435 / 5187 |
| PERFORMANCE | | | | | | | |
| Normal Evaporation Rate (% per day) ⁽³⁾ | .3% | | | | | | |
| Gas Supply Rate @ 150 psig (scfh/Nm ³ ·H) (Continuous) | 320 / 9.0 | 450 / 12.7 | 450 / 12.7 | 612 / 16 | 450 / 12.7 | 612 / 16 | 1333 / 35 |
| (lbs/hr) / (kg/hr) (Continuous) ⁽⁶⁾ | 36 / 16.3 | 51 / 23 | 51 / 23 | 70 / 32 | 51 / 23 | 70 / 32 | 152 / 69 |
| (lbs/hr) / (kg/hr) (Peak) ^{(6) (7)} | 70 / 32 | 70 / 32 | 125 / 57 | 150 / 68 | 125 / 57 | 150 / 68 | 191 / 87 |
| CONSTRUCTION | | | | | | | |
| Design & Manufacturing Code | ASME Sec. VIII Div. 1 | | | | | | Paint ⁽⁵⁾ |
| Outer Vessel | Type 304 SS | | | | | | |
| Pallet Base | Galvanized Carbon Steel | | | | | | |

Footnotes: Specifications subject to change without prior notice. For specifications on the Perma-Max 1400 XHP Model, see P/N 21176920. (1) Weights include lab base. (2) Gas measured at 1 atm and 70°F. Liquid measured at 1.7°F and 300 psig / 20.7 barg saturated pressure. (3) Values are based on gross volume. (5) Model 12,000 is built with stainless steel outer top and bottom heads. (6) For 12 consecutive hours at room temperature. (4) Can be upgraded to 500 psig / 34.5 barg. (7) Peak flows require the addition of properly sized process vaporizer.



Perma-Max Models 2200 - 6000 HP



Perma-Max Model 12,000 VHP