



Bulk CO₂ Systems

*Equipment for Beverage Carbonation,
Draft Beer Dispensing & pH Control*

BEVERAGE SOLUTIONS | SYSTEM DESIGN | MANUFACTURING | TRAINING | SERVICE



Bulk CO₂ Systems
Product Catalog
www.chartbeverage.com

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Innovative Design, Technology & Reliability

Across Chart, we pride ourselves on designing innovative products with advanced technology and high reliability to enhance customer value. Our understanding of our customer's business needs and end-use applications has helped us achieve a wide product portfolio of solutions. We provide the right product for the application – driving a competitive advantage for our customer and our company.



Innovative Design

Our integrated Bulk CO₂ advantage is based on a system that incorporates patented and proven innovative technologies. Every component is designed, built and tested to create the safest and most reliable Bulk CO₂ system available today.



Installation Ready

Only Chart allows you to custom build your Bulk CO₂ Storage System to match your customer's application and your business operation. With seven different models, there's a Carbo Series tank to meet your requirements.



Marketing Services

Our sales process doesn't stop with the equipment supply. We offer electronic sales tools, customized literature, marketing assistance and sales training to make our authorized partners positioned for growth in the Bulk CO₂ market.

When you choose Chart, you get single-source accountability from the integrated bulk CO₂ system through business support.

Bulk CO₂ Applications

Beverage Carbonation System

Our Beverage Carbonation Systems are a safe and reliable substitute for high pressure cylinders. Our complete beverage solutions have proven to reduce the risk of costly run-outs allowing you to focus on spending more time with your customers.



Convenience

Eliminate high-pressure cylinder change-outs and gas outages during peak rush periods. Enable a better use of employees and storage space.

Quality

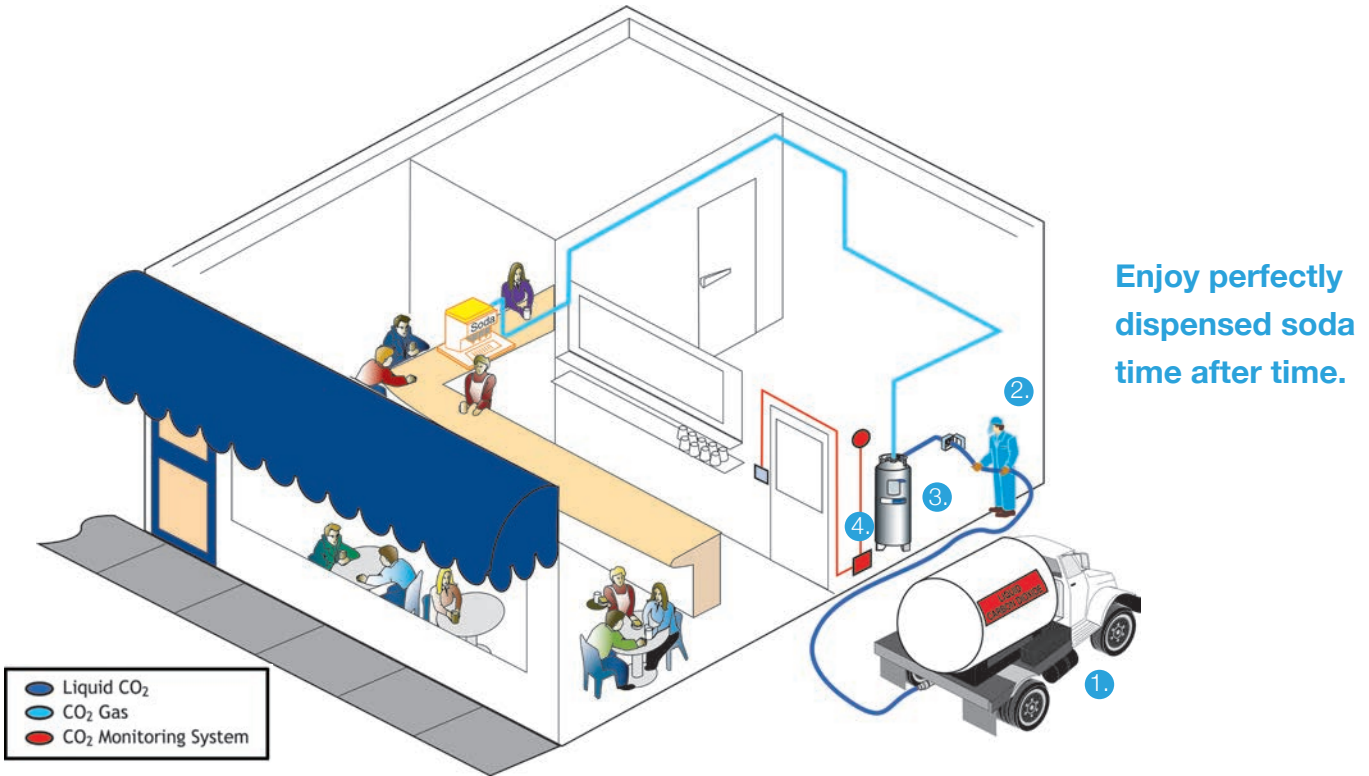
Uninterrupted flow of CO₂ eliminates flat drinks and ensures proper drink calibration. Perfect soda dispensing presentation increases customer satisfaction and eliminates complaints of poor taste and flat beverages.

Safety

Gas stored at low operating pressure, plus zero cylinder handling reduces job-related injuries.

Savings

Save on labor, lost residual gas and operational costs associated with the high cost of high-pressure cylinders.



How it works:

1. Liquid CO₂ is delivered to the customer's facility with a delivery truck. Deliveries can occur 24/7 to ensure continuous CO₂ supply with no interruptions to your operations.
 2. Liquid CO₂ is safely transferred through a Chart fill box located on the outside wall of your store into the appropriately sized Carbo-Mizer® Bulk CO₂ storage tank.
 3. Our innovative bulk CO₂ storage system automatically converts liquid to CO₂ gas on demand for the beverage carbonator. The Carbo-Mizer CO₂ storage system maintains proper pressure throughout the refill cycle.
 4. The facility can be continuously monitored by a Chart provided CO₂ monitoring system, which detects and warns occupants of above normal levels of CO₂, usually caused by leaks in the system.
- Note: The bulk CO₂ tank can also be installed outdoors.*

Bulk CO₂ & Nitrogen Applications

Micro-Brewery System

Chart bulk CO₂ and LN₂ systems provide a wide range of high capacity, high flow rate beverage grade CO₂ and LN₂ for establishments from the smallest brew pub to full scale breweries.

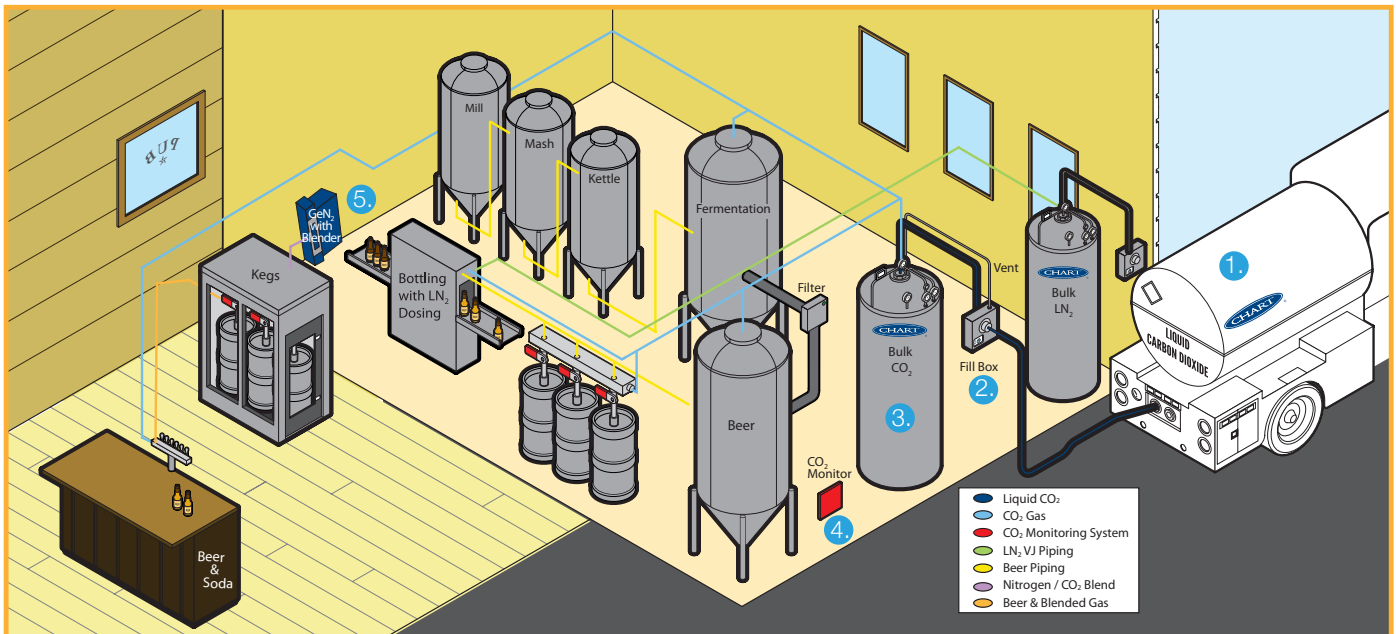
Common Installations:

- Micro-Breweries
- Restaurants
- Bars & Brew Pubs
- Stadiums & Sports Arenas



Convenience

- Stationary, automatic system – 100% stainless steel tanks, permanently installed and self contained.
- Wide range of tank sizes available, 220 lb to over 6000 lb capacity.
- Greater distribution flexibility and lower distribution frequency.
- Consistent, high-purity bulk liquid CO₂ is delivered in single loads.
- Chart tanks are capable of high flow rates to meet demands of multiple brewery operations such as carbonation, purging, transfer, keging and bottling.
- Adaptable to growth, additional tanks can be added to the system as operations increase.
- Every pint is dispensed at brewery quality with beer gas.



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3. Our innovative bulk CO₂ storage system automatically converts liquid to CO₂ gas on demand. The Carbo-Mizer CO₂ storage system maintains proper pressure throughout the refill cycle.
4. The facility can be continuously monitored by a Chart provided CO₂ monitoring system, which detects and warns occupants of above normal levels of CO₂ usually caused by leaks in the system.
5. Quality draft beer requires a precise, consistent supply of Nitrogen and Carbon Dioxide. The GeN₂® Nitrogen Generator provides the correct blended gas mix for better presentation and flavor.

Note: The bulk CO₂ tank can also be installed outdoors.

Bulk CO₂ Applications

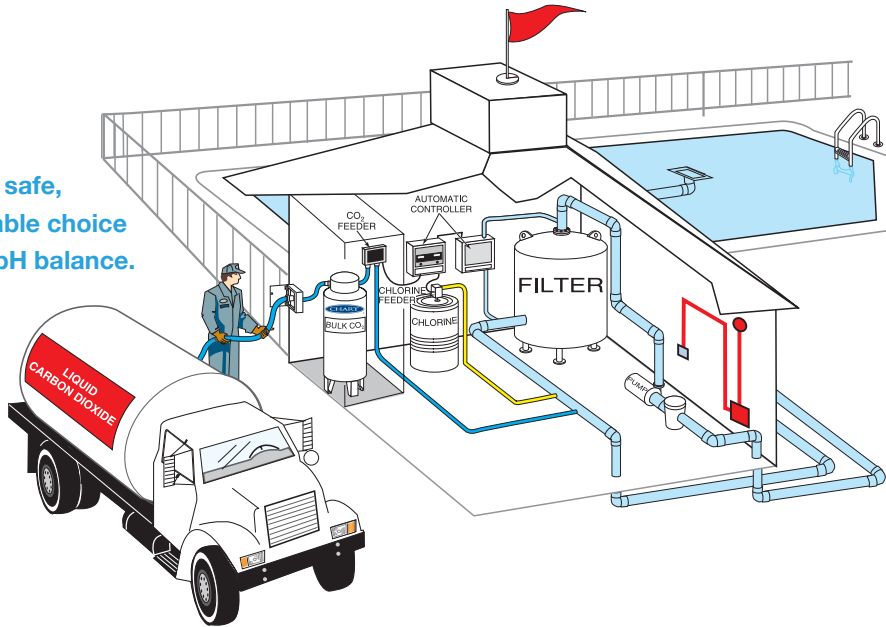


Swimming Pool System

Our bulk CO₂ systems provide bulk gas for swimming pool pH balancing. CO₂ is the safest, most reliable alternative to using acid to balance the pH level of chlorinated water. Maintaining the desired water pH level is critical to ensure swimmers' comfort and safety.

CO₂ replaces acid and is easily regulated by your automatic control system, providing several benefits.

The safe, reliable choice for pH balance.



Convenience

One stationary automatic system monitors and provides continuous CO₂ flow for a perfect pH balanced swimming pool.

Quality

CO₂ lowers the alkalinity of the water protecting it against sudden spikes in pH and improving water clarity.

Safety

Eliminates the use of dangerous acids, acid feed pumps and the potential for hazardous fumes.

Savings

Save on labor, acid pump equipment replacement and pool components damaged by acids.

MicroBulk CO₂ Applications

Perma-Max™ CO₂ MicroBulk Storage System

The Perma-Max 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.



Perma-Max 1400 XHP Applications

Special Effects
Botanical Extraction

Perma-Max 2200 HP through 12,000 VHP Applications

Greenhouse Growing
CO₂ Incubator
Welding, Laser Cutting & Casting Hardening
Beverage Carbonation Production & Processes
pH Control Wastewater
Modified Atmospheric Packaging
Pellet Production for Blasting
HP Bottle & Fire Extinguisher Filling
Concrete Carbon Cure



For more information, see the MicroBulk CO₂ Applications & Storage Systems brochure, P/N 21171309.

Engineered for Efficiency—Built to Last

At Chart we have always taken pride in developing the best thermal insulation system possible in our bulk CO₂ storage tanks. Years of experience have driven us to engineer our multi-layer Composite Super Insulation™ system to achieve the ultimate thermal protection in our bulk CO₂ storage equipment. Providing the best insulation system to protect your valuable gases from harsh ambient conditions results in lower pressure rise and lower losses, yielding better gas utilization. Our Super Insulation and Chart Vacuum Technology® is at the core of why Chart storage tanks are recognized around the world as the premier cryogenic storage tank.



The Carbo Series System Meets All of Your CO₂ Requirements

Serving a variety of markets and usage requirements, Carbo Series bulk CO₂ systems meet the unique demands of every customer.

Carbo Series systems eliminate run-outs, allowing your accounts to focus on customer sales rather than operations. One Carbo Series bulk system meets all of your customer's CO₂ requirements. The vessel requires no employee handling, continuously supplying CO₂ for a variety of applications.



Product Advantages

- **Stationary, automatic system** 100% stainless steel vessel construction, permanently installed and self-contained with no electricity required for dispense.
- **Maximizes limited space** One system replaces all of your high-pressure cylinders, using less than 3 square feet of floor space.
- **Sized to match usage needs** Available in a variety of sizes, the Carbo Series systems will meet the unique demands of your business.
- **No loss, single-hose fill** Streamlines filling process for safety and improves economics.
- **Stable six-inch uni-body legs** Meet health department sanitation requirements.
- **Proprietary, regenerable gettering system** For on-site vacuum maintenance.

Contact Factory for Canadian and New York City Approvals.

Choose your Bulk CO₂ Carbo Series Tank



SPECIFICATIONS	Carbo-Mite® 220	Carbo-Mizer® 300	Carbo-Mizer® 450	Carbo-Mizer® 550
Dimensions				
Diameter	20 in (50.8 cm)	20 in (50.8 cm)	20 in (50.8 cm)	22 in (55.8 cm)
Height (with legs)§	40 in (101.6 cm)	55.625 in (141.28 cm)	71.875 in (182.5 cm)	72.9 in (185.1 cm)
	(no legs)			
Empty Weight	156 lb (71 kg)	216 lb (98 kg)	273 lb (123.8 kg)	318 lb (144.3 kg)
Full Weight	377 lb (171 kg)	515 lb (233.6 kg)	750 lb (340.2 kg)	902 lb (409.1 kg)
Design criteria				
Code *	ASME	ASME	ASME	ASME
MAWP	300 psig (20.7 barg)	300 psig (20.7 barg)	300 psig (20.7 barg)	300 psig (20.7 barg)
Insulation Type †	SI	SI	SI	SI
Capacity				
Gross Volume	27.4 gal (103.7 ltr)	34.3 gal (129.8 ltr)	52 gal (196.8 ltr)	65.1 gal (246.4 ltr)
Net Storage Volume	25.5 gal (96.5 ltr)	32 gal (121 ltr)	48 gal (182 ltr)	62 gal (235 ltr)
Storage Capacity at 125 psig	221 lb (100.2 kg)	299 lb (135.6 kg)	477 lb (216.4 kg)	584 lb (264.9 kg)
Performance				
Evaporation RateΔ	1.0 lb/day	2.0 lb/day	2.5 lb/day	2.5 lb/day
CO ₂ Gas Delivery (Continuous)@	1.0 lb/hr	1.0 lb/hr	5.5 lb/hr	6.5 lb/hr
Peak Flow Rate \$	1.5 lb/hr	3.0 lb/hr	10 lb/hr	10 lb/hr
Components				
ASME Relief Valve Setting	300 psig (20.7 barg)	300 psig (20.7 barg)	300 psig (20.7 barg)	300 psig (20.7 barg)
Secondary RV Setting	N/A	450 psig (31 barg)	450 psig (31 barg)	450 psig (31 barg)
Sure-Fill™ RV Setting	200 psig (13.8 barg) ≈	N/A	N/A	N/A
Gas Use Connection	1/4 in 45° Flare	1/4 in 45° Flare	1/4 in 45° Flare	1/4 in 45° Flare
Fill Line Connection	5/8 in Male 45° Flare	5/8 in Male 45° Flare	5/8 in Male 45° Flare	5/8 in Male 45° Flare
Vent Connection	1/2 in OD Tubing	1/2 in OD Tubing	1/2 in OD Tubing	1/2 in OD Tubing
Construction				
Inner Vessel Material	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Outer Vessel Material	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Vaporizer Coil	N/A	N/A	N/A	N/A
Liquid Level Gauge°	Roto-Tel™ **/Diff. Press.	Differential Pressure	Differential Pressure	Differential Pressure

§ Height without legs, subtract 6 in, * ASME Boiler and Pressure Vessel Design Section VIII, Div. 1, † Super Insulation/High Vacuum, \$ 4 consecutive hours at room temperature, Δ No loss in normal applications, ° Float gauge available upon request, ** Telemetry Ready



**Carbo-Max®
600**

**Carbo-Mizer®
750**

**Carbo-Max®
750 HF**

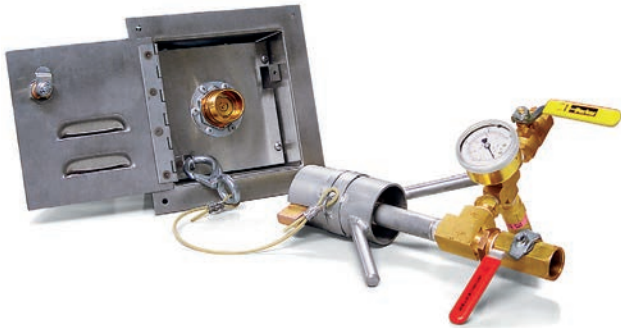
**Carbo-Max®
1000 HF**

22 in (55.8 cm) 75.938 in (192.9 cm)	26 in (66 cm) 73.875 in (187.6 cm)	26 in (66 cm) 73.875 in (187.6 cm)	30 in (76.2 cm) 72.5 in (184.2 cm) (no legs)
323 lb (146 kg) 936 lb (424.5 kg)	430 lb (195 kg) 1219 lb (552.9 kg)	430 lb (195 kg) 1219 lb (552.9 kg)	788 lb (357.4 kg) 1788 lb (811 kg)
ASME 300 psig (20.7 barg) SI	ASME 300 psig (20.7 barg) SI	ASME 300 psig (20.7 barg) SI	ASME 300 psig (20.7 barg) SI
70.2 gal (265.7 ltr) 65 gal (246 ltr) 612 lb (277.6 kg)	89.1 gal (337.3 ltr) 82 gal (311 ltr) 789 lb (357.9 kg)	89.1 gal (337.3 ltr) 82 gal (311 ltr) 789 lb (357.9 kg)	128.2 gal (485.3 ltr) 118 gal (446.6 ltr) 1000 lb (453.6 kg)
3.0 lb/day 15 lb/hr 40 lb/hr	3.0 lb/day 10 lb/hr 15 lb/hr	3.0 lb/day 15 lb/hr 40 lb/hr @ ^	3.0 lb/day 30 lb/hr 50 lb/hr @
300 psig (20.7 barg) 450 psig (31 barg) 200 psig (13.8 barg) ≈ 1/4 in 45° Flare 5/8 in Male 45° Flare 1/2 in OD Tubing	300 psig (20.7 barg) 450 psig (31 barg) 200 psig (13.8 barg) ≈ 1/4 in 45° Flare 5/8 in Male 45° Flare 1/2 in OD Tubing	300 psig (20.7 barg) 450 psig (31 barg) 200 psig (13.8 barg) ≈ 1/4 in 45° Flare 5/8 in Male 45° Flare 1/2 in OD Tubing	300 psig (20.7 barg) 450 psig (31 barg) 200 psig (13.8 barg) 1/4 in 45° Flare 5/8 in Male 45° Flare 1/2 in OD Tubing
Stainless Steel Stainless Steel Stainless Steel Differential Pressure	Stainless Steel Stainless Steel Stainless Steel Differential Pressure	Stainless Steel Stainless Steel Stainless Steel Differential Pressure	Stainless Steel Stainless Steel # Stainless Steel Differential Pressure

@ 12 consecutive hours at room temperature, ^ At these higher flow rates, gas supply temperatures from the tank will be lower than freezing (32°F). Additional external vaporization should be added to achieve gas temperatures above freezing (32°F). ≈ Option. # Pallet jack compatible base.

Bulk CO₂ Accessories

Supplement your Carbo Series bulk CO₂ system with our bulk CO₂ accessories. These liquid CO₂ filling options and accessories ensure a convenient, secure delivery.



Fill Gun

Chart Beverage Systems' fill gun is constructed with integral components allowing complete control of the fill process without leaving the fill point.

- Positive seal fill fitting cuts waste from lost CO₂ during filling process
- Winged sleeve construction makes gun easy to grip
- Integral wrench feature enables tightening without tools
- Maintain control of CO₂ and vent flow with fill and vent ball valves
- Pressure vent valve relieves potential excess line pressure



Flush Mount Fill Box

The stainless steel flush mount fill box mounts directly to the outside wall of your facility to be flush with the building. Features include:

- Complete with quick-disconnect male fill connection and vent hose connection
- Locking door with keys
- Box size is 6 in. x 6 in.



Surface Mount Fill Box

The stainless steel surface mount fill box can be placed directly on the outside wall of your facility with four mounting screws. Features include:

- Complete with quick-disconnect male fill connection and vent hose connection
- Locking door with keys
- Box size is 6 in. x 6 in. and 3 in. deep



CO₂ Fill Hose with Vent Hose

Chart Beverage Systems' fill hose transports liquid CO₂ between the fill box and a Carbo Series vessel. Highly durable, this hose has a maximum working pressure of 2,000 psi. Other features include:

- Minimum bend radius of 3 inches (7.62 cm)
- Minimum burst pressure of 8,000 psi
- Inert in CO₂ environment

Vent hose connects vessel safety devices for safe outdoor venting.

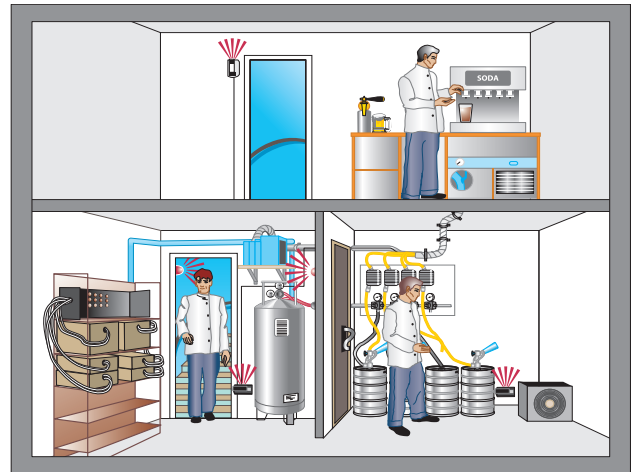
CO₂ Monitoring Systems Safety Alarms

The CO₂ Storage Safety Alarm is designed to protect people who work near carbon dioxide stored in closets or confined spaces. At high levels, CO₂ can result in problems ranging from headaches and fatigue to asphyxiation and even death.

CO₂ alarms are critical and may be required in breweries, wineries, beverage dispensing areas, restaurants, fast food establishments, dry ice storage, CO₂ storage tanks, laboratories, or anywhere CO₂ is stored or produced in high volume.

The CO₂ Storage Safety Alarm has both an audible alarm and flashing visual indicator when CO₂ concentrations reach a pre-set level. Three built-in relays can be used to control ventilation, your HVAC system, or even be wired to an alarm panel to notify your alarm company or the fire department.

Best of all, the CO₂ Storage Safety Alarm is easy to install and use. Simply mount both units on the wall (all cables and hardware included), plug the display unit into a standard wall jack, and the alarm is ready to protect you, your customers and employees.



RAD-0102-6 Product Advantages

- Sensor connects with Remote Display Unit up to 300 ft (91 m) away. 26 ft (8 m) cable included.
- Up to 3 Remote Display Units can be daisy chained to allow warnings at multiple locations.
- Bright 10 LED visual and loud 80 dB audible alarms
- Large digital LCD display clearly indicates the current CO₂ level and temperature.
- Relay outputs can automatically control a fan or blower to ventilate confined spaces.
- 80dB Audible and visual alarm. Optional Strobe Add-ons.
- IP65 enclosure is splash proof.
- Field configurable for additional strobes.

 **CO2Meter.com**
CO₂ Measurement Specialists



VaporMan 125[®] Manifold Vaporizer System



Product Advantages

- Compact design, less than 2-1/2 ft square and 4 feet tall
- Cost effective, compared to larger traditional ambient vaporizers
- Easy to attach to bulk CO₂ tanks, using the manifold connections

Common Installations

- Micro-Breweries
- Large water parks, for pH control
- Large sports arenas, such as professional and college football stadiums

The VaporMan 125[®] Manifold Vaporizer System is a compact modular vaporizer used in conjunction with the Carbo-Max[®] Bulk CO₂ tanks and CO₂ configured Perma-Cyl[®] MicroBulk Storage System tanks to provide warm CO₂ gas to the point of use. It enhances the high flow from the tank's internal vaporizers and provides attachment points to connect either a single tank, or multiple manifolded tanks.

Chart's high flow CO₂ tanks utilize internal vaporization coils to support pressure maintenance to achieve flows ranging from 40 - 125 lb/hr to the VaporMan 125 system.

The VaporMan 125 kit comes with two vaporizers (one series and one parallel), a manifold for connecting the tanks, a stand, hoses, and all of the fittings needed to manifold the tanks. The CO₂ tanks are not included in the kit.

Corrosion Resistant Coating For Swimming Pool Applications



Corrosion Resistant Coating can be an important addition to your bulk CO₂ system in certain regions of the country or in specific applications (e.g. - swimming pools). The Corrosion Resistant Coating system consists of one coat of primer and two coats of quick dry enamel with Xylene reducer on sandblast-finished stainless steel.

Product Advantages

- Corrosion inhibition
- Heat resistance
- Humidity resistance
- Weatherability
- Low temperature flexibility
- Fluid resistance
- Impact resistance

VLCD Bulk CO₂ Delivery System



Product Advantages

- Relay on Alert 1 - Leak Alert (Set at 1.5% CO₂)
- Alert 2 - No Entry Alert (Set at 3% CO₂)
- Bright 10 LED visual and loud 80 dB audible alarms
- Detector housing designed to withstand splash environments (IP 65)
- 15 year CO₂ sensor warranty, 2 year electronics warranty
- Plug-in cables for fast and easy installation
- Flow Instruments DP flow sensor and meter – optional
- Integrated ticket printer – optional
- Accessories to customize your installation requirements

Technical Specifications

The VLCD bulk CO₂ delivery system is an affordable alternative for transporting liquid CO₂. Ideal for new business start-ups, new installations, hot shot deliveries and remote operations, the VLCD provides easy delivery to Chart bulk CO₂ systems. The system is mounted in a secure mobile pallet base and frame with all the interconnecting piping and controls that are easily accessible by the driver.

DIMENSIONS	VLCD-950	VLCD-1900
Length	43 in (1092 mm)	65 in (1651 mm)
Width	34 in (864 mm)	46 in (1168 mm)
Height	71.25 in (1810 mm)	77 in (1956 mm)
DESIGN CRITERIA		
MAWP	350 psig (24 barg)	350 psig (24 barg)
CAPACITY		
CO ₂ Storage Capacity	950 lbs (431 kg)	1900 lbs (864 kg)
Tare Weight	1150 lbs (522 kg)	2350 lbs (1066 kg)
Full Weight	2180 lbs (989 kg)	4250 lbs (1932 kg)

Orca™ CO₂ Series Delivery System MicroBulk Delivery Units

Designed to fill the Carbo-Mizer® and Carbo-Max® Bulk CO₂ Systems and the Perma-Max™ MicroBulk CO₂ System, the Orca™ CO₂ Series MicroBulk Delivery System will provide you with a safe, efficient, and reliable delivery unit for years to come.

The stainless steel inner vessel on the Orca CO₂ delivery unit is protected by a high quality vacuum with super insulation for minimal heat transfer. This insulation system eliminates just-in-time filling and provides colder CO₂ necessary for a single-hose, no loss fill to the storage vessel. To maintain a high delivery pressure from stop to stop, the Orca CO₂ delivery unit incorporates a dedicated diesel-fired glycol-based pressure builder system.



SPECIFICATIONS

MODEL	3.8 Ton	5.5 Ton	6.5 Ton	10.5 Ton	13 Ton Trailer
MC338 Capacity (gal/ltrs)	857 / 3244	1225 / 4637	1480 / 5602	2340 / 8858	2970 / 11,243
Overall Length (in/cm)	146 / 371	181 / 460	205 / 521	253 / 643	346 / 879
Overall Height (in/cm)	68 / 1173	68 / 1173	68 / 1173	68 / 1173	115 / 292 (w/ trailer)
Overall Width (in/cm)	102 / 259	102 / 259	102 / 259	102 / 259	102 / 259
Tare Weight (lbs/kg)*	6900 / 3130	8600 / 3900	9700 / 4400	13,700 / 6215	16,400 / 7440
Truck Rear Axle	Single			Tandem	
Under 33,000 lbs GVWR / US FET	Yes			No	
PERFORMANCE					
Pressure Building Type	ThermaFired™		or	ThermaFired™ XL	
Dispense Method	Pressure Transfer		or	Pump	
Min. Dispensing Rate (lbs/min / kg/min)**	30 / 13.6			30 / 13.6	
Max. Dispensing Rate (lbs/min / kg/min)**	500 / 226.8			500 / 226.8	
Max. Dispensing Pressure (psig/barg)	350 / 24.1			400 / 27.6	

*Tare weights are estimated, and calculations will be confirmed when each size is built.

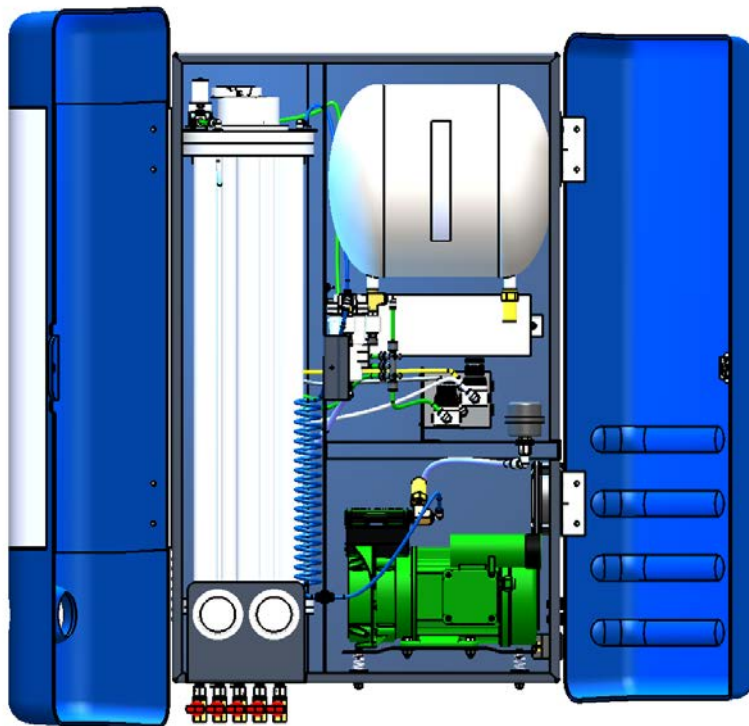
**Minimum and Maximum Dispensing Rates are dependant on many variables: Orca truck pressure, receiver pressure, liquid temperature, flow circuit restriction, etc. Specifications subject to change without notice.

GeN₂[®] Nitrogen Generator

Dispensing draft beer with a mixed gas blend of Carbon Dioxide (CO₂) and Nitrogen (N₂) helps ensure the correct presentation and flavor. Draft beer requires a precise, consistent supply of nitrogen and carbon dioxide to achieve the beer maker's desired quality. Chart's GeN₂[®] Nitrogen Generator coupled with a Carbo-Mizer[®] Bulk CO₂ tank is the ideal system to provide the correct blended gas mix. This system provides a reliable, uninterrupted flow of individual or mixed gas and eliminates the need to change-out high-pressure cylinders. The GeN₂ system brings industry-leading technology to the nitrogen generator for a dependable, accurate, and cost-effective operation.

Product Advantages

- Proven, continuous flow rate, rotary PSA system provides quick response to surge demands and eliminates the need for a large capacity N₂ storage tank
- Heavy duty compressor has a long lifecycle and is easy to maintain
- Integrated, small five gallon surge tank reduces footprint and simplifies installation
- Double hinged doors allow easy access for maintenance
- Sleek, modern look blends with site decor
- Self-diagnostic system helps service technicians identify scheduled maintenance or repairs



N ₂ Purity	99.8% (< 0.2% O ₂)
N ₂ output	> 7 slpm avg (14.8 scfh)
Kegs per hour	9 (sustained)
Electrical	110V, 10 Amps
External Tank Size	None
Internal Tank Size	5 gal
pints/min	19 (sustained)
N ₂ outlet on unit	Yes
Maintenance Access	Service panel w/ latch
Compressor	Gast or Durr Technik Oil-Free
Compressor Warranty	3 yr / 5000 hr
Blender	McDantim
# of blends	2 (70% CO ₂ & 25% CO ₂ Standard)
Blend outlet pressure	~ 60 psig
Case Size	44"H x 26" W x 17" D
Case Weight	160 lbs
*Pints/min and kegs/hour assume 70% CO ₂ blend, 25 psig keg pressure, and a leak-free beer system	

McDonald's Bulk CO₂ Carbo-Max® 450, 750 & 1000 Systems

The Chart bulk program includes the bulk CO₂ system and the bulk syrup system for Coca-Cola®. Both systems are permanently installed inside the restaurant and become an integral part of the beverage system. The tanks are refilled from outside the restaurant without entering the stores or interrupting operations. The McDonald's bulk CO₂ and bulk syrup program is a convenient and safe way to improve profits, safety and quality in a restaurant operation.

	Carbo-Max® 1000	Carbo-Max® 750	Carbo-Max® 450	Bulk Syrup
Capacity				
CO ₂ Storage Capacity	1000 lb / 453.6 kg	789 lb / 357.9 kg	477 lb / 216.4 kg	80 gal / 303 L
Tank Capacity equals:				
Cylinders of 20 lb / 10 kg	50 Cylinders	39 Cylinders	23 Cylinders	15 BIB
Cylinders of 50 lb / 23 kg	20 Cylinders	15 Cylinders	9 Cylinders	15 Figals
Dimensions				
Tank Diameter	30 in / 76.2 cm	26 in / 66 cm	20 in / 50.8 cm	22 in / 56 cm
Overall Height	72.5 in / 184.2 cm	73.875 in / 187.6 cm	71.875 in / 162.6 cm	66 in / 168 cm
Empty Weight (Approx)	788 lb / 357.4 kg	430 lb / 195 kg	273 lb / 123.8 kg	110 lb / 50 kg
Performance				
Peak Drinks per hour**	2916	2333	1150	
Peak CO ₂ Flow Rate per hour	50 lb/hr / 22.7 kg/hr	40 lb/hr / 18.1 kg/hr	30 lb/hr / 13.6 kg/hr	
Continuous CO ₂ Flow Rate per hour	30 lb/hr / 13.6 kg/hr	15 lb/hr / 6.8 kg/hr	15 lb/hr / 6.8 kg/hr	
Design Criteria				
Pressure Vessel Code	ASME*	ASME*	ASME*	ASME* NSF-STD 18
Maximum Allowed Working Pressure	300 psig / 20.7 barg	300 psig / 20.7 barg	300 psig / 20.7 barg	87 psig / 6.0 barg
Normal Operation Pressure	100-200 psig / 6.9-13.8 barg	100-200 psig / 6.9-13.8 barg	100-200 psig / 6.9-13.8 barg	60 psig / 4.1 barg
Construction				
Inner and Outer Vessels	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Components				
ASME Relief Valve	300 psig / 20.7 barg	300 psig / 20.7 barg	300 psig / 20.7 barg	87 psig / 6.0 barg
Secondary Relief Valve	450 psig / 31.0 barg	450 psig / 31.0 barg	450 psig / 31.0 barg	

* The specifications shown for the McDonald's bulk CO₂ tanks are based on the ASME Boiler and Pressure Vessel Design Code, Section VIII, Division 1. Most countries require compliance by law with one or more pressure vessel codes. Chart manufactures bulk CO₂ vessels which comply with many of the most widely recognized codes.

** Peak drinks are based on calculations established in the "McDonald's Beverage Workbook Equipment Section" and a 14 day CO₂ delivery cycle.



Bulk Syrup System

The Bulk Syrup system consists of two or more bulk syrup tanks and the bulk CO₂ system permanently installed inside the restaurant. Each tank holds 80 gallons (303 liters for the international system) of Coca-Cola® syrup and replaces bag-in-a-box and other syrup packages.

Syrup is withdrawn from one syrup tank at a time and fed to the beverage machines upon demand. When one tank is completely empty, the system switches to the next full tank. The empty tank is sanitized by the automated Clean-in-Place panel and ready for its next delivery of Coca-Cola. Filling the syrup tank from the truck takes less than ten minutes and is part of the store's regular delivery service. Listed: National Sanitation Foundation – Standard Number 18.

This system is also available in a portable model for restaurants in which tanks must be moved to receive syrup delivery. Domestic and international models are available to meet the needs of different countries.



CO₂ Tank Storage Cabinet Ensuring a Secure Environment

The CO₂ Tank Storage Cabinet is used to cover Chart Beverage CO₂ tanks in outside installations. It provides added security for outside installations and blends with the surrounding architecture. The cabinet will accommodate all sizes of Chart Beverage CO₂ tanks up to the Carbo-Max® 750. The cabinet comes un-assembled in an easy to ship package that prevents damage while in transit. The cabinet can be assembled on site in about one hour, using a screwdriver and small adjustable wrench.

Product Highlights

- ▶ Two hinged, lockable doors for easy access to fill connections, valves and gauges
- ▶ Outlet port accommodates two inch conduit connections
- ▶ Bottom tabs for bolting the cabinet down to concrete pad or floor
- ▶ Louvered panels provide over 60% open surface area for natural cross ventilation
- ▶ Ribbed roof panel provides protection from sun, rain, snow, and hail
- ▶ 32.6" W x 32.6" D x 76.5" H



Beverage Cylinder Repair World Class Facilities

Chart's aftermarket support is world-class, offering installation, repair and OEM replacement parts for every product we manufacture and more. Our repair facilities are integrated with our manufacturing sites so the latest updates in equipment design and manufacturing processes are always built into your repairs.

Evacuation services

- ▶ Helium mass spec leak detection of inner and outer for vacuum integrity
- ▶ 100% regeneration of molecular sieve for maximum vacuum life
- ▶ Replacement of PdO for maximum vacuum life

Structural services

- ▶ Complete cut-apart and removal of inner vessel
- ▶ Neck tube replacement for non-Dura-Cyl cylinders
- ▶ Re-insulation with super insulation and proprietary wrapping process

Upgrades available

- ▶ Combo regulator
- ▶ SAES getter for CO₂ service
- ▶ Restraints and retrofits to meet CGA Bulletin SB-26-2000
- ▶ Flexible to meet special requirements



Benefits

- ▶ Complete cosmetic, revac and rebuild services
- ▶ No hassle shipping with pick-up and delivery at your door
- ▶ Free freight available
- ▶ Cylinder inspection with estimate prior to work
- ▶ Component replacement with stock OEM parts
- ▶ DOT/TC and ASME coded facility
- ▶ Lowest life-cycle cost
- ▶ Two year vacuum warranty for repair of carbon steel tanks
- ▶ Three year vacuum warranty for revac of stainless steel tanks
- ▶ Five year vacuum warranty for complete cut-apart repair of stainless steel tanks



Repair Facility – McCarran, NV

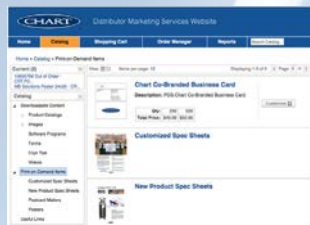
Bulk, Mobiles, Beverage, Liquid Cylinder, MicroBulk & Trifecta Repair



Chart Online Marketing Services

As Chart Inc. continues to provide distributors and customers with the best products and services in the industry, we would like to introduce you to an innovative marketing support tool designed to assist you in growing your business faster! Chart Online Marketing Services is like having your very own 24/7 marketing department providing you the marketing materials needed to drive customers to you. But this is much more than just a site to download product photos, you now have the ability to truly customize brochures, spec sheets and posters with your local contact information and company logo.

3 Easy Steps To Getting Onto Our Website To Order Marketing Materials!



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2. Enter your User ID and Password. Click Login, or click on [email us](#) to create an account.
3. Click on Catalog and choose whether you'd like to download or order printed materials.



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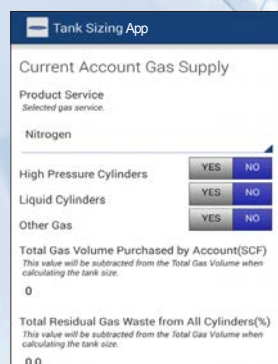


Chart Tank Sizing App

Correctly sizing your cryogenic equipment supply is easy when you know how – or know who to ask. For decades, Chart has helped gas distributors select the optimal cryogenic storage products for their customers. But now, Chart has developed a new **Tank Sizing App** that can advance your mode-change sales process faster and more accurately. No matter the challenge, Chart will provide the tools you need to succeed.

Download the app today for free at your app store and start learning from our experience.

Beverage & CO₂ Data

Drink Volume Guide

One pound of CO₂ serves approximately 100 16 ounce drinks. A 16 oz drink is comprised of the following:

Ice	4 oz
Water	9.6 oz
Syrup	2.4 oz
CO ₂	0.0112 lb

CO₂ Consumption Guide

Estimated CO₂ consumption based on ratio of .6 pounds of CO₂ to 1 gallon of syrup.

Weekly Syrup Usage (gal)	CO ₂ Consumption (lb)
10	6
20	12
30	18
40	24
50	30
60	36
70	42
80	48
90	54
100	60

Micro-Brewery Data Bulk CO₂ Tank Sizing Chart

Your Requirements		Tank Model & Capacity				
Total Beer Production - Kegs / Month	Approximate Total CO ₂ lbs / Tank Capacity Needed	Carbo-Max® 750	2 - Carbo-Max® 750	Carbo-Max® 1000	2 - Carbo-Max® 1000	Perma-Max™ 2200
50	166	X	-	-	-	-
100	332	X	-	-	-	-
200	664	X	X	X	-	-
300	996	-	X	X	-	-
400	1329	-	X	X	X	X
500	1661	-	-	-	X	X
600	1993	-	-	-	X	X
700	2325	-	-	-	-	-
800	2657	-	-	-	-	-
900	2989	-	-	-	-	-
1000	3321	-	-	-	-	-
1200	3986	-	-	-	-	-
1500	4982	-	-	-	-	-
2000	6643	-	-	-	-	-
3000	9964	-	-	-	-	-
4000	13286	-	-	-	-	-

Note: Documented total CO₂ consumption for microbrew operations conducting carbonating, purge, transfer & bottling ranges from 2.0 lbs/keg - 4.0 lbs/keg. Sizing chart uses a delivery frequency of every four weeks with an approximate 20% reserve. 3.25 lbs/ keg = average based on total surveys & examples.

Carbon Dioxide

	Pounds (lb)	WEIGHT		GAS		LIQUID		SOLID Cubic Feet (Cu Ft)
		Tons (T)	Kilograms (Kg)	Cubic Feet (SCF)	Cubic Meters (Nm ³)	Gallons (Gal)	Liters (L)	
1 Pound	1.0	0.0005	0.4536	8.741	0.2294	0.11806	0.4469	0.010246
1 Ton	2000.0	1.0	907.2	17,483	458.8	236.1	893.9	20.49
1 Kilogram	2.205	0.0011023	1.0	19.253	0.5058	0.2603	0.9860	0.2260
1 SCF Gas	0.1144	-	0.05189	1.0	0.02628	0.013506	0.05113	0.0011723
1 Nm ³ Gas	4.359	0.002180	1.9772	38.04	1.0	0.5146	1.9480	0.04468
1 Gal Liquid	8.470	0.004235	3.842	74.04	1.9431	1.0	3.785	0.08678
1 L Liquid	2.238	0.0011185	1.0151	19.562	0.5134	0.2642	1.0	0.02293
1 Cu Ft Solid	97.56	0.04880	44.25	852.8	22.38	11.518	43.60	1.0

SCF (standard cubic feet) gas measured at 1 atmosphere and 70°F.
 Nm³ (normal cubic meter) gas measured at 1 atmosphere and 0°C.
 Liquid measured at 21.42 atmospheres and 1.7°F.
 Solid measured at -109.25°F.

Tank Model & Capacity

4 - Carbo- Max [®] 750	Perma- Max [™] 3300	Perma- Max [™] 4400	6 - Carbo- Max [®] 750	Perma- Max [™] 6000	Receiver
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
X	-	-	-	-	-
X	-	-	-	-	-
X	X	-	-	-	-
X	X	-	-	-	-
X	X	X	-	-	-
-	X	X	X	-	-
-	-	X	X	X	-
-	-	-	-	X	-
-	-	-	-	X	6 Ton
-	-	-	-	-	6 Ton
-	-	-	-	-	14 Ton



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