

*easy*Carb™ Manual



Taylor-Wharton

CARBON DIOXIDE SAFETY PRECAUTIONS

Keep Equipment area Well Ventilated. Carbon Dioxide can cause asphyxiation by displacing oxygen needed for breathing, resulting in dizziness, unconsciousness, or death. Carbon dioxide cannot be detected by the human senses and will be inhaled like air. If adequate ventilation is not provided, the gas may displace normal air without warning that a life-threatening atmosphere is developing. Store and use carbon dioxide containers only in well ventilated areas.

Extreme cold can Injure Eyes and Skin. If released to atmosphere, liquid carbon dioxide will turn to carbon dioxide snow or dry ice. Accidental contact of carbon dioxide snow or cold gas with the skin or eyes may cause severe frostbite. If you are accidentally exposed to cold snow or gas, consult a physician at once. Warm affected areas with water that is near body temperature as a first aid measure.

For additional information on carbon dioxide, ask your supplier for a Material Safety Data Sheet on this gas. Material Safety Data Sheets contain complete hazard and first aid information for the product they cover. For more information on the principles of operation and safe practices for carbon dioxide equipment refer to the Compressed Gas Association publication G-6 available from the Compressed Gas Association Inc. 1235 Jefferson Davis Highway, Arlington, VA 22202.

FREIGHT DAMAGE CLAIMS ARE YOUR RESPONSIBILITY. Liquid containers are delivered to your carrier from Taylor-Wharton's dock in new condition. When you receive our product you may expect it to be in that same condition. For your own protection, take time to visually inspect each shipment in the presence of the carrier's agent before you accept delivery. If any damage is observed, make an appropriate notation on the freight bill. Then, ask the driver to sign the notation before you receive the equipment. You should decline to accept containers that show damage, which might affect serviceability.

The **easycarb™** system consists of a vacuum-insulated liquefied gas container, and its associated plumbing. The system is designed for permanent installation as a source of gaseous carbon dioxide for soft drink carbonation. The **easycarb™** unit is manufactured to the ASME pressure vessel code.

The **easycarb™** container is filled from an outside fill station without interrupting the flow of gaseous carbon dioxide to the points of use. Two lines are permanently attached between the **easycarb™** and a lockable fill box outside the building. One line is used to transfer liquid to the system from a distribution vehicle, the other conducts gas vented by safety devices to the outside of the building. The fill box station must be located for easy access by the distribution vehicle. Filling is accomplished by connecting a delivery unit to the fill port in this box. Liquid CO₂ is then transferred by pressure differential.

The **easycarb™** operates without the need for constant attention. Personnel working at the use site may need to call their distributor to make occasional output pressure regulator adjustments, but the other valves and controls on top of the container are normally operated only when it is necessary to turn off the gas flow for maintenance, or if the system is damaged by mishap.

FREIGHT DAMAGE PRECAUTIONS

GENERAL INFORMATION


An automatic pressure building system makes the **easycarb™** a self contained gas supply system capable of providing gas at maximum continuous flow rates of up to 10.0 lb./hr. (4.5 kg/hr.) See Specification Chart below for desired EC Model.

The **easycarb™** is designed to supply gas from the pressurized space that is above the liquid inside the container. If high-demand applications cause the pressure in this space to drop below 125 psig (8.6 bar/862kPa), the pressure building regulator opens to maintain the gas pressure level. The container will hold liquid with no loss as long as a product is used at a rate listed in the Specification Chart below.

The gas supply line is equipped with a check valve to prevent back flow into the **easycarb™**. Back flow could carry contaminants that could freeze in the cold plumbing parts, making the **easycarb™** inoperative.

Solid CO₂ (dry ice) will form if the pressure in the **easycarb™** is allowed to drop below 70 psig (4.8bar/483 kPa). In service, the pressure is maintained well above this value to ensure that solid CO₂ (dry ice) will not form inside the container.

easycarb™ Specifications

Model	EC-150	EC-300	EC-450	EC-600
Part Number	EC15-0C00	EC30-0C00	EC45-0C00	EC60-0C00
Dimensions				
Diameter in. (mm)	20 (508)	20 (508)	20 (508)	22 (559)
Height in. (mm)	34.7 (881)	49.4 (1255)	64.6 (1641)	70.0 (1778)
Weight, Empty lb. (kg)	140 (64)	200(91)	260 (118)	355 (161)
Capacity, CO₂ Saturated @ 125 psig (8.6 bar)				
Liquid lb. (kg)	161 (73)	301 (137)	447 (203)	594 (269)
Gaseous cu. ft. (cu. m) @ NTP (STP)	1403 (37)	2628 (69)	3906 (103)	5195 (136)
Flow Rates				
Peak Demand lb./hr. (kg/hr)	4.5 (2.0)	7.0 (3.2)	12.0 (5.4)	20.0 (9.0)
Continuous lb./hr. (kg/hr)	3.0 (1.4)	5.0 (2.3)	7.0 (3.2)	10.0 (4.5)
Minimum Usage (No Venting)				
Liquid lb./day (kg/day)	1.8 (.82)	2.5 (1.13)	2.7 (1.22)	2.9 (1.32)
Pressure Building System	125 psig (8.6 bar)			
Standard Operating Pressure	125 psig (8.6 bar)			
Safety Device Settings	300 psig (20.7 bar)			
Inner Container Primary Relief Valve	300 psig (20.7 bar)			
Inner Container Safety Head	450 psig (31.0 bar)			
Electrical Requirements**				
Heater Voltage				
Heater Current				
* Flow rate using 240 VAC power. Using 208 VAC power, flow rate is 40 lb./hr. (18.1 kg/hr) peak and 30 lb./hr. (13.6 kg/hr) continuous.				
		Gas & Fluid Control Group Harsco		

INSTALLATION INSTRUCTIONS

Taylor Wharton's **easycarb™** carbon dioxide system is designed to be permanently installed. The system consists of a specifically designed container that stores carbon dioxide in the liquid state, and fill connection hardware to allow refilling from outside the building in which it is installed.

Planning the Installation

Consult with your customer, and check local code restrictions, before determining a location for the unit. The container should be installed in a location away from day to day activity to minimize tampering. It should be accessible for maintenance and occasional monitoring.

The fill box should be readily accessible for CO₂ deliveries 24 hours a day. A lockable fill box is part of the installation. The fill box location should be within 35-ft. (10.7m) of the delivery point, due to the limited reach of the delivery vehicle.

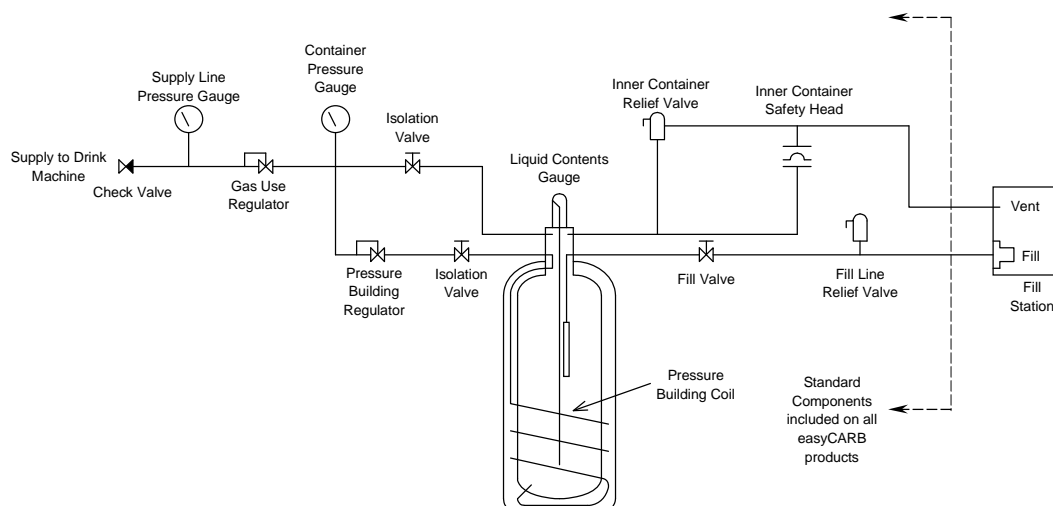
For safety and ASME code requirements, the length of the fill line and vent lines from the fill box to the **easycarb**[™] must not exceed 20-ft. (6m) in length. Consult Taylor-Wharton for technical assistance when installing longer lines to avoid problems.

A stainless steel surface mounted fill box is most commonly used as it minimizes modifications to the building and installation time. However, flush mounted fill boxes are available.

Plan the routing of fill and vent lines. These should be in an area well protected from accidental damage. If you can't conceal the lines, mount them to the interior walls, or secure them to overhead structural members as required by many local codes. Avoid hot areas if possible.

Do not route **easycarb**[™] lines near steam or hot water lines. For local regulations that require the cylinder to be elevated from the floor, we offer a platform base. If the platform base is used to elevate the cylinder; the cylinder must be anchored to a wall by its handling ring. Part numbers of the platform base and wall anchor can be found in the Replacement Parts List. It is recommended that appropriate local code approvals be reviewed prior to scheduling the installation.

easyCARB Flow Diagram



Note:

This container is manufactured to ASME pressure vessel specifications. It should not be used to transport liquid carbon dioxide. The **easycarb**[™] is intended to be transported to the installation site empty and filled after it is installed.

CAUTION:

If lifting by crane or hoist, insert hooks in both lifting lug openings on the cylinder ring. Failure to do so could result in container damage or personal injury.

Cylinder Handling

The **easycarb™** cylinder can weigh upwards of 375 lb. (170 kg), but can easily be moved by using a properly designed hand truck. A special Harper cylinder truck (Model ULG 650A) is recommended. The container can also be lifted and moved with a crane or hoist by attaching a sling to the holes, provided in the ring supports on the top of the cylinder. **Do not attach lift hooks to ring.** Except for minor tipping on the hand truck, the container must be kept upright at all times, and should not be moved or transported full.

Installation Procedure

See page 12 for Component Identification.

1. Determine the location for the fill box on the outside wall.

SPECIAL NOTICE

Be sure and take the height of the fill box into consideration. Do not install box at face height (approx. 5 ½ ft./1.7 m). This can be dangerous during delivery. The suggested height of mounting is approx. 3 to 4 ft. (.9 to 1.2m) above the ground.

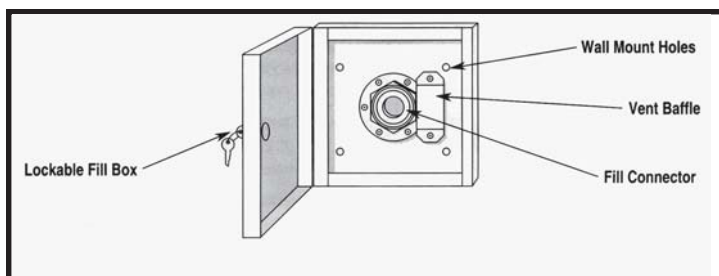
WARNING:

Be sure there are no hidden utility lines in the location selected for mounting. Consult the building plans, or make a test opening to confirm the wall is clear of hidden hazards before drilling.

2. Measure the distance from the container to location where the fill box will be mounted to determine the length of fill and vent line material required. Be careful to allow for all routing and for thickness of the outside wall. Avoid sharp bends that may restrict liquid or gas flow.
3. Fabricate two lengths of ½ in. (12.7 mm) ODT copper or ½ in. (12.7 mm) I. D. nylon tubing.
4. Drill a small pilot hole through the outer wall surface first to confirm that there are no utility lines in the location selected, then enlarge the opening to a 2 ½ in. (64 mm) opening.
5. The fill box contains copper tube sections long enough to pass through the wall. The fill section is already coupled but you must attach the vent section to the bracket beneath the fill coupling using the strap clamp and screws provided.

Note:

Nut and ferrule for vent line and liquid connection are attached to the plumbing to prevent loss during shipment.

Fill Station

6. Pass the fill line through the wall, and mark for cutting to length. Pull the fill box back off the wall. Cut fill line to length, then cut vent line to same length, and secure with screw to bracket in back of fill box.

7. After cutting the fill box tube sections to length, install the box. Level the box, then mark four wall anchor holes and drill; secure with appropriate anchoring hardware. Weather seal between the box and the building exterior is recommended.

8. Attach the two 90° elbow compression unions to the tubing ends coming through the wall and direct them toward the fill/vent lines.
9. Carefully unload the easycarb™ tank and move it to its permanent position. It is recommended that you securely anchor the top of the container to the wall or building structure with a suitable bracket that clamps the top handling ring.

WARNING:

Be careful to properly connect the vent and fill lines to the box. If the vent line is accidentally connected to the fill connection, the container relief device may be blocked, which will create a dangerous pressure build-up in the lines or the container.

10. Route and mount both lines using ½ in. (12.7 mm) O.D. lines inside the building , until they reach the easycarb™ tank. Be sure to comply with all local building codes.
11. Cut the vent line to final length and connect it to the elbow fitting on the vent tube leading to the outside box.
12. Go to the container end of the vent line and test the line before attaching to the container by blowing through the line to confirm that is unrestricted.
13. Cut fill line to final length, couple it to the remaining fill box elbow, then connect it to the LIQUID connection on the easycarb™.
14. Apply the easycarb™ decal to the front of the container and post carbon dioxide storage identification in the general area as required by local code.

Leak Checking the Installation

Open the LIQUID valve and close the USE and PB valves. Pressurize the system to 150 psig (10 bar/1034 kPa) with gaseous CO₂ through the fill connection. Leak test all joints using only approved leak test solutions. Follow the manufacturer's recommendations. Snoop Liquid Leak Detector is one approved solution; it is available from: Nupro Co. 4800 E. 345th St. Willoughby, Ohio 44094. Leak test all connections. If leaks are found, isolate the leaking plumbing from the tank pressure so all pressure may be released from the area under repair.

WARNING:

In case of any downstream leaks to the point of use, close the USE Valve and the PB Valve. Closing these valves will stop the flow of gaseous CO₂ to the Supply Line Regulator and downstream piping so that repairs can be made to any leaks.

Supply Line Installation

1. Fill the easycarb™ using the filling procedure on page 7.
2. Install a gas supply line from the Supply Line connector, on the easycarb™ to the use point and finger tighten.

Note:

Liquid connection fitting must be assembled to liquid line using pipe thread sealant, such as teflon tape, prior to attaching the liquid line connection.

Note:

After completing the tank installation, fill out the [easycarb™ Warranty Card](#) and return to Taylor-Wharton.

FILLING THE CONTAINER

Note:

During first fill the **easycarb™** will be warm and pressure may equalize before tank is full. If this occurs, shut off liquid on fill gun and vent pressure in **easycarb™** down to 125 psig (8.6 bar/862 kPa) through fill gun. Repeat if necessary. If you are not sure if the **easycarb™** is full simply check liquid contents gauge on the **easycarb™** before venting.

3. Open the gas USE valve and adjust the outlet regulator – normally to 90 psig (6.2 bar/621 kPa).
4. Tighten the supply line fittings at the use point.

Schedule delivery before the container contents drop below ¼ full. This will improve the filling characteristics as well as the gas withdrawal capabilities.

1. Inspect the **easycarb™** for proper vent, supply and fill line installation before attempting to fill the container.
2. Check supply container valves to ensure they are open.
3. Check the pressure and contents of the supply container(s).
4. Extend the fill hose to the fill box.
5. Inspect all connections for cleanliness. Any moisture that is present can freeze during liquid transfer. Use a clean, dry cloth to wipe connections if necessary.
6. Open liquid ball valve and purge the fill gun vent until liquid appears. After this is complete shut the liquid ball valve. Next shut the vent ball valve.
7. Connect the fill gun to the fill connector and read the customer tank pressure to ensure a positive differential.
8. Open the liquid valve on the fill gun to begin the fill. *Never leave the Fill Gun unattended during the fill.*
9. When the pressure indicated on the fill gun begins to rise sharply, terminate the fill.
10. Close the Liquid Fill valve, and disconnect the fill gun from the fill station. Open the fill gun Vent valve to relieve trapped pressure.

MAINTENANCE

CAUTION:

Carbon dioxide may form into the solid phase (dry ice) if the pressure over the liquid is allowed to drop below 70 psig (4.8 bar/483 kPa). Pressure in the container must be maintained above this value to ensure solid CO₂ will not form inside the container. Before performing maintenance, the contents of the **easycarb™** must be transferred to another container so that pressure can be released.

WARNING:

Delivery systems with operating pressures greater than 300 psig (20.7bar/2068 kPa) may over-pressurize the easycarb™ if not used properly. Do not allow the pressure, as displayed on the fill gun, to exceed 300 PSI during the fill.

For specific maintenance procedures refer to the applicable paragraph that follows, and to the replacement parts list.

WARNING:

Isolate components and slowly de-pressurize the plumbing to be repaired before attempting repairs. The sudden release of pressure could cause personal injury. Observe safety precautions to prevent dangerous accumulation of gas. Safety devices and liquid level contents gauge cannot be isolated, therefore all liquid must be removed and all pressure in vessel must be relieved before attempting to repair them.

Parts Cleaning

Before installing, be sure to properly clean any replacement parts that are not packaged and marked for oxygen service. Keep all parts clean during installation to prevent contamination of the carbon dioxide. For more information on cleaning, consult the compressed Gas Association (CGA) pamphlet G-4.1, "Cleaning for Oxygen Service" or equivalent industrial cleaning specifications.

Leak Testing

After every repair, pressurize the container to about 280 psig (19.3 bar/1931 kPa) through the Liquid connection with a regulated source of clean dry carbon dioxide gas. Use only approved leak test solutions and follow the manufacturer's recommendations. "Snoop" Liquid Leak Detector is one approved solution, it is available from: Nupro Co. 4800 E. 345th St. Willoughby, Ohio 44094. If leaks are detected, isolate container pressure and relieve pressure on the lines before repairing, then retest when repairs are completed.

Relief Valves¹

Replace the relief valve when it fails to maintain its setting or when it leaks at pressures below its setting. If the relief valve functions properly, but operates too frequently, it may be an indication that the insulation space vacuum has deteriorated. Follow the instructions in the Evaporation Rate Test Procedure to check the condition of the vacuum. Never try to repair relief valves.

Inner Container Safety Head

If the inner container safety head (frangible disc) ruptures, determine and correct the cause of the rupture before replacing the safety head assembly. Then leak test the plumbing in accordance with the Leak Test instructions.

Supply Line Regulator

The supply line regulator reduces the pressure of the carbon dioxide gas from the **easycarb**[™] container to the level required by the carbonation system. It provides a constant supply pressure. To adjust the supply line regulator:

1. Loosen the adjustment screw retaining nut.
2. Adjust the regulator (tee handle) on the Supply Line Pressure Gauge.
3. Tighten the adjustment screw retaining nut.

Pressure Building Regulator

If the regulator fails to close properly, and allows container pressure to rise above the 125 psig (8.6 bar/862 kPa) setpoint, replace the regulator.

After replacement, or if the pressure building circuit is maintaining a pressure minimum other than 125 psig (8.6 bar/862 kPa), the regulator may be adjusted using the following Field Adjustment Procedure. For more precise adjustment, remove the regulator and use the Bench Adjustment Procedure.

CAUTION:

If the contents have solidified, the dry ice in the container may be thawed by pressurizing the container to 280 psig (19.3 bar/1931 kPa) with carbon dioxide gas from an external source. This may be accomplished by connecting a high pressure cylinder with regulator to the fill line of the **easycarb**[™] (adapters will be required). Several days at this pressure may be required to thaw the container. For more information, consult CGA pamphlet G-6.7, "Safe Handling of Liquid Carbon Dioxide Containers that have Lost Pressure."

¹See warning on removing contents before releasing container pressure at the beginning of the Maintenance Section.

Note:

Pressure in the container must be above the desired pressure building setting.

Note:

One-half turn of the adjusting screw will raise or lower the setpoint approximately 35 psig (2.4 bar/241 kPa).

CAUTION:

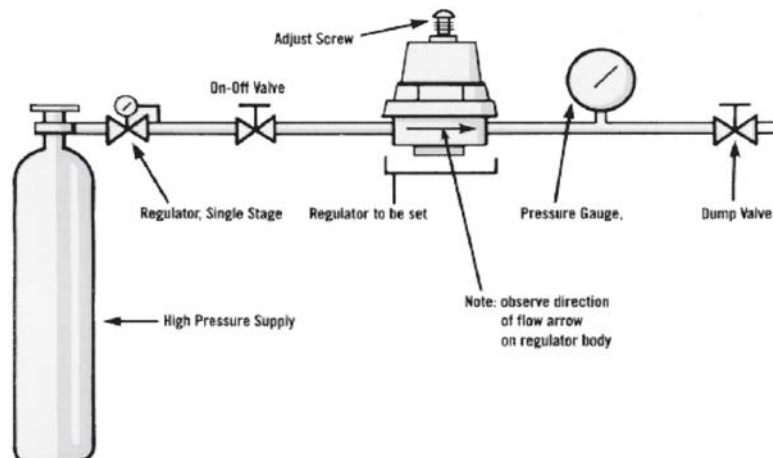
Internal orifices in pressure regulators used with CO₂ are subject to the formation of dry ice if excessively cold gas or extremely high flow rates are used. If this condition occurs, it is usually an indication of a leak in the equipment or plumbing downstream of the easycarb™ system. Check for leaks and make repairs as necessary. If no leak is found, and ice formation continues, your application may require increasing system output by installing an external vaporizer or second easycarb™ unit.

Field Adjustment Procedure. For adjustment on the container:

1. Close pressure building isolation valve and use valve.
2. Relieve pressure in the pressure building loop by opening the compression fitting near the pressure building regulator.
3. Re-tighten fitting opened in step 2.
4. Loosen the lock-nut and turn (counter-clockwise) the adjusting screw on the pressure building regulator all the way out.
5. Open the upstream pressure building isolation valve.
6. Turn the adjusting screw clockwise until the container pressure reads: 125 psig (8.6 bar/862 kPa).
7. Tighten the lock-nut on the regulator adjustment.
8. Open the use valve.

Pressure Building Regulator Bench Adjustment Procedure. Assemble the pressure building regulator adjustment fixture, and regulator to be adjusted, as shown in the accompanying illustration.

1. Close the On/off valve, and the Dump valve.
2. Set the high pressure regulator above the desired setpoint for the Pressure Building regulator.
3. Crack and open the high pressure cylinder valve.
4. Slowly open the On/ off valve and observe the pressure gauge.
5. When the regulator under test opens, the setpoint may be read on the Pressure Gauge.
6. Close the On/off valve, and open the Dump valve.
7. To reset the regulator, loosen the lock-nut on the adjusting screw. Raise pressure by turning the adjusting screw clockwise; lower pressure by turning the screw counter-clockwise. After adjustment, repeat steps 4 and 5 to check the setting before reinstalling the regulator on the easycarb™.

Regulator Bench Adjustment Fixture

Checking Container Performance

The easycarb™ is basically two containers, one within the other. The space between the containers acts as a thermal barrier because of high technology insulation and a vacuum. Each serves a very important part in the useful life of the container. The insulation is very effective in preventing radiated heat from entering the inner container; the vacuum prevents heat convection or conduction from reaching the liquid contents. When the vacuum in the insulation space is no longer effective, the following symptoms may appear:

- When the container is filled with liquid, the outer casing will be much colder than normal.
- Frost, indicating the liquid level, may be visible on the outer casing of the container.
- The container may appear to "sweat" if the air surrounding the container is hot and humid.
- The relief valve will open continuously until the container empties prematurely.

Normal Evaporation Rate (NER) Testing. If a loss of vacuum integrity is suspected, the container's Normal Evaporation Rate should be checked. However, always perform a visual check of the inner container safety head before proceeding with the test. If the safety head is ruptured, it must be replaced before performing the test. If the safety head is intact, take the container out of service and perform the following test:

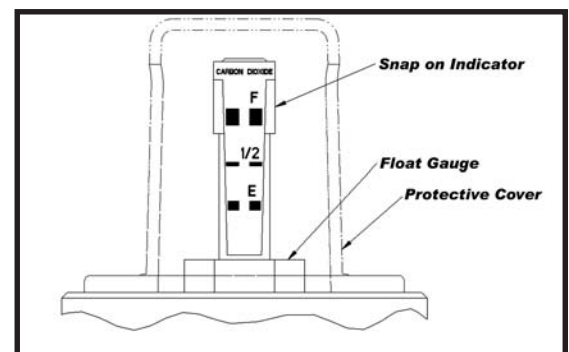
The pressure building valve must be closed during the NER test. The container must be in a well ventilated area where the temperature is approximately 70°F (21°C.)

1. Fill the container until it contains at least 100lb. (45 kg) of liquid for the EC400 and 125 lb. (57 kg) for the EC600.
2. Allow the container to stabilize with all valves closed until it vents through the relief valve. Weigh the container. Record the weight, time, and date.
3. Reweigh after the container is allowed to vent for 24 hours. Record the weight, time, and date.
4. If the weight of the carbon dioxide lost in 24 hours is greater than 8lb. (3.6 kg), the container may have lost its vacuum.
5. If the above test is inconclusive, reweigh again after 48 hours. The test is most affective if container is not moved during this period.
6. If the total amount of carbon dioxide lost in the 48 hour test exceeds 17 lb. (7.7 kg), the container may be considered defective.

Full View Contents Gauge

The content of these containers is measured with the Full View Contents Gauge. The device consists of the gauge body and snap on level indicator. When the gauge is assembled, the indicator is magnetically coupled to the top of a float rod that moves up or down with the changing level of liquid in the container.

Note:
See the TROUBLE-SHOOTING Section for more detailed symptoms.



Replacing the Full View Contents Gauge

The easycarb™ must be empty of liquid carbon dioxide before attempting to remove the contents gauge, or the contents will solidify. Remove all pressure from container and remove the clear protective cover by removing three (3) screws at its base. Unscrew gauge body using a wrench on the hex fitting at the base of indicator tube.

Lift the entire gauge assembly free of the container. The gauge assembly is long and may be very cold. Gloves should be used to protect your skin.

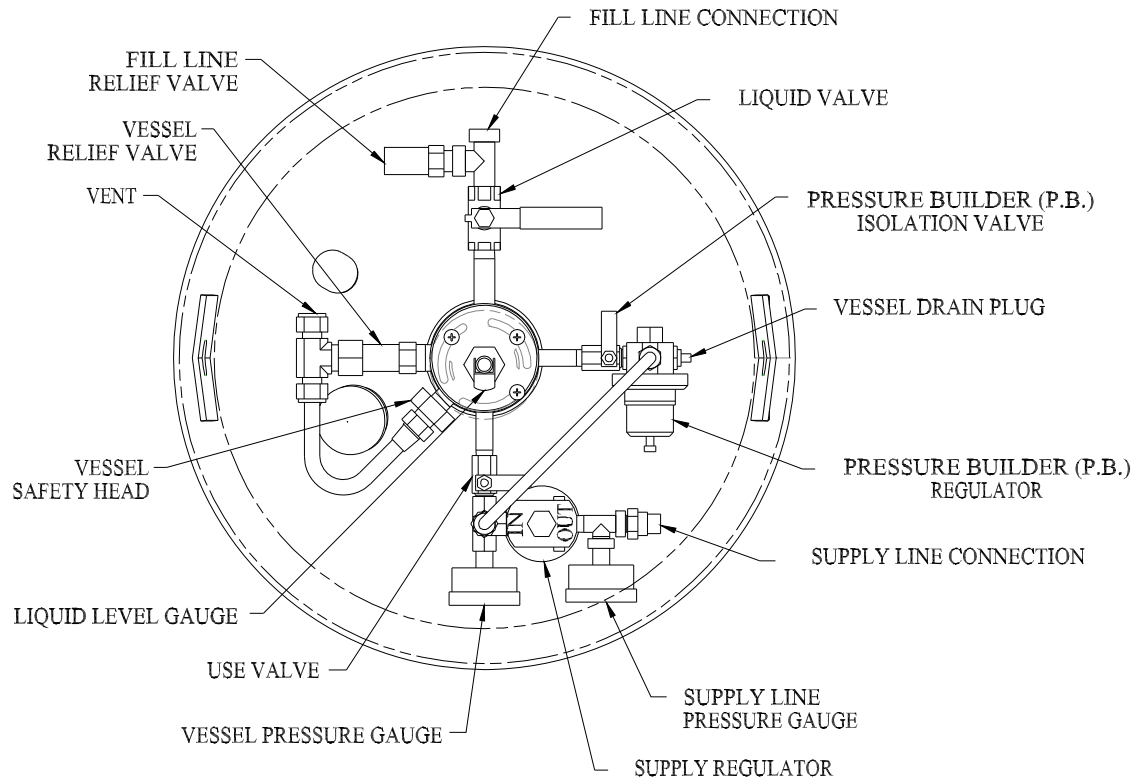
Contents Gauge Installation.

Before installing a new or repaired gauge, inspect the gasket, if any damage is apparent replace.

CAUTION:

When installing the gauge assembly, care *must* be taken to ensure that the float rod is inserted through the "guide ring" located on the fill line inside the container. If the gauge does not engage this ring, the contents indication will be inaccurate, or the gauge may be damaged in use.

1. When inserting the gauge assembly, lower the float rod through the gauge opening until about 8 in. (203 mm) of the float rod remains above the container.
2. Grasp the upper portion of the float rod with two fingers so that the assembly hangs free and "plumb".
3. Lower the assembly about 4 in. (102 mm) slowly and try to keep the rod in the center of the threaded entrance hole as you do. If you are careful during this portion of insertion, you will drop the float rod straight through the guide ring inside the container.
4. To confirm that the rod is correctly positioned in the container, stop where you can still grasp the top of the rod and try to swing the lower end from side to side.
5. When the rod is engaged in the guide ring, the rod will be restricted to lower end movement of about ½ in. (12.7 mm); if you can feel greater movement, withdraw the rod to the point where its top is 8 in. (203 mm) above the gauge opening and try again.
6. When you are satisfied that the gauge rod is correctly installed, lower the assembly the rest of the way into the container until the top portion threads can be engaged.
7. Screw the gauge in place and hand torque to about 20 ft. lbf (2.8 kgf m). Leak check the connection of gauge body to the flange, and replace the protective cover.



COMPONENT I.D.

TROUBLESHOOTING

Symptom	Possible Cause	Corrective Action
Frost on bottom of easycarb™	<ol style="list-style-type: none"> 1. Frost may appear during periods of high use – this is normal 2. Leak in beverage system. 	<ol style="list-style-type: none"> 1. None required. 2. Repair leak.
Frost on bottom of easycarb™ and Pressure over 125 psig (8.6 bar/862 kPa)	Pressure Building circuit incorrectly adjusted.	Readjust regulator (See Maintenance Section).
Frost on easycarb™ and container is noticeably cold over entire outer surface.	Loss of container vacuum.	See “Checking Container Performance” in Maintenance Section.
Low supply pressure - Container level gauge shows zero	Out of CO ₂	Call supplier for fill.
Low supply pressure – easycarb™ pressure OK.	<ol style="list-style-type: none"> 1. Supply line regulator incorrectly set. 2. Supply line leaking 3. USE valve on tank closed 4. Leak in beverage system. 5. Restriction in gas supply line. 	<ol style="list-style-type: none"> 1. Reset to 90 psig (6.2 bar/621 kPa) or required supply Pressure. 2. Repair leak. 3. Open Valve. 4. Repair leak. 5. Close USE and PB valve and open beverage line at a convenient point to isolation restriction.
Low tank pressure – below 125 psig (8.6 bar/862 kPa) No frost on unit.	<ol style="list-style-type: none"> 1. Pressure building circuit set too low. 2. Isolation valves closed. 	<ol style="list-style-type: none"> 1. Readjust regulator (See Maintenance Section). 2. Open USE valve and P.B. valve. Handle should be parallel with line.
High carbon dioxide consumption.	Leak in system.	Repair leaks.
easycarb™ won't fill.	<ol style="list-style-type: none"> 1. LIQUID valve closed 2. Tank already full. 3. Delivery vehicle pressure too low. 	<ol style="list-style-type: none"> 1. Open valve. Handle should be parallel with fill line. 2. None required. 3. Determine cause and restore pressure.

TROUBLESHOOTING

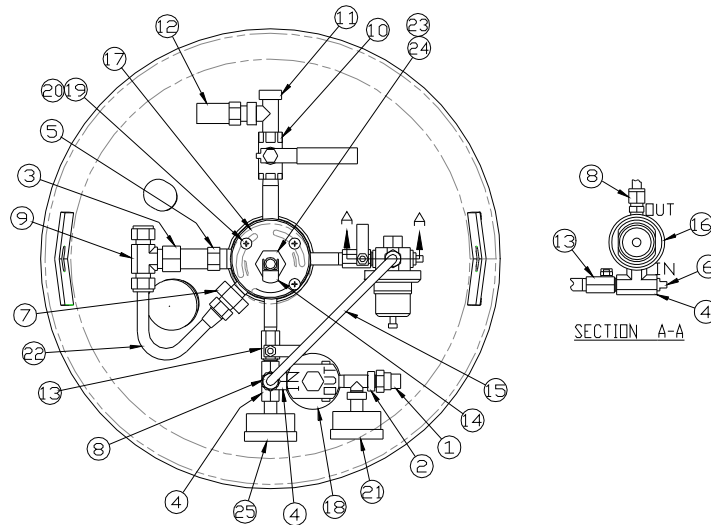
Symptom	Possible Cause	Corrective Action
Internal easycarb TM Pressure too high – Container won't fill	<ol style="list-style-type: none"> 1. Customer usage too low. 2. Pressure building circuit improperly adjusted. 3. Customer tank insulation system failure. 	<ol style="list-style-type: none"> 1. Vent customer tank through fill gun to 125 psig (8.6 bar/862 kPa). 2. Readjust regulator (See Maintenance Section). 3. See "Checking Container Performance" in Maintenance Section.
easycarb TM venting – pressure 270 psig (18.6 bar/1862 kPa).	Relief valve stuck open.	Replace relief valve.
easycarb TM venting – pressure 300 psig (20 to 20.7 bar/ 1999 to 2068 kPa).	<ol style="list-style-type: none"> 1. Normal relief valve operation. 2. Pressure building circuit not closing. 3. Loss of vacuum 	<ol style="list-style-type: none"> 1. None required. 2. See "Pressure Building Regulator" in Maintenance Section. 3. NER test.

REPLACEMENT PARTS

The following replacement parts list is keyed to the accompanying illustrations for parts identification purposes. All replacement parts should be purchased from Taylor-Wharton. When placing orders, please use the nomenclature and part numbers in this section and send written orders to:

Taylor-Wharton
4075 Hamilton Blvd.
Theodore, AL 36582
U.S.A.

FAX: 251-443-2250
Phone: 251-443-8680
In U.S.A. and Canada
(800) TW TANKS (898-2657)

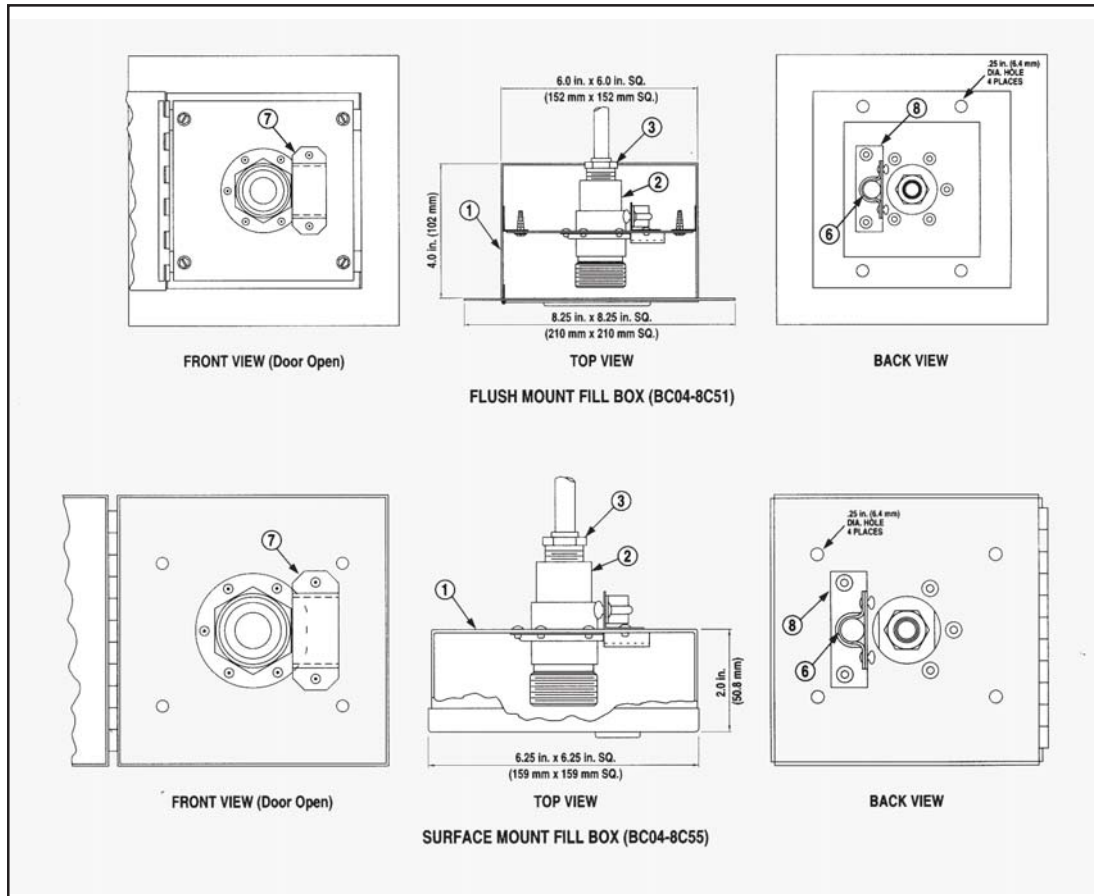


Item	Part Number	Description
1	6916-9352	Check Valve, 1/4" NPT, Brass
2	6816-9927	Street Tee, 1/4", Brass
3	6913-9225	Pipe Away, 1/2" FNPT, Brass
4	6816-0100	Tee, Male Branch, .25 x .25 x .25, NPT, Brass, 300 PSIG
5	6913-9083	ASME Safety Relief Valve, 1/2" NPT, Brass
6	6010-2075	Plug, Pipe, 1/4", Square head, Brass
7	7815-3083	Safety Head, 450 PSIG
8	7355-4780	Connector, Male, 3/8" ODT x 1/4" MNPT, SS
9	6816-9215	Tee, Male Branch, 1/2" x 1/2" OD, Brass
10	6916-7111	Valve, Ball, 3/8" Inch Female
11	6816-9209	Street Tee, 3/8", Brass
12	6913-9075	Relief Valve, 3/8" MNPT, 400 PSIG, Brass
13	6919-9086	Valve, Ball, 1/4" FNPT x 1/4" MNPT
14	7355-4771	Connector, Male, 1/2" ODT x 3/8" MNPT, Brass
15	EC30-9C02	PB Tube
16	8816-1057	Regulator, PB, 125 PSI, 1/4" IN/OUT
17	GL50-9C54	Cover, Liquid Level Gauge
18	8816-1040	Regulator, 90 PSI, 1/4" IN/OUT
19	6460-2025	Washer, Lock, 1/4" STN.STL
20	6114-1088	Screw, Pan HD, .25-20UNC x .62, Brass
21	7702-6207	Pressure Gauge, 0-200 PSIG
22	EC30-9C01	Tube, Safety Vent
23	7701-0083	Gasket, Glass Filled Teflon
24	BC04-9C65	Float Gauge
25	7702-6206	Pressure Gauge, 0-400 PSIG

Item No.	Model	Float Rod Part No.
*	EC-150	GL45-9C91
*	EC-300	GL45-9C93
*	EC-450	GL45-9C97
*	EC-600	GL45-9C97

*Not illustrated

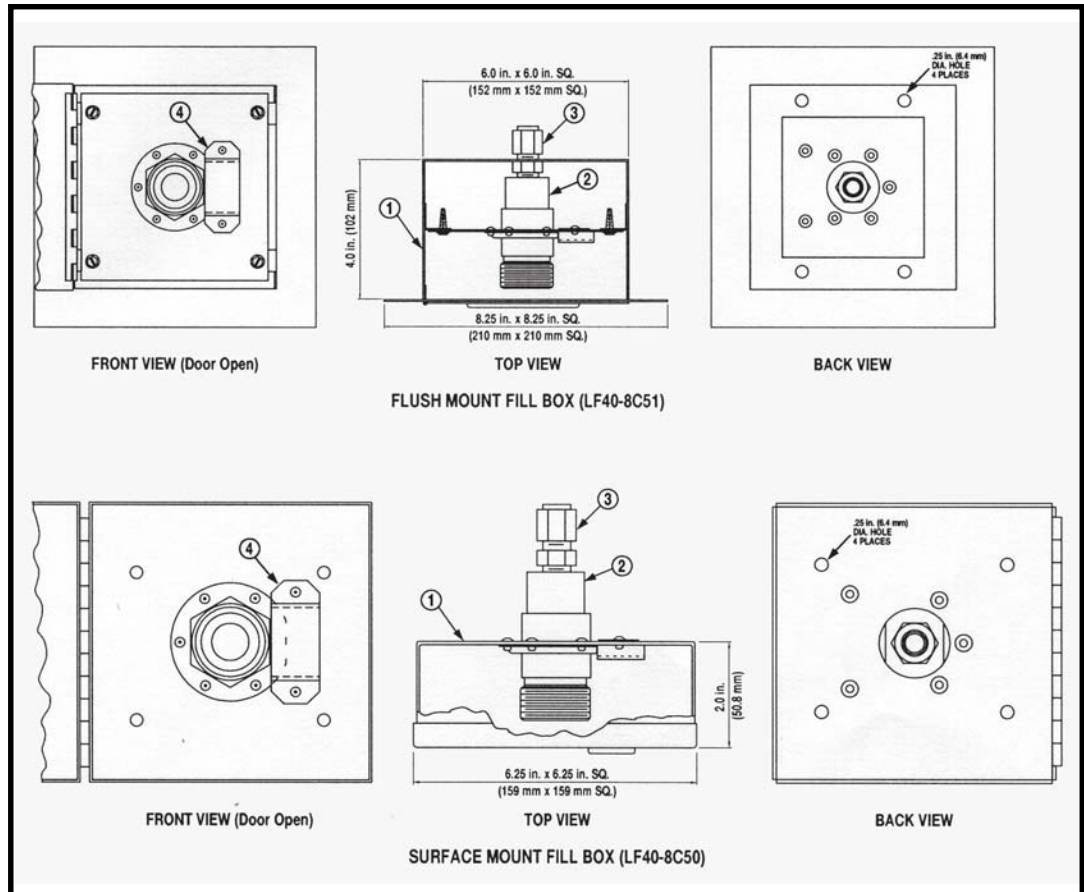
Fill Box Identification



Item	Part Number	Description
1	BC04-8C26	Fill Box, Surface Mount
	BC04-8C35	Fill Box, Flush Mount
2	6812-9412	Brass Coupling w/mounting flange
3	BC04-8C49	Fill Tube Assembly
*	BC04-8C21	Vent Tube Assembly
*	6814-9237	Elbow, Brass 1/2 in. ODT-COMP x 1/2 in ODT-COMP
6	BC04-8C45	Tube Clamp
7	BC04-8C22	Baffle, Vent Tube
8	BC04-8C20	Bracket, Vent Tube

* Not Illustrated

Optional Fill Box Identification



Item	Part Number	Description
1	BC04-8C26	Fill Box, Surface Mount
	BC04-8C35	Fill Box, Flush Mount
2	6812-9415	Brass Coupling w/mounting flange, Thread to Connect
3	45702030	Male Connector, 1/2 in. ODT x 1/2 in. NPT Brass
4	BC04-8C22	Baffle, Vent Tube
*	7854-6150	Fill Hose Assembly, 15 ft. (4.5 m)
*	7854-6155	Fill Hose Assembly, 6 ft. (1.8 m)

* Not Illustrated