Taylor-Wharton
Harsco

Cryo-Science Technologies

CST

Taylor-Wharton
Harsco

Instructions for

Storage and Transport containers for LIN, LOX, LAR, LCO2

Models:
XL-45 CE
XL-45 HP CE
XL-50 CE
XL-55 HP CE
XL-65 HP CE

Do not attempt to use or maintain this unit until you read and understand these instructions. Do not permit untrained persons to use or maintain this unit. If you do not fully understand this instructions, contact your supplier for further information.

Contents

1. Container Safety

Pressure Hazard – The containers covered by this literature contain liquefied gas under pressure up to 24 bars. Sudden release of this pressure may cause personal injury by issuing cold gas or liquid, or by expelling parts during servicing. Do not attempt any repairs on these containers until all pressure is released, and the contents have been allowed to vaporize to ensure no pressure build up can occur.

Extreme Cold – Cover Eyes and Exposed Skin – Accidental contact of the skin or eyes with any cryogenic liquid or cold issuing gas may cause a freezing injury similar to frostbite. Protect your eyes and cover your skin when handling the container or transferring liquid, or in any instance where the possibility of contact with liquid, cold pipes, and cold gas may exist. Safety goggles or a face shield should be worn when withdrawing liquid or gas. Long-sleeved clothing and gloves that can be easily removed are recommended for skin protection. Cryogenic liquid is extremely cold and will be at temperatures below minus 184°C under normal atmospheric pressure.

Keep Equipment Well Ventilated – Although the gases used in these containers are non-toxic and non-flammable, they can cause asphyxiation in a confined area without adequate ventilation. An atmosphere that does not contain enough oxygen for breathing can cause dizziness, unconsciousness, or even death. These gases cannot be detected by the human senses and will be inhaled normally as if they were air. Ensure there is adequate ventilation where these gases are used and store liquid containers outdoors or only in a well ventilated area.

Replacement Parts Must be 'Cleaned for Oxygen service ' – Some materials, especially non-metallic gaskets and seal, can be a combustion hazard if used in oxygen or nitrous oxide service. Use only Taylor-Wharton recommended spare parts, and be certain parts used are properly cleaned to prevent contamination of stored product. For information on cleaning, consult the Compressed Gas Association (CGA) pamphlet G-4.1, “Cleaning for Oxygen Service” or equivalent industrial cleaning specifications.

Install Relief Valves in Cryogenic Liquid Lines – When installing piping or fill hose assemblies, make certain a suitable safety relief valves is installed in each section of plumbing between shut-off valves. Trapped liquefied gas will expand as it warms and may burst hoses or piping causing damage or personal injury.

NOTE:
For detailed information on the handling of cryogenic liquids, refer to the Compressed Gas Association publication: P-12 “Safe Handling of Cryogenic Liquids.”
Available from the Compress Gas Association, 1235 Jefferson
Davis Highway, Arlington, VA 22202, USA

Or to
-Accident-prevention-rule VBG 17 - pressure-gas"
-Accident-prevention-rule VBG 61 - gas"

Both publications are published from the main-association of the industrial occupation-cooperative in Germany and are available from the Carl Heymann publishing house, Köln/Berlin.

Additionally please pay attention to all laws, rules and recommendations about handling of cryogenic liquefied gases and materials, that are valid in your country.

2. Product Description

XL-45, XL-50, XL-55 und XL-65 are vacuum-insulated containers made of stainless steel, designed for the storage and the transportation of cryogenic liquid nitrogen, oxygen, argon, or in case of the HP-models, carbon dioxide. The containers are approved acc. to the European Directive for portable pressure vessels TPED (1999 / 36 / EC, dated 01.07.2001) and may be used for transport of cryogenic fluids over public roads or for storage or delivery in many applications.
The exceptional low evaporation rate makes those vessels to first class independent gas supply sources, which allow a continuous gas flow of up to 9 m³/ hour at 7 bars.

3. Specification

Models	XL45CE	XL45HPCE	XL50CE	XL55HPCE	XL65HPCE
Gross capacity l	180	176	188	208	247
Net capacity l	169	165	176	198	240
Max. working pressure bar	15,9	24	15,9	24	24
Evaporation rate(1) O_2/%/Day	1,2	1,4	1,1	1,2	1,5
Gas withdrawal rate N_2/m³/h	9,2	9,2	9,2	9,2	9,2
Weight, empty kg	133	151	139	164	201
Weight, full N_2 kg	269	284	281	324	395
Height mm	1562	1559	1614	1764	1476
Diameter mm	508	508	508	508	660
Casters(2)	–	–	–	–	5
Part. No.	GL45-0C12 TPED	HP45-0C12 TPED	GL50-0C12 TPED	HP55-0C12 TPED	HP65-0C12 TPED

(I) Vented NER based on Useable Liquid capacity
Specifications are subject to change without prior notice.

4. Handling of the Container

XL Series containers are very rugged liquid cylinders. All cryogenic liquid containers have an inner container and on outer casing with a super-insulated vacuum space between them; any abuse (dents, dropping, tip-over, etc.) can affect the integrity of the container's insulation system. When moving the cylinder, the following precautions should be observed:

1. Never lay the container on its side. Always ship, operate, and store the unit in a vertical or upright position. Taylor-Wharton offers a special transport trolley (See picture below), which offers the necessary safety, when the cylinder shall be moved.

2. When loading or unloading the container from a truck, use a lift gate, a crane, or a parallel loading dock. Never attempt to manually lift the unit.

3. To move the container over rough surfaces or to lift the container, attach an appropriate sling to the lifting points cut into the welded support posts, and use a portable lifting device that will handle the weight of the container.

4. Liquid cylinders are generally not designed to be permanently mounted on a truck. Depending on the design of the fixation, the more or less permanent transversal vibrations and resonances put a high stress on the inner vessel supports, so that Taylor-Wharton cannot keep the warranty for the vacuum upright. Please seek advice from Taylor-Wharton in order to look for possible solutions.

Trolley

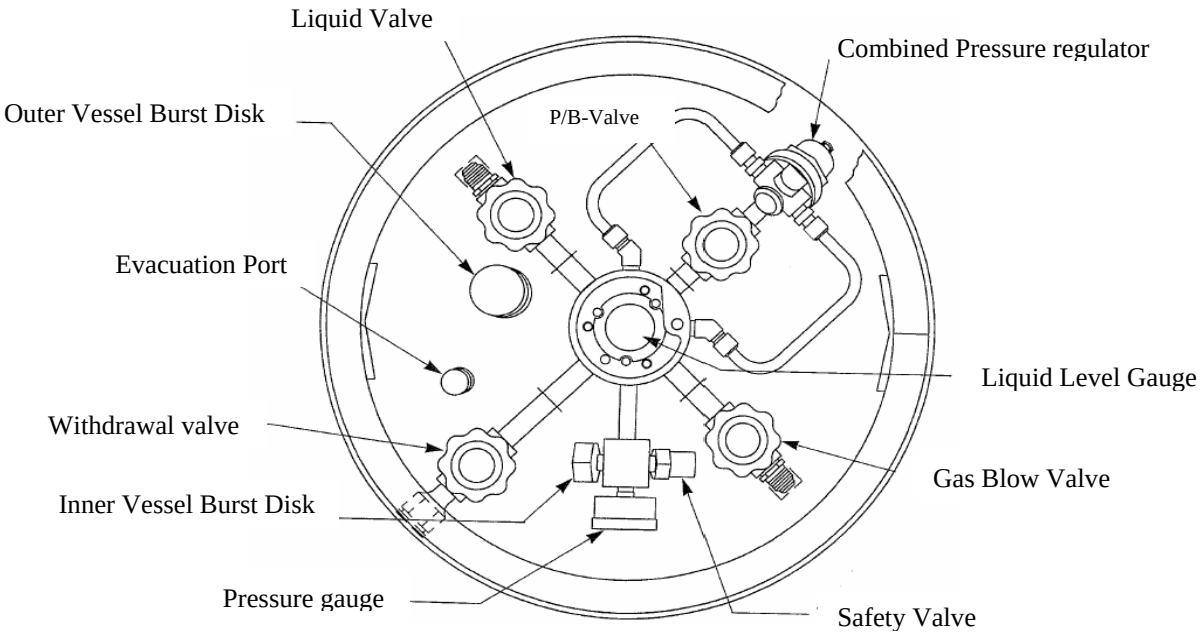
This special trolley makes it easy to pick up and transport cylinders.

5. Operation

Following descriptions are most important for a proper handling of all XL-cylinders. Components and operations will be described, which should be read in any case, before you put the vessel into operation. The components and instruments can be identified from the pictures and drawings.

The Liquid cylinders can be filled liquid according to their net content. All these XL-vessels can supply liquid and/ or gaseous product.

Components XL-Cylinders



6. Component Description

Pressure Building and Economizer (10): The combined pressure regulator (10) controls the withdrawal of gas from the gas space to reduce the pressure in the tank, if it is higher than the set pressure. The pressure reduction avoids the loss of product by blowing safety valves, if the withdrawal from the tank is low. If the pressure in the tank is below the set pressure, the regulator activates the pressure building system. If P/B-valve (3) is open, the pressure regulation operates automatically at the set pressure without any further care.

Internal Vaporizer (7): These XL-cylinders are equipped with an internal product vaporizer coil (7), fixed on the inner side of the outer casing to serve as a heat exchanger with the ambient temperature. The product vaporizer heats up and evaporates the liquid product for the withdrawal of gaseous product. The capacity for the gas withdrawal is up to 9.2 m^3/h (nitrogen). If vaporizers are activated, a build-up of ice in the coil area on the surface of the outer vessel is normal and unavoidable. An additional external vaporizer should be connected, if the withdrawal is made at a continuously higher rate in order to ensure the full evaporation of the withdrawn product and to warm it up to avoid frost damages on connected equipment, hoses and components.

Withdrawal Valve Gas (4): This valve (also called USE Valve) controls the withdrawal of gas produced by the internal product vaporizer (10). The withdrawal line is equipped with a connection specifically required for the gas service, for which the tank is configured. If the gas service changes, the connection must be exchanged.

Liquid Valve (8): Liquid product is filled into or withdrawn from the container through the connection controlled by this valve. The liquid line is equipped with a connection specifically required for the gas service, for which the tank is configured. If the gas service changes, this connection must be exchanged as well.

Pressure Gauge (1): The pressure gauge displays the internal container pressure in psi or bar.

Gas Blow or Vent Valve (11): This valve controls a line into the head space of the inner vessel. It is used during the fill process as vent valve or as fill valve, if a pump is connected to this line. The vent line serves as full try cock at 95% of the inner container fill volume.

Liquid Level Gauge (9): The contents gauge is a float type sensor that indicates the liquid content height through a magnetically coupled yellow indicator ring. This gauge is an indication of approximate container contents only and should not be used for filling. Liquid cylinders should for example be filled by weight, see page 10.

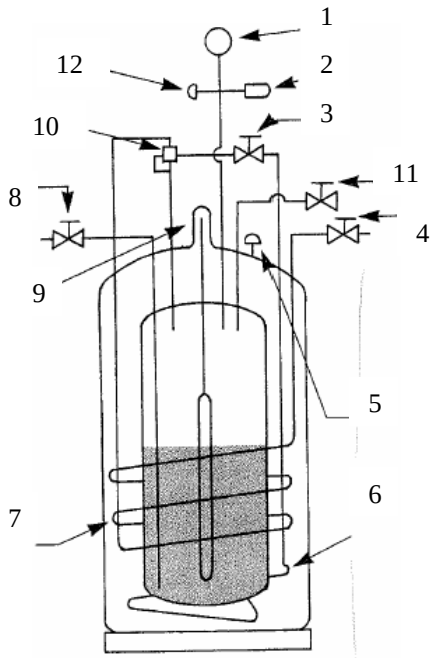
Safety Valve (2) and Burst Head (12): These containers are equipped with a safety or relief valve and a burst head.

Relief valves and burst head settings:

	Standard	**‚HP'- Models**
Relief valve	16 bar	24 bar
Burst head	25 bar	36 bar

Flow Diagram XL- 45/50/55/65

1. Pressure Gauge
2. Safety Valve
3. Pressure Building Valve
4. Withdrawal (Gas)
5. Burst Disk 'Outer Casing'
6. Pressure Building Vaporizer
7. Product Vaporizer
8. Liquid Valve (Fill / Withdrawal)
9. Liquid Level Gauge
10. Pressure Regulator
11. Gas Blow (Vent) Valve
12. Burst head



7. Pressure Building

The XL-containers are equipped with a pressure building circuit (6) in addition to the internal product vaporizer (10).

A pressure building circuit is used to ensure sufficient driving pressure during high withdrawal periods. The function is actuated by opening the p/b valve (3) that creates a flow from the bottom of the container, through the pressure building coil, the regulator into the gas space in the top. When the pressure valve is open, and the container pressure is below the set pressure of the regulator, liquid taken from the bottom of the container is warmed up and vaporized in the pressure building coil as heat exchanger which is inside the outer casing. The expanding gas is fed into the upper section of the container to build up pressure.

Pressure Building is not often required unless container pressure drops below the gas output pressure desired. But it allows a sufficient pressure in the tank, even if up to 9 m³ / hour are continuously withdrawn. For many applications, where the container pressure is raising due to low withdrawal rates, it may make sense, to deactivate the pressure building circuit by closing p/b valve no. 3.

8. Withdrawal Gas from the Container

To withdraw gas from the XL-containers connect a suitable pressure regulator to the gas withdrawal or 'USE'-valve connection (4), and the output of the regulator to your external equipment. The gas is withdrawn over the product vaporizer (10). Then open the USE valve, and, if the pressure is low, the p/b valve no. 3. When the pressure in the XL-container is high enough, set the pressure on your pressure regulator.

Caution: During high gas withdrawal rates above 9.2 m^3 / hour the capacity of the internal vaporizer may be exceeded. If the capacity of a vaporizer is exceeded, the withdrawn gas may become very cold, or even contain liquid gas. This can heavily damage the connected equipment, hoses and components. An additional external vaporizer should be connected, if the withdrawal is made at a continuously higher rate in order to ensure the full evaporation of the withdrawn product and to warm it up to avoid frost damages.

9. Withdrawal Liquid from the Container

To use the container in liquid delivery service, attach a transfer hose to the LIQUID connection and open the adjacent Liquid valve (8). The pressure in the container will drive liquid product out through the valve as long as the container pressure exceeds that of the receiver.

The rate of liquid withdrawal from these containers is variable depending on the container pressure and the saturation temperature of the liquid.

Caution: As a rule always close the valve before you disconnect the hose when the container is empty, in order to avoid contamination.

10. Filling the Container

Visually inspect the container. Do not attempt to fill containers that have broken or missing components. Filling procedures must always ensure there is enough gas head space left on the full container for liquid to expand as it warms.

There is a difference between filling a 'cold' or a 'warm' container. A container is called 'warm', if it was longer than 24 hours without filling. A 'cold' container should contain a residual of liquefied product gas.

Taylor-Wharton offers metal hoses for filling and withdrawal as accessories.

WARNING: Filling operations should take place only in well-ventilated areas. Accumulations of product gas can be very dangerous (refer to the safety precautions in the front of these instructions). Maintain adequate ventilation at all times.

a) Filling the container using the full try cock (see flow diagram)
Filling the container this way employs the gas blow / vent valve (11) as full try cock at 95% of the useable volume.

Filling the cold container

1. Connect a transfer hose to the source tank and cool down the hose by slowly opening the tank valve letting the cold gas flow out to the atmosphere.

2. Then connect the transfer hose to the fitting of the liquid valve (8) of the XL-container.

3. Open the vent valve (11) and the liquid valve (8) on the XL-container, and finally the valve on the source tank.

4. Observe the liquid level gauge and the open vent valve (11) on the XL-container. The container is full, if liquid is blowing out, the valve on the source tank must be closed **immediately**.

5. Disconnect carefully the transfer hose. Because it may be under pressure and because of the thermal expansion of the liquid in the hose unscrew the connections very carefully and slowly, and remove the hose.

6. Close liquid valve (8) und full try cock (11).

7. Check full try cock for eventual over filling, let out liquid gas before finally closing it. The filling procedure is ready.

Filling the warm container
A warm container should be filled slowly, interrupted with breaks. So it can be ensured, that the pressure in the container is not increasing too much. Otherwise use the same procedure as above.

b) Filling the container by weight (see flow diagram)

Using the procedure below, first determine the proper filled weight of each container. The weight derived is then used in either the pump transfer or pressure transfer filling procedures.

Note: The weight calculation must consider the residual liquid in the container that is to be filled.

Determine the proper full weight

To determine the full weight at which the fill should be stopped, add the desired fill weight from the table, the transfer line weight, and the tare weight from the container's data plate.

Filling Weights

	XL-45	XL-45 HP	XL-50	XL-55 HP	XL-65 HP
Nitrogen	124 kg	114 kg	133 kg	135 kg	160 kg
Oxygen	176 kg	163 kg	189 kg	208 kg	229 kg
Argon	214 kg	199 kg	229 kg	235 kg	279 kg
Carbon Dioxide	/	176 kg	/	208 kg	234 kg

Pressure Transfer Filling Method

Once you have determined the proper full weight for a container, put it on a suitable scale and start to fill.

1. Connect a transfer hose to the source tank and cool down the hose by slowly opening the tank valve letting the cold gas flow out to the atmosphere.
2. Then connect the transfer hose to the fitting of the liquid valve (8) of the XL-container.
3. Open the vent valve (11) and the liquid valve (8) on the XL-container, and finally the valve on the source tank.
4. Observe the liquid level gauge and the open vent valve (11) on the XL-container.; control the pressure of 0.7 to 1 bar by with the vent valve.
5. The container is full, if the total weight is reached, latest when liquid is blowing out of the vent valve, the valve on the source tank must be closed **immediately.**
6. Disconnect carefully the transfer hose. Because it may be under pressure and because of the thermal expansion of the liquid in the hose unscrew the connections very carefully and slowly, and remove the hose.
7. Close liquid valve (8) und full try cock (11).
8. Check full try cock for eventual over filling, let out liquid gas before finally closing it. The filling procedure is ready.

Filling the warm container

A warm container should be filled slowly, interrupted with breaks. So it can be ensured, that the pressure in the container is not increasing too much. Otherwise use the same procedure as above.

11. Repair and Maintenance

Read the Safety Precautions in the front of this manual before attempting any repairs or maintenance on these containers. Also, follow these additional safety guidelines while performing container maintenance:

Never work on a pressurized container. Open the vent valve as a standard practice during maintenance to guard against pressure build-up from residual liquid.

Containers that are in service for oxygen may contain residual oxygen. Many materials and working practices together with oxygen can be a combustion hazard. For that reason an oxygen container must be sufficiently emptied and rinsed with for instance nitrogen to remove the oxygen from the container before repair and maintenance work can start.

Use only repair parts suitable for oxygen service. This basic rule is as well valid for containers, which are at that time not in oxygen service, because they may be in the future. Be certain your tools are free of oil and grease. This is a good maintenance practice and helps ensure you do not introduce any contaminants to the plumbing of the container.

Leak test connections after every repair. Pressurize the container with an appropriate inert gas for leak testing. Use only leak test solutions approved by Taylor-Wharton.

Warning for users of oxygen systems: Residuals of the leak test solutions may be combustable. All surfaces that have been in contact with the solution must sufficiently be rinsed with water to remove all remnants. Consider the corresponding safety rules.

12. Change of Gas Service

XL-series container are designed for Oxygen, Nitrogen, and Argon, the HP-models as well for CO2. They can be converted from one service to another within the confines of the services for which the containers are designed, if a change of the gas service should be desired. For this conversion, the connection fittings on the pipes must be exchanged, further the scale on the liquid level gauge. **Warning**: We must advise against changing the service of a container to any other gas, once it has been in service for carbon dioxide, because carbon dioxide may have caused a contamination with hydrocarbons, which is a combustion hazard with oxygen. This hazard must also be considered for an eventual change from carbon dioxide to nitrogen or argon service, because the service may later be changed again to oxygen.

Container Modification
Empty the container and open the vent valve to allow residual liquid to evaporate and to prevent the container from building up pressure.

Caution: Always change the fittings, never use adapters if the Service shall be changed.

1. Unscrew the fittings of the connections to the vent (gas blow) line, the gas (USE) line, and the liquid (fill/ withdrawal) line –one after the other-. Screw in the new fittings fort he desired gas service. Seal with Teflon/ PTFE band or similar, but make sure that the sealing material is clearly declared for oxygen service
2. Exchange the snap-on Indicator on the liquid level gauge against the indicator for the new medium.
3. Carry out a leak test on all fittings that have been exchanged. Change the stickers or decals on the container about gas service and possible handling instructions.

13. The Dual Stage Regulator

A dual stage, spring loaded regulator is employed for the pressure building/ economizer circuit. This regulator can be adjusted on the container, or it can be replaced. It is as well possible to check and adjust the regulator off the container in a readily fabricated bench adjustment fixture.

Please note: One clockwise turn of the adjustment screw will raise the set point by approximately 2 bars. Do not attempt to set the regulator to a pressure outside of its design range.

Design ranges:
- Standard- 16 bar containers: 5 to 12 bar, standard set point: 8 to 9 bar
- HP- 24 bar containers: 11 to 25 bar, standard set point: 21 to 22 bar

The offset between pressure building and economizer is about 1.4 bars.

14. Regulator Adjustment on Container

1. Fill the container to approximately 2/3rd with liquid product.

2. Open the Pressure Building Valve and allow the container to stabilize, until the pressure does not change any more during half an hour. Note the point, when the pressure stabilizes, this is the set pressure of the regulator.

3. Increase the set pressure by clockwise turning the adjustment screw on the regulator. Watch the pressure in the container to increase until it stabilizes. If you want to lower the set pressure, turn it anti-clockwise, than close the Pressure Building Valve, and vent the container to a pressure below the desired set pressure. Repeat step 2 in order to observe the change.

15. Checking Container Performance

XL Containers consist of two containers, one inside the other. The space between the containers acts as a highly efficient thermal barrier including high technology insulation, a vacuum, and a vacuum maintenance system. Each serves a very important part in the useful life of the container.

The high technology insulation is very effective in preventing radiated reaching the inner container. Unfortunately, the perfect vacuum cannot be achieved since trace gas molecules begin to enter the vacuum space from the moment of manufacture. The vacuum maintenance system consists of materials which gather trace gas molecules from the vacuum space. The maintenance system can perform its function for years, but it has a limited capacity. When the vacuum maintenance system is saturated it can no longer maintain the vacuum integrity of the container. The change will be very gradual and may go unnoticed for several years. When the vacuum in the insulation space is no longer effective, the following symptoms may appear:

1. With liquid in the container and pressure building/ vaporizer coil not in use, the outer casing will be much colder than comparative containers.
2. Frost, indicating the liquid level, may be visible on the outer casing of the container.
3. The container may appear to 'sweat', if the air surrounding the container is hot and humid
4. The relief valve will open continuously until the container is empty.
5. The container will hold pressure for several days but will not hold liquid.

Similar symptoms can be observed, if the pressure building is activated or damaged. Pressure building valve and / or regulator can be defective or de-adjusted, what can be distinguished by an iced or very cold regulator, valve and pipes from a damaged vacuum.

16. Check the Normal Evaporation Rate (NER- Test)

If you have reason to suspect a loss of the vacuum integrity, you can check the container's Normal Evaporation Rate. Before you start testing, check first the integrity of the vacuum burst disc. If the vacuum disk is defective, there is no more need for the test. In that case the container would need to be re-evacuated after the reason for the vacuum loss was found. In case there is a vacuum leak, for instance by a crack in the outer or inner casing, on the neck tube, or on one of the pipes, a repair would make no more sense for economical reasons. Please contact your dealer.

If the burst disk is ok, carry out the NER- Test. The test measures the actual product loss over time

Please note: The Pressure Building Valve must remain closed during the test; otherwise the pressure building process would increase the evaporation and distort the test result. It must be ensured, that the Pressure Building Valve closes 100%.

1. Fill the container with about 100 kg liquid nitrogen
2. Close the Liquid valve and open the Vent valve and allow it to remain open during test.
3. The liquid nitrogen boils, because it is depressurized. After 24 hours the saturation process should be finished, so that the evaporation from the container is stabilized. Then weight it, and record the weight, time and date.
4. Repeat the weighting after 24 hours and again after 24 hours.
5. The results will be most reliable, if the container is not moved during this time. The resulting weight loss over 24 hours is the daily evaporation rate. You can of course as well measure weight and time on any times of the day to find the hourly evaporation and to calculate the daily evaporation rate. The measured values must be a linear function of time.

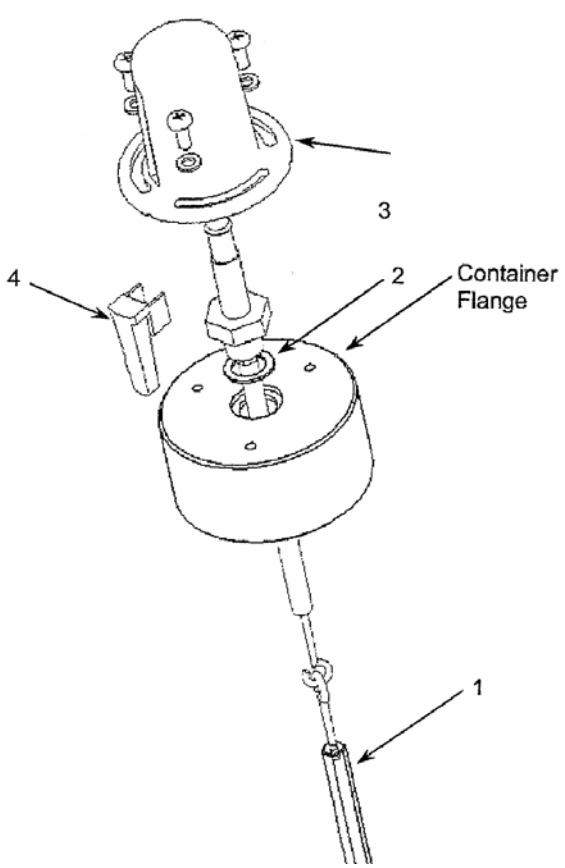
Compare the results of your test to the 'as manufactured' NER value in the specification sections of this manual. A container in service should maintain an NER value of less than two times the new specification. Any test result greater than two times the listed value is indicative of a filed or failing vacuum.

An increased evaporation rate is shown by a fast pressure building, but it is not dangerous, because the container is protected by a safety valve and a burst disc. There are no objections against a further operation of the container, if there is a continuous and sufficient withdrawal, at least until a blowing safety valve shows, that the evaporation rate of the container is to high and the vacuum to deteriorate for the present application.

17. The Contents Gauge

This device consists of the gauge assembly with a float rod beneath an indicator under a clear plastic protective cover. When the gauge is assembled, a level indicator ring is magnetically coupled to the top of a float rod and moves up or down with the changing liquid level in the container

If the indicator ring stays in the bottom position, although there is still liquid in the container, this can be a sign for an interrupted magnetic coupling between the ring and the float rod. The indicator ring will be picked up again by the magnetic field once the container is empty. You can also try to lift the ring in its position with a magnet from outside.



Components of the
Contents Gauge:

1 - Float rod
2 - Sealing
3 - Cover
4 - Scale (Clip)

18. Trouble Shooting Chart

Symptom	Possible Cause	Corrective Action
Operation pressure always to low	1. Safety valve setting de-adjusted 2. Regulator is closed or doesn't open properly. 3. Pressure building valve closed 4. Burst disk of the inner vessel broken, or safety valve does not close properly 5. Leaking pipe, valve or other component. 6. Very cold, fresh liquid	1. Replace safety valve 2. Replace regulator. 3. Open pressure building valve. If the pressure building valve is closed, the pressure in the container increases very slowly only. 4. Replace burst disk and check the safety valve. 5. Carry out leak tests and repair detected leaks 6. Open pressure building valve.
Pressure indicator on a full container displays no or a too low pressure.	1. Pressure indicator damaged. 2. Withdrawal or vent valve open. 3. Safety valve does not close properly	1. Replace damaged pressure indicator. 2. Close the open valve, and open the pressure building valve. 3. Replace the damaged safety valve.
Container is very cold outside, it is sweating, perhaps it's partly iced outside, to the high of the liquid level. It cannot keep the liquid over night; the safety valve is blowing gas.	Vacuum lost, check outer vessel's burst disk if broken.	Contact your Taylor-Wharton Harsco Dealer for further advice. Do not fill the vessel again with liquid
Lower part of the container iced.	Pressure building system is working. If the pressure in the container is higher than the set pressure of the regulator, The pressure regulator or the valve does not close properly	Close or replace the pressure building valve, check set point of the regulator, if damaged, replace or repair it.
Safety valve releases gas during the operation of the container (at maximum working pressure), although the vacuum is ok.	1. Set pressure of the regulator is to high (higher or close to safety valve set pressure) 2. Withdrawal rate is to low	1. Correction of regulator set pressure, eventually close pressure building valve 2.Product loss cannot be avoided, perhaps a manual venting is a preferred measure
Container looses gas for a certain while after it has been filled up.	Normal procedure. Happens because of evaporation during cooling of the container and boiling of the liquid until the saturation process is over.	No special action required. The symptom is over when the liquid temperature boiled down to the saturation temperature.
Safety valve is continuously blowing.	Evaporation losses are too big.	Check the functions of the vessel (see corresponding chapter of this manual), to find out, if the vacuum performance is still ok.
Liquid gauge is always on full, without movement.	Float rod is blocked within the guidance ring.	Move the container to unblock
Liquid gauge is always on empty, although the container is full or partly filled.	Magnetic coupling between the ring and the float rod interrupted, can happen, if container was put down a little too heavy.	Catch the ring with a magnet from outside and lift it up, until it catches the magnetic field of the float rod.

Disclaimer

Taylor-Wharton Harsco is not be liable for any consequential, special, or incidental damages or accidents resulting from the delivery, use, or maintenance of delivered XL- containers (including loss of any liquid product or materials stored in liquid product), or from any cause whatsoever by accepting delivery of the products sold hereunder. Any claims on the containers have to be reported immediately in written form to TW Harsco after receipt of the XL-container, or whenever a damage becomes obvious. The XL-container may not be put or kept in operation before clarification and repair of the damages, and it must be put out of any service and stored in a suitable form. The XL-container may be put in service again only after written consent of TW Harsco.

Furthermore the 'Terms of Sales or Acknowledgement' of Taylor-Wharton Harsco s.r.o. apply.

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