

LP-Gas Cylinder Valves & Service Valves

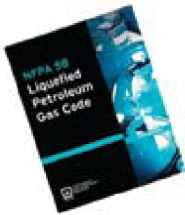
ECII® Safety Warnings

Purpose

In its continuing quest for safety, Engineered Controls International, Inc. is publishing safety warning bulletins explaining the hazards associated with the use, misuse and aging of LP-Gas valves and regulators. It is hoped that these factual bulletins will make clear to LP-Gas dealer managers and service personnel that the utmost care and attention must be used in the installation, inspection and maintenance of these products, or problems could occur which would result in personal injury and property damage.

The National Fire Protection Association Pamphlet #58 "Storage and Handling of Liquefied Petroleum Gases" states in Section 1-6 that "In the interests of safety, all persons employed in handling LP-Gases shall be trained in proper handling and operating procedures." ECII® Warning Bulletins may be useful in training new employees and reminding older employees of potential hazards that can occur.

It is recommended that all employees be furnished with a copy of NPGA Safety Pamphlet 306-88 "LP-Gas Regulator and Valve Inspection and Maintenance."

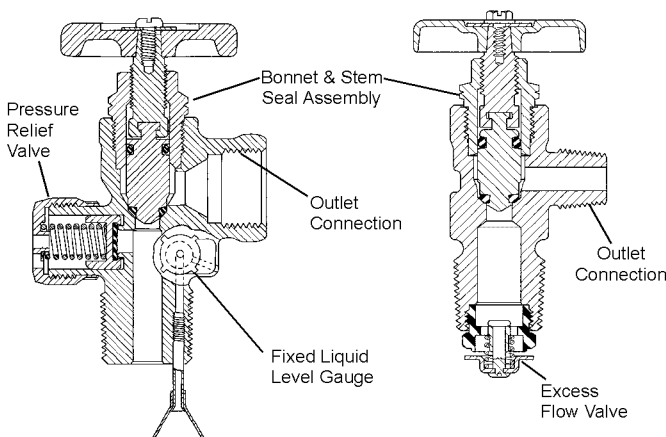


Nature of Warnings

It is recognized that warnings should be as brief as possible, but the factors involved in cylinder valve failure are many because of the multiple functions the valve serves. If there is any simple warning, it would be:

Check cylinder valves for leaking components every time cylinders are filled.

The bulletin is not intended to be an exhaustive treatment of the subject of cylinder valves and certainly does not cover all safety practices that should be followed in installation, operation and maintenance of LP-Gas systems which include cylinder valves.



LP-Gas Cylinder Valves

These valves are mounted in DOT cylinders, and are intended to provide one or more of the following functions:

1. Vapor service shut-off
2. Liquid service shut-off (with excess flow valve)
3. Liquid filling
4. Pressure relief
5. Fixed liquid level gauge

These functions, although simple, are extremely critical in the safe operation of an LP-Gas cylinder system.

Abuse of these valves, failure to follow a good installation and maintenance program and attempting to use cylinder valves beyond their normal service life can result in extremely hazardous conditions.

Important Factors:

1. Installation: It should not be necessary to remind the readers that cylinder valves must be installed and used in strict conformance with NFPA Pamphlet 58, and all other applicable codes and regulations. Codes, regulations and manufacturers' recommendations have been developed by experts with many years of experience in the LP-Gas industry in the interest of safety for users of LP-Gas and all personnel servicing LP-Gas systems.

Failure to fully follow these codes, regulations and recommendations could result in hazardous installations.

2. The bonnet and stem seal assembly of a cylinder valve are extremely critical, since any malfunction could cause external leakage and spillage.

Check bonnet to see that it is in proper position. If there is any doubt about tightness of threaded connection between bonnet and body, valve must be repaired in accordance with manufacturers' repair instructions before cylinder is filled. Handwheel must be in good condition, stem threads must not be worn or damaged and bonnet must be properly assembled. This area should be examined **each time** the cylinder is filled. A leakage test should be conducted while the shut-off valve is in the open position during filling.

3. The cylinder outlet connection is usually a female POL. Threads must be free of dents, gouges and any indication of excessive wear. Seating surface inside this connection must be smooth and free of nicks and scratches to assure a gas tight seal when connected to a male POL cylinder adapter. Cylinder adapter must spin on freely all the way, without indication of drag, roughness or excessive looseness, and must then be tightened with a wrench. Connection must be checked for leakage.

4. The pressure relief valve is of critical importance: Its proper operation is vital in avoiding excessive pressures during emergencies, such as overfilling or exposure to excessive heat. **No repair of this device is allowable.** Relief valve should be visually inspected and checked for leaks each time the cylinder is returned for filling. All flow passages must be clean and free of foreign material.

Entire assembly must be free of dents, distortion or other indications of damage. **If relief valve appears to be contaminated or damaged, the cylinder valve must be replaced.** (Caution: Eye protection must be used when examining relief valves under pressure.)

5. The liquid service shut-off valve, with excess flow valve provided on some cylinder valves, is also of critical importance. The excess flow valve must be periodically tested for proper performance, in addition to the inspection of the shut-off valve.

6. The fixed liquid level gauge on a cylinder valve is, when present, essential to prevent overfilling the cylinder. The gauging valve must operate freely, venting vapor when loosened, and sealing gas-tight easily when tightened with the fingers. Gauge valves meant for use with a socket key or screwdriver must also seal easily without excessive torque. The fixed liquid level gauge diptube must be of the proper length, and be in proper position. Periodic test should be conducted by weighing the cylinder after filling, to determine that it does not contain more than the allowable amount of LP-Gas. This check should be done periodically, and any time there is suspicion that the gauge diptube may be damaged or broken.

Do Not Overfill Cylinders

Do not fill a cylinder without first repairing or replacing the cylinder valve, as required, if any defect is noted.

While not required by codes, it is recommended that a plug or suitable protection be inserted in the POL outlet of the cylinder valve at all times except during filling and while connected for use. This will guard against discharge of gas should the handwheel be inadvertently opened while the cylinder is in storage or transit. This is highly advisable for small cylinders that could be transported inside an automobile or trunk.

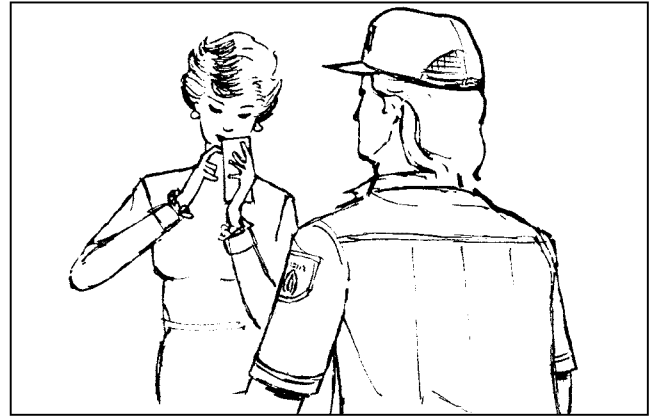
It is important that proper wrenches and adapters be used when filling, servicing and installing cylinder valves in order to avoid damage to the valve or associated piping.

Customer Safety

Since cylinders are often used by consumers without previous knowledge of the hazards of LP-Gases and the LP-Gas dealers are the only ones who have direct contact with the consumers, it is the dealers' responsibility to make sure that his customers are properly instructed in safety matters relating to their installation.

At the very minimum, it is desirable that these customers:

1. Know the odor of LP-Gas and what to do in case they smell gas. Use of the NPGA "Scratch 'n Sniff" leaflet could be productive.
2. Are instructed never to tamper with the system.
3. Know that when protective hoods are used to enclose regulators and/or valves, that these hoods must be closed, but not locked.
4. Know the location of the cylinder shut-off valve in emergencies.



General Warning

All ECII® Products are mechanical devices that will eventually become inoperative due to wear, contaminants, corrosion and aging of components made of materials such as metal and rubber.

The environment and conditions of use will determine the safe service life of these products. Periodic inspection and maintenance are essential. Because ECII® Products have a long and proven record of quality and service, LP-Gas dealers may forget the hazards that can occur because a cylinder valve is used beyond its safe service life. Life of a cylinder valve is determined by the environment in which it "lives". The LP-Gas dealers know better than anyone what this environment is.

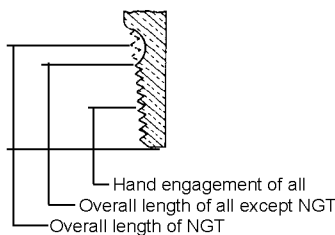
NOTE: There is a developing trend in state legislation and in proposed national legislation to make the owners of products responsible for replacing products before they reach the end of their safe useful life. LP-Gas dealers should be aware of legislation which could affect them.

Thread Specifications

Cylinder Valve Threads

Because of the many thread forms available on equipment used in the LP-Gas industry today, the maze of letters, numbers and symbols which make up various thread specifications becomes confusing. To help eliminate some of this confusion, a brief explanation of some of the more widely used thread specifications is shown below.

Inlet Connections



NGT and NPT Threads

The NGT (National Gas Taper) thread is the commonly used valve-to-cylinder connection. The male thread on the valve has about two more threads at the large end than the NPT in order to provide additional fresh threads if further tightening is necessary. Additionally, the standard 3/4" NGT valve inlet provides the greater tightness at the bottom of the valve by making the valve threads slightly straighter than the standard taper of 3/4" per foot in NPT connections. In all other respects NPT and NGT threads are similar.

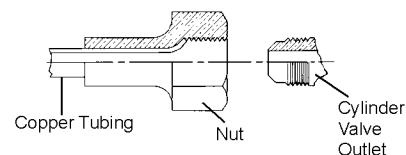
Outlet Connections

CGA Outlets

The CGA (Compressed Gas Association) outlets are standard for use with various compressed gases. The relation of one of these outlets to another is fixed so as to minimize undesirable connections. They have been so designed to prevent the interchange of connections which may result in a hazard.

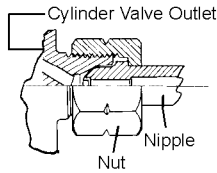
3/8"-18 NPT Thread Connection

This connection also is used for vapor or liquid withdrawal. It has a 3/8" diameter thread, and 18 threads per inch, National Pipe Taper Outlet form.



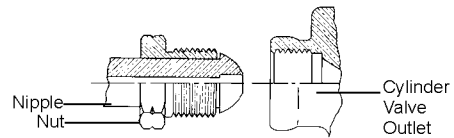
CGA 182, or SAE Flare

This connection assures a leak-tight joining of copper tubing to brass parts without need for brazing or silver soldering. The common size used on LP-Gas valves and fittings is 3/8" SAE (Society of Automotive Engineers) flare. Although this connection is referred to as a 3/8", because 3/8" OD tubing is used, the thread actually measures 5/8". The specifications are .625 - 18 UNF - 2A - RH - EXT, which means .625" diameter thread, 18 threads per inch, Unified Fine Series Class 2 Tolerances, right-hand, external thread.



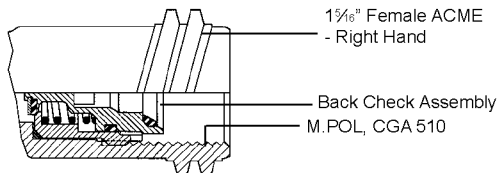
CGA 555

CGA 555 is the standard cylinder valve outlet connection for liquid withdrawal of butane and/or propane. Thread specification is .903" – 14 NGO – LH – EXT, which means .903" diameter thread, 14 threads per inch, National Gas Outlet form, left-hand external thread.



CGA 510 or POL

Most widely used in this industry, POL is the common name for the standard CGA 510 connection. Thread specification is .885" – 14 NGO – LH – INT, meaning .885" diameter thread, 14 threads per inch, National Gas Outlet form, left-hand internal thread. ECII® POL outlet connections for LP-Gases conform to this standard.



Type I Outlet

This connection is designed to mate with either a 1 $\frac{1}{8}$ " Female ACME or a Male POL (CGA510). It complies with the ANSI Z21.58 Standard for Outdoor Cooking Appliances and the Can/CGA-1.6 Standard for Container Connections. A back check assembly in the outlet is designed to prevent gas flow until a leak free connection is made with an inlet adapter. These standards apply to barbecue grill cylinders manufactured after October 1994.

Cylinder and Service Valves

General Information

The wide acceptance of ECII®/RegO® Cylinder Valves is based on their reliable performance as well as their reputation for engineering and manufacturing excellence. Together with thorough testing, these efforts result in years of trouble-free service.

ECII®/RegO® Cylinder Valves are listed by Underwriters' Laboratories and approved by the Bureau of Explosives for pressure relief valve operation, wherever applicable. See section on relief valves for important information.

Reliability

ECII®/RegO® Cylinder Valves are built with attention to each detail: Beginning with comprehensive inspection of forgings and machined parts, and ending with intense quality testing on each individual valve prior to shipment. Every valve must pass a stringent and comprehensive underwater leakage test.

Additionally, valves with pressure reliefs are tested for proper pressure and operation, including reseating to ensure proper opening and closing at required pressures. Those equipped with excess flow checks are tested for compliance with published closing specifications, and tested to ensure minimum leakage after closing.

Heavy-Duty Valve Stem Seals

ECII®/RegO® Cylinder Valves utilize seat discs and stem seals which resist deterioration and provide the kind of reliable service required for LP-Gas utilization. Diaphragm or O-Ring stem seals are available.

Valves with diaphragm stem seals are recognized for their heavy-duty body design and are suitable for use in cylinders up to 200 lbs. propane capacity.

O-Ring type stem seals are the most widely accepted in the industry. The simple, economical and long life design features a tapered and confined nylon seat disc which provides positive, hand-tight closings, and a faster filling cylinder valve.

Pressure Relief

ECII®/RegO® Valves have full-capacity "pop action" pressure reliefs with start to discharge settings at 375 PSIG.

A Valve for Every Need

ECII®/RegO® Cylinder Valves are available for all LP-Gas services; a wide choice for domestic, commercial, industrial, RV, motor fuel, and lift truck applications. Valves are available with a combination of such options as pressure reliefs, liquid level gauges, and liquid withdrawal tubes.

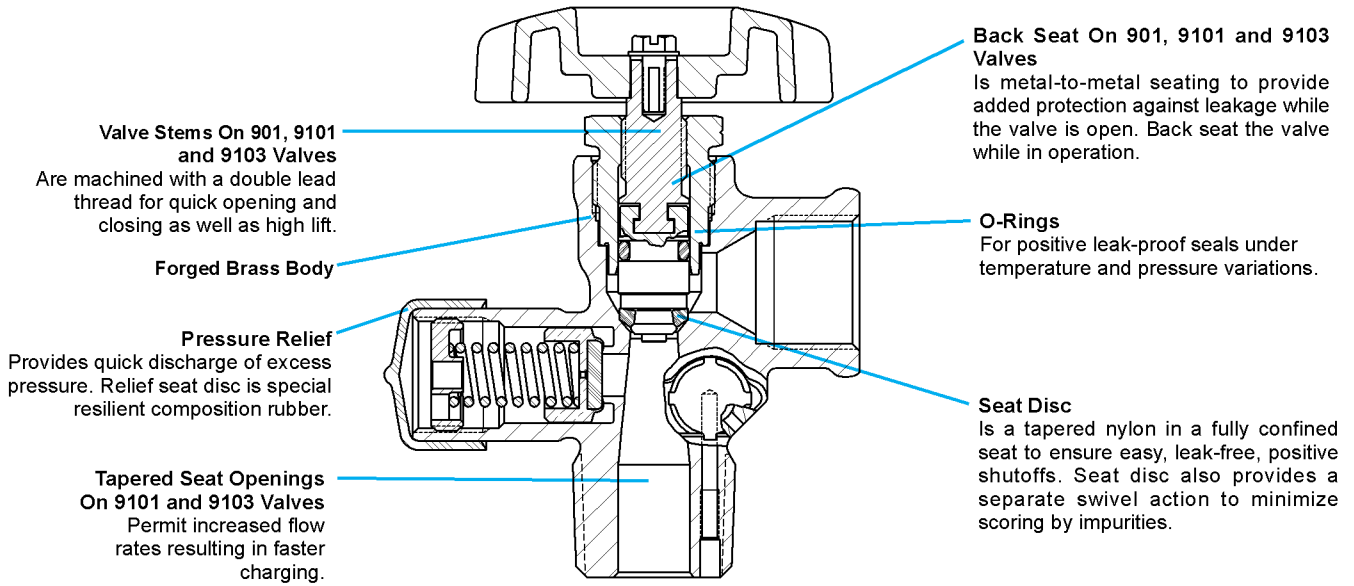
Also available for special applications are plumbers' pot valves, tamper-resistant valves for field service, and dual valves for simultaneous liquid and vapor service.

Instructions for the Proper Use and Applications of ECII®/RegO® Cylinder Valves

1. Containers and pipe line should be cleaned thoroughly before valves are installed. Large particles of solid foreign matter can cut the seating surface of any resilient seat disc, causing the valve to leak. Care must be exercised in inserting valves into lines or containers to avoid damaging or exerting pressure against pressure relief valves and outlet connections. Use a minimum amount of a suitable luting compound on the *cylinder valve threads only*. Excess amounts of luting compound can foul the operating parts of the valves.

2. *Do not* use excessive force in opening or closing the valves. The seat disc and diaphragm materials permit the valves to be opened and closed easily by hand. Never use a wrench on wheel handle valves.
3. When the design of the piping installation allows liquid to be locked between two valves, a hydrostatic relief valve must be installed in the line between the two valves. The pressures which can develop due to temperature increase in a liquid full line are tremendous and can cause rupture of the line or damage to the valves.
4. The valves are designed to withstand normal atmospheric temperatures. They should not, however, be subjected to abnormally high temperatures.

Design Features of ECI® and RegO® Cylinder Valves



Compact Cylinder Valves with Overfilling Prevention Devices

The 907NFD Series Cylinder Valves are designed for use on DOT LP-Gas Cylinders up to 40 lbs. The outlet features a back check assembly – designed to prevent gas flow until a leak free connection is made with an inlet adapter.

These valves comply with both the ANSI Z21.58 Standard for Outdoor Cooking Appliances and the CAN/CGA-1.6 Standard for Container Connections which apply to new barbecue grill cylinders manufactured after October 1994. They also conform to requirements in the 1998 edition of NFPA 58.

907NFD Series
Type I Valves



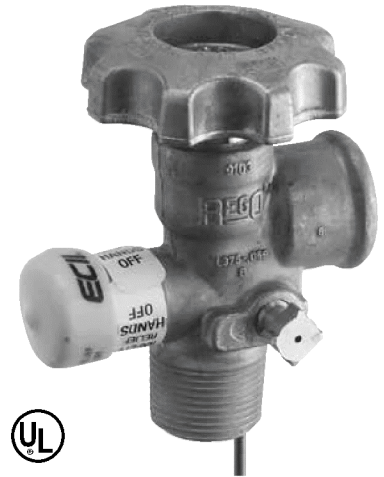
Ordering Information

Part Number	Dip Tube Length with Deflector	For use on DOT Cylinders Up To	Container Connection	Service Connection		Fixed Liquid Level Vent Valve Style	Pressure Relief Valve Setting	Accessories
				Type	Description			ACME Dust Cap
907NFD3.0	3.0"	5 lbs.	¾" M. NGT	Type 1	1 15/16" M. ACME and F. POL CGA 791	Slotted	375 PSIG	907-12 Included
907NFD4.0	4.0"	20 lbs.						
907NFD4.8	4.8"	30 lbs.						
907NFD6.5	6.5"	40 lbs.						

Heavy-Duty Cylinder Valves for Vapor Withdrawal

This heavy duty cylinder valve is designed for vapor withdrawal of DOT cylinders up to 100 lbs. propane capacity. It is used in domestic hook-ups, with RV's and as a heavy duty barbecue cylinder valve.

9103D



Part Number	Container Connection	Service Connection	Fixed Liquid Level Vent Valve Style	Dip Tube Length w/ Deflector	Pressure Relief Valve Setting	For Use in Cylinders w/Propane Capacity Up To:	Approximate Filling Rate Liquid Flow, GPM				Accessories
							Pressure Drop Across Valves				
							10 PSIG	25 PSIG	50 PSIG	100 PSIG	POL Plug
9103D10.6	3/4" M NGT	F. POL (CGA 510)	Knurled	10.6"	375 PSIG	100 lbs.	12.7	20.3	29.0	41.3	N970P
9103D11.6				11.6"							

Tamper-Resistant Cylinder Valve with Outlet Check for Vapor Withdrawal

This valve is designed for vapor withdrawal from and protection of DOT cylinders up to 100 lbs. propane capacity. Ideal for cylinders used in the field by construction crews, utility repair men and plumbers.



Part Number	Container Connection	Service Connection	Fixed Liquid Level Vent Valve Style	Pressure Relief Valve Setting	For Use in Cylinders w/Propane Capacity Up To:	Approximate Filling Rate Liquid Flow, GPM			
						Pressure Drop Across Valves			
						10 PSIG	25 PSIG	50 PSIG	100 PSIG
9103T9F	1/4" M. NGT	F. POL (CGA 510)	None	375 PSIG	100 lbs.	5.0	7.6	10.7	14.9

NOTE: These valves incorporate an excess flow valve. Refer to L-500/Section F, for complete information regarding selection, operation and testing of excess flow valves.

Cylinder Valve for RV and Small ASME System Vapor Withdrawal

Designed especially for vapor withdrawal service in small ASME containers with surface area up to 23.8 square feet. UL flow capacity is 645 CFM/air, per NFPA 58.



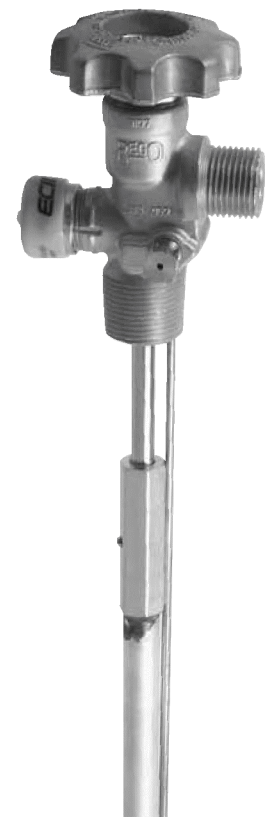
Part Number	Container Connection	Service Connection	Fixed Liquid Level Vent Valve Style	Pressure Relief Valve Setting	For Use In Cylinders w/ Propane Capacity Up To	Flow Capacity SCFMAir
9106CO	3/4" M. NGT	F. POL (CGA 510)	none	312 PSIG	ASME Tanks*	645

* Surface area up to 23.8 square feet.

Cylinder Valve for Liquid Withdrawal

Equipped with excess flow valves and liquid withdrawal tubes, they are designed for liquid withdrawal of DOT cylinders up to 100 lbs. propane capacity. They are most often used with heavy BTU loads found in industrial uses.

Part Number	Container Connection	Service Connection	Fixed Liquid Level Vent Valve Style	Dip Tube Length w/ Deflector	Liquid Withdrawal Tube Length
9107K8A	3/4" M. NGT	CGA 555	Knurled	11.6"	44"



Pressure Relief Valve Setting	For Use in Cylinders w/Propane Capacity Up To:	Approximate Filling Rate Liquid Flow, GPM				Closing Flow (LP-Gas) *		
		Pressure Drop Across Valves				Vapor		Liquid
		10 PSIG	25 PSIG	50 PSIG	100 PSIG	25 PSIG Inlet	100 PSIG Inlet	
375 PSIG	100 lbs.	3.3	5.4	7.7	11.1	525 SCFH	1,000 SCFH	1.7 GPM

*Closing flows based on 3/8" O.D. withdrawal tube 44" long or less attached.

IMPORTANT: 1/4" O.D. pigtails or POL connections for 1/4" O.D. pigtails should not be used with these valves.

NOTES: To ensure proper functioning and maximum protection from excess flow valves, the cylinder valve should be fully opened and backseated when in use. These valves incorporate an excess flow valve. Refer to L-500 / Section F, for complete information regarding selection, operation and testing of excess flow valves.

“Dual” Cylinder Valve for Simultaneous Liquid and Vapor Withdrawal

This dual cylinder valve was designed especially for industrial uses. It increases the cylinder’s flexibility by permitting DOT cylinders up to 100 lbs. propane capacity to be used interchangeably or simultaneously for either liquid or vapor withdrawal.

Part Number	Container Connection	Service Connection		Fixed Liquid Level Vent Valve Style	Liquid Withdrawl Tube Length
		Vapor	Liquid		
8556	¾” M. NGT	F. POL (CGA 510)	CGA 555	None	44”



Pressure Relief Valve Setting	For Use in Cylinders w/Propane Capacity Up To:	Approximate Filling Rate Liquid Flow, GPM				Liquid Closing Flow* (LP-Gas)
		Pressure Drop Across Valves				
		10 PSIG	25 PSIG	50 PSIG	100 PSIG	
375 PSIG	100 lbs.	6.6	10.0	14.5	21.0	2.3 GPM

* To ensure proper functioning and maximum protection from integral excess flow valves, the cylinder valve should be fully opened and backseated when in use.

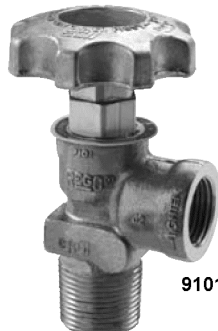
NOTE: These valves incorporate an excess flow valve. Refer to L-500/Section F, for complete information regarding selection, operation and testing of excess flow valves.

Service Valves for ASME and DOT Containers or Fuel Line Applications

Designed especially for vapor withdrawal service on ASME and DOT containers or in fuel line applications. *Since none of these valves have an integral pressure relief valve, they may only be used as an accessory valve on containers that have an independent pressure relief valve sufficient for that container's capacity.*



901C1



9101R1



9101D

Part Number	Bonnet Style	Container Connection	Service Connection	Fixed Liquid Level Vent Valve	Approximate Filling Rate Liquid Flow, GPM			
					Pressure Drop Across Valve			
					10 PSIG	25 PSIG	50 PSIG	100 PSIG
901C1	Standard	3/4" M. NGT	F. POL CGA 510	No	5.3	8.2	10.8	14.2
9101C1				Yes	8.8	12.4	15.8	21.7
9101D11.1				No	8.6	12.7	16.3	22.3
9101D11.7				Yes	7.6	11.7	15.2	20.6
9101R1	MultiBonnet	3/4" M. NGT	F. POL CGA 510	No	5.3	8.2	10.8	14.2
9101R11.1				Yes	8.8	12.4	15.8	21.7
9101R11.7				No	8.6	12.7	16.3	22.3

Note: Since these valves have no integral pressure relief valve, they can be used on any container with an independent relief device sufficient for that tank's capacity.

Service Valves for ASME Motor Fuel Containers

Designed specifically for vapor or liquid withdrawal service on ASME motor fuel containers. *Since none of these valves have an integral pressure relief valve, they may only be used as an accessory valve on containers that have an independent pressure relief valve sufficient for that container's capacity.*

The integral excess flow valve found in all these service valves helps prevent excessive product loss in the event of fuel line rupture.

When installed for liquid withdrawal, the 9101H6 has provisions for attachment of a liquid withdrawal tube. All other valves must be installed in containers that have provisions for a separate liquid withdrawal.

To insure proper functioning and maximum protection from integral excess flow valves, these service valves should be fully opened and backseated when in use.



901C5



9101H5



9101H6



Part Number	Container Connection	Service Connection	Liquid Withdrawal Connection	Closing Flow (LP Gas)			
				Vapor		Liquid GPM	
				25 PSIG Inlet (SCFH)	100 PSIG Inlet (SCFH)		
901C3	3/4" M. NGT	F. POL CGA 510	None	350***	605***	2.6***	
901C5				550***	1050***		
9101H5*		3/8" SAE Flare	1/4" NPT	None	765**	1300**	3.6**
9101H6*					550****	1050****	2.6****
9101Y5H*		60° Angle 3/8" SAE Flare	None	550**	1050**	3.6**	



9101Y5H

* Heavy-duty models

** Based on 3/8" O.D. pigtail, 20" long or less, connected to valve outlet. For greater lengths, the pigtail must have a larger O.D.

*** Same as (**). In addition, 1/2" O.D. pigtails or POL connections for 1/2" O.D. should not be used with this valve.

**** Based on 3/8" O.D. pigtail; 20" long or less, connected to valve outlet. Also based on 1/4" pipe size dip tube, 42" long or less, attached to special inlet connection. For longer pigtail lengths, the diameter of the pigtail must be increased.

NOTE: These valves incorporate an excess flow valve. Refer to L-500/Section F, for complete information regarding selection, operation and testing of excess flow valves.

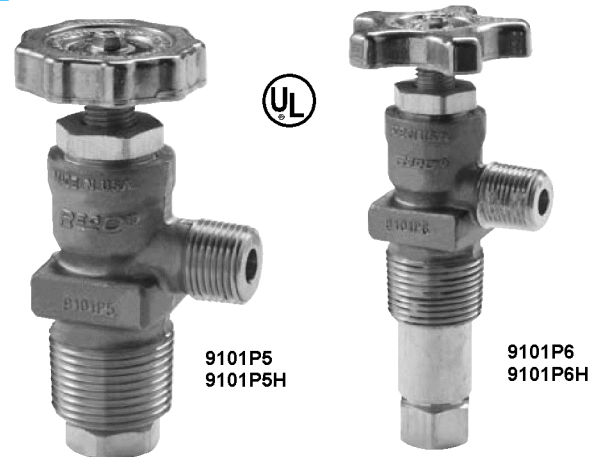
Service Valves for DOT Fork Lift Containers

Designed specifically for vapor or liquid withdrawal service on DOT fork lift containers. Valves with 1.5 GPM closing flow are for use in small and medium size lift truck applications, while those with 2.6 GPM closing flow are for large lift trucks and gantry crane type vehicles. *Since none of these valves have an integral pressure relief valve, they may only be used as an accessory valve on containers that have an independent pressure relief valve sufficient for that cylinders capacity.*

The integral excess flow valve found in all these service valves helps prevent excessive product loss in the event of fuel line rupture.

When installed for liquid withdrawal, the 9101P6 Series has provisions for attachment of a liquid withdrawal tube. The 9101P5 Series must be installed in containers that have provisions for a separate liquid withdrawal.

To insure proper functioning and maximum protection from integral excess flow valves, these service valves should be fully opened and backseated when in use.



9101P5
9101P5H

9101P6
9101P6H

Part Number	Container Connection	Service Connection	Liquid Withdrawal Connection	Closing Flow (LP-Gas)			Approximate Filling Rate Liquid Flow, GPM				Accessories		
				Vapor		Liquid (GPM)	Pressure Drop Across Valve				ACME Check Connectors		
				25 PSIG Inlet (SCFH)	100 PSIG Inlet (SCFH)		10 PSIG	25 PSIG	50 PSIG	100 PSIG	Male	Female	Cap
9101P5	¾" M. NGT	¾" M. NPT	None	430	900	1.5	5.0	7.6	10.7	14.9	7141M	7141F	7141M-40 or 7141FP
9101P5H				550	1050	2.6							
9101P6			¼" NPT	430	900	1.5	4.5	7.2	10.3	14.8			
9101P6H				550	1050	2.6							

Note: These valves incorporate an excess flow valve. Refer to L-500/Section F, for complete information regarding selection, operation and testing of excess flow valves.

Adhesive Warning Labels

These adhesive warning labels are intended for application as close as possible to the cylinder valve and/or service valve.

Part Number	Description
901-400	Adhesive Label Primarily for Fork Lift Cylinders
903-400	Adhesive Label Primarily for Small DOT Cylinders

DANGER LP GAS IS EXTREMELY FLAMMABLE AND EXPLOSIVE WARNING

AVOID SERIOUS INJURY AND PROPERTY DAMAGE. IF YOU SEE, SMELL, OR HEAR ESCAPING GAS, EVACUATE AREA IMMEDIATELY! CALL YOUR LOCAL FIRE DEPARTMENT! DO NOT ATTEMPT TO REPAIR. DO NOT STORE IN BUILDING OR ENCLOSED AREA. DO NOT USE ON HOT AIR BALLOONS OR AIRCRAFT.

This container is filled with highly flammable LP-Gas under pressure. A serious fire or explosion can result from leaks and misuse or mishandling of the container and its valves. Do not move, hold or lift the container by any of its valves. Do not expose to fire or temperatures above 120°F (49°C). Do not overfill.

This container incorporates a pressure relief valve. The pressure relief valve can expel a large jet of LP-Gas into the air if the container is (1) exposed to high temperatures—over 120°F (49°C) or (2) overfilled and exposed to a temperature higher than the temperatures at the time it was filled.

The pressure relief valve is equipped with a protective cover. The protective cover must remain in place at all times except when inspecting the valve. CAUTION...use eye protection. If dust, dirt, moisture or other foreign material collect in the valve, it may not function properly to prevent container rupture or minimize product loss after opening.

Each time the container is filled, the pressure relief valve must be checked to ensure that it is completely unobstructed and that it has no physical damage. If there is any doubt about the condition of the valve, the container must be removed from service and the pressure relief valve must be replaced.

Only trained personnel should be permitted to fill this container. Before the container is filled for the first time, it must be purged of air. The total liquid volume of LP-Gas must never exceed the amount designated by applicable filling density regulations for this container.

Make sure the protective cap is in place on the ACME threaded filler valve at all times. Never insert a screwdriver or other tool into the valve as it can damage the seal or guide and cause an uncontrolled leak.

Do not allow any overflow. If the fixed liquid level gauge is used during filling, filling should stop the moment a white LP-Gas cloud is emitted from its bleed hole. Keep the vent closed tightly at all other times. Each time the container is filled, it must be checked for leaks (with a high quality leak detection solution...leaks cause bubbles to grow).

Do not disconnect or connect this container without first reading the instructions accompanying the vehicle or appliance with which this container is intended to be used. CAUTION...no smoking while connecting or disconnecting this container.

Make sure the service valve is shut off tightly before beginning to assemble or disassemble the coupling. Liquid LP-Gas may flow or leak from the coupling. This liquid can cause skin burns, frostbite and other serious injury in addition to those caused by fire and explosion. CAUTION...Wear proper skin and eye protection. Any gasket or O-ring in the coupling must be routinely checked for wear and replaced as required.

After connecting the coupling, make sure the connection is leak tight. Check for leaks with a high quality leak detection solution (leaks cause bubbles to grow). If the connection leaks after tightening, close the service valve, disconnect the coupling and remove from service.

When not in use, keep the service shut-off valve closed.

When in use, keep the service valve fully open.

This container must be used only in compliance with all applicable laws and regulations, including National Fire Protection Association Publication No. 58, which is the law in many states. A copy of this Publication may be obtained by writing NFPA, Batterymarch Park, Quincy, MA 02269.

DO NOT REMOVE, DEFACE OR OBLITERATE THIS LABEL—DO NOT FILL THIS CONTAINER UNLESS THIS LABEL IS READABLE.

ADDITIONAL SAFETY INFORMATION IS AVAILABLE FROM:

ECIL Engineer ed Controls International, Inc.

Printed in U.S.A. 04-0994-1189 Part No. 901-400

100 Reg O Drive PO Box 247 Elon College, NC 27244 USA Phone (336) 449-7707 Fax (336) 449-6594 www.regoproducts.com

DANGER!

AVOID SERIOUS INJURY AND PROPERTY DAMAGE. IF YOU SEE, SMELL, OR HEAR THE HISS OF ESCAPING GAS, IMMEDIATELY GET AWAY FROM THIS CYLINDER! CALL YOUR LOCAL FIRE DEPARTMENT! DO NOT ATTEMPT TO REPAIR. DO NOT USE OR STORE IN BUILDING OR ENCLOSED AREA! DO NOT USE OUTDOOR USE ONLY.

This cylinder contains highly flammable LP-Gas under pressure. A serious fire or explosion can result from leaks and misuse or mishandling of the cylinder and its valves. Do not carry, hold or lift the cylinder by its valve. Do not expose to fire or temperatures above 120°F (49°C).

The cylinder valve incorporates a Shut-Off Valve and Pressure Relief Valve. The Pressure Relief Valve can expel a large jet of LP-Gas into the air if the cylinder is (1) exposed to high temperatures—over 120°F (49°C), or (2) overfilled and exposed to a temperature higher than the temperature at the time it was filled.

Never attempt to fill this cylinder yourself. Do not tamper with it or attempt repairs.

Only trained LP-Gas Dealer personnel should be permitted to fill this cylinder and to repair or replace its valve. Each time the cylinder is filled, the entire cylinder valve must be checked for leaks (with a leak detection solution...leaks cause bubbles to grow). The shut-off valve and fixed liquid level gauge (if incorporated) must be checked for proper operation. The Pressure Relief Valve must be checked to ensure that it is completely unobstructed and that it has no physical damage.

LP-GAS IS EXTREMELY FLAMMABLE AND EXPLOSIVE KEEP CYLINDER OUT OF THE REACH OF CHILDREN

CAUTION...eye protection must be worn when examining the valve. This valve cannot be repaired. If it is obstructed, the entire cylinder valve must be replaced. The Shut-Off Valve may require periodic repair or replacement. Before the cylinder is filled for the first time, it must be purged of air. Total liquid volume must never exceed the amount designated by DOT for this cylinder.

If the cylinder has a fixed liquid level gauge, filling should stop the moment a white LP-Gas cloud is emitted from its bleed hole. Keep the vent valve closed tightly at all other times.

Keep this cylinder firmly secured in an upright position at all times. Do not lay it on its side during transport, storage or use. (Other than an upright position, liquid LP-Gas may flow or leak. This liquid can cause skin burns, frostbite and other serious injuries in addition to those caused by fire or explosion.)

When not in use, close the Shut-Off Valve, insert a protective plug (P.O.L. plug) into the cylinder valve outlet. (CAUTION...counterclockwise thread.) This P.O.L. plug must be inserted whenever the cylinder is stored, manually moved, or transported by vehicle.

WARNING!

WHEN MAKING CONNECTIONS TO AN APPLIANCE—

- Do not use this cylinder without first reading the instructions accompanying the appliance with which this cylinder is intended to be used.
- Before connecting the Cylinder Valve outlet connection to an appliance, make sure the connection does not contain dirt or debris. These may cause the connection to leak or may impair the functioning of the regulator, creating a hazardous condition.
- When connecting the Cylinder Valve outlet to an appliance (CAUTION...counterclockwise thread), make sure the connection is tight. Check for leaks with a high quality leak detection solution (leaks cause bubbles to grow). If the connection leaks after tightening, close the cylinder valve, disconnect it from the appliance, insert the P.O.L. plug and immediately return the cylinder, with the Cylinder Valve attached, to your LP-Gas Dealer for examination.

This cylinder must be used only in compliance with all applicable laws and regulations, including National Fire Protection Association Publication No. 58, which is the law in many states. A copy of this Publication may be obtained by writing NFPA, Batterymarch Park, Quincy, MA 02269.

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Warning No. 903-400

REGO Cylinder & Service Valves