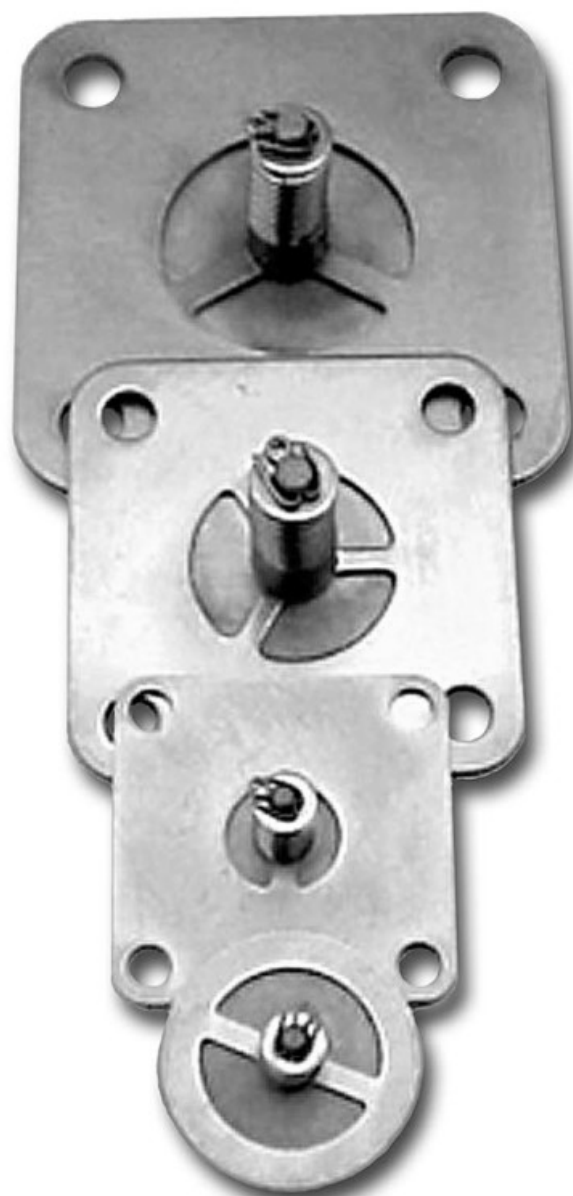


Spring Loaded Check Valves

Installation & Parts



LIQUID CONTROLS®

An IDEX Energy & Fuels Business

M400-60

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Spring Loaded Check Valves

Liquid Controls Check Valves are designed to maintain back pressure to increase air/vapor eliminator efficiency and to prevent reverse flow of product through the meter. This assures that the meter and all components downstream remain full of the liquid being measured.

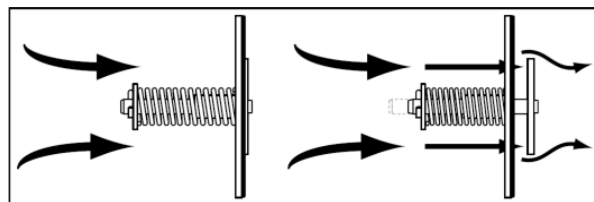
Check Valves are normally closed, spring loaded valves. When fluid enters the meter from the inlet side, and the pressure is greater than the back pressure combined with the force of the spring, the spring will compress, opening the valve thus allowing fluid to pass through (as shown in the figure below).

When back pressure plus spring strength is greater than the fluid pressure entering the meter, the valve will remain closed.

There are six Check Valve models available and the valve model is specified based on the Liquid Controls meter model and accessories being used.

There are many different models:

- **Model 41370:** Used with M-15, 3" flowmeters.
- **Model 41380:** Used with M-30, 4" flowmeters.
- **Model 502020:** Used with M-7 & M-10, 2" flowmeters.
- **Model 46743:** Used with M-5, 1½" flowmeters.
- **Model 49896:** Used with M-15 & M-25, 3" flowmeters equipped with a 3", high capacity strainer.
- **Model 501267:** Used with MA-4 dispenser flowmeters.



Resources in this Guide

For convenience, you can easily download the [PDF edition of this guide](#). Liquid Controls recommends that you read through the introductory and safety information, and then proceed to both the Installation & Operation and the Maintenance chapters.

NOTICE

This manual provides warnings and procedures that are intended to inform the owner and/or operator of the hazards present when using the Liquid Controls Meter on LP gas and other products. The reading of these warnings and the avoidance of such hazards is strictly in the hands of the owner-operators of the equipment. Neglect of that responsibility is not within the control of the manufacturer.

Publication Updates

The most current versions of all Liquid Controls publications are available on our web site, www.LCmeter.com/resources/technical/manuals. If there are questions about the language or interpretation of any LC manuals, instructions, or specification sheets, please first contact your local distributor for help with your inquiry.

For service related issues that require further support from the Liquid Controls Service Team, please call the number below.

Liquid Controls Corporate Office:

Phone: +1 847 295-1050

Toll-free: 800 458 5262

Address: Liquid Controls LLC, 105 Albrecht Drive, Lake Bluff, IL 60044 USA

Website: www.LCmeter.com

Safety Procedures



BE PREPARED

- Before using this product, read and understand the instructions.
- All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of equipment and/or systems in accordance with all applicable codes and ordinances.
- When handling electronic components/boards, always use proper Electrostatic Discharge (ESD) equipment and follow proper procedures.
- Make sure that all necessary safety precautions have been taken.
- Provide for proper ventilation, temperature control, fire prevention, evacuation, and fire management.
- Provide easy access to appropriate fire extinguishers for your product.
- Consult with your local fire department, state, and local codes to ensure adequate preparation.
- Read this manual and all the literature provided in your owner's packet.
- Save these instructions for future reference.
- Failure to follow the instructions in this publication could result in, personal injury, or death from fire and/or explosion, property damage, or other hazards that may be associated with this type of equipment.



SAFELY EVACUATE PIPING SYSTEM

Before disassembly of any meter or accessory component: **ALL INTERNAL PRESSURES MUST BE RELIEVED AND ALL LIQUID DRAINED FROM THE SYSTEM IN ACCORDANCE WITH ALL APPLICABLE PROCEDURES.**

- Pressure must be 0 (zero) psi.
- Close all liquid and vapor lines between the meter and liquid source.

Failure to follow this warning could result in property damage, personal injury, or death from fire and/or explosion, or other hazards that may be associated with this type of equipment.



OBSERVE NATIONAL & LOCAL CODES

Power, input, and output (I/O) wiring must be in accordance with the area classification for which it is used (Class I, Div 2). For North America, installations must be per the U. S. National Electrical Code, NFPA 70, or the Canadian Electrical Code in order to maintain Class I, Division 2 ratings. This may require using connections or other adaptations in accordance with the requirements of the authority having jurisdiction.

Peripheral equipment must be suitable for the hazardous location where it is installed. (L'équipement périphérique doit être adapté à la zone dangereux où il est installé.)

WARNING: Explosion Hazard

When in hazardous locations, turn power OFF before replacing or wiring modules. (Lorsque dans des endroits dangereux, coupler le courant avant de remplacer ou de câbler des modules.)

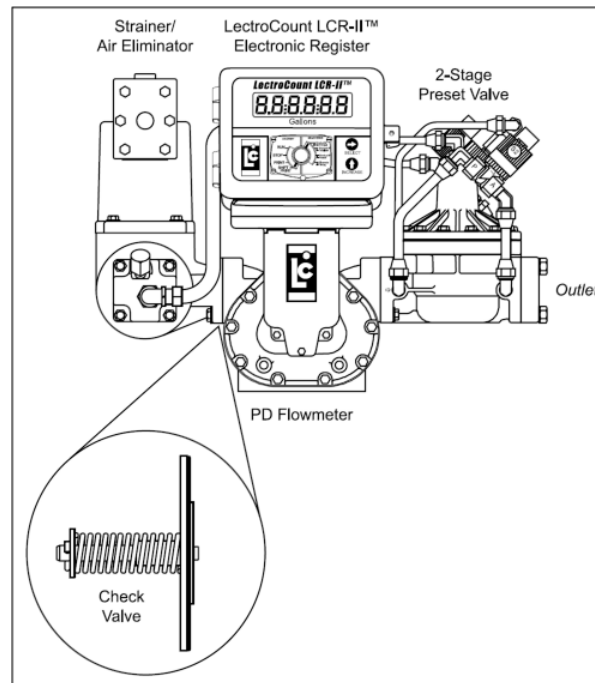
DO NOT disconnect equipment unless power has been switched OFF or the area is known to be Non-Hazardous. (NE PAS déconnecter l'équipement sans coupler l'alimentation ou sans s'assurer que la zone est non dangereuse.)

WARNING: Use 3.5 in • lb (0.4 N • m) torque when tightening terminal block screws.

Installation

New Installations

When ordering with a new meter, the Spring Loaded Check Valve is mounted to the inlet side of the meter, between the Strainer/Air Eliminator and meter housing (as shown in the figure).



Retrofit Installations

Depending on the existing configuration, adding a Spring Loaded Check Valve may require modification of the inlet piping. Close any valves on the inlet and outlet side of the meter and relieve all pressure from the system.

After relieving the internal pressure from the system, drain the meter and connecting piping all fluid. This is done by opening the drain plugs on the meter. Then, disconnect the inlet line from the inlet side of the strainer/air eliminator assembly. Once this is complete, remove the strainer/ air eliminator assembly from the meter. Keep all screws and washers, since they will be necessary during reassembly of the system.

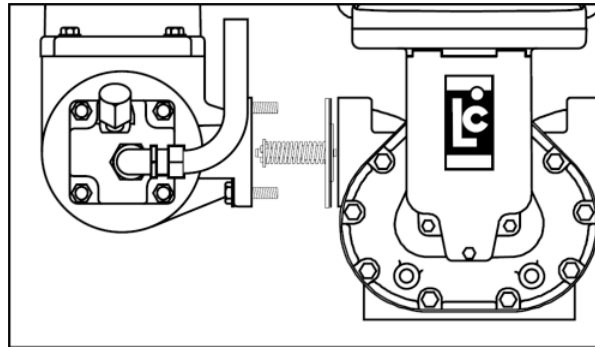
A spring loaded check valve is either square or round. Square check valves come with a gasket, while round check valves do not use a gasket and are only installed on systems which have high capacity strainers. The gasket is found on the output side of the check valve, such that it rests between the check valve and the meter housing. The strainer/air eliminator

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connection is equipped with an O-Ring seal and will rest between the strainer/air eliminator housing and the inlet side of the check valve.

Position the check valve as shown in the figure below, and reinstall the strainer/air eliminator using the bolts and washers that were previously removed.



Check Valve Assembly

Follow these steps to assemble the check valve:

1. Insert the poppet through the center of the valve plate.
2. Fit the spring over the poppet end.
3. Use the washer to hold the spring in place, then push the washer down to compress the spring until the hole for the cotter pin is accessible.
4. To secure the assembly, insert the cotter pin and bend the ends around the end of the poppet assembly.

The gasket has a center hole that is slightly larger than the outer diameter of the poppet assembly, so it can be installed when the check valve is installed between the strainer/air eliminator assembly and the meter housing.

Model 501267

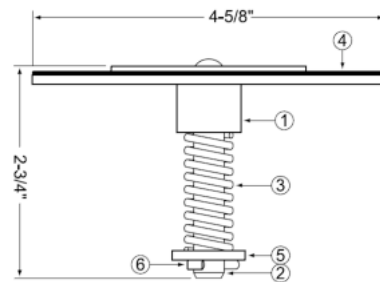
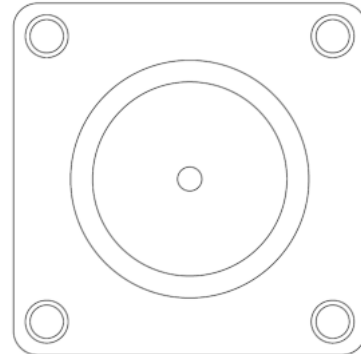
Model 501267 is unique in that the gasket attaches to the valve plate. It should not be removed. Also, the poppet assembly rests against the gasket—unlike the other models in which the poppet rests against the valve plate.

Illustrated Parts Breakdown

41370 - Check Valve

Used with M-15, 3" flowmeters.

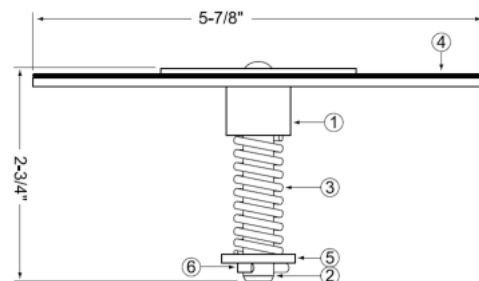
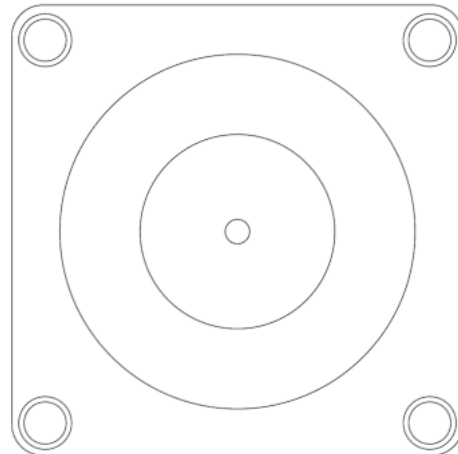
Item No.	Description	Part No.
1	Valve Plate Assembly	N/S*
2	Poppet Assembly	N/S
3	Compression Spring	N/S
4	Flange Gasket	40871
5	Flat Washer	40241
6	Cotter Pin	00294



41380 - Check Valve

Used with M-30, 4" flowmeters.

Item No.	Description	Part No.
1	Valve Plate Assembly	N/S
2	Poppet Assembly	N/S
3	Compression Spring	N/S
4	Flange Gasket	40704
5	Flat Washer	40241
6	Cotter Pin	00294

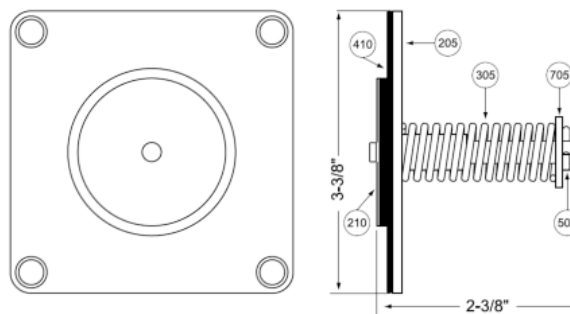


*N/S = Not for Sale

502020 Check Valve

Used with M-7 & M-10, 2" flowmeters.

Item No.	Description	Part No.
1	Valve Plate Assembly	502014
2	Poppet Assembly	502019
3	Compression Spring	07426
4	Flat Washer	04379
5	Cotter Pin	06086
6	Flange Gasket	40430

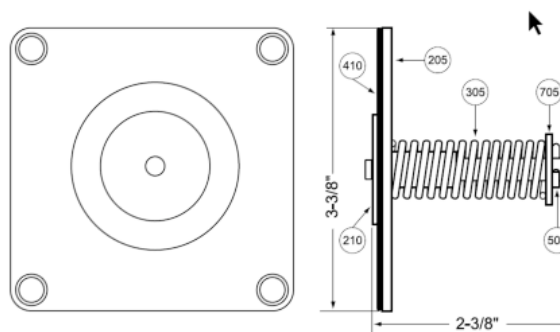


502020 valve automatically included with A2360 High-Capacity Strainer

46743 Check Valve

Used with M-5, 1½" flowmeters.

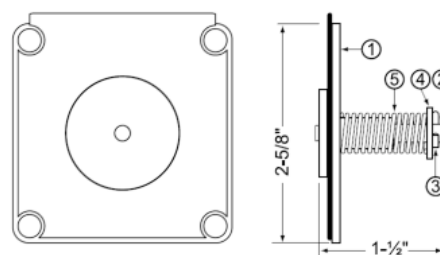
Item No.	Description	Part No.
205	Valve Plate Assembly	46744
210	Poppet Assembly	N/S
305	Compression Spring	07426
410	Flange Gasket	40430
705	Flat Washer	04379
505	Cotter Pin	06086



501267 Check Valve

Used with MA-4 dispenser flowmeters.

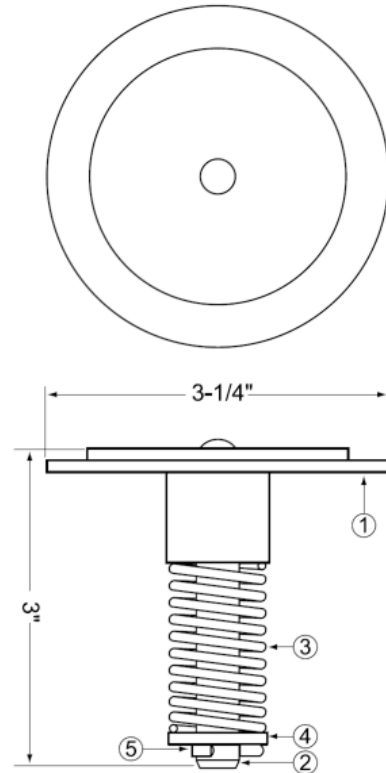
Item No.	Description	Part No.
1	Valve Plate Assembly	501263
2	Poppet Assembly	501266
3	Cotter Pin	06086
4	Flat Washer	04379
5	Compression Spring	09072



49896 Check Valve

Used with M-15 & M-25, 3" flowmeters equipped with a 3", high capacity strainer.

Item No.	Description	Part No.
1	Valve Plate Assembly	N/S
2	Poppet Assembly	N/S
3	Compression Spring	N/S
4	Flat Washer	40241
5	Cotter Pin	00294





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