



CASH VALVE TYPES LS-1, LS-2, LS-3 PRESSURE REGULATORS INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

Before installation, these instructions must be read carefully and understood.



DESCRIPTION

The LS Series pressure reducing and regulating valves automatically reduce a high inlet pressure to a lower delivery pressure and maintain the lower pressure within reasonably close limits regardless of fluctuations in the high pressure side of the line. All LS Series valves are single-seated, spring loaded, direct acting diaphragm type valves.

SPECIFICATION DATA

Service:	Air, water, light oil and other gas and fluids.
Sizes:	1/2" and 3/4"
Connections:	Threaded female inlet and outlet
Body:	Bronze
Maximum Temperature:	180°F for standard valve.
Maximum Initial Pressure:	2,400 psi
Pressure Control Range:	40-750 psi

INSTALLATION INSTRUCTIONS

LS Series regulators should be installed in the horizontal position with the spring chamber upright. For other installation requirements consult the factory. For ease of operation and maintenance, it is suggested that manual shut-off valves be installed upstream and downstream from the valve. Before installing the valve, the piping and valve should be thoroughly flushed out to remove any foreign material. Install the valve with the inlet pipe fitted to the inlet connection identified on the valve body. Use a good pipe joint compound on the male pipe threads and **DO NOT OVER TIGHTEN** the valve connections.

CAUTION

*If sealant tape must be used, we highly recommend using very little tape (wrap 2 to 3 times max) and ensure that the tape is properly applied. When wrapping tape around the male edge of the pipe, it is important to wrap the tape in a clockwise direction. To do this, hold the pipe in your left hand, or have the pipe to your left side if it is a mounted pipe. Put the tape on the threads and run the tape around the threads over the top of the pipe. Make sure there is no tape that has overlapped on the end of the open pipe. Any tape debris can cause failure. **DO NOT OVER TIGHTEN** during installation.*

CASH VALVE TYPE LS-1, LS-2, LS-3 PRESSURE REGULATORS

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

OPERATING INSTRUCTIONS

Adjusting the Delivery Pressure

The regulator's delivery pressure setting is adjusted by turning the adjusting screw (1) at the top of the spring chamber (3) after loosening the adjusting screw lock nut (2). To increase the delivery pressure, turn the adjusting screw clockwise (into the spring chamber). To decrease the delivery pressure, turn the adjusting screw counter-clockwise (out of the spring chamber). Draw flow, downstream of the valve and shutoff, after each adjustment to check pressure set. Tighten the lock nut after the set is complete.

MAINTENANCE INSTRUCTIONS

The following procedures are provided for servicing Types LS-1, LS-2 and LS-3 pressure regulating valves. Repair parts can easily be installed without removing the regulator from the line. Parts that are normally subject to wear are the diaphragm (8), seat ring (11), piston (14), cylinder (13), and bottom plug O-ring (16). Use only genuine Cash-Valve replacement parts.

CAUTION

Before attempting to replace any spare parts be sure to shut off all pressure connections to the valve. Before proceeding with any valve service be certain to relieve the pressure from BOTH sides of the regulator.

Servicing Diaphragm(s) and Pressure Spring

1. Loosen the lock nut and turn the adjusting screw counterclockwise until the pressure spring is no longer under tension. When reassembling, run the adjusting screw down until the lock nut almost touches the spring chamber. This will give you approximately the same set as before disassembly.
2. Remove the assembly screws securing the spring chamber to the body. During reassembly, tighten the screws evenly in a star pattern. Tighten to 60 ft-lbs.

3. Remove the spring chamber. Then remove the spring button, pressure spring, and pressure plate.
4. Remove the diaphragm(s) and diaphragm gasket (a diaphragm gasket is only present when construction calls for metal diaphragms)
5. Remove the pusher post button. During reassembly, ensure the pusher post button is centered properly on the pusher post.
6. Inspect all parts for wear and damage and replace if necessary. Reassemble parts in reverse order. **DO NOT OVERTIGHTEN.** Follow the Operation Instructions to reset the delivery pressure.

Servicing the Seat Ring, Seat Ring O-Ring, Piston, Cylinder, Strainer Screen, and Plug O-Ring

1. Loosen the lock nut and turn the adjusting screw counterclockwise until the pressure spring is no longer under tension.
2. Remove the bottom plug. Take care, as the bottom plug is under slight tension as a result of the piston spring acting against the bottom plug. Remove the piston, piston spring, and strainer screen.
3. Thoroughly clean the strainer screen and remove any debris from the valve body.
4. Remove the hexagon seat ring and cylinder.
5. Inspect all parts for wear and damage. If either the seat ring or piston need replacing, it is necessary to replace both as both parts wear equally.
6. Reassemble the valve in reverse order. **DO NOT OVERTIGHTEN.** Follow the Operation Instructions to reset the delivery pressure.

REPAIR PARTS INFORMATION

Refer to the Type LS-1 cut away view for parts Identification.

SPECIFICATIONS

Each LS Series pressure regulator is equipped with a pressure spring selected to provide the desired outlet or reduced pressure setting. The range of adjustment or "working range" of individual springs is shown below. Every regulator has the "set" pressure and range of adjustment stamped on a tag fastened to the valve. The ranges shown below are recommended for best performance.

HOW TO ORDER

To order repair parts, refer to the cut away view of the Type LS-1 regulator to identify the part required. When ordering, please use the part names listed and provide the valve serial number stated on the identification tag. Also state the following:

"Repair Parts for Types LS-1, LS-2, or LS-3" and provide:

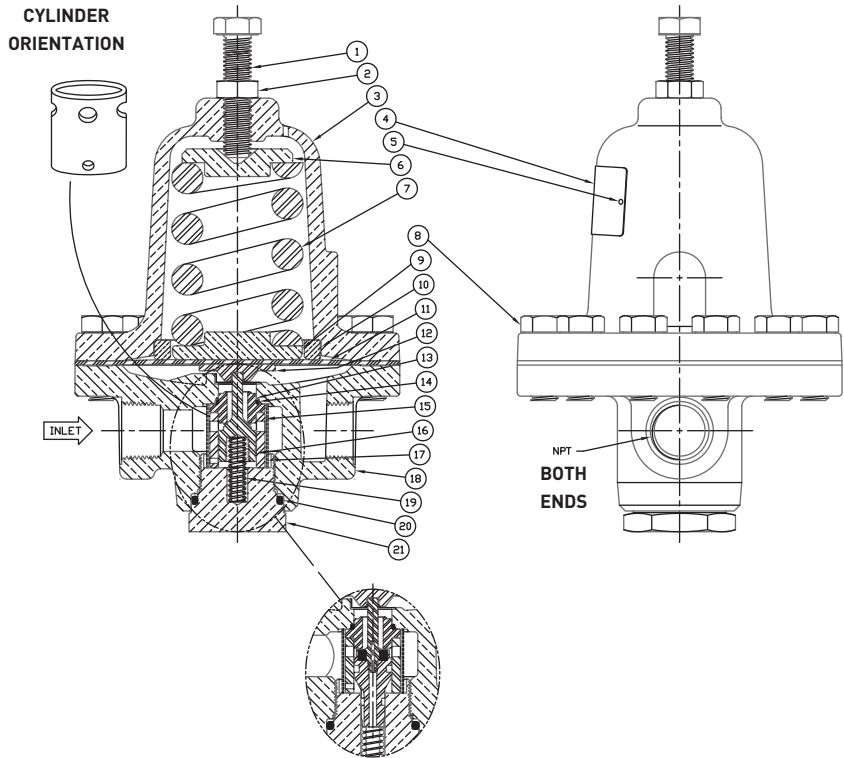
1. Valve size
2. Service (water, air, oil, etc.)
3. Inlet pressure
4. Outlet or delivery pressure range and setting
5. Part description
6. Quantity of each part
7. Valve assembly or serial number stated on the metal identification tag.

CASH VALVE TYPE LS-1, LS-2, LS-3 PRESSURE REGULATORS

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

PARTS LIST

Item	Qty	Description	Material
1	1	Adjusting Screw	Steel
2	1	Lock Nut	Steel
3	1	Spring Chamber	Brass
4	1	Name Plate	Aluminum
5	2	Drive Screw	SST
6	1	Spring Button	Brass
7	1	Pressure Spring	Steel
8	12	Screw	Steel
9	1	Pressure Plate	Brass
10	1	Diaphragm Ring	Brass
11	1	Diaphragm ⁽¹⁾	Buna-N, Viton, Bronze
12	1	Pusher Post Button	303 SST
13	1	Seat Ring	17-4 PH SST
14	1	O-ring ⁽²⁾	Buna-N
15	1	Cylinder	303 SST
16	1	Piston	17-4 PH SST
17	1	Screen	SST
18	1	Body	Brass
19	1	Piston Spring	303 SST
20	1	O-ring ⁽²⁾	Buna-N, Viton, Teflon
21	1	Bottom Plug	Brass



**VARIATION 11, 12 AND 13
LS-2 WITH NON-BALANCED PISTON**

- Diaphragm material is determined by configuration:
Selection B - Buna-N; Selection Z - Bronze;
Selection V - Viton.
- O-ring material is determined by configuration:
Variations 01 and 11 - Buna-N; Variations 02 and 12 - Viton; Variations 3 and 13 - Teflon.

DIMENSIONS

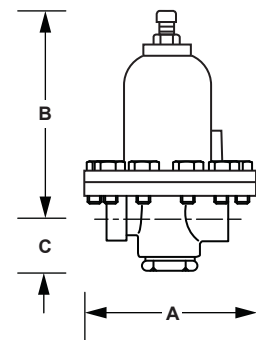
Type	Size	Dimensions					Ship Wt. (lbs)
		A	B ₁	B ₂	B ₃	C	
LS-1	All	5-7/8"	7-1/2"	7-5/8"	8-5/8"	1-13/16"	20
LS-3		5-7/8"	7-1/2"	7-5/8"	8-5/8"	2-5/8"	20
LS-2		5-7/8"	7-1/2"	7-5/8"	8-5/8"	2-5/8"	20

NOTE: B₁ is with standard adjusting screw. B₂ is with closing cap. B₃ is with T-handle adjusting screw.

SPRING RANGES

Type	Sizes	Maximum Working Range (psi)
LS-1, LS-2 or LS-3	1/2" or 3/4"	40-200
		40-350
		40-500
		40-750 ⁽¹⁾

- High pressure range requires internal modification at additional cost, consult the factory.



VCIOM-14774 © 2019, 2020 Emerson Electric Co. All rights reserved 09/20. Cash Valve is a mark owned by one of the companies in the Emerson Automation Solutions business unit of Emerson Electric Co. The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are the property of their prospective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Electric Co. does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any Emerson Electric Co. product remains solely with the purchaser.

Emerson.com/FinalControl