



CASH VALVE™ TYPES K-10 AND K-15 BACK PRESSURE VALVES INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

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



DESCRIPTION

The Types K-10 and K-15 are fully automatic piston type back pressure valves. They are designed to dependably maintain a predetermined pressure in a vessel or system by maintaining a predetermined valve inlet pressure and relieving the excess pressure into a lower pressure line. Types K-10 and K-15 valves are not emergency relief devices but are designed for regulating continuous pressure.

WARNING

Failure to follow these instructions or to properly install and maintain this equipment could result in an explosion, fire and/or chemical contamination causing property damage and personal injury or death.

Cash Valve back pressure regulators, relief and differential relief valves must be installed, operated and maintained in accordance with federal, state and local codes, rules and regulations and Emerson Process Management Regulator Technologies, Inc. instructions.

If a leak develops or if the outlet continually vents gas, service to the unit may be required. Failure to correct trouble could result in a hazardous condition. Only a qualified person shall install or service the unit.

Installation, operation and maintenance procedures performed by unqualified person may result in improper adjustment and unsafe operation. Either condition may result in equipment damage or personal injury. Call a qualified person when installing, operating and maintaining the Type K10 Back Pressure valves.

CALIFORNIA PROPOSITION 65 WARNING

This product can expose you to chemicals including lead, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

INTRODUCTION

Scope of the Manual

This manual provides instructions for the installation, adjustment and maintenance for the Type K10 Back Pressure valves.

SPECIFICATION DATA

Service: For water, liquids and fuel oils – light to medium viscosities.

NOT FOR AIR OR STEAM. Designed to limit a specific pump discharge pressure on machine tool hydraulic systems, oil burning equipment, rams, presses, lifts, etc. The Types K-10 and K-15 are well suited for bypass applications on high pressure pumps or any system requiring automatic regulation of pump discharge pressure, especially in the chemical and process field (waste treatment-desalination) and car washes.

Sizes: K-10: 1/4", 3/8", 1/2", 3/4", 1", and 1 1/4"

K-15: 1/4", 3/8", 1/2", and 3/4"

Connections: NPTF Threaded female bottom inlet, side outlet

Body: Bronze

Maximum Temperature: 450°F (232°C)

Pressure Control Range: K-10: 15-600 psig (1.03-41.4 bar)

K-15: 20-1500 psig (1.37-103.4 barg)

INSTALLATION INSTRUCTIONS

When installing the valve, connect the line (usually the pump discharge line) from the system pressure to be regulated to the bottom (inlet) connection on the valve. Connect the bypass return line to the side outlet on the valve. All fluid in excess of the valve pressure setting will now be automatically relieved or by-passed to maintain the correct pump discharge (system) pressure.

Thoroughly flush out the valve and the adjacent piping before installing the valve to remove any foreign material to ensure efficient and trouble-free operation for which the valve was designed.

In the typical installations shown on the following page, the Types K-10 and K-15 valves are shown installed in the horizontal position with the spring chamber upright. This is the recommended way to install the valve. The valve will function well in any position but servicing it is more difficult in other positions.

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OPERATING INSTRUCTIONS

Adjusting the Delivery Pressure

The regulator's delivery pressure setting is adjusted by turning the adjusting screw (2) at the top of the spring chamber (6) after removing the adjusting screw cap (1) and loosening the adjusting screw lock nut (3). To obtain a higher pressure setting, turn the adjusting screw clock-wise (into the spring chamber). To lower the pressure setting, turn the adjusting screw counter-clockwise (out of the spring chamber). Tighten the adjusting screw lock nut after the adjustment has been made and install the closing cap.

MAINTENANCE INSTRUCTIONS

The following procedures are provided for servicing the K-10 and K-15 backpressure relief valves. All repair parts can easily be installed without removing the valve from the line.

CAUTION

Before attempting to replace any spare parts, be sure to shut off all pressure connections to the valve. With the valve closed, however, system pressure could still be locked between the shut-off valve and the inlet and/or outlet sides of the relief valve. Before proceeding with the valve service, be certain to relieve the pressure from BOTH sides of the valve.

Refer to the K-15 cut away view for parts and identification.

Servicing the Pressure Spring (7), Valve O-rings (11 and 12), Valve Pusher Stem (13) and Piston (14).

1. Unscrew the adjusting screw cap (1). Inspect and if necessary, replace the cap O-ring (4).
2. Loosen the lock nut (3) ¼ turn and turn the adjusting screw (2) counter-clockwise until the pressure spring (7) is no longer under tension.

NOTE

When installing the adjusting screw during reassembly, turn the screw clockwise until the lock nut touches the spring chamber. When the valve is placed in service, the pressure setting should be very close to the original setting.

TYPICAL INSTALLATIONS

FIGURE 1
TYPICAL HOOKUP AS PUMP BY-PASS

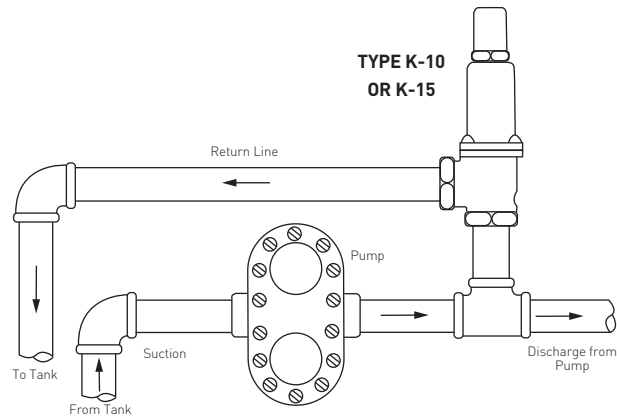
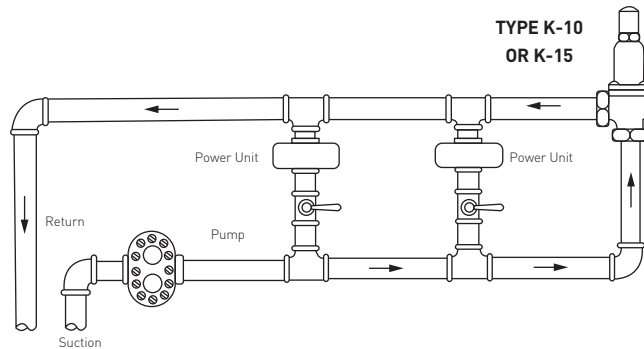


FIGURE 2
TYPICAL TYPES K-10 OR K-15 INSTALLED AT THE END OF PUMPING CIRCUIT TO MAINTAIN CIRCULATION THROUGH ENTIRE LOOP



K-10 SPRING RANGES

Size, in.	Adjustment Range, psi				
¼, ⅜	15-30	25-75	50-140	100-300	200-600
½, ¾, 1, 1¼	15-75	-	50-150	100-300	200-600

K-15 SPRING RANGES

Size, in.	Adjustment Range, psi				
¼, ⅜	25-75	20-150	100-300	150-800	600-1500
½, ¾	-	25-150	20-200	100-700	600-1500

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3. Remove the assembly screws (8) securing the spring chamber (6) to the valve body (17). During reassembly, tighten the screws evenly.
4. Lift the spring chamber (6) from the valve body. Then remove the upper spring button (5), pressure spring (7), lower spring seat (9), and valve pusher stem (13) from the valve body.
5. Remove the O-ring retainer (10) on Type K-15 valves, then carefully lift out the body O-ring (11).
6. Lightly tap the bottom of the piston (14) to push it out of the body (17). The piston O-ring (12) can now be easily removed and replaced if necessary.
7. *K-15 valves only:* Once the piston is removed, the cylinder (15) and O-ring (16) can be removed.
8. Inspect all parts and replace if necessary. Reassemble the valve parts in reverse order. Lightly lubricate all O-rings prior to installing them in the valve body. After placing the valve back in service, adjust the valve pressure setting as detailed under Operating Instructions.

For ease of operation and maintenance, it is suggested that manual shut-off valves be installed upstream and downstream from the valve. Use a good pipe joint compound on the male pipe threads and do not over tighten the valve connections.

REPAIR PARTS INFORMATION

Refer to the Type K-10 or K-15 valve cut away view for part location and identification.

Specifications

Each Type K-10 and K-15 back pressure valve is supplied with a pressure spring selected to provide the desired pressure setting. The range of adjustment, or satisfactory "working range", of individual spring is shown for each valve size. Each valve has the "set" pressure and range of adjustment stamped on the identification tag fastened to the valve. The ranges shown are recommended for best performance.

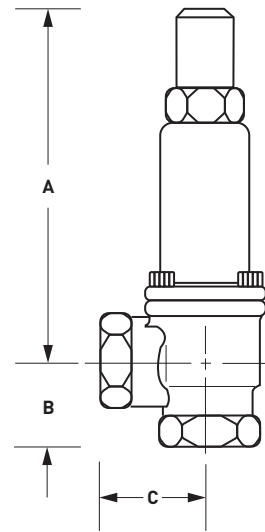
HOW TO ORDER

When ordering repair parts, refer to the cut away view of the Type K-10 or K-15 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 K-10 or K-15" 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 attached to the valve.

FIGURE 3



DIMENSIONS

Valve Type	Valve Size, in	Dimensions			Ship. WT. (lbs)
		A	B	C	
K-10, K-15	1/4, 3/8	4 1/4	1	1 1/4	1 1/4
	1/2	5 5/8	1 3/8	1 7/8	4
	3/4	5 5/8	1 3/8	1 7/8	4 1/2
K-10	1	7 7/8	1 7/8	2 1/4	8 1/2
	1 1/4	7 7/8	1 7/8	2 1/4	9

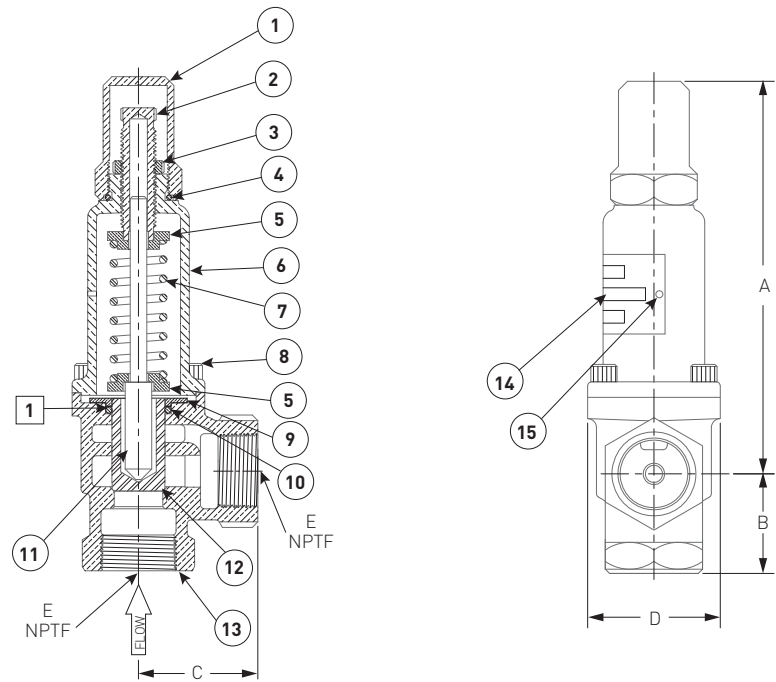
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PARTS LIST

Item	Qty.	Description	Material
1	1	Pressure Screw Cap	Brass
2	1	Pressure Screw	Brass
3	1	Lock Nut	Brass
4	1	O-ring	Buna-N
5	2	Spring Button	Brass
6	1	Spring Chamber	Brass
7	2	Pressure Spring	SST
8	4	Assembly Screw	Steel
9	1	O-ring Retainer	Brass
10	1	O-ring	Viton®
11	1	Valve Pusher Stem	Brass
12	1	Piston	SST
13	1	Body	Brass
14	1	Name Plate	Aluminum
15	2	Drive Screw	SST

FIGURE 4
K-10 PISTON TYPE ANGLE BACK PRESSURE VALVE



1 Lubricate this O-ring with silicone-based lubricating compound.

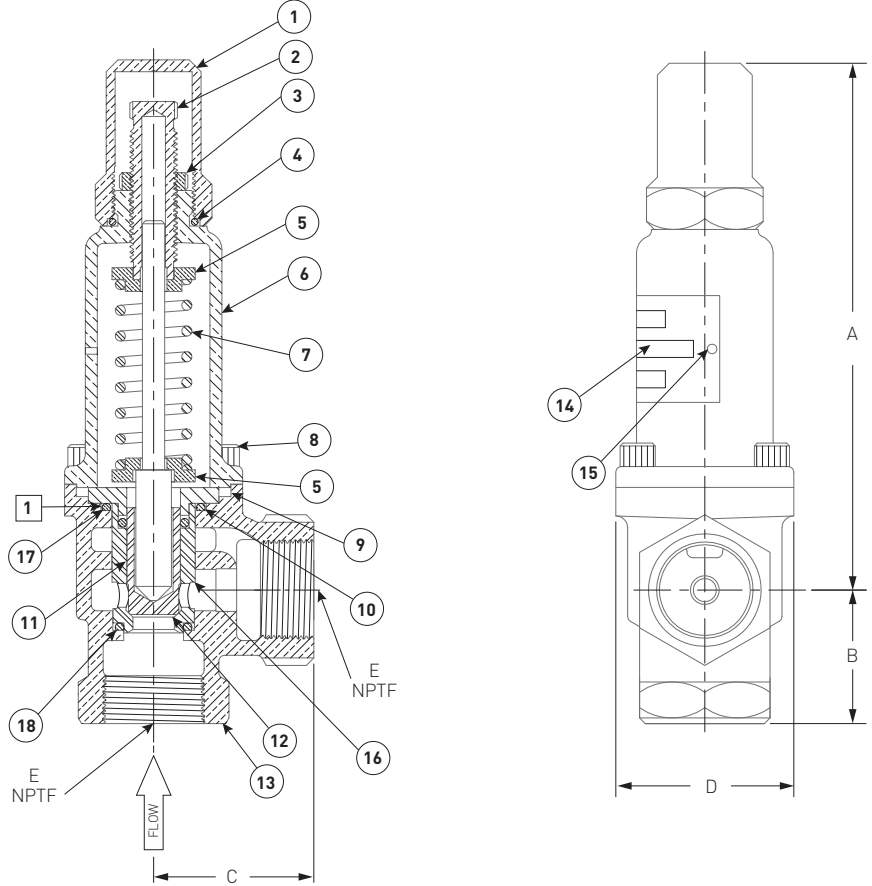
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6	1	Spring Chamber	Brass
7	2	Pressure Spring	SST
8	4	Assembly Screw	Steel
9	1	O-ring Retainer	Brass
10	1	O-ring	Viton®
11	1	Valve Pusher Stem	Brass
12	1	Piston	SST
13	1	Body	Brass
14	1	Name Plate	Aluminum
15	2	Drive Screw	Steel
16	1	Cylinder	SST
17	1	O-ring	Viton®
18	1	O-ring	Viton®

FIGURE 5
K-15 PISTON TYPE ANGLE BACK PRESSURE VALVE



1 Lubricate this O-ring with silicone-based lubricating compound.

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