



## CASH VALVE™ TYPE BBC PRESSURE REGULATOR INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

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



### DESCRIPTION

The Type BBC is a direct acting, single seated, spring loaded diaphragm-type pressure reducing and regulating valve that automatically reduces a high inlet pressure to a lower delivery pressure and maintains the lower pressure within reasonably close limits.

### SPECIFICATION DATA

Service:	Heavy oils, dirty liquids and liquids with a high viscosity
Sizes:	3/8", 1/2", 3/4", 1", 1 1/4" and 1 1/2"
Connections:	Threaded
Body:	Iron, Bronze
Maximum temperature:	400°F
Maximum initial pressure:	Iron - 200 psi Bronze - 400 psi
Online pressure range:	2-200 psi

### 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 regulators 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 the regulator vents gas or a leak develops in the system, service to the unit may be required. Failure to correct trouble could result in a hazardous condition.*

*Installation, operation and maintenance procedures performed by unqualified personnel may result in improper adjustment and unsafe operation. Either condition may result in equipment damage or personal injury. Only a qualified person shall install or service the Type BBC regulator.*

### 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](http://www.P65Warnings.ca.gov).*

### INTRODUCTION

#### Scope of the Manual

This manual provides instructions for the installation, adjustment and maintenance for the Type BBC pressure regulator.

### INSTALLATION INSTRUCTIONS

The Type BBC regulator 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 overtighten the valve connections.

### OPERATION 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 after loosening the adjusting screw lock nut (3). 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). Tighten the adjusting screw lock nut after the adjustment has been made.

#### NOTE

When adjusting the delivery pressure, draw flow and shutoff downstream to check pressure set.

# CASH VALVE™ TYPE BBC PRESSURE REGULATOR

## INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

### MAINTENANCE INSTRUCTIONS

The following procedures are provided for servicing the recommended spare parts for the Type BBC regulator. Repair parts can easily be installed without removing the regulator 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 regulator. Before proceeding with any valve service be certain to relieve the pressure from BOTH sides of the regulator.

Refer to the Type BBC regulator cut away view for parts identification.

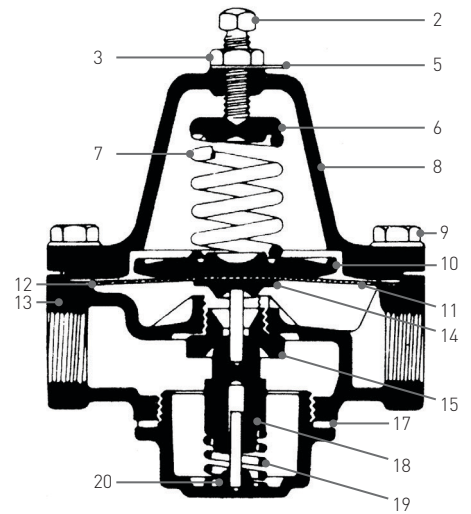
### Servicing Diaphragm(s) and Pressure Spring

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.
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 Piston, Seat Ring, and Plug Gasket

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 bottom plug. Take care, as the bottom plug is under slight tension as a result of the piston spring acting against the bottom plug. During reassembly, tighten the screws evenly in a star pattern.
3. Remove the piston and piston spring.
4. Flush the valve body to remove any debris.
5. Remove the hexagon seat ring. When reassembling, torque the seat ring to 350 in.-lbs.
6. 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.
7. Reassemble the valve in reverse order. **DO NOT OVERTIGHTEN.** Follow the Operation Instructions to reset the delivery pressure.



### PARTS LIST

Item	Description
2	Adjusting screw
3	Lock nut
5	Identification tag
6	Spring seat
7	Adjusting spring
8	Spring chamber
9	Assembly screws and nuts
10	Pressure plate
11	Diaphragms
12	Diaphragm gasket (for metal diaphragms only)
13	Body
14	Pusher post button
15	Body seat
17	Bottom plug gasket
18	Piston assembly
19	Piston spring
20	Bottom plug assembly

### ASSEMBLY SCREW TORQUE VALUE (IN.-LBS.)

Valve Size (In.)	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Metal Diaphragm	100	150	200	200	250	350	350	350
Rubber Diaphragm	70	100	150	200	200	250	250	250

# CASH VALVE™ TYPE BBC PRESSURE REGULATOR

## INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

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### REPAIR PARTS INFORMATION

Item	Description	Material	No. required
2	Adjusting screw	Steel	1
3	Lock nut	Steel	1
5	Identification tag	Aluminum	1
6	Spring button	Steel	1
7	Pressure spring	Steel	1
8	Spring chamber	Cast iron	1
		Bronze	1
9	Assembly screws and nuts	Steel	6
10	Pressure plate	Cast iron	1
11•	Diaphragms	Buna-N	1
		Monel	3 or 4*
12•	Diaphragm gasket (for metal diaphragms only)	Aramid Fibre	1
13	Body	Cast iron	1
		Bronze	1
14	Pusher post button	Brass	1
15•	Body seat	Stainless steel	1
17•	Bottom plug gasket	Aramid Fibre	1
18•	Piston	Stainless steel	1
19	Piston spring	Monel	1
20	Bottom plug assembly	Brass, Stainless Steel	1

#### Notes

- Recommended spare parts.
- \*  $\frac{3}{8}$ " through  $\frac{3}{4}$ " require 3 diaphragms, 1" through 1 $\frac{1}{2}$ " require 4 per set.

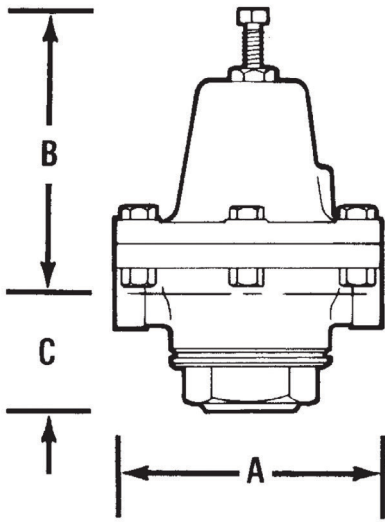
### SPECIFICATIONS

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

# CASH VALVE™ TYPE BBC PRESSURE REGULATOR

## INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS



### SPRING RANGES

Range of adjustment (in ps)					
3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"
2-15	----	2-15	2-15	2-20	2-20
10-50	2-35	10-30	10-40	10-30	10-30
40-80	20-50	20-75	30-60	20-100	20-100
75-150	40-120	60-125	50-100	100-175	90-150
125-200	100-200	100-200	90-150	100-200	100-175
----	----	----	125-200	----	100-200

### DIMENSIONS

Pipe size (NPS)	Dimensions			Ship. weight (lbs)	
	A	B	C	Iron	Bronze
3/8	3 7/8	4 1/2	1 3/4	5	5 1/2
1/2	4 1/2	5 1/8	2 1/2	7 1/2	8
3/4	5 1/8	4 5/8	1 7/8	9	10
1	5 7/8	6 1/4	2 1/8	12	16
1 1/4	6 3/16	6 1/8	2 5/8	18	20
1 1/2	6 3/16	6 1/8	2 5/8	18	20

### HOW TO ORDER

To order repair parts, refer to the cut away view of the Type BBC 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 Type BBC” and provide

1. Valve size
2. Service (stem, water, 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 under the adjusted screw lock nut

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