



## CASH VALVE TYPES FR AND FR-6 BACK PRESSURE OR ECONOMIZER VALVES CRYOGENIC INSTALLATION INSTRUCTIONS

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

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### DESCRIPTION

The Types FR and FR-6 are designed to function as Back Pressure or Economizer valves in Cryogenic Circuits. The Back Pressure function is to open at a preset pressure and relieve inlet pressure to the discharge side into a lower pressure. The Economizer's function is to open at a preset pressure above the Pressure Build set pressure, and continue to open as gas head pressure from heat leak builds during non-use periods of the system. The Economizer by-passes gas head pressure directly to the Final Line circuit when system draw resumes, drawing down the excess pressure rapidly and re-closes before the Pressure Build regulator opens. FR Series valves are not emergency relief devices, but are designed for continuous pressure regulation.

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### SPECIFICATION DATA

**Service:** Cryogenic liquids and gases

**Sizes:** 1-1/4", 1-1/2" and 2"

**End Connections:**

Threaded internal inlet and outlet

**Available Body Materials:**

Bronze or Stainless Steel

**Temperature Rating:**

+150°F (339K) to -320°F (78K)

**Maximum Pressure:**

FR: 400 psi (27.6 bar)

FR-6: 600 psi (41.4 bar)

**Capacity:**

For specific capacity information, consult the factory.

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### GENERAL INSTALLATION INSTRUCTIONS

Connect the supply line to either the right or left hand body connection. The remaining right or left hand connection should be connected to the service line or plugged depending on the type of installation. The bottom connection, which is indicated by an arrow on the valve body, should be connected to the by-pass or vaporizer line.

Before installing the valve, the piping and valve should be thoroughly flushed out to remove any foreign material. Use a compatible sealant on the male pipe threads and do not over-tighten the valve connections.

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### CONSTRUCTION

See component description for materials of construction.

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### OPERATING INSTRUCTIONS

#### Adjusting the Delivery Pressure:

The regulator's back pressure setting is adjusted by turning the adjusting screw (2) at the top of the spring chamber (5) 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 clockwise (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.

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### MAINTENANCE INSTRUCTIONS

#### CAUTION

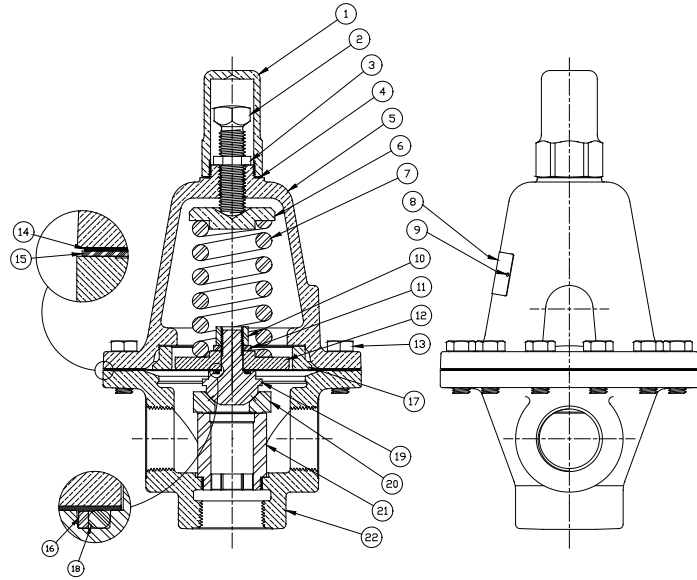
*Before attempting to service the valve, be sure to shut off the supply pressure and relieve all pressure from BOTH sides of the valve. Refer to the Type FR section view for parts identification. It is not necessary to remove the valve from the line for servicing.*

# CASH VALVE TYPES FR AND FR-6 BACK PRESSURE OR ECONOMIZER VALVES

## CRYOGENIC INSTALLATION INSTRUCTIONS

No.	Content Description	Construction
1	Adjusting Screw Cap	Brass
2	Adjusting Screw	Brass or SST
3	Lock Nut	Brass or SST
4	Gasket	Teflon
5	Spring Chamber	Brass or SST
6	Spring Button	Brass or SST
7	Pressure Spring	SST
8	Name Plate	Aluminum
9	Drive Screw	SST
10	Nut	SST
11	Washer	SST
12	Pressure Plate	Brass
13	Screw	SST
14	Diaphragm	Bronze or SST
15	Gasket	Teflon
16	Ring	SST
17	Diaphragm Ring (FR-6 only)	Brass
18	O-ring	Teflon
19	Ball Seat	SST
20	Seat Ring	SST
21	Body Seat	Brass or SST
22	Body	Bronze or SST

FIGURE 1



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