

## Technical Data

### Rate of Flow Control Valve

#### Model BV54



#### General

The Model BV54 Brodie Rate of Flow Control Valve is normally opened and designed to maintain a controlled flow rate within +/-2%. The pilot is balanced, single seated valve with large ports and will operate on a differential as low as 5 psi (34.5 kPa).

#### Design Features

- Modular construction -all internal parts including seat ring can be removed with the cylinder assembly without disturbing line connections.
- No diaphragms or stuffing boxes
- 45° body design assures high capacity
- Positive shut-off
- Uniform speed of response
- Linear control characteristics
- Inherently checks reverse flow
- O-Ring plus metal-metal seat
- Characterized ports for better low flow response

#### Valve Capacity Data

Value Size	2"	3"	4"	6"
*Cv-gpm	90	190	315	700

\*Cv based on wide open valve utilizing water at 60F (15.6C).

#### Principle of Operation

The Model BV54 valve is pilot operated and operates on a balanced piston principle, spring biased to a closed position. Pressure differential overcomes the force of the spring, causing the main valve to open and establish flow. The Rate of Flow (Flow Limiting) Valve is normally open and throttles toward a closed position on increasing differential pressure.

#### "AP" (Aggressive Products) Option

The "AP" Option valve cylinder incorporates a combination of seals and o-ring materials to provide optimum performance in aggressive product applications. Specify "AP" Option at time of order when valve is to be used on products which may affect standard seals.

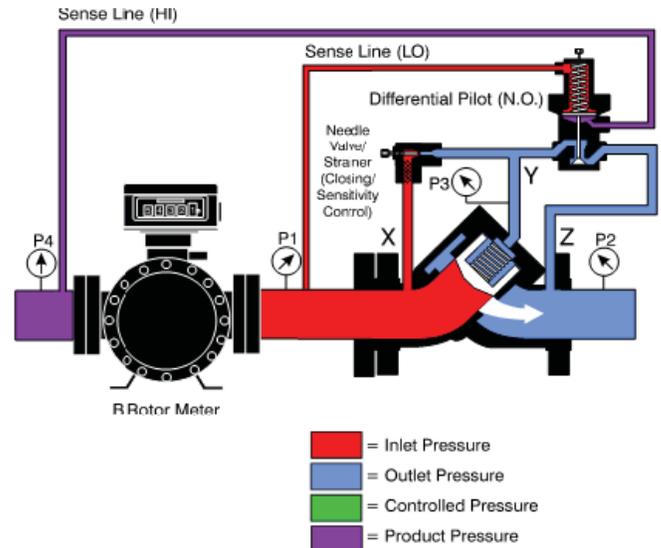
#### Applications

The Model BV54 is normally used to control flow rate through a metering device; however, it can be utilized in any application requiring accurate, dependable flow control.

## Typical Installation

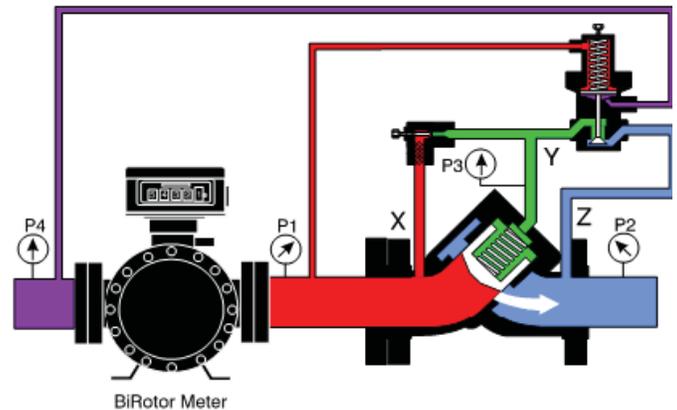
### Fully Open - No Control

The Pilot is full open. Differential pressure (P4 minus P1) is less than the pilot spring setting. Y-port (P3) is open to Z-port (P2). The valve is floating the stream and is not required to control.



### Open - Controlled Position

The pilot is partially open. Differential pressure (P4 minus P1) has slightly exceeded the pilot spring setting. Z-port (P2) is being squeezed off by the throttling of the pilot, placing higher pressure on Yport (P3). The increasing pressure at Y-port (P3) plus the main valve spring force establishes a position of the valve piston such that it balances differential pressure (P4 minus P1) equal to the pilot setting (plus or minus 2 psid), which is proportional to the flow rate.



### Materials of Construction

**Main Valve Body:** Steel-ASTM-A216-GR-WCB  
**Main Valve Cylinder:** 17-4 Stainless Steel, Heat Treated  
**Main Valve Piston:** Stainless Steel  
**Seat Ring:** Stainless Steel  
**O-Rings:** Viton Standard  
 (Other elastomers available)  
**Other Internal Parts:** Stainless Steel  
**Pilot Valve Strainer/Needle Valve Strainer:**  
 Standard: Steel  
**Tubings and Fittings:** Standard: Steel

### Optional Equipment

- Valve Position Indicator
- Position Indicator Switches
- Independent Opening Speed Control
- Stainless Steel Tubing
- Thermal Relief
- Additional Pilot Control Functions
- Excess Flow Shutoff (Pressure Sensitive)
- Pilot Line Isolation Block Valves
- Fusible Link Pilot Valve (closes at 160°F)
- Manual Override (opens valve)
- Epoxy Coating main Valve Body Unmachined Surfaces
- Orifice Flange

### Recommended Spare Parts

O-Rings

### Flange Connections

Value Size	Connections	Max Working Pressures @100F	DIN Connections	Max working pressure
2"-6"	150 lb. ANSI	285 psi	DN 80 - DN 150 PN 25	25 Bar
2"-6"	300 lb. ANSI	740 psi	DN 80 - DN 150 PN 64	51 Bar

Temperature Range: -20°F to 150°F (-29°C to 66°C)

### Shipping Weight And Volume (Approximate)

Value Size	Shipping Weight and volume
2"	69 lbs. @ 3 Cu. Feet
	31.3 kgs. @ 0.085 Cu. Meters
3"	105 lbs. @2.36 Cu. Feet
	47.63 kgs. @ 0.067 Cu. Meters
4"	140 lbs. @ 2.51 Cu. Feet
	63.5 kgs. @ 0.071 Cu. Meters
6"	250 lbs. @ 4.84 Cu. Feet
	113.4 kgs. @ 0.137 Cu. Meters

### Pilot Spring Ranges

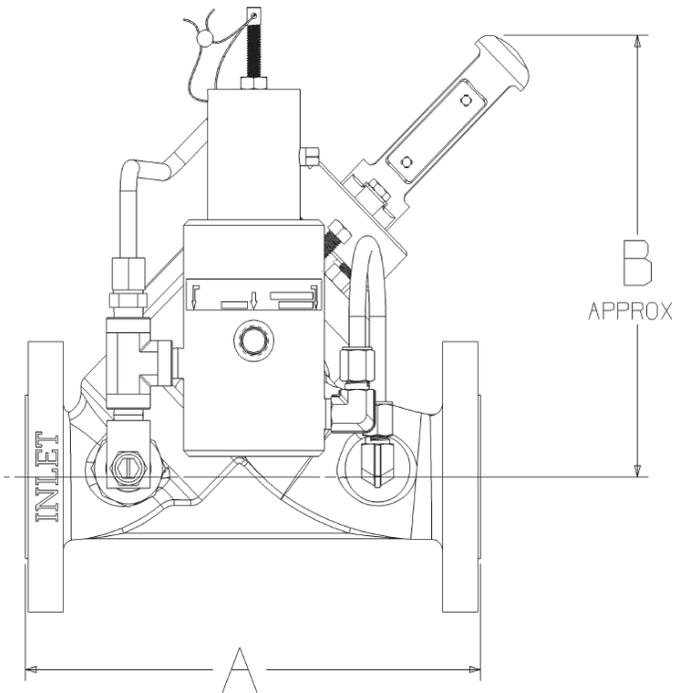
150-300 lb. Valves	
PSI	kPa
0-20	0-138
*0-40	0-276
30-80	207-552
70-180	483-1241

\* Spring selection based on control pressure set point.

### Ordering Information

In order to accurately process an order, such information as product to be metered, product viscosity, product temperature range, ambient temperature range, rate of flow, operating pressure, units of registration, accessories required, and optional features needed must be specified by the customer.

Dimensions (For Certified Dimensional Prints -Consult Factory)



Value Size	mm	A		B	
	inches	150 lb.	300 lb.	150 lb.	300 lb.
2"	mm	260	267	276	
	inches	10 1/4"	10 1/2"	10 7/8"	
3"	mm	279	333	286	
	inches	11"	13 1/8"	11 1/4"	
4"	mm	330	368	292	
	inches	13"	14 1/2"	11 1/2"	
6"	mm	432	454	346	
	inches	17"	17 7/8"	13 5/8"	

**NOTE:**

Do not operate this instrument in excess of the specifications listed. Failure to heed this warning could result in serious injury and/or damage to the equipment.

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