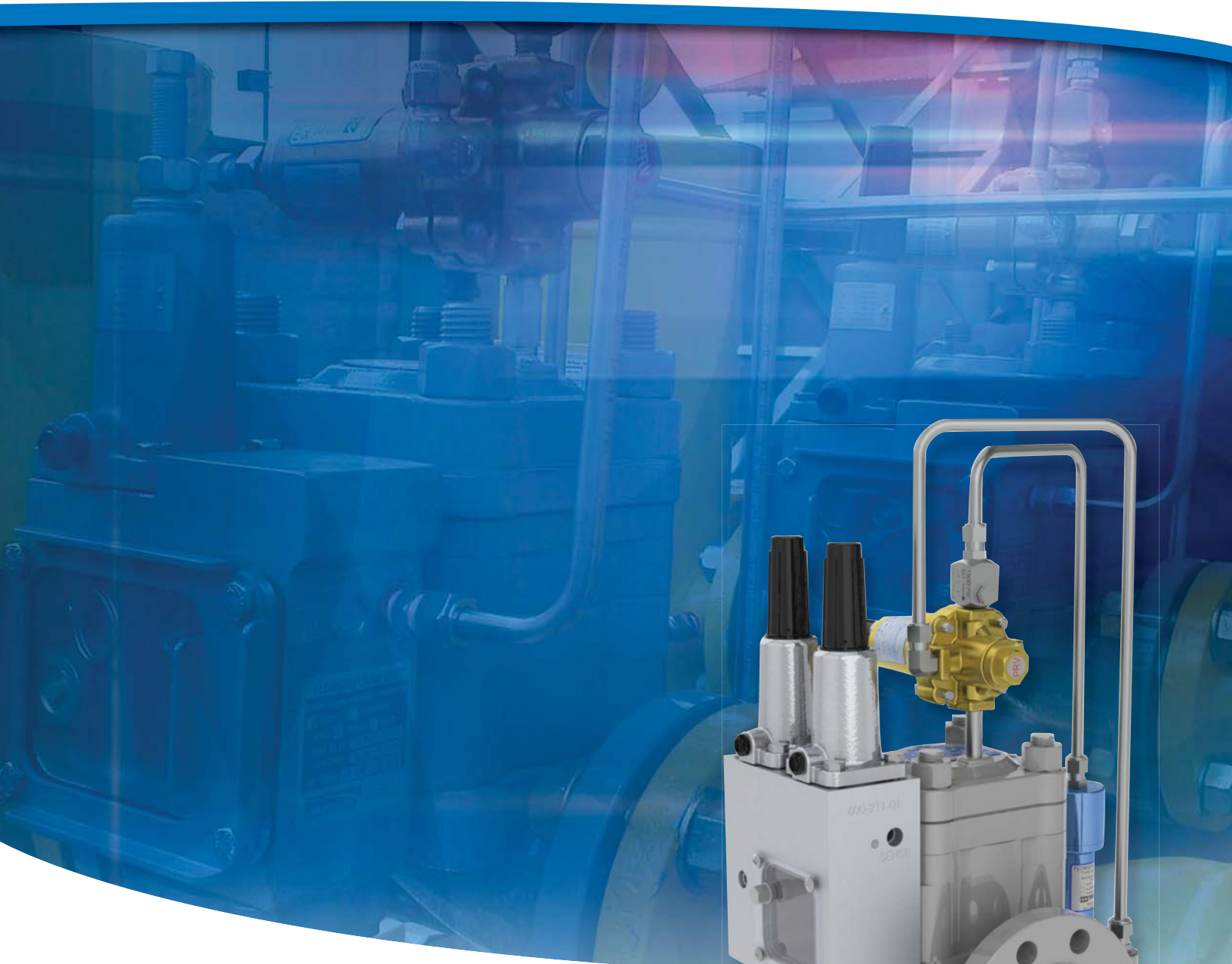


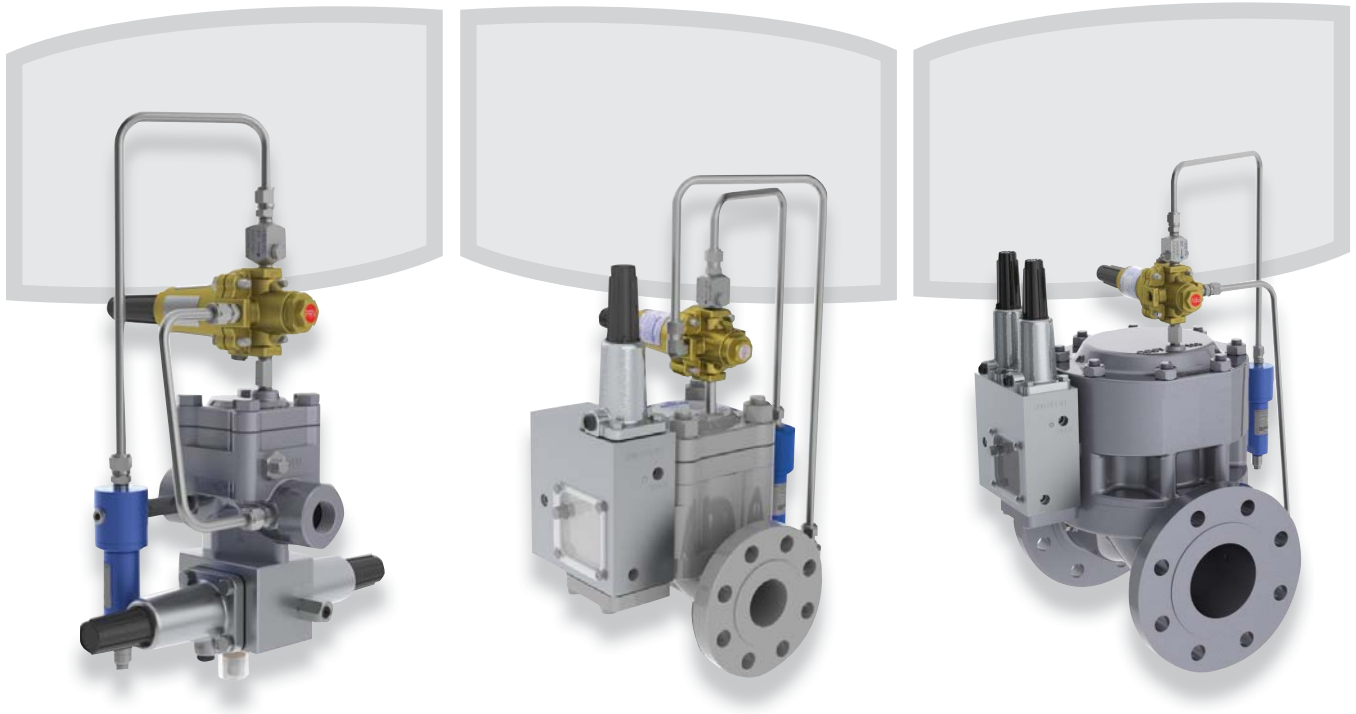


## MOONEY® FLOWGRID® SLAM SHUT™ REGULATORS



**The Flowgrid Slam Shut Valve is an easy to maintain automatic shutoff device.**

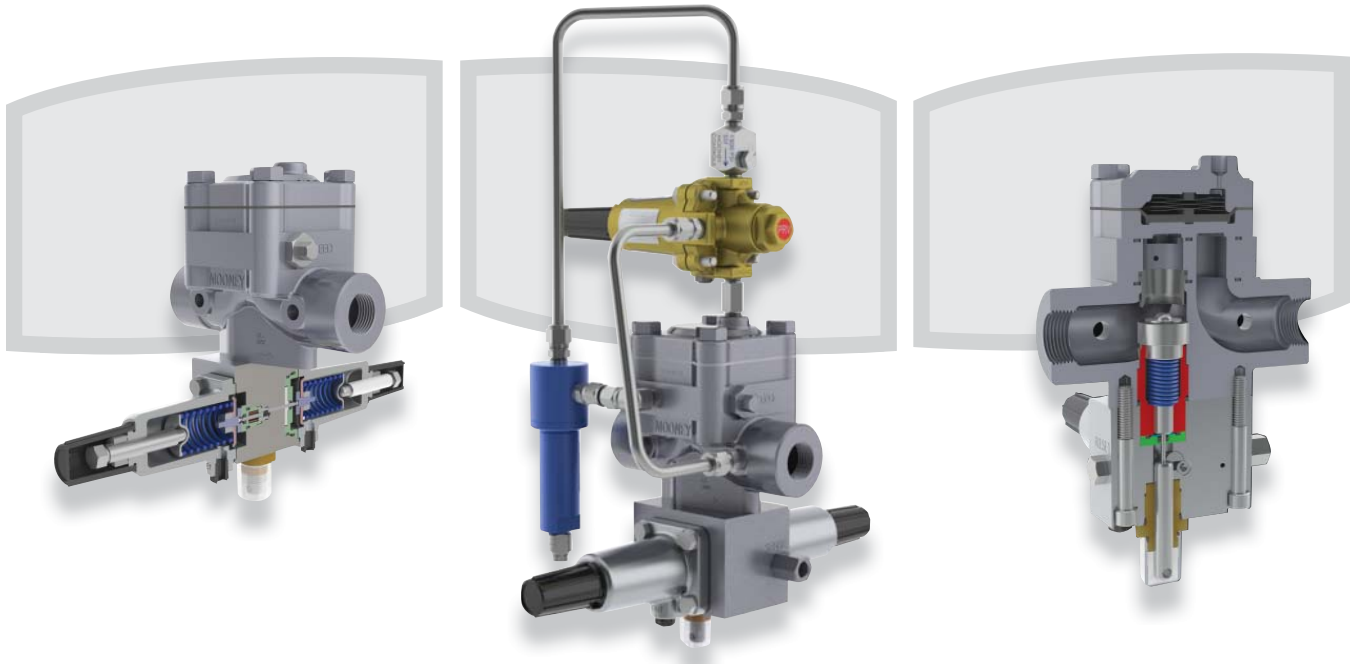




## Mooney® Flowgrid® Slam Shut™

The Slam Shut is designed for use with a pressure reducing regulator to provide secondary down stream pressure protection.

The device will shut off the flow of gas when the sense or outlet pressure in the system either exceeds or drops below the set point pressures. It can be used as a stand alone device or integrated into a Flowgrid® regulator. A one inch is available with it's own unique design.



## 1" Flowgrid® Slam Shut™

### Mooney® Flowgrid® Slam Shut

The one inch Slam Shut is a safety shutoff valve that closes with a linearly acting plug. The valve has bubble tight shutoff under all rated conditions, and no minimum differential requirements for full shutoff. This valve has both Overpressure shutoff and Underpressure shutoff capabilities. Set points are adjustable and repeatable regardless of flow rate, inlet pressure variations, and temperature variations.

### Features

- Easy to maintain; only two bolts required to remove entire Slam Shut assembly
- Resistant to sticking due to freezing water or debris in pipeline
- Well contained moving mechanical parts resistant to vibration effects
- Excellent performance and accuracy across a large pressure range by changing only the spring
- External visual indicator to show when the unit is tripped
- Easy to Reset; only three caps need to be removed for complete reset
- High cycle applications; only one wear component
- No pressure differential requirements for full shutoff

## Specifications for 1"

<b>Sizes</b>	1" NPT & SWE 1.25" NPT & SWE
<b>Types</b>	Stand Alone or Integrated into Flowgrid
<b>Pressure Protection</b>	Standard: Over Optional: Over and/or Under
<b>Temperature*</b>	-20°F to 150°F (-29°C to 65°C)
<b>Maximum Operating Inlet Pressure</b>	740 psig (50 Bar)
<b>Operating Sense Pressure</b>	5 to 450 psig (.35 Bar to 31 Bar)
<b>Response Time</b>	< .25 seconds

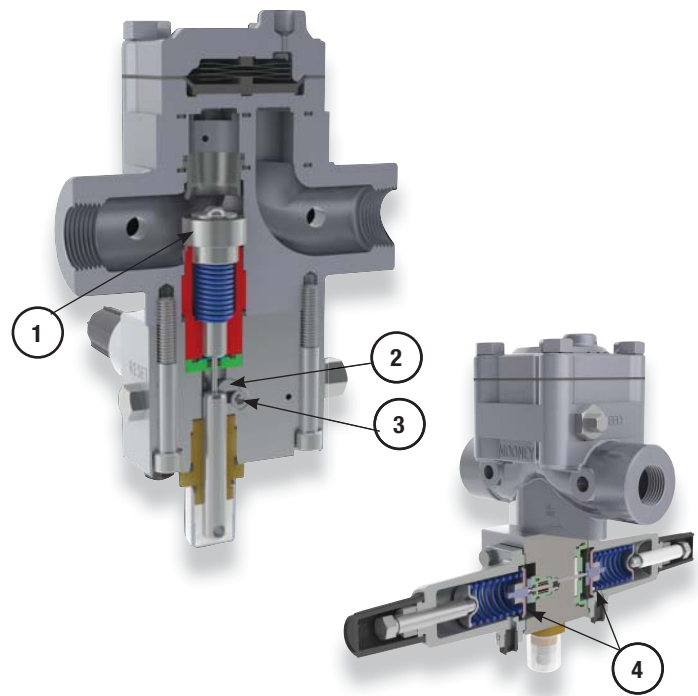
\* EN14382 restricts the minimum temperature to -4° F (-20° C).

## Principle of Operation

There are 4 critical elements to the operation of this valve;

- 1) Closing Element
- 2) Force Reduction Element
- 3) Tripping Element
- 4) Sensing Element

When the line pressure goes too high or too low, the sensing diaphragm will move the trip shaft. The trip shaft will then disengage the force reduction element, and the rotating shaft is then free to rotate, allowing the spring to push the plug to the seat, causing full shutoff.



## Materials of Construction

<b>Valve Body, Bleed Plate &amp; Spring Case</b>	Carbon Steel (WCB)
<b>Throttle Plate</b>	17-4 PH or A515
<b>Slam Shut Seat</b>	SST
<b>Slam Shut Seal</b>	Nitrile
<b>Flowgrid Diaphragm</b>	Nitrile or Viton
<b>Flowgrid Spring</b>	SST
<b>Slamshut Housing, Slam Shut Spring Cases</b>	Aluminum
<b>Spring Cover</b>	Aluminum
<b>Rotating Shaft</b>	SST
<b>Main Shaft Guide</b>	Delrin
<b>End Cap</b>	Lexan
<b>Plug Seal</b>	Nitrile
<b>O-Rings</b>	Nitrile

### Over Pressure Set Point Ranges

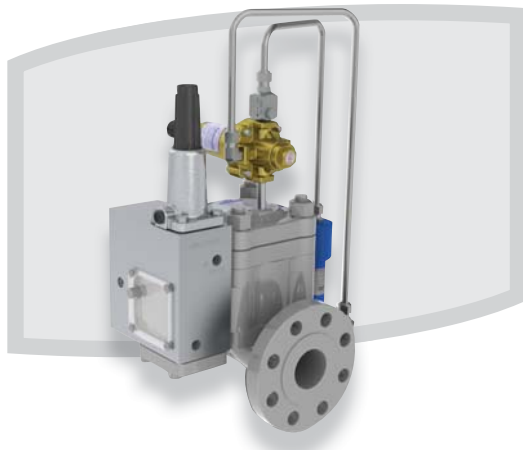
Spring Color	Spring Range		Accuracy (% of Set Point) **
	psig	Bar	
Red	5 - 10	0.35 - 0.7	10
Plated	10 - 40	0.7 - 3	5
Blue	40 - 90	3 - 6	2.5
Purple	90 - 175	6 - 12	2.5
Black	175 - 250	12 - 17	2.5
White/Green	250 - 450	17 - 31	2.5

### Under Pressure Set Point Ranges

Spring Color	Spring Range		Accuracy (% of Set Point) **
	psig	Bar	
Red	5 - 10	0.35 - 0.7	2.5
Plated	10 - 40	0.7 - 3	2.5
Blue	40 - 90	3 - 6	2.5
Purple	90 - 175	6 - 12	1.0
Black	175 - 250	12 - 17	1.0
White/Green	250 - 450	17 - 31	1.0

\*\* Preliminary AG Data, Testing per EN 14382





**Figure 1** - Two inch Flowgrid® Slam Shut regulator with over or under pressure protection.



**Figure 2** - Two inch Flowgrid® Slam Shut regulator with over and/or under pressure protection. A second sense port is optional.

## 2”- 4” Flowgrid® Slam Shut™

### Mooney® Flowgrid® Slam Shut

The Flowgrid® Slam Shut integrated into the Flowgrid® Regulator consists of a Flowgrid® body with valve module and the Flowgrid throttle plate, spacer, diaphragm, main spring and spring case mounted on top. The controller mounts on the side of the valve module.

The controller assembly can be supplied with either Over Pressure Shut Off Protection or Under Pressure Shut Off Protection in three basic interchangeable configurations:

1. Series 50 single function controller (Figure 1) providing either Over Pressure Shut Off Protection or Under Pressure Shut Off Protection.
2. Series 50D dual function controller (Figure 2) with each function providing either Over Shut Off Protection or Under Pressure Shut Off Protection with both functions being controlled by a common sense port.
3. Series 50DS dual function controller (Figure 2) with each function being controlled by independent sense port. This allows monitoring two independent locations for an over pressure or under pressure condition, each with it's own set point.

The Stand Alone Flowgrid® Slam Shut consists of a Flowgrid body with valve module and cover mounted on top. The pressure controller mounts on the side of the valve module.

### Features

- Eliminates nuisance trips caused by vibration and sense pressure variation
- Retrofitable to existing 2” - 4” Flowgrid® regulators
- Pneumatically actuated latch mechanism
- Bubble tight shutoff with floating flapper design
- Over or Under pressure protection or both
- Water tight for below grade vault installations
- Stand alone or Integrated into a Flowgrid® regulator
- Simple Reset from front or back without removing covers
- Easy Maintenance with a top entry design
- High Accuracy

## Principle of Operation for 2 inch - 4 inch Slam Shut

During normal operation the latch mechanism holds the closure element (flapper) open as shown in Figure 3. The sense or downstream pressure is monitored by the over pressure and under pressure controller diaphragms. These controller diaphragms convert the sense pressure into a force proportional to the pressure. The force is counter balanced by the set point adjustment spring located in the spring case. The adjusting screw is used to vary the spring force and control the over pressure set point or the optional under pressure set point.

When the downstream pressure exceeds the over pressure set point or is less than the optional under pressure set point, the controller diaphragm and spring move, opening a valve. The open valve allows inlet pressure to flow to the actuator diaphragm, (see Figure 4). The pressure acts on the diaphragm which pushes on the pin. The pin moves the “L” shaped pawl lever and releases the flapper lever. When the flapper lever is released, a set of springs pushes the flapper valve closed and provides the initial force to seal the valve.

Once the flapper valve closes the inlet pressure is cut off as shown in Figure 5.

To return the system to operation the technician closes the upstream and downstream block valves to isolate the system and bleeds off the isolated section. Repairs are then made as required to correct the cause of the over or under pressure condition. A 1/2 inch (13mm) hex on the back side of the valve and front of the controller allows resetting the slam shut without removing covers. The slam shut is reset by rotating the flapper valve open and holding it momentarily while the actuation pressure bleeds off and the latch engages.

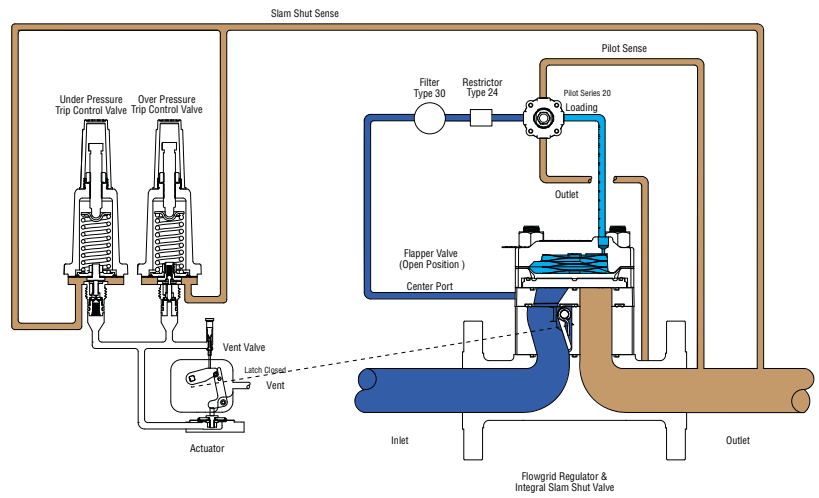


Figure 3 – Valve, Actuator & Latch Mechanism Open

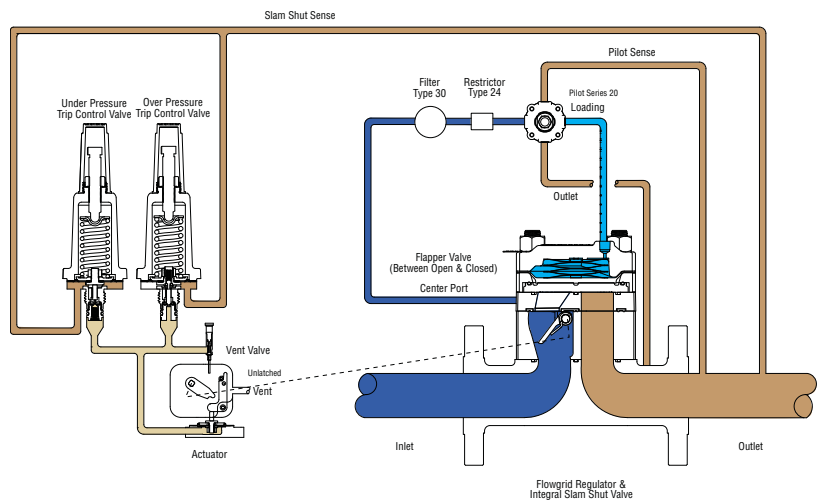


Figure 4 – Valve, Actuator & Latch Mechanism Midway

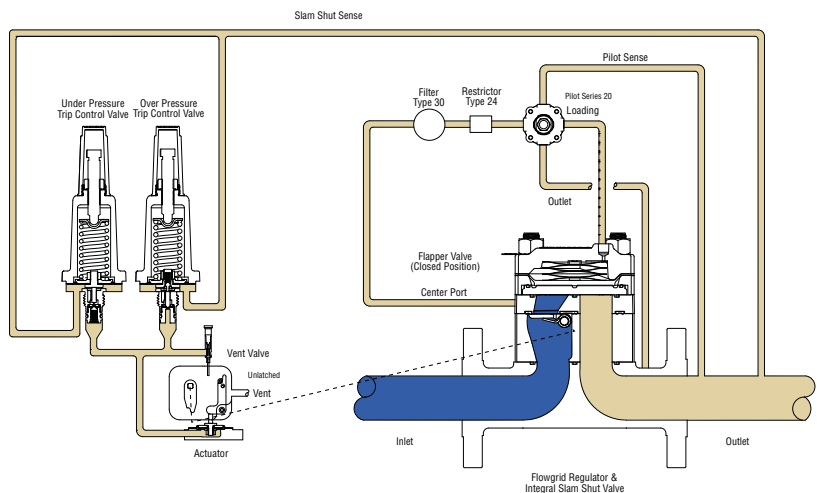


Figure 5 – Valve, Actuator & Latch Mechanism Closed

## Specifications for 2", 3" and 4"






<b>Sizes</b>	2", 3", 4" sizes
<b>Types</b>	Stand Alone or Integrated into Flowgrid Regulator
<b>Pressure Protection</b>	Standard: Over Optional: Over and/or Under
<b>Temperature*</b>	-20°F to 150°F (-29°C to 65°C)
<b>Maximum Operating Inlet Pressure</b>	740 psig (50 Bar)
<b>Operating Sense Pressure</b>	10 to 450 psig (0.7 Bar to 31 Bar)
<b>Response Time</b>	< .25 seconds

\* EN14382 restricts the minimum temperature to -4° F (-20° C).

## Materials of Construction

<b>Housing Module</b>	Carbon Steel (WCB)
<b>Flapper Valve</b>	SST
<b>Mechanism Module</b>	Aluminum
<b>Springs</b>	SST
<b>Diaphragms</b>	Standard: Nitrile
<b>O-Ring &amp; Seals</b>	Standard: Nitrile

## Over and Under Pressure Set Point Ranges

Spring Color	Outlet Pressure Range		Accuracy (% of Set Point) **
	psig	Bar	
Plated 	10 - 40	0.7 - 3	5
Blue 	40 - 90	3 - 6	2.5
Purple 	90 - 175	6 - 12	2.5
Black 	175 - 250	12 - 17	2.5
White/Green 	250 - 450	17 - 31	2.5

\*\* Preliminary AG Data, Testing per EN 14382

## About Dresser® Products

Dresser brand products are highly engineered, technically superior and are designed to help global customers meet and exceed requirements for mission critical energy applications.

## About Dresser, Inc.

Dresser, Inc. is a leader in providing highly engineered infrastructure products for the global energy industry. The company has leading positions in a broad portfolio of products, including valves, actuators, meters, switches, regulators, piping products, natural gas-fueled engines, retail fuel dispensers and associated retail point-of-sale systems, and air and gas handling equipment. Leading brand names within the Dresser portfolio include Dresser Wayne® retail fueling systems, Waukesha® natural gas-fired engines, Masoneilan® control valves, Consolidated® pressure relief valves, and Roots® blowers. It has manufacturing and customer service facilities located strategically worldwide and a sales presence in more than 100 countries.

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