

# Fisher™ RSS Lined Globe Valve

The Fisher RSS lined globe-style valve is a one-piece valve body which has pure-modified (reinforced) PTFE trim parts, push-down-to-close action, and positive shutoff. The sophisticated PTFE trim has replaced the previously used glass-filled or carbon-filled standard PTFE trim without any loss of mechanical or thermal properties and has improved the universal chemical resistance. This valve is for applications involving severely corrosive and toxic flowing media and is well-suited for pure media applications, as well. Within its temperature and pressure limitations, the RSS valve body may also be applied to most media. The RSS valve body provides an economical alternative to alloy valve bodies in a wide variety of applications.

## Features

- **Fluid Compatibility**—The PFA (perfluoroalkoxy resin)-lined assembly provides corrosion protection by shielding metal parts from the process media, making it ideal for controlling severely corrosive media.
- **Permeating Service**—A heavy duty PTFE bellows with stainless steel support rings is standard for all services in the NPS 1 to 4 valve sizes. Compared to a standard bellows, the heavy duty bellows design has an enhanced resistance to permeation. This is due to a wall thickness of 2.5 mm (0.1 inch) and pressure retaining rings inside the bellows. This bellows features a modified PTFE material which provides additional permeation protection over the original heavy duty PTFE bellows.
- **Economy**—Because all metal parts are shielded from the process fluid, the use of expensive alloys is not necessary.
- **Liner Integrity**—Lining thickness is a minimum of 5 millimeters at all areas where the valve is exposed to process flow. Transfer molding techniques provide for excellent consistency, density, and low



W9164-2

Fisher RSS Valve with 667 Actuator and FIELDVUE™ DVC6200 Digital Valve Controller

permeability. Transfer molded PFA material is translucent. This allows for checking of the entire wall surface for pin holes and cracks in the material during the manufacturing process.

Greater safety under vacuum and high temperature service is achieved by dovetail anchorings which provide a mechanical bond, minimizing the possibility of detachment of the lining from the cast valve body.

- **Easy In-Line Maintenance**—The top entry design eases in-line maintenance. This design also minimizes the transfer of pipeline stress, which minimizes leakage both at the valve body joint and seat ring.
- **Long Life Bellows Seal**—The PTFE bellows seal is leak tight and, with proper use and maintenance, can have an expected life cycle exceeding 500,000 full stroke cycles.

**Specifications**

**Valve Sizes**

NPS ■ 1, ■ 1-1/2, ■ 2, ■ 3, ■ and 4

**Face-To-Face and Flange Compatibility**

VALVE SIZE, NPS	DUCTILE IRON			
	Raised-Face Flange			
	CL150		CL300	
	Face-To-Face			
	ASME <sup>(1)</sup>	DIN <sup>(2)</sup>	ASME <sup>(1)</sup>	DIN <sup>(2)</sup>
1	X	X	X	---
1-1/2	X	X	X	---
2	X	X	X	---
3	X	X	---	---
4	X	X	---	---

1. For ANSI/ISA face-to-face dimensions, see figure 4.  
2. For DIN face-to-face dimensions, see figure 4.

**Maximum Inlet Pressures and Temperatures<sup>(1)</sup>**

See table 2

**Downstream/Outlet Pressure Ratings<sup>(1)</sup>**

See figure 2 for positive pressure service ratings  
See figure 3 for vacuum service ratings

**Application Limits**

Liquid Service: For cavitating applications, contact your Emerson Automation Solutions sales office  
Gas Service: Velocity ≤ 0.33 MACH

**Shutoff Classification**

Class VI per ANSI/FCI 70-2 and IEC 60534-4

**Bellows Seal**

Heavy-duty PTFE with SST support rings

**Construction Materials**

See table 3

**Expected Life Cycle**

Full Stroke: 500,000

**Temperature Capabilities**

Positive Pressure Service: -29 to 180°C (-20 to 360°F) (see figure 2)  
Vacuum Service: -29 to 180°C (-20 to 360°F) (see figure 3)

**Standard Flow Characteristic/Valve Plug Style**

Equal percentage

**Flow Direction**

Up through the seat ring (see figure 1)

**Flow Coefficients**

See table 1 or Fisher Catalog 12

**Port Diameters and Maximum Valve Plug Travel**

See table 1

**Bonnet Style**

Plain

**Packing Arrangement**

Braided PTFE rings

**Yoke Boss and Stem Diameter**

See table 1

**Approximate Weight**

See figure 4

**Options**

- Line-Flange gasket, (stainless steel insert, compression gasket, and PTFE overlay) with thickness of 5.1 mm (0.20 inch) for NPS 1 through 2, and 7.1 mm (0.28 inch) for NPS 3 and 4 valves
- Tool for removing and installing the seat ring

1. The pressure/temperature limits in this bulletin and any applicable standard or code limitation for the valve should not be exceeded.

**Table 1. Valve Size, Port Diameter<sup>(1)</sup>, Maximum Flow Coefficient, Travel, and Stem and Yoke Boss Diameter**

VALVE SIZE NPS	PORT DIAMETER		LIQUID FLOW COEFFICIENT (C <sub>v</sub> ) AT MAXIMUM TRAVEL <sup>(2)</sup>	MAXIMUM VALVE PLUG TRAVEL		STEM DIAMETER		YOKE BOSS DIAMETER	
	mm	Inches		Heavy Duty Bellows with Support Rings		mm	Inches	mm	Inches
				mm	Inches				
1	8	0.3125	1.91	15	0.591	9.5	3/8	54	2-1/8
	15	0.5	3.57						
	20	0.75	8.41						
	25	1	11.5						
1-1/2	25	1	13.4	19.1	0.75				
	40	1.5	28.6						
2	30	1.1875	13.3						
	50	2	44.3						
3	50	2	43.3	28.6	1.125	12.7	1/2	71	2-13/16
	80	3.1875	94.1						
4	65	2.5	69.3						
	96	4	145						

1. Inch equivalents of these metric port diameters have been rounded to common imperial decimal diameters. Actual diameter of the 15 millimeter port diameter is 0.591 inches, the 40 millimeter port diameter is 1.575 inches, and the 96 millimeter port is 3.780 inches.  
2. K<sub>v</sub> = (0.865) (C<sub>v</sub>)

**Table 2. Maximum Allowable Inlet Pressures and Temperatures for All CL150 and 300 Valves**

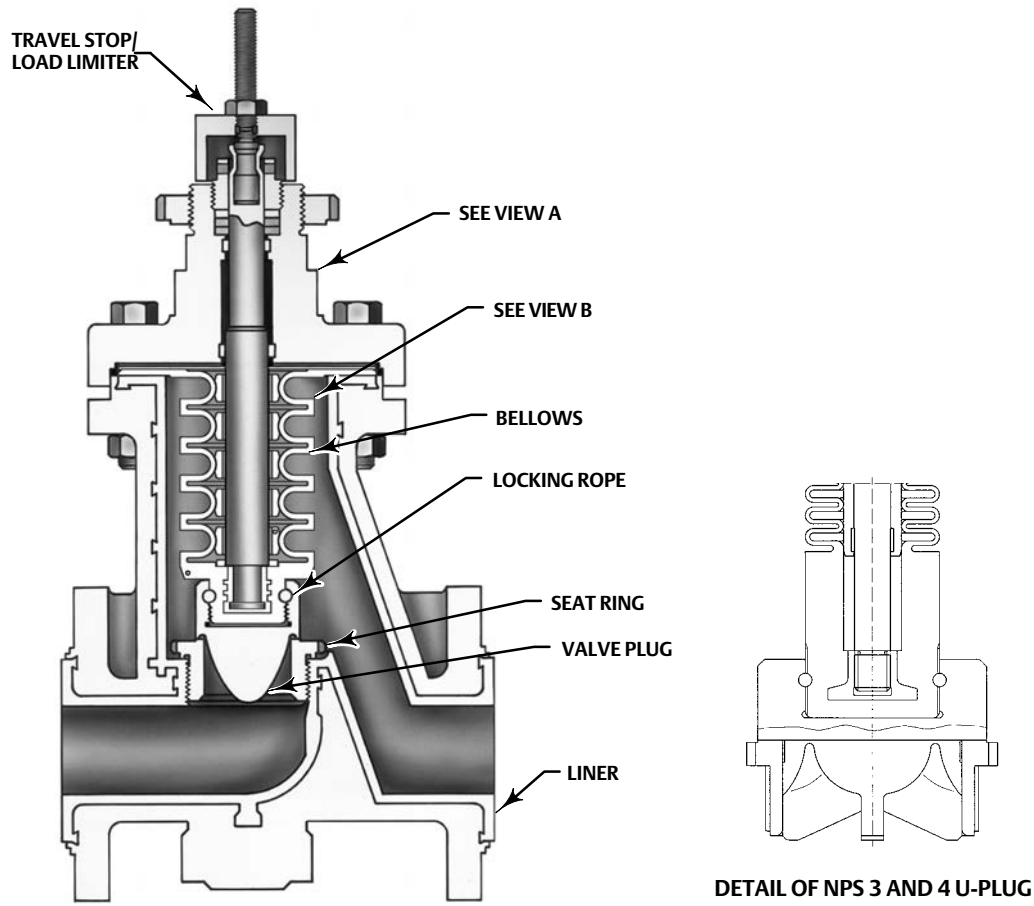
TEMPERATURE, °C	PRESSURE, BAR	TEMPERATURE, °F	PRESSURE, PSIG
	Ductile Iron		Ductile Iron
-29 to 38	19.7	-20 to 100	285
93	17.9	200	260
149	15.9	300	230
180	14.8	360	215

**Contents**

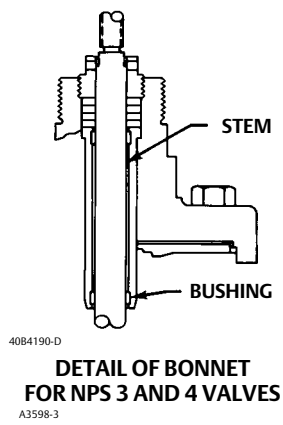
Features ..... 1  
 Specifications ..... 2  
 Tables  
 Valve Size, Port Diameter, Maximum Flow Coefficient,  
 Travel, and Stem and Yoke Boss Diameter ..... 3

Maximum Allowable Inlet Pressures and  
 Temperatures for All CL150 and 300 Valves ..... 3  
 Construction Materials ..... 6  
 Dimensions and Weights ..... 7

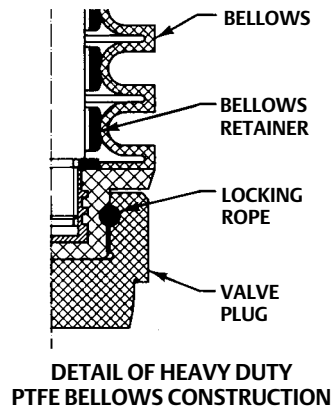
Figure 1. Fisher RSS Valve Details



W4521-4HDB

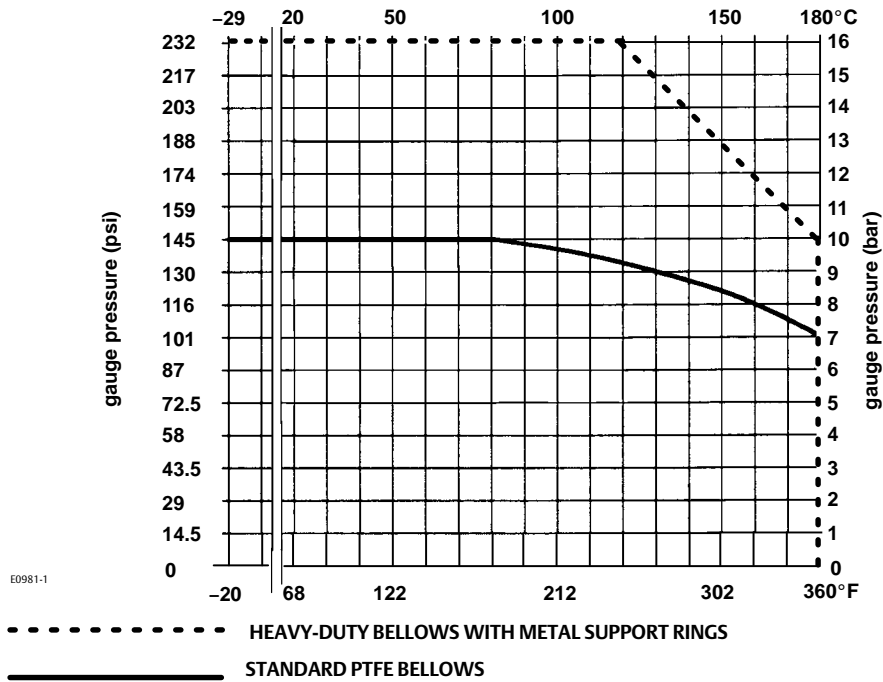


VIEW A



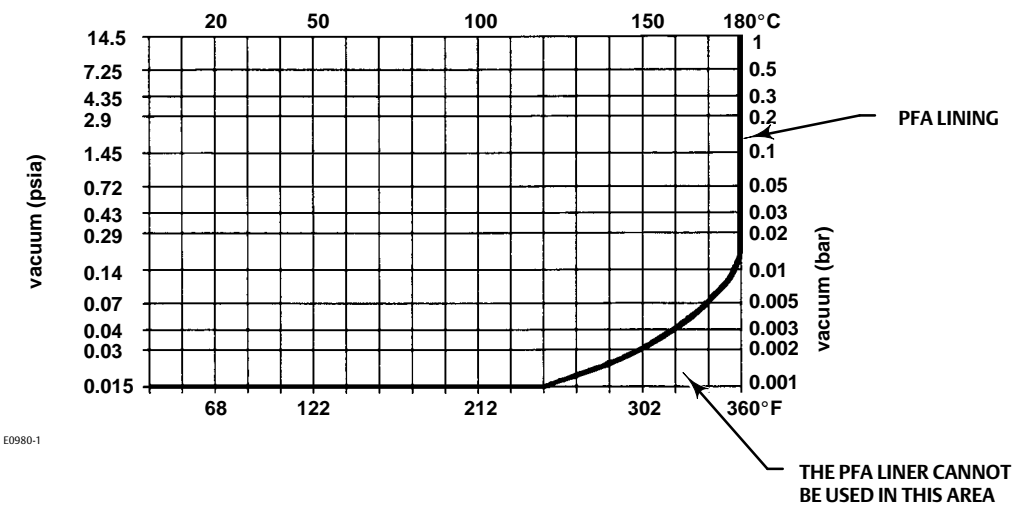
VIEW B

Figure 2. Downstream/Outlet Pressure Ratings (Positive Pressure Service)



Note: The liner does not limit the downstream pressure rating in positive pressure services.

Figure 3. Downstream/Outlet Pressure Ratings (Vacuum Service)



**Table 3. Construction Materials**

<b>Part</b>	<b>Standard Material</b>
Valve Body	Ductile iron (ASTM A 395) with PFA <sup>(1)</sup> liner
Bonnet	Ductile iron (ASTM A395)
Bellows	Heavy-duty PTFE with S30403 SST support rings
Valve plug and seat ring	Pure modified (reinforced) PTFE
Bonnet bushings	Carbon Graphite
Valve plug stem	Stainless steel
Body-to-bonnet bolting	Stainless steel
Packing	PTFE
Packing follower and packing box ring	Stainless steel
Travel stop	Stainless steel
Locking rope	PTFE
Bonnet O-ring	Fluorocarbon

1. Perfluoroalkoxy resin.

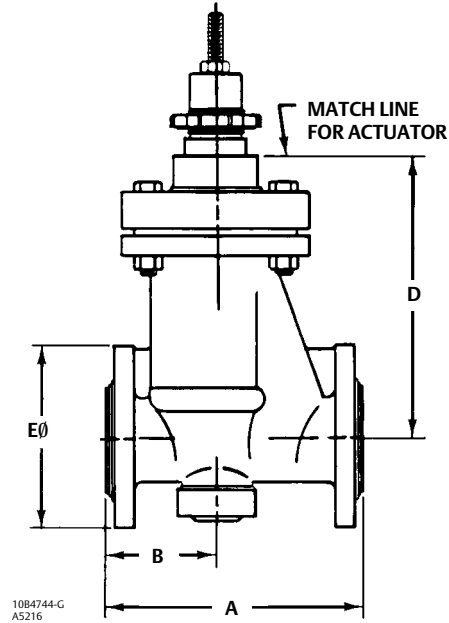
**Table 4. ANSI/ISA CL150 Face-to-Face Dimensions Mating with CL150 Flanges**

Valve Size, NPS	DIMENSIONS				Approximate Weight
	A	B	D	E $\varnothing$	
	mm				Kg
1	184.0	83.0	185.0	108.0	10
1-1/2	222.0	97.0	225.0	127.0	17
2	254.0	107.0	230.0	152.4	20
3	298.0	121.0	340.0	190.5	39
4	350.0	176.0	350.0	220.0	42
Inches					Pounds
1	7.25	3.27	7.28	4.25	23
1-1/2	8.75	3.82	8.86	5.00	36
2	10.00	4.21	9.06	6.00	43
3	11.75	4.76	13.39	7.50	86
4	13.78	6.94	13.78	8.66	92

**Table 5. ANSI/ISA CL300 Face-to-Face Dimensions Mating with CL300 Flanges**

Valve Size, NPS	DIMENSIONS				Approximate Weight
	A	B	D	E $\varnothing$	
	mm				Kg
1	197.0	90.0	185.0	123.8	11
1-1/2	235.0	101.0	225.0	156.0	18
2	267.0	115.0	230.0	165.0	20
Inches					Pounds
1	7.75	3.54	7.28	4.87	25
1-1/2	9.25	3.97	8.86	6.14	40
2	10.50	4.53	9.06	6.50	45

**Figure 4. Dimensions and Weights (also see tables 4 and 5)**



## Product Bulletin

51.1:RSS  
August 2017

**RSS Valve**  
D101291X012

---

Neither Emerson, Emerson Automation Solutions, nor any of their affiliated entities assumes responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

Fisher and FIELDVUE are marks owned by one of the companies in the Emerson Automation Solutions business unit of Emerson Electric Co. Emerson Automation Solutions, Emerson, and the Emerson logo are trademarks and service marks of Emerson Electric Co. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Automation Solutions  
Marshalltown, Iowa 50158 USA  
Sorocaba, 18087 Brazil  
Cernay 68700 France  
Dubai, United Arab Emirates  
Singapore 128461 Singapore

[www.Fisher.com](http://www.Fisher.com)

