

# Model DF269 Control Valves

## Technical Sales Bulletin



**Figure 1** DF269 Control Valve

The Dyna-Flo Model DF269 Control Valve is a rugged globe style control valve intended for demanding applications in process control. It is suitable for a wide range of applications, especially high pressure and severe service. The compact design makes installation and maintenance more convenient than traditional valve and actuator assemblies while still offering the same functionality. The Model DF269 is designed to accept instrumentation requiring valve stem linkages making it an excellent control valve.

The Model DF269 is available in 1 inch and 2 inch sizes, either in a globe or angle style valve body with threaded FNPT or flanged connections.

The Dyna-Flo DF269 control valve is manufactured to a high level of quality to ensure superior performance and customer satisfaction.

### Features

#### **NACE Service Ready**

Standard construction for the DF269 control valve features NACE trim. The valve bonnet and body also conform to NACE MR0175 (National Association of Corrosion Engineers) recommendations.

#### **ASME Class 900**

The DF269 is designed and rated for ASME B16.34 Class 150 - 900 service.

#### **Live Loaded Packing**

Packing for the DF269 control valve is designed to provide a quality stem seal and to prevent the loss of hazardous gases or fluids. The live loaded feature provides for reduced maintenance and positive sealing in temperature and pressure cycling conditions.

#### **Field-Reversible Actuator**

Field conversion of the DF269 actuator is designed to be quick and easy. Switch the DF269 from a spring-close to spring-open actuator without any additional parts.

#### **Easily Maintained**

The hammer union body to bonnet connection allows for easy removal of the bonnet/actuator for access to trim and packing. Trim removal requires no special tools and is quick and simple. The two piece cage seat allows replacement of the seat ring while using the existing cage making port changes and maintenance more economical.

#### **Low Temperature Materials**

The DF269 valve body is constructed with materials that are capable of functioning in temperatures of -40°C.

#### **Open Yoke**

The DF269 features an open yoke that allows for the mounting of a feedback arm to facilitate positioners and indicators.

#### **Versatile Trim Material Options**

Plug and seat ring materials are available in Carbide, Alloy 6, S44004 and soft seat.



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### SPECIFICATIONS

#### Port Diameters

1/4", 3/8", 1/2", 3/4", and 1"  
See Table 1.

#### Sizes and Connection Styles

Size: NPS 1 & 2 inch  
Rating: ASME 150 / 300 / 600 / 900  
Connections: NPT / RF / RTJ  
See Table 1 for details and Port Diameters.

#### Maximum Pressure Drops

See Tables 6 & 7.

#### Standard Shut-off Classifications

Class IV Shut-off in accordance with ASME / FCI 70.2.

#### Dimensions

##### Fail Closed Valve Configuration Dimensions

See Figure 4.

##### Fail Open Valve Configuration Dimensions

See Figure 5.

#### Flow Characteristics

Equal Percentage.

#### Flow Direction

Preferred Up (Optional Down)(See Tables 6 & 7).

#### Valve Plug Travel

3/4 inch (19 mm).

#### Approximate Valve Body and Actuator Weights

See Table 1.

#### Material Temperature Capabilities

##### Body Assembly

-46 to 150°C (-50 to 300°F)

##### Actuator Assembly

-40 to 82°C (-40 to 180°F)

#### Body Style

Available in Globe and Angle style.

#### Bonnet/Body Connection

Threaded Hammer Nut.

#### Actuator Configuration

The DF233 utilizes a on/off style spring and diaphragm actuator. Fail action is field-reversible.

#### Maximum Actuator Casing Pressure

50 Psig (3.45 Bar).

#### Effective Actuator Diaphragm Area

33 inches<sup>2</sup> (213 cm<sup>2</sup>).

#### Actuator Pressure Connections

NPS 1/4 inch NPT.

For more information and other options contact your Dyna-Flo sales office.

#### Maximum Pressures and Temperatures<sup>1</sup>

Valve Size	200°F (93°C)	300°F (150°C)
NPS 1-2 inch NPT	2,250 Psig (155.13 Bar)	2,182 Psig (150.44 Bar)
NPS 1-2 inch Class 600	1,500 Psig (103.42 Bar)	1,454 Psig (100.24 Bar)
NPS 1-2 inch Class 900	2,250 Psig (155.13 Bar)	2,185 Psig (150.65 Bar)

<sup>1</sup> - The limitations shown are as per ASME B16.34. Refer to the pressure temperature ratings in this standard for all other flange ratings. Do not exceed these ratings.

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Table 1

### Available Valve Sizes, Connection Styles and Approximate Weights

Port Diameter inch (mm)	Connection Style						
	Threaded lb (kg)	Raised Face (RF) Flanged lb (kg)				Ring Type Joint (RTJ) Flanged lb (kg)	
<b>1 Inch Valve</b> 1/4 (6.40) 3/8 (9.50) 1/2 (12.7) 3/4 (19.1) 1 (25.4)	<b>NPT</b>	<b>Class 150</b>	<b>Class 300</b>	<b>Class 600</b>	<b>Class 900</b>	<b>Class 600</b>	<b>Class 900</b>
	40 (18)	44 (20)	50 (23)	50 (23)	79 (32)	50 (23)	79 (36)
	<b>NPT</b>	<b>Class 150</b>	<b>Class 300</b>	<b>Class 600</b>	<b>Class 900</b>	<b>Class 600</b>	<b>Class 900</b>
	46 (21)	50 (23)	70 (32)	70 (32)	110 (32)	70 (32)	110 (50)

Table 2

### 1 Inch Valve Sizing Coefficients, for Equal Percentage Trim

Port Size	Co-efficient	Percentage of Valve Travel									
		10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1/4 Inch (6.40 mm)	C <sub>v</sub>	0.06	0.08	0.11	0.16	0.22	0.34	0.54	0.77	1.07	1.37
	X <sub>T</sub>	0.793	0.736	0.731	0.710	0.668	0.644	0.640	0.628	0.608	0.569
	F <sub>L</sub>	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
3/8 Inch (9.50 mm)	C <sub>v</sub>	0.12	0.22	0.31	0.41	0.52	0.72	1.05	1.70	2.50	3.30
	X <sub>T</sub>	0.706	0.689	0.685	0.652	0.648	0.624	0.616	0.608	0.596	0.584
	F <sub>L</sub>	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
1/2 Inch (12.7 mm)	C <sub>v</sub>	0.21	0.34	0.51	0.80	1.22	1.71	2.40	3.30	4.43	5.50
	X <sub>T</sub>	0.577	0.588	0.616	0.640	0.685	0.664	0.624	0.730	0.740	0.819
	F <sub>L</sub>	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
3/4 Inch (19.1 mm)	C <sub>v</sub>	0.39	0.65	0.91	1.35	2.05	3.15	4.72	6.45	8.29	10.4
	X <sub>T</sub>	0.599	0.612	0.624	0.643	0.626	0.648	0.669	0.737	0.730	0.826
	F <sub>L</sub>	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
1 Inch (25.4 mm)	C <sub>v</sub>	0.70	1.10	1.80	2.20	2.70	3.70	5.80	8.10	10.5	13.0
	X <sub>T</sub>	0.540	0.562	0.610	0.702	0.618	0.602	0.645	0.881	0.710	0.810
	F <sub>L</sub>	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89

Relationships of Note:  $C_1 = 39.76 \sqrt{X_T}$        $C_G = C_V C_1$        $K_M = F_L^2$



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Table 3

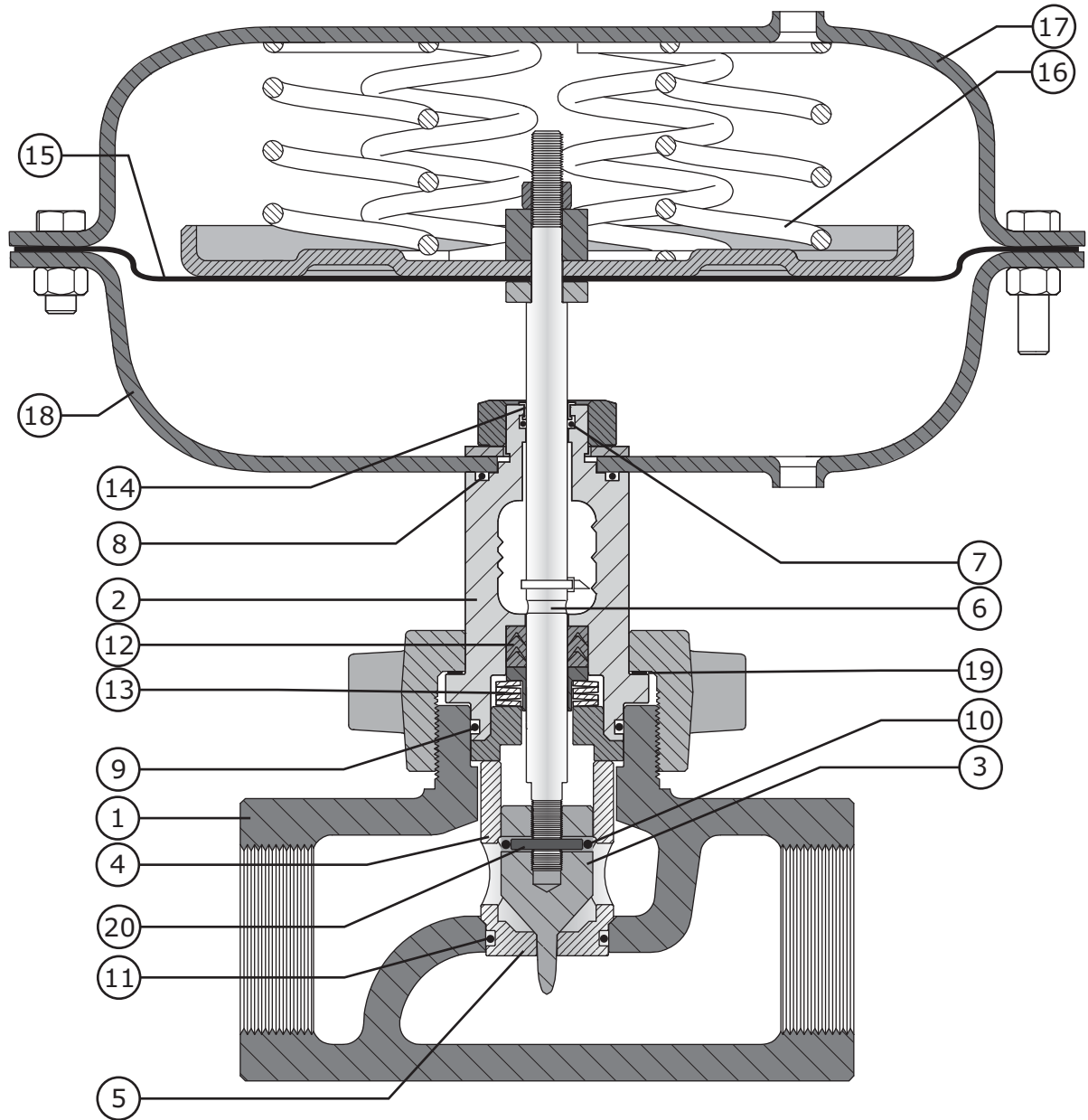
### 2 Inch Valve Sizing Coefficients, for Equal Percentage Trim

Port Size	Co-efficient	Percentage of Valve Travel									
		10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1/4 Inch (6.40 mm)	C <sub>v</sub>	0.06	0.08	0.11	0.16	0.22	0.34	0.54	0.77	1.07	1.37
	X <sub>T</sub>	0.793	0.736	0.731	0.710	0.668	0.644	0.640	0.628	0.608	0.569
	F <sub>L</sub>	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
3/8 Inch (9.50 mm)	C <sub>v</sub>	0.12	0.22	0.31	0.41	0.52	0.72	1.05	1.70	2.50	3.30
	X <sub>T</sub>	0.706	0.689	0.685	0.652	0.648	0.624	0.616	0.608	0.596	0.584
	F <sub>L</sub>	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
1/2 Inch (12.7 mm)	C <sub>v</sub>	0.21	0.34	0.51	0.80	1.22	1.71	2.40	3.30	4.43	5.50
	X <sub>T</sub>	0.577	0.588	0.616	0.640	0.685	0.664	0.624	0.730	0.740	0.819
	F <sub>L</sub>	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
3/4 Inch (19.1 mm)	C <sub>v</sub>	0.42	0.71	0.99	1.47	2.22	3.41	5.35	7.50	9.71	12.2
	X <sub>T</sub>	0.655	0.582	0.654	0.662	0.653	0.622	0.685	0.615	0.748	0.880
	F <sub>L</sub>	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
1 Inch (25.4 mm)	C <sub>v</sub>	0.82	0.94	1.32	1.93	2.94	4.50	7.03	9.85	12.8	16.1
	X <sub>T</sub>	0.586	0.574	0.607	0.683	0.654	0.608	0.694	0.882	0.734	0.805
	F <sub>L</sub>	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88

Relationships of Note:  $C_1 = 39.76 \sqrt{X_T}$        $C_G = C_V C_1$        $K_M = F_L^2$

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**Figure 2** DF269 Fail Closed NPS 2 NPT Valve Cross Section

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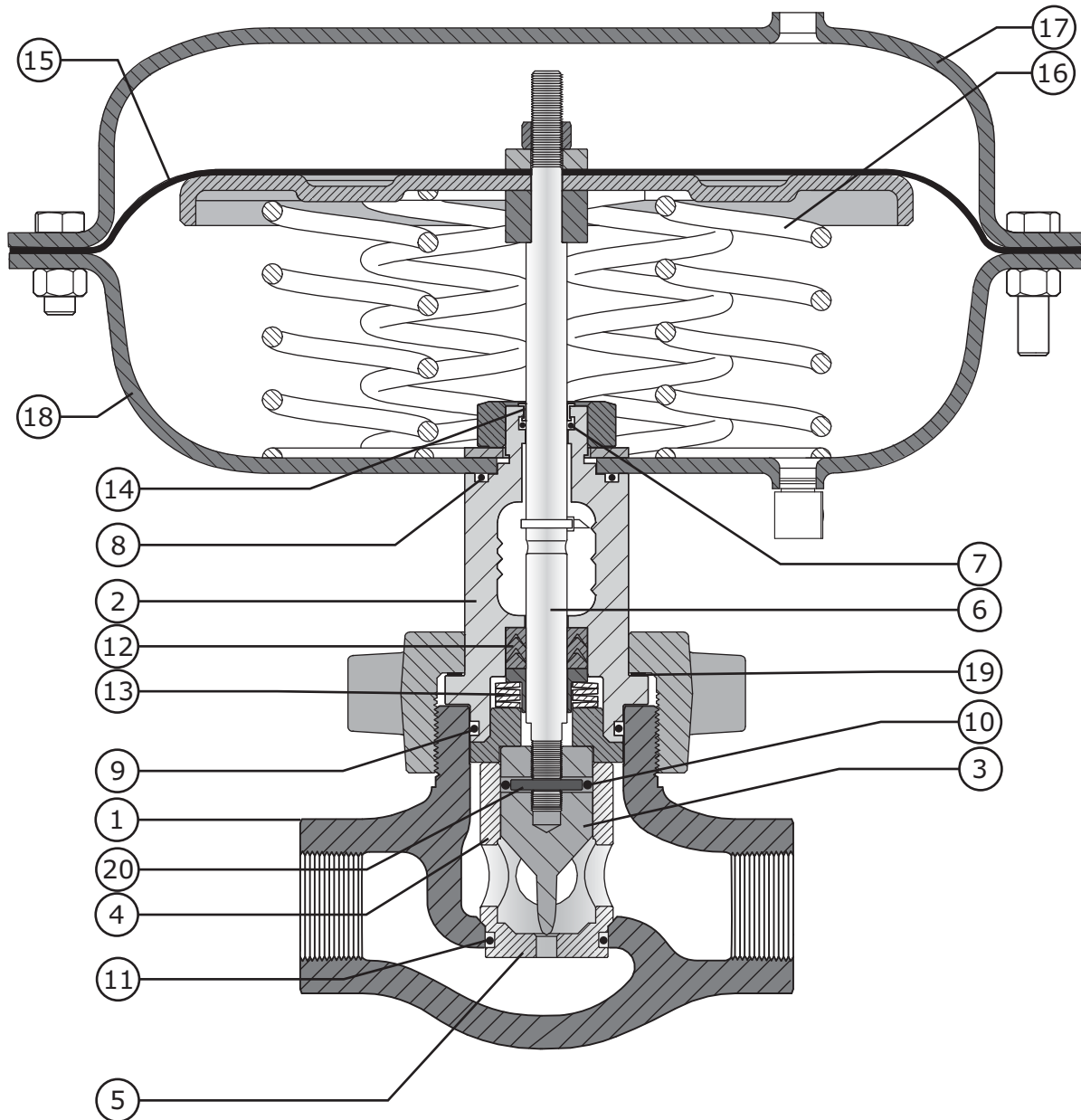


Figure 3 DF269 Fail Open NPS 1 NPT Valve Cross Section

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Table 4

Standard Construction Materials		
Key	Part Description	Standard Construction
1	Valve Body	LCC
2	Bonnet	LCC
3	Valve Plug	S17400 DH1150) (NACE), S30300 / Tungsten Carbide (optional)
4	Cage (Part of Seat Ring)	S17400 DH1150) (NACE), S30300 / Tungsten Carbide (optional)
5	Seat Ring	S17400 DH1150) (NACE), S30300 / Tungsten Carbide (optional)
6	Valve Stem	S20910
7, 8, 9, 10, 11	O-Ring	HNBR
12	Packing	PTFE / CPTFE
13	Spring Washers	N07718
14	Valve Stem Bushing	Nylon
15	Actuator Diaphragm	Nitrile / Nylon
16	Actuator Springs	Steel / Zinc
17	Upper Casing	Steel / Zinc
18	Lower Casing	Steel / Zinc
19	Washer	S30200
20	Pin	S31600 - All S31600 barstock is dual grade S31600/S31603 (316/316L)



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Table 5

**NPT, RF, and RTJ Valve Dimensions** Inches (mm)

Valve Size	Connection Style	A	B
1"	NPT	6.25 (159)	1.77 (45)
	ASME 150 RF	7.25 (184)	3.63 (92)
	ASME 300 RF	7.75 (197)	3.88 (99)
	ASME 600 RF	8.25 (210)	4.13 (105)
	ASME 900 RF	9.38 (238)	4.69 (119)
	ASME 150 RTJ	7.75 (197)	3.88 (99)
	ASME 300 RTJ	8.25 (210)	4.13 (105)
	ASME 600 RTJ	8.25 (210)	4.13 (105)
	ASME 900 RTJ	9.38 (238)	4.69 (119)
2"	NPT	7.50 (191)	1.73 (44)
	ASME 150 RF	10.00 (254)	5.00 (127)
	ASME 300 RF	10.50 (267)	5.25 (134)
	ASME 600 RF	11.25 (286)	5.63 (143)
	ASME 900 RF	12.88 (327)	6.44 (164)
	ASME 150 RTJ	10.50 (267)	5.25 (134)
	ASME 300 RTJ	11.12 (282)	5.60 (141)
	ASME 600 RTJ	11.38 (289)	5.69 (145)
	ASME 900 RTJ	12.88 (327)	6.44 (164)

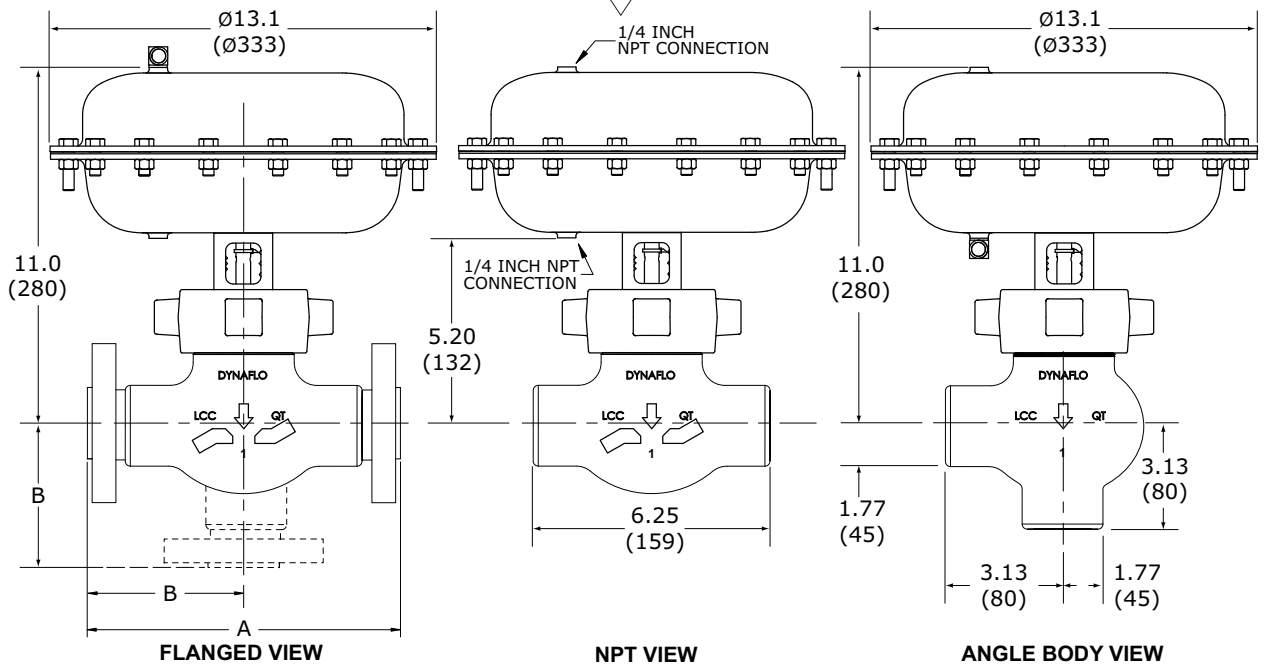
**NOTE: Refer to Figures 4 & 5**



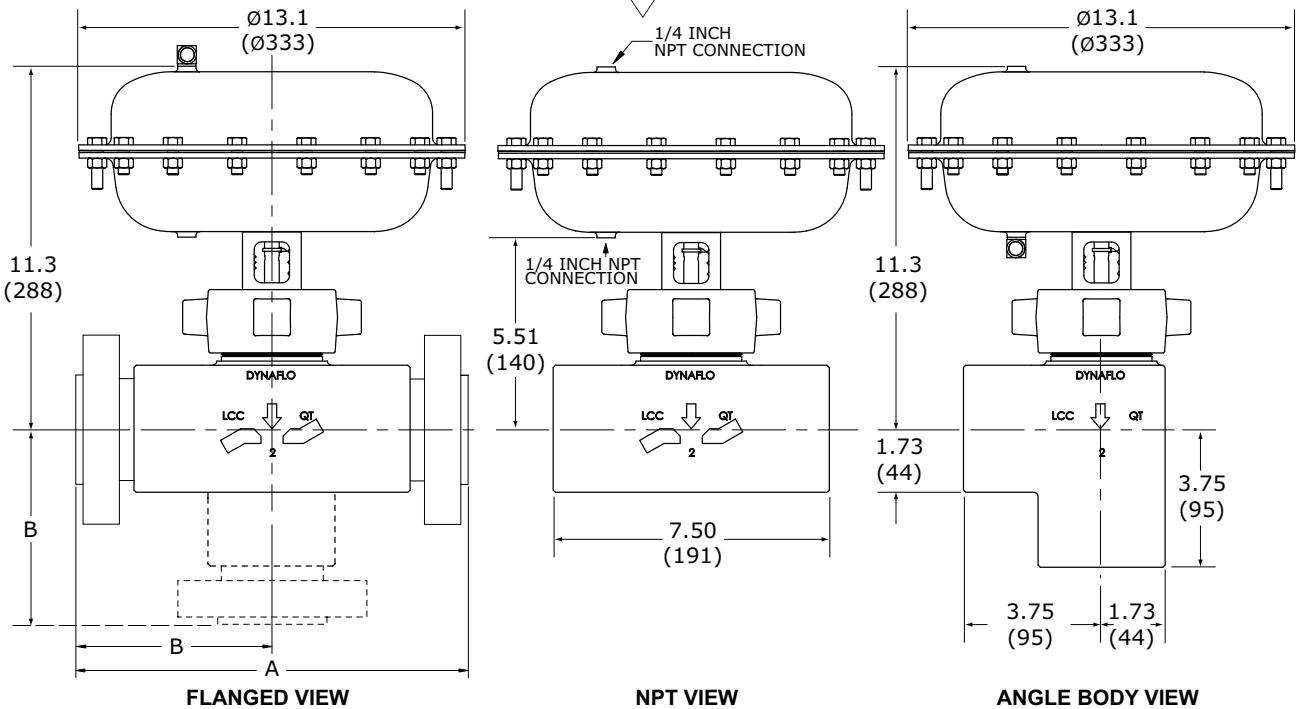
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**Figure 4 DF269 1 inch Control Valve Dimensions inch (mm)**



**Figure 5 DF269 2 inch Control Valve Dimensions inch (mm)**



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Table 6

**FAIL CLOSED**  
**Maximum Shut-off Pressure Drops<sup>1</sup> (Flow Up)**

Port Diameter inch (mm)	Input Signal 0 - 20 Psig (0 - 1.38 Bar) 3 Springs	Input Signal 0 - 35 Psig (0 - 2.41 Bar) 6 Springs
1/4 (6.40)	2,250 (155.13)	2,250 (155.13)
3/8 (9.50)	2,250 (155.13)	2,250 (155.13)
1/2 (12.7)	2,007 (138.38)	2,250 (155.13)
3/4 (19.1)	803 (55.36)	1,873 (129.14)
1 (25.4)	402 (27.72)	1,004 (69.22)

**Notes:** 1 - Do not exceed the Pressure Temperature Limitations as per ASME B16.34.

**For Flow Down Pressure Drops Consult Dyna-Flo.**

Table 7

**FAIL OPEN**  
**Maximum Shut-off Pressure Drops<sup>1</sup> (Flow Up)**

Port Diameter inch (mm)	Input Signal 0 - 20 Psig (0 - 1.38 Bar) 3 Springs	Input Signal 0 - 35 Psig (0 - 2.41 Bar) 6 Springs
1/4 (6.40)	2,250 (155.13)	2,250 (155.13)
3/8 (9.50)	2,250 (155.13)	2,250 (155.13)
1/2 (12.7)	2,250 (155.13)	2,250 (155.13)
3/4 (19.1)	1,412 (97.35)	2,310 (159.27)
1 (25.4)	744 (51.30)	1,250 (86.18)

**Notes:** 1 - Do not exceed the Pressure Temperature Limitations as per ASME B16.34.

**For Flow Down Pressure Drops Consult Dyna-Flo.**

# Model DF269 Control Valves



## ***Our Commitment to Quality***

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# Model DF269 Control Valves



Ordering Guide

## Dyna-Flo DF269 Control Valve | Model Numbering System

Sample Part Number

**DF269-1GC3-6BN-14S-X**

Code	Description												
X	<b>Special</b>												
S	<b>Trim Material</b> S17400 DH1150      T      S30300/Tungsten Carbide												
14	<b>Trim Size</b> <table border="0"> <tr> <td>14</td> <td>1/4"</td> <td>38</td> <td>3/8"</td> <td>10</td> <td>1"</td> </tr> <tr> <td>12</td> <td>1/2"</td> <td>34</td> <td>3/4"</td> <td></td> <td></td> </tr> </table>	14	1/4"	38	3/8"	10	1"	12	1/2"	34	3/4"		
14	1/4"	38	3/8"	10	1"								
12	1/2"	34	3/4"										
N	<b>Connection Style</b> N      NPT      F      RF      J      RTJ												
B	<b>ASME Rating</b> <table border="0"> <tr> <td>A</td> <td>150</td> <td>B</td> <td>300</td> <td>F</td> <td>900 NPT</td> </tr> <tr> <td>C</td> <td>600</td> <td>D</td> <td>900</td> <td></td> <td></td> </tr> </table>	A	150	B	300	F	900 NPT	C	600	D	900		
A	150	B	300	F	900 NPT								
C	600	D	900										
6	<b>Number of Springs</b> 3      3 Springs      6      6 Springs												
3	<b>Spring Range</b> 3      Size 69 Actuator with 0-20 Psig Operating Signal 6      Size 69 Actuator with 0-35 Psig Operating Signal												
C	<b>Actuator Style</b> C      Fail Closed O      Fail Open												
G	<b>Body Style</b> G      Globe Style      T      Angle Style												
1	<b>Body Size</b> 1      1 Inch Valve      2      2 Inch Valve												