

# Model DF100 Control Valve

## Technical Sales Bulletin



Patents Pending

**Figure 1** DF100 Control Valve

The Model Model DF100 control valve is primarily designed for on/off control of a variety of fluids, but may also be adapted for throttle control. These tough, compact valves are ideal for use in oil and gas separators, treaters, scrubbers or as dump valves. The DF100 is well suited for many other high pressure fluid applications up to 2,250 Psig (15,513 kPa). The DF100 Series control valve is available in 1 inch size, either in a globe or tee style valve body with threaded end connections.

The Dyna-Flo Model DF100 control valve is manufactured to a high level of quality specifications to ensure superior performance and customer satisfaction.

### FEATURES

#### NACE Service Ready

Standard construction for the DF100 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 DF100 is designed and rated for ASME B16.34 Class 150 - 900 service.

#### Live Loaded Packing

Packing for the DF100 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 DF100 actuator is designed to be quick and easy. Switch the DF100 from a spring-close to spring-open actuator without any additional parts.

#### Simple Installation

The DF100 control valves compact design allows for easy installation in tight areas where space is limited.

#### Easily Maintained

Maintenance is made quick and easy, no special tools required. Valve can be repaired without removing the valve body from the pipe line.

#### Low Temperature Materials

The DF100 valve and actuator are constructed with materials that are capable of functioning in temperatures of -40°C.



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### SPECIFICATIONS

#### Port Diameters

1/4", 3/8", 1/2", 3/4"

#### Valve Pressure Class / End Connection

- 1" FNPT ASME B16.34 Class 900

#### Maximum Pressure Drop

2,250 Psig (15,513 kPag)

#### Maximum Inlet Temperature and Pressures

2,250 Psig (15,513 kPag) from -46 to 93°C (-50 to 200°F)  
2,185 Psig (15,513 kPag) at 149°C (300°F)

#### Standard Shut-off Classification

ANSI Class IV ANSI / FCI 70-2

#### Dimensions

See Figure 3 & 4

#### Flow Characteristics

Quick Opening

#### Flow Direction

Up or Down

- Flow Down recommended for Quick Open application
- Flow Up recommended for Throttling applications

#### Approximate Weight

20 lb (9 kg)

#### Maximum Travel

3/8 inch (10 mm)

#### Material Temperature Capabilities

Body Assembly

-46 to 149°C (-50 to 300°F)

Actuator Assembly

-40 to 82°C (-40 to 180°F)

#### Body Style

Available in Globe or Tee body style

#### Bonnet/Body Connection

Threaded

#### Actuator Configuration

The DF100 utilizes a on/off style spring and diaphragm actuator. Fail closed is field-reversible.

#### Maximum Actuator Casing Pressure

50 Psig (345 kPa)

#### Effective Actuator Diaphragm Area

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

#### Actuator Pressure Connections

1/4 inch FNPT

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

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Table 1

### Maximum Allowable Shutoff Pressure Drops

Actuator Action	Flow Direction (pressure tends to)	Port Diameter Inch	Number of Springs 0 - 20 Psig Operating Signal		Number of Springs 0 - 35 Psig Operating Signal	
			2	6	2	6
			Psi (kPa)	Psi (kPa)	Psi (kPa)	Psi (kPa)
Fail Closed	Flow Up (open valve)	1/4	1,578 (10,878)	2,250 (15,513)	1,578 (10,880)	2,250 (15,513)
		3/8	657 (4,530)	1,972 (13,596)	657 (4,530)	1,972 (13,596)
		1/2	341 (2,351)	1,025 (7,067)	341 (2,351)	1,025 (7,067)
		3/4	60 (414)	180 (1,241)	60 (414)	180 (1,241)
	Flow Down (close valve)	1/4	523 (3,606)	1,578 (10,880)	523 (3,606)	1,578 (10,880)
		3/8	837 (5,771)	2,250 (15,513)	837 (5,771)	2,250 (15,513)
		1/2	*	2,250 (15,513)	*	2,250 (15,513)
		3/4	*	1,603 (11,052)	*	2,250 (15,513)
Fail Open	Flow Up (open valve)	1/4	2,250 (15,513)	*	2,250 (15,513)	2,250 (15,513)
		3/8	2,250 (15,513)	*	2,250 (15,513)	2,250 (15,513)
		1/2	1,867 (12,873)	*	2,250 (15,513)	2,235 (15,410)
		3/4	759 (5,233)	*	1,882 / 130	834 (5,750)
	Flow Down (close valve)	1/4	2,250 (15,513)	*	2,250 (15,513)	2,250 (15,513)
		3/8	2,250 (15,513)	*	2,250 (15,513)	2,250 (15,513)
		1/2	2,250 (15,513)	*	2,250 (15,513)	2,250 (15,513)
		3/4	1,367 (9,425)	*	2,250 (15,513)	1,502 (10,356)

\* - Valve will not shut off.

Table 2

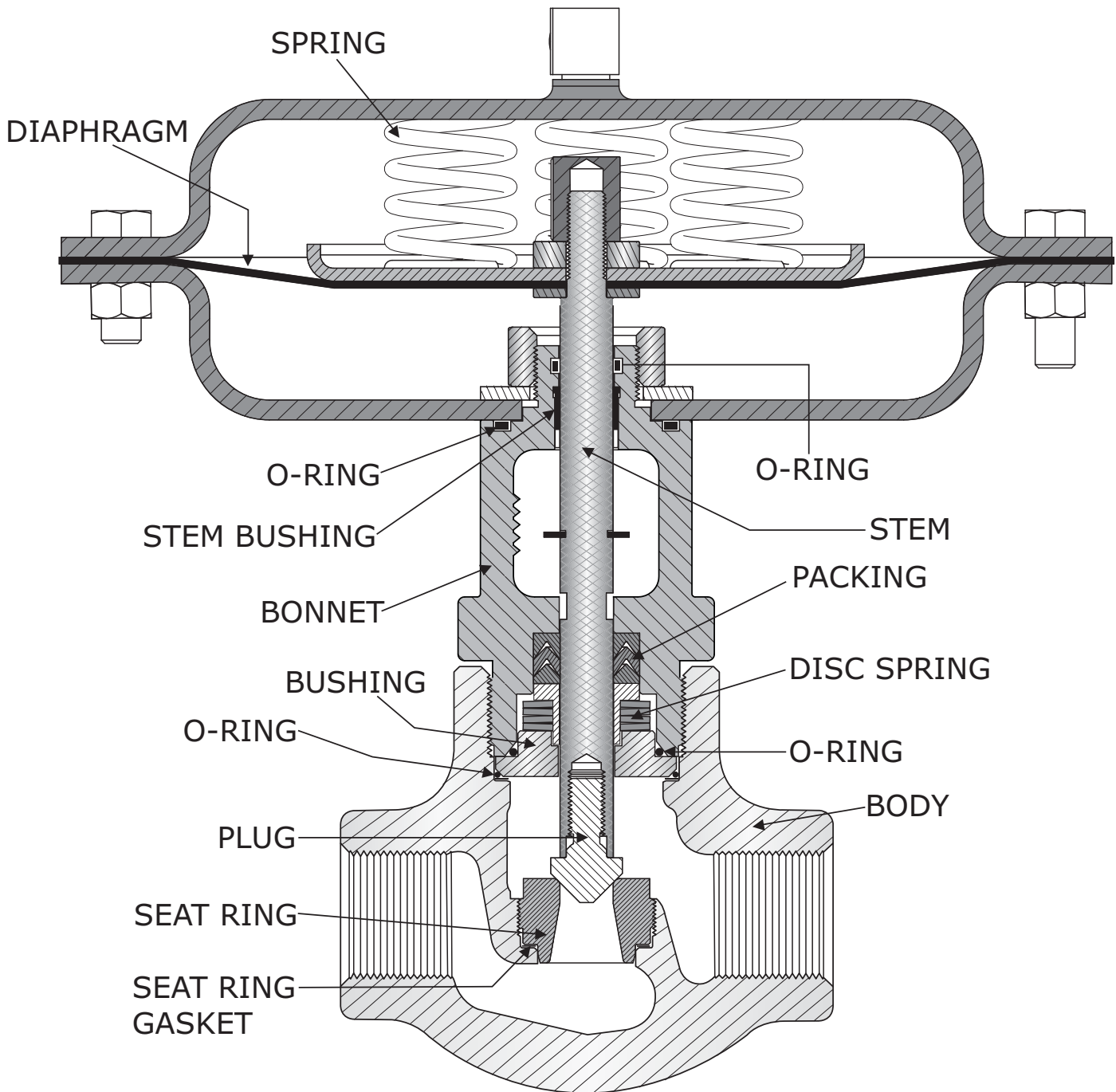
### DF100 Sizing Coefficient Values

Body	Port Size Inch (mm)	C <sub>V</sub> Value (100%)	X <sub>T</sub> Value (100%)	F <sub>L</sub> Value (100%)
Flow Up	1/4 (6.4)	1.7	0.67	0.92
	3/8 (9.5)	3.2	0.67	0.92
	1/2 (12.7)	4.8	0.67	0.92
	3/4 (19.1)	8.0	0.67	0.92
Flow Down	1/4 (6.4)	1.8	0.67	0.91
	3/8 (9.5)	3.7	0.67	0.91
	1/2 (12.7)	5.2	0.67	0.91
	3/4 (19.1)	8.32	0.67	0.91



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**Figure 2** Cross-section of DF100 Control Valve (FNPT)

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Table 3

### Standard Construction Materials

Part Description	Standard Construction
Valve Body	LCC
Bonnet	LCC
Valve Plug	S17400 DH1150
Seat Ring	S17400 DH1150
Valve Stem	S31600*
O-Ring	Hydrogenated Nitrile (HNBR)
Packing	PTFE / CPTFE
Disc Springs	N0778
Stem Bushing	PPS (Ryton)
Actuator Diaphragm	Nitrile / Polyester
Actuator Springs	Zinc-plated Steel
Seat Ring Gasket	S30400
Bushing	S17400 DH1150

\* All S31600 barstock is dual grade S31600/S31603 (316/316L).

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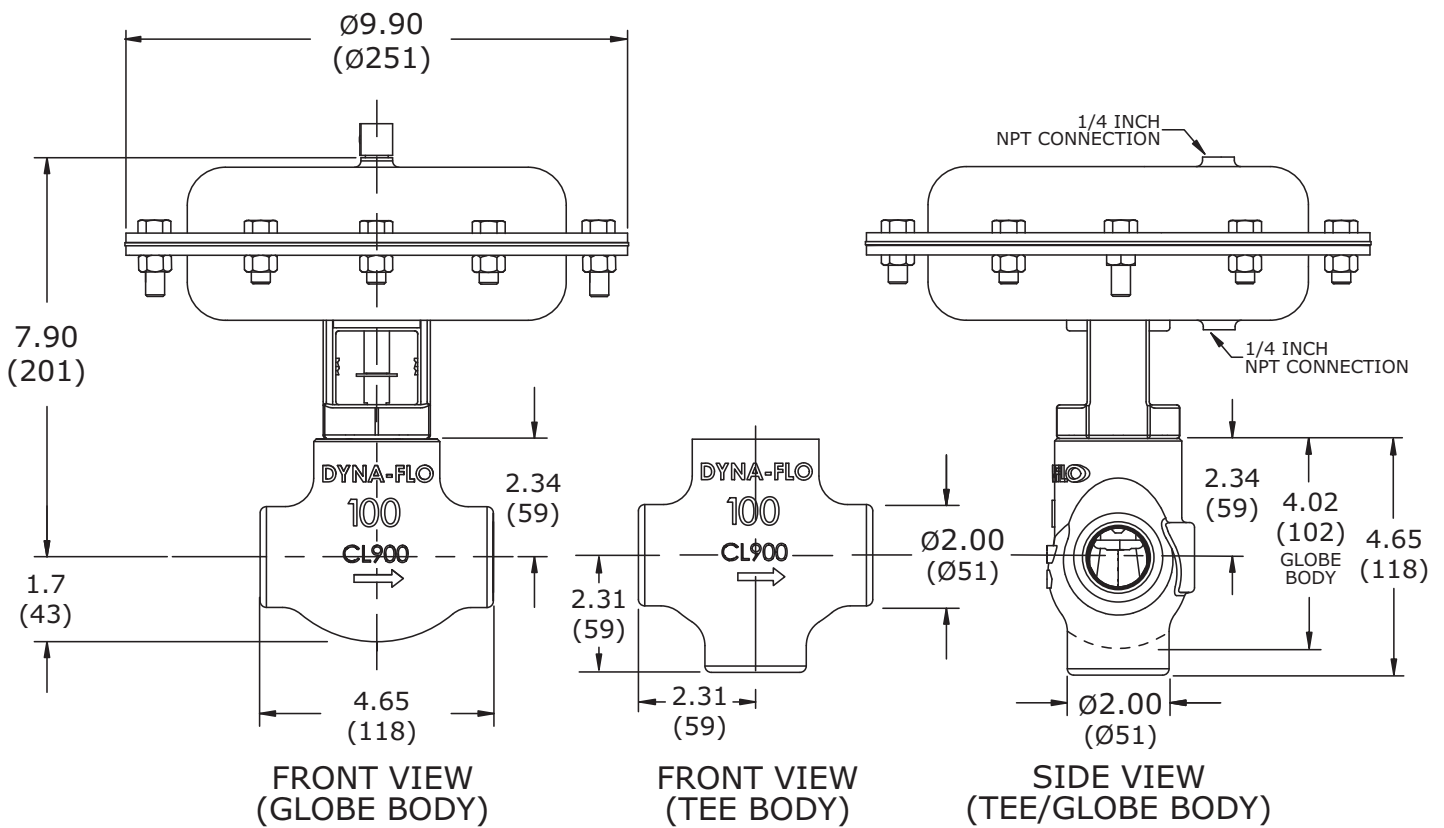


Figure 3 3 FNPT Style Valve Dimensions

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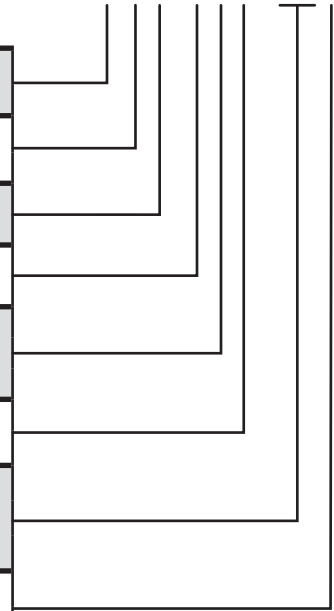


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## MODEL NUMBERING SYSTEM

**SAMPLE PART NUMBER: DF100-GC3-6BF-14S**

<b>BODY STYLE</b>				<b>G</b>
<b>G</b>	GLOBE STYLE	<b>T</b>	TEE STYLE	
<b>ACTUATOR STYLE</b>				<b>C</b>
<b>C</b>	FAIL CLOSED	<b>O</b>	FAIL OPENED	
<b>SPRING RANGE</b>				<b>3</b>
<b>3</b>	SIZE 25 ACTUATOR WITH 3 - 15 SPRING	<b>6</b>	SIZE 25 ACTUATOR WITH 6 - 30 SPRING	
<b>NUMBER OF SPRINGS</b>				<b>6</b>
<b>2</b>	2 SPRINGS	<b>6</b>	6 SPRINGS	
<b>ASME RATING</b>				<b>B</b>
<b>A</b>	ASME CLASS 150	<b>B</b>	ASME CLASS 300	
<b>C</b>	ASME CLASS 600	<b>D</b>	ASME CLASS 900 (STANDARD FOR NPT)	
<b>CONNECTION STYLE</b>				<b>F</b>
<b>N</b>	NPT (NATIONAL PIPE THREAD)			
<b>TRIM SIZE</b>				<b>14</b>
<b>14</b>	1/4 INCH	<b>38</b>	3/8 INCH	
<b>12</b>	1/2 INCH	<b>34</b>	3/4 INCH	
<b>TRIM MATERIAL</b>				<b>S</b>
<b>S</b>	S17400 DH1150	<b>T</b>	TUNGSTEN CARBIDE	



**DF100** - - - - -