

# Model 360 Control Valves

## Technical Sales Bulletin



**Figure 1** Model 360 Control Valve

The Model 360 control valve (Figure 1) is a heavy-duty globe style control valve. These valves are used in all kinds of demanding applications, including oil and gas production and chemical process industries.

Model 360 control valves are cage guided, single port valves that can be used for either throttling or on-off control of either liquids or gasses.

The standard actuator for the Model 360 valve is a Dyna-Flo model DFC or DFO linear actuator. These heavy-duty actuators are spring return diaphragm style, and can be used for throttling or on-off service, with or without a valve positioner.

Model 360 control valves are manufactured to a high level of quality specifications to ensure superior performance and customer satisfaction.

### Features

#### Sour Service Capability

Available in standard configurations that comply with NACE MR0175-2002.

#### Versatility

A wide range of trim options including Low Noise and Anti-Cavitation make the 360 our most versatile control valve.

#### Field Service Friendly

No special tools are required to change or inspect trim. Top access makes in-line service easy.

#### Pressure Drop Capabilities

Model 360 control valves can shut off against inlet pressures equal to the ASME B16.34 rating.

#### Industrial High Quality External Coatings

Our standard industrial high quality external coatings provide long lasting resistance to the harshest environments.

#### Shut Off Capability

See Pages 18 & 19.

#### Emissions Reducing Packing

Help prevent the loss of process media and reduce packing maintenance with the use of Dyna-Flo's Live Loaded PTFE packing systems.



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### SPECIFICATIONS

#### Configurations

The Model 360 control valve is a high capacity single port, globe style valves, with a bolted type bonnet. The standard valve plug action is push down to close.

PTFE Seat and Metal Seat Available.

Consult your Dyna-Flo sales office for other available configurations.

#### Sizes and Connection Styles

Models: 360  
Size: 1", 1-1/2", 2", 3", 4", 6", 8"  
Body: Globe (All Sizes), Angle (1" to 6")  
Rating: ASME 150 / 300 / 600  
Connections: RF / RTJ / BWE - All Sizes  
NPT and SWE - 1", 1-1/2" and 2"

#### Maximum Inlet Temperature and Pressures

Flanged valves consistent with ASME Class rating as per ASME B16.34, unless limited by either material pressure and temperature limitations.

#### Maximum Pressure Drops

Maximum pressure drop is the same as maximum inlet pressure unless otherwise rated by a specific trim construction.

#### Standard Shut-off Classifications

In accordance with ASME / FCI 70.2 Metal Seated except those with Anti-Cavitation Trim: Standard Class IV.  
PTFE Seated: Standard Air Test.  
(maximum leakage 0.05 ML/min/psid/inch port diameter)

**NOTE:** Standard Air Test is a special non-ASME/FCL leakage class. Class V-VI options available. Consult Factory.

#### Flow Direction

Flow Down (Low Noise Trim - Flow Up).

#### Dimensions

##### Valve and Actuator Outline Dimension Diagram

See Figure 2.

##### Valve and Actuator Assembly Dimensions

See Tables 5 to 15.

#### Approximate Valve Body and Actuator Weights

See Table 4 of Sales Bulletin.

#### Materials

Body and bonnet material options include LCC, WCC, and CF8M. See Figure 5 for typical construction materials. See Table 27 for trim selections.

#### Cross-Section of the Model 360 Control Valves

See Figure 3.

#### Port Diameters and Maximum Valve Plug Travel

See Tables 1 to 3.

#### Packing Type

The Standard packing is PTFE V-ring. Live-loaded low emission, graphite and other packing arrangements are available.

#### Valve Sizing Coefficients

For Globe Body valves see Tables 16 to 23.  
For Angle Body valves see Tables 24 & 25.

#### Actuator Sizing

##### Fail Open Actuator

See Table 31.

##### Fail Close Actuator

See Table 32.

#### Service Application

See Tables 27, 28, 29, and 30.

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

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Table 1

**Globe Valve Size, Port Diameters, Plug Travel, Stem and Yoke Boss Diameters**

Port	Valve Size	Port Diameter		Max Valve Plug Travel		Standard Yoke Boss Diameter (YBD)			
						Stem Diameter		YBD	
		Inch	Inch	mm	Inch	mm	Inch	mm	Inch
Full Port	1	1-5/16	33.3	3/4	19.1	3/8	9.5	2-1/8	54.0
	1-1/2	1-7/8	33.3	3/4	19.1	3/8	9.5	2-1/8	54.0
	2	2-5/16	58.7	1-1/8	28.6	1/2	12.7	2-13/16	71.4
	3	3-7/16	87.3	1-1/2	38.1	1/2	12.7	2-13/16	71.4
	4	4-3/8	111.1	2	50.8	1/2	12.7	2-13/16	71.4
	6	7	177.7	2	50.8	3/4	19.1	3-9/16	90.5
Reduced Port	8	8	203.2	3	76.2	3/4	19.1	3-9/16	90.5
	1-1/2	1-5/16	33.3	3/4	19.1	3/8	9.5	2-1/8	54.0
	2	1-5/16	33.3	3/4	19.1	1/2	12.7	2-13/16	71.4
	3	2-5/16	58.7	1-1/8	28.6	1/2	12.7	2-13/16	71.4
	4	2-7/8	73.0	1-1/2	38.1	1/2	12.7	2-13/16	71.4
	6	4-3/8	111.1	2	50.8	3/4	19.1	3-9/16	90.5

Table 2

**Anti-Cavitation Valve Size, Port Diameters, Plug Travel, Stem and Yoke Boss Diameters**

Valve Size	1 Stage				2 Stage				Standard Yoke Boss Diameter (YBD)			
	Port Diameter		Max Valve Plug Travel		Port Diameter		Max Valve Plug Travel		Stem Diameter		YBD	
	Inch	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	
1	1-5/16	33.3	1	25.4	1	25.4	1	25.4	3/8	9.5	2-1/8	54.0
1-1/2	1-7/8	47.6	7/8	22.2	1-5/16	33.3	1-1/2	38.1	3/8	9.5	2-1/8	54.0
2	2-5/16	58.7	1-1/8	28.6	1-7/8	47.6	2	50.8	1/2	12.7	2-13/16	71.4
3	3-7/16	87.3	1-5/8	41.3	2-7/8	73.0	3	76.2	1/2	12.7	2-13/16	71.4
4	4-3/8	111.1	2-1/8	54.0	2-7/8	73.0	4	101.6	1/2	12.7	2-13/16	71.4
6	7	177.8	2-1/4	57.2	5-3/8	136.5	4	101.6	3/4	19.1	3-9/16	90.5
8	8	203.2	3-3/8	85.7	7	177.8	6	152.4	3/4	19.1	3-9/16	90.5

Table 3

**Angle Valve Size, Port Diameters, Plug Travel, Stem and Yoke Boss Diameters**

Port	Valve Size	Port Diameter		Max Valve Plug Travel		Standard Yoke Boss Diameter (YBD)			
						Stem Diameter		YBD	
		Inch	Inch	mm	Inch	mm	Inch	mm	Inch
Full Port	1	1-5/16	33.3	3/4	19.1	3/8	9.5	2-1/8	54.0
	2	1-7/8	47.6	3/4	19.1	3/8	9.5	2-1/8	54.0
	3	2-7/8	73.0	1-1/2	38.1	1/2	12.7	2-13/16	71.4
	4	3-7/16	87.3	1-1/2	38.1	1/2	12.7	2-13/16	71.4
	6	4-3/8	111.1	2	50.8	1/2	12.7	2-13/16	71.4
Reduced Port	2	1-5/16	33.3	3/4	19.1	3/8	9.5	2-1/8	54.0
	4	2-5/16	58.7	1-1/8	28.6	1/2	12.7	2-13/16	71.4
	6	2-7/8	73.0	1-1/2	38.1	1/2	12.7	2-13/16	71.4



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Table 4

### Valve Body / Actuator Configurations and Approximate Weights

Valve Size (inch)	Body Only lb (Kg)	With Fail Open Actuator Size	Valve and Actuator Assembly Weight lb (Kg)	With Fail Closed Actuator Size	Valve and Actuator Assembly Weight lb (Kg)
1	30 (14)	DFO - 1069	70 (32)	DFC - 1069	78 (26)
1-1/2	45 (20)	DFO - 1069	85 (39)	DFC - 1069	93 (42)
2	85 (39)	DFO - 2069	136 (62)	DFC - 2069	135 (61)
		DFO - 2105	167 (76)	DFC - 2105	175 (78)
3	125 (57)	DFO - 2069	176 (80)	DFC - 2069	175 (78)
		DFO - 2105	207 (94)	DFC - 2105	215 (98)
4	170 (77)	DFO - 2105	252 (114)	DFC - 2105	260 (118)
		DFO - 2156	277 (126)	DFC - 2156	291 (132)
6	350 (159)	DFO - 3156	466 (211)	DFC - 3156	471 (214)
		DFO - 3220	585 (266)	DFC - 3220	604 (275)
8	900 (408)	DFO - 3220	1135 (515)	DFC - 3220	1154 (523)

Table 5

### Valve Body Dimensions with BWE\* End Connection Inches (mm)

For 'C' Dimensions See Tables 11 to 15 on Pages 8 & 9.

Valve Size Inch	Globe Body		Angle Body
	A	B	A
1	8.25 (210)	2.38 (60)	4.12 (105)
1-1/2	9.75 (248)	2.81 (71)	—
2	11.12 (282)	3.06 (78)	5.62 (143)
3	13.25 (337)	3.81 (97)	6.62 (168)
4	15.50 (394)	5.06 (129)	7.75 (197)
6	20.00 (508)	5.51 (140)	10.00 (254)
8	24.00 (610)	7.50 (191)	—

\*NOTE: BWE - Butt weld.

Table 6

### Valve Body Dimensions with SWE\* End Connection Inches (mm)

For 'C' Dimensions See Tables 11 to 15 on Pages 8 & 9.

Valve Size Inch	Globe Body		Angle Body
	A	B	A
1	8.25 (210)	2.38 (60)	4.12 (105)
1-1/2	9.88 (251)	2.81 (71)	—
2	11.25 (286)	3.06 (78)	5.62 (143)
3	—	—	6.62 (168)
4	—	—	7.75 (197)
6	—	—	10.00 (254)
8	—	—	—

\*NOTE: SWE - Socket weld.

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Table 7

**Angle Valve Body Dimensions with RF\* End Connection** Inches (mm)  
(Refer to Figure 2 on Page 10) (For 'C' Dimensions see Tables 14 & 15 on Page 9)

Valve Size Inch	End Connection	A
1 Inch	150	3.62 (92)
	300	3.88 (99)
	600	4.12 (105)
2 Inch	150	5.00 (127)
	300	5.25 (133)
	600	5.62 (143)
3 Inch	150	5.88 (149)
	300	6.25 (159)
	600	6.62 (168)
4 Inch	150	6.94 (176)
	300	7.25 (184)
	600	7.75 (197)
6 Inch	150	8.88 (226)
	300	9.31 (236)
	600	10.00 (254)

\*NOTE: RF - Raised Face.

Table 8

**Angle Valve Body Dimensions with RTJ\* End Connection** Inches (mm)  
(Refer to Figure 2 on Page 10) (For 'C' Dimensions see Tables 14 & 15 on Page 9)

Valve Size Inch	End Connection	A
1 Inch	150	3.88 (99)
	300	4.12 (105)
	600	4.12 (105)
2 Inch	150	5.25 (133)
	300	5.56 (141)
	600	5.69 (145)
3 Inch	150	6.12 (155)
	300	6.56 (167)
	600	6.69 (170)
4 Inch	150	7.19 (183)
	300	7.56 (192)
	600	7.81 (198)
6 Inch	150	9.12 (232)
	300	9.62 (244)
	600	10.06 (256)

\*NOTE: RTJ - Raised Type Joint.



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Table 9

**Valve Assembly (RF End Connection) with Standard Actuator Envelope Dimensions** Inches (mm)  
(with common stem diameter) (Refer to Figure 2 on Page 10)

Valve Size	End Connection	Actuator Size	A	B	C*	D		E	
						DFC	DFO		
1 Inch	150	1069	7.25 (184)	2.38 (60)	5.00 (127)	27.68 (703)	24.25 (616)	13.12 (333)	
	300	1069	7.75 (197)	2.38 (60)	5.00 (127)	27.68 (703)	24.25 (616)	13.12 (333)	
	600	1069	8.25 (210)	2.38 (60)	5.00 (127)	27.68 (703)	24.25 (616)	13.12 (333)	
	NPT	1069	8.25 (210)	2.38 (60)	5.00 (127)	27.68 (703)	24.25 (616)	13.12 (333)	
1-1/2 Inch	150	1069	8.75 (222)	2.81 (71)	4.88 (124)	27.56 (700)	24.13 (613)	13.12 (333)	
	300	1069	9.25 (235)	2.81 (71)	4.88 (124)	27.56 (700)	24.13 (613)	13.12 (333)	
	600	1069	9.88 (251)	2.81 (71)	4.88 (124)	27.56 (700)	24.13 (613)	13.12 (333)	
	NPT	1069	9.88 (251)	2.81 (71)	4.88 (124)	27.56 (700)	24.13 (613)	13.12 (333)	
2 Inch	150	2069	10.00 (254)	3.06 (78)	6.50 (165)	29.88 (759)	27.70 (704)	13.12 (333)	
	150	2105	10.00 (254)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	16.00 (406)	
	300	2069	10.50 (267)	3.06 (78)	6.50 (165)	29.88 (759)	27.70 (704)	13.12 (333)	
	300	2105	10.50 (267)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	16.00 (406)	
	600	2069	11.25 (286)	3.06 (78)	6.50 (165)	29.88 (759)	27.70 (704)	13.12 (333)	
	600	2105	11.25 (286)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	16.00 (406)	
	NPT	2069	11.25 (286)	3.06 (78)	6.50 (165)	29.88 (759)	27.70 (704)	13.12 (333)	
	NPT	2105	11.25 (286)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	16.00 (406)	
3 Inch	150	2069	11.75 (299)	3.81 (97)	7.50 (191)	30.88 (784)	28.70 (729)	13.12 (333)	
	150	2105	11.75 (299)	3.81 (97)	7.50 (191)	37.75 (959)	33.22 (844)	16.00 (406)	
	300	2069	12.50 (318)	3.81 (97)	7.50 (191)	30.88 (784)	28.70 (729)	13.12 (333)	
	300	2105	12.50 (318)	3.81 (97)	7.50 (191)	37.75 (959)	33.22 (844)	16.00 (406)	
	600	2069	13.25 (337)	3.81 (97)	7.50 (191)	30.88 (784)	28.70 (729)	13.12 (333)	
	600	2105	13.25 (337)	3.81 (97)	7.50 (191)	37.75 (959)	33.22 (844)	16.00 (406)	
	4 Inch	150	2105	13.88 (353)	5.06 (129)	8.69 (221)	38.94 (989)	34.41 (874)	16.00 (406)
		150	2156	13.88 (353)	5.06 (129)	8.69 (221)	38.94 (989)	34.41 (874)	18.62 (460)
300		2105	14.50 (368)	5.06 (129)	8.69 (221)	38.94 (989)	34.41 (874)	16.00 (406)	
300		2156	14.50 (368)	5.06 (129)	8.69 (221)	38.94 (989)	34.41 (874)	18.62 (460)	
600		2105	15.50 (394)	5.06 (129)	8.69 (221)	38.94 (989)	34.41 (874)	16.00 (406)	
600		2156	15.50 (394)	5.06 (129)	8.69 (221)	38.94 (989)	34.41 (874)	18.62 (460)	
600		3220	15.50 (394)	5.06 (129)	8.69 (221)*	45.17 (1147)	41.38 (1051)	21.10 (536)	
6 Inch	150	3156	17.75 (451)	5.50 (140)	9.88 (311)	40.79 (1036)	37.98 (888)	18.62 (473)	
	150	3220	17.75 (451)	5.50 (140)	9.88 (311)	46.36 (1178)	42.57 (1081)	21.10 (536)	
	300	3156	18.62 (473)	5.50 (140)	9.88 (311)	40.79 (1036)	37.98 (888)	18.62 (473)	
	300	3220	18.62 (473)	5.50 (140)	9.88 (311)	46.36 (1178)	42.57 (1081)	21.10 (536)	
	600	3156	20.00 (508)	5.50 (140)	9.88 (311)	40.79 (1036)	37.98 (888)	18.62 (473)	
	600	3220	20.00 (508)	5.50 (140)	9.88 (311)	46.36 (1178)	42.57 (1081)	21.10 (536)	
8 Inch	150	3220	21.38 (543)	7.50 (191)	16.56 (421)*	53.04 (1347)	49.25 (1251)	21.10 (536)	
	300	3220	22.38 (556)	7.50 (191)	16.56 (421)*	53.04 (1347)	49.25 (1251)	21.10 (536)	
	600	3220	24.00 (610)	7.50 (191)	16.56 (421)*	53.04 (1347)	49.25 (1251)	21.10 (536)	

\*NOTE: 'C' dimensions (and 'D' dimensions) will vary depending on valve stem diameter, refer to Tables 11, 12, and 13.

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Table 10

**Valve Assembly (RTJ End Connection) with Standard Actuator Envelope Dimensions** Inches (mm)  
(with common stem diameter) (Refer to Figure 2 on Page 10)

Valve Size	End Connection	Actuator Size	A	B	C*	D		E	
						DFC	DFO		
1 Inch	150	1069	7.75 (197)	2.38 (60)	5.00 (127)	27.68 (703)	24.25 (616)	13.12 (333)	
	300	1069	8.25 (210)	2.38 (60)	5.00 (127)	27.68 (703)	24.25 (616)	13.12 (333)	
	600	1069	8.25 (210)	2.38 (60)	5.00 (127)	27.68 (703)	24.25 (616)	13.12 (333)	
	NPT	1069	8.25 (210)	2.38 (60)	5.00 (127)	27.68 (703)	24.25 (616)	13.12 (333)	
1-1/2 Inch	150	1069	9.25 (235)	2.81 (71)	4.88 (124)	27.56 (700)	24.13 (613)	13.12 (333)	
	300	1069	9.75 (248)	2.81 (71)	4.88 (124)	27.56 (700)	24.13 (613)	13.12 (333)	
	600	1069	9.88 (251)	2.81 (71)	4.88 (124)	27.56 (700)	24.13 (613)	13.12 (333)	
	NPT	1069	9.88 (251)	2.81 (71)	4.88 (124)	27.56 (700)	24.13 (613)	13.12 (333)	
2 Inch	150	2069	10.50 (267)	3.06 (78)	6.50 (165)	29.88 (759)	27.70 (704)	13.12 (333)	
	150	2105	10.50 (267)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	16.00 (406)	
	300	2069	11.12 (282)	3.06 (78)	6.50 (165)	29.88 (759)	27.70 (704)	13.12 (333)	
	300	2105	11.12 (282)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	16.00 (406)	
	600	2069	11.38 (289)	3.06 (78)	6.50 (165)	29.88 (759)	27.70 (704)	13.12 (333)	
	600	2105	11.38 (289)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	16.00 (406)	
	NPT	2069	11.25 (286)	3.06 (78)	6.50 (165)	29.88 (759)	27.70 (704)	13.12 (333)	
	NPT	2105	11.25 (286)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	16.00 (406)	
3 Inch	150	2069	12.25 (311)	3.81 (97)	7.50 (191)	30.88 (784)	28.70 (729)	13.12 (333)	
	150	2105	12.25 (311)	3.81 (97)	7.50 (191)	37.75 (959)	33.22 (844)	16.00 (406)	
	300	2069	13.12 (333)	3.81 (97)	7.50 (191)	30.88 (784)	28.70 (729)	13.12 (333)	
	300	2105	13.12 (333)	3.81 (97)	7.50 (191)	37.75 (959)	33.22 (844)	16.00 (406)	
	600	2069	13.38 (340)	3.81 (97)	7.50 (191)	30.88 (784)	28.70 (729)	13.12 (333)	
	600	2105	13.38 (340)	3.81 (97)	7.50 (191)	37.75 (959)	33.22 (844)	16.00 (406)	
	4 Inch	150	2105	14.38 (365)	5.06 (129)	8.69 (221)	38.94 (989)	34.41 (874)	16.00 (406)
		150	2156	14.38 (365)	5.06 (129)	8.69 (221)	38.94 (989)	34.41 (874)	18.62 (460)
300		2105	15.12 (384)	5.06 (129)	8.69 (221)	38.94 (989)	34.41 (874)	16.00 (406)	
300		2156	15.12 (384)	5.06 (129)	8.69 (221)	38.94 (989)	34.41 (874)	18.62 (460)	
600		2105	15.62 (397)	5.06 (129)	8.69 (221)	38.94 (989)	34.41 (874)	16.00 (406)	
600		2156	15.62 (397)	5.06 (129)	8.69 (221)	38.94 (989)	34.41 (874)	18.62 (460)	
600		3220	15.62 (397)	5.06 (129)	8.69 (221)*	45.17 (1147)	41.38 (1051)	21.10 (536)	
6 Inch	150	3156	18.25 (464)	5.50 (140)	9.88 (311)	40.79 (1036)	37.98 (888)	18.62 (473)	
	150	3220	18.25 (464)	5.50 (140)	9.88 (311)	46.36 (1178)	42.57 (1081)	21.10 (536)	
	300	3156	19.25 (489)	5.50 (140)	9.88 (311)	40.79 (1036)	37.98 (888)	18.62 (473)	
	300	3220	19.25 (489)	5.50 (140)	9.88 (311)	46.36 (1178)	42.57 (1081)	21.10 (536)	
	600	3156	20.12 (511)	5.50 (140)	9.88 (311)	40.79 (1036)	37.98 (888)	18.62 (473)	
	600	3220	20.12 (511)	5.50 (140)	9.88 (311)	46.36 (1178)	42.57 (1081)	21.10 (536)	
8 Inch	150	3220	21.88 (556)	7.50 (191)	16.56 (421)*	53.04 (1347)	49.25 (1251)	21.10 (536)	
	300	3220	23.00 (584)	7.50 (191)	16.56 (421)*	53.04 (1347)	49.25 (1251)	21.10 (536)	
	600	3220	24.12 (613)	7.50 (191)	16.56 (421)*	53.04 (1347)	49.25 (1251)	21.10 (536)	

\*NOTE: 'C' dimensions (and 'D' dimensions) will vary depending on valve stem diameter, refer to Tables 11, 12, and 13.



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Table 11

**Valve Dimensions for Standard Bonnet Assembly** - Inches (mm) (Refer to Figure 2, Page)  
 For Valve Dimensions with Anti-Cavitation 2 Stage Trim See Table 12.

Valve Size (Inch)	C			
	3/8 (9.5) Stem Diameter	1/2 (12.7) Stem Diameter	3/4 (19.1) Stem Diameter	1 (25.4) Stem Diameter
1	5.00 (127)	5.88 (149)	—	—
1-1/2	4.88 (124)	5.75 (146)	—	—
2	—	6.50 (165)	6.38 (162)	—
3	—	7.50 (191)	7.38 (187)	—
4	—	8.69 (221)	8.56 (217)	10.38 (264)
6	—	—	9.88 (251)	10.62 (270)
6 <sup>(1)</sup>	—	—	12.26 (312)	13.00 (330)
8	—	—	See Style 1 in Table 13	
<b>NOTES:</b>	1 - Dimensions for Low-Noise trim.			
	2 - With WCC body.			

Table 12

**Valve Dimensions for Standard Bonnet Assembly with Anti-Cavitation 2 Stage Trim**  
 Inches (mm) (Refer to Figure 2, Page 10)

Valve Size (Inch)	C			
	3/8 (9.5) Stem Diameter	1/2 (12.7) Stem Diameter	3/4 (19.1) Stem Diameter	1 (25.4) Stem Diameter
1	—	7.25 (184)	—	—
1-1/2	6.09 (155)	6.97 (177)	—	—
2	—	7.91 (201)	7.78 (198)	—
3	—	10.22 (260)	10.09 (256)	—
4	—	12.25 (311)	12.12 (308)	13.94 (354)
6	—	—	13.22 (336)	14.97 (380)
8	—	—	20.12 (511)	22.06 (560)



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Table 13

**Extension Bonnet Valve Dimensions** - Inches (mm) (Refer to Figure 2, Page 10)  
For Anti-Cavitation 2 Stage Dimensions See Table 12.

Valve Size (Inch)	C						
	Stem Diameter Inch (mm)						
	Style 1 - Standard for 8 inch				Style 2		
	3/8 (9.5)	1/2 (12.7)	3/4 (19.1)	1 (25.4)	3/8 (9.5)	1/2 (12.7)	3/4 (19.1)
1	8.38 (213)	9.88 (251)	—	—	11.94 (303)	12.56 (319)	—
1-1/2	8.25 (210)	9.75 (248)	—	—	11.81 (300)	12.44 (316)	—
2	—	10.50 (267)	10.69 (272)	—	—	18.31 (465)	—
3	—	11.50 (292)	11.69 (297)	—	—	19.50 (495)	19.19 (487)
4	—	12.69 (322)	12.88 (327)	14.56 (370)	—	20.69 (526)	20.38 (518)
6	—	—	14.06 (357)	15.81 (402)	—	—	21.38 (543)
6 <sup>(1)</sup>	—	—	16.44 (418)	18.19 (462)	—	—	23.76 (604)
8	—	—	16.56 (421)	17.75 (451)	—	—	24.44 (621)

**NOTES:** 1 - Dimensions for Low-Noise trim.

Table 14

**Valve Dimensions for Angle Body Bonnet Assembly** - Inches (mm) (Refer to Figure 2, Page 10)

Valve Size (Inch)	C			
	3/8 (9.5) Stem Diameter	1/2 (12.7) Stem Diameter	3/4 (19.1) Stem Diameter	1 (25.4) Stem Diameter
1	4.38 (111)	5.25 (133)	—	—
2	3.88 (99)	4.75 (121)	—	—
3	—	5.88 (149)	5.75 (146)	—
4	—	5.50 (140)	5.38 (137)	—
6	—	5.69 (145)	5.56 (141)	7.38 (187)

Table 15

**Valve Dimensions for Angle Body Bonnet Assembly** - Inches (mm) (Refer to Figure 2, Page 10)

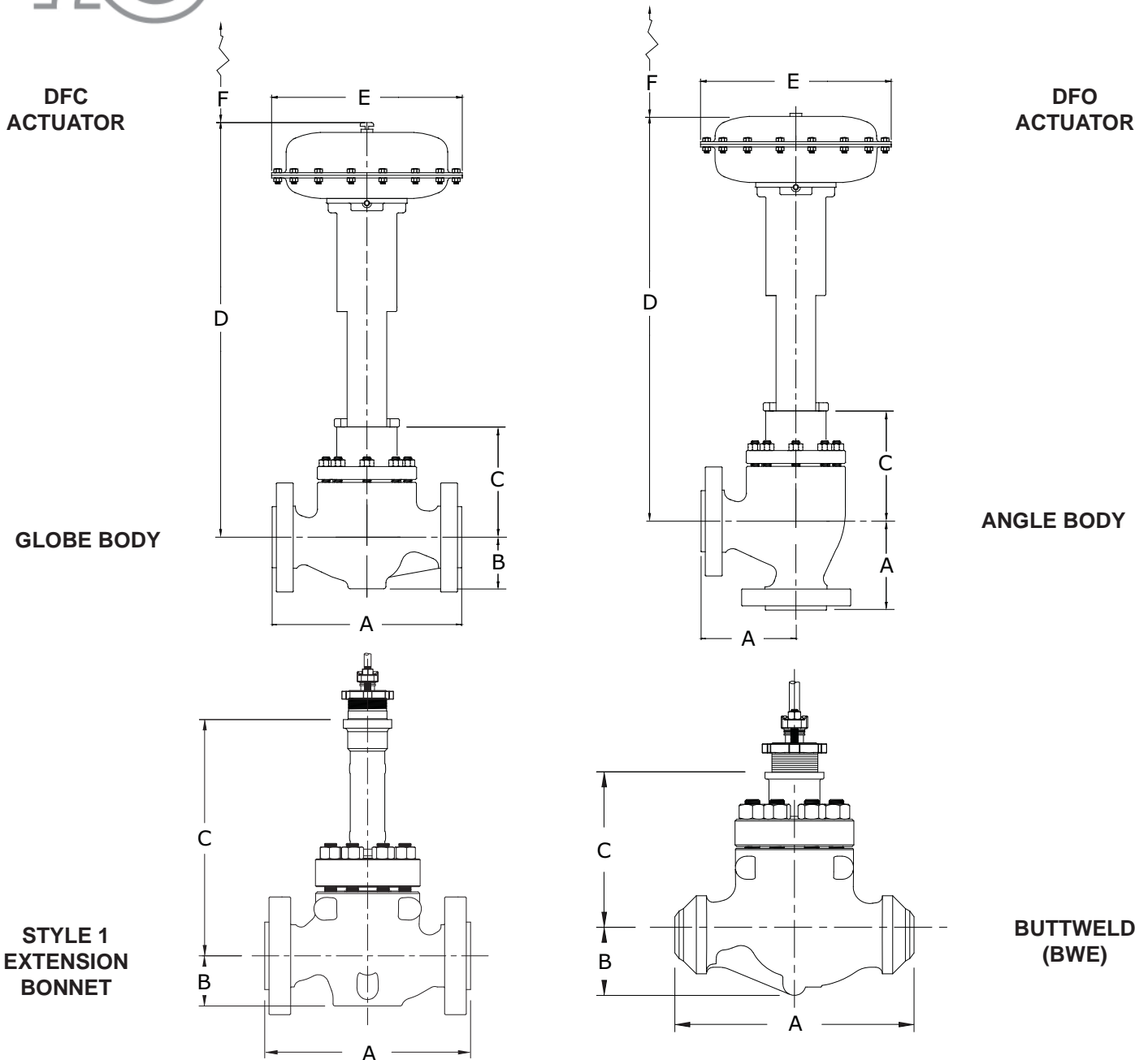
Valve Size (Inch)	C					
	Stem Diameter Inch (mm)					
	Style 1 - Standard for 8 inch			Style 2		
	3/8 (9.5)	1/2 (12.7)	3/4 (19.1)	3/8 (9.5)	1/2 (12.7)	3/4 (19.1)
1	7.75 (197)	9.95 (253)	—	11.44 (291)	12.00 (305)	—
2	7.25 (184)	8.75 (222)	—	10.94 (278)	11.44 (291)	—
3	—	9.88 (251)	10.06 (256)	—	17.88 (454)	—
4	—	9.50 (241)	9.69 (170)	—	17.50 (445)	17.19 (437)
6	—	9.69 (246)	9.88 (251)	—	17.69 (449)	17.38 (441)

**NOTE:** For Low-Temp. bonnet dimensions, consult Dyna-Flo.



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### F Dimension

2" Valve - 6.88" (175 mm)	4" Valve - 9.12" (232 mm)
3" Valve - 6.88" (175 mm)	6" Valve - 9.12" (232 mm)
3" Valve - 9.12" (232 mm) For DFC/DFO 3156	

Figure 2 Typical Valve Assembly Diagrams

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Table 16

### Equal Percentage Trim Sizing Coefficients, Flow Down (Globe Body)

#### FULL SIZED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1	1-5/16 (33)	3/4 (19)	C <sub>v</sub>	0.783	1.54	2.20	2.89	4.21	5.76	7.83	10.9	14.1	17.2
			X <sub>T</sub>	0.77	0.61	0.59	0.94	0.67	0.69	0.74	0.76	0.73	0.67
			F <sub>L</sub>	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
1-1/2	1-7/8 (48)	3/4 (19)	C <sub>v</sub>	1.52	2.63	3.87	5.41	7.45	11.2	17.4	24.5	30.8	35.8
			X <sub>T</sub>	0.77	0.61	0.59	0.67	0.67	0.69	0.74	0.76	0.73	0.67
			F <sub>L</sub>	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
2	2-5/16 (59)	1-1/8 (29)	C <sub>v</sub>	1.66	2.93	4.66	6.98	10.8	16.5	25.4	37.3	50.7	59.7
			X <sub>T</sub>	0.83	0.83	0.77	0.73	0.69	0.68	0.70	0.74	0.69	0.69
			F <sub>L</sub>	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
3	3-7/16 (87)	1-1/2 (38)	C <sub>v</sub>	4.32	7.53	10.9	17.1	27.2	43.5	66.0	97.0	120	136
			X <sub>T</sub>	0.77	0.71	0.68	0.64	0.62	0.60	0.66	0.69	0.67	0.68
			F <sub>L</sub>	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
4	4-3/8 (111)	2 (51)	C <sub>v</sub>	5.85	11.6	18.3	30.2	49.7	79.7	125	171	205	224
			X <sub>T</sub>	0.73	0.65	0.64	0.65	0.63	0.63	0.67	0.74	0.74	0.72
			F <sub>L</sub>	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
6	7 (178)	2 (51)	C <sub>v</sub>	12.9	25.8	43.3	67.4	104	162	239	316	368	394
			X <sub>T</sub>	0.69	0.68	0.68	0.71	0.70	0.72	0.74	0.74	0.78	0.78
			F <sub>L</sub>	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
8	8 (203)	2 (51)	C <sub>v</sub>	18.5	38.0	58.4	86.7	130	189	268	371	476	567
			X <sub>T</sub>	0.73	0.62	0.60	0.59	0.58	0.59	0.59	0.61	0.67	0.72
			F <sub>L</sub>	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
8	8 (203)	3 (76)	C <sub>v</sub>	27.0	58.1	105	188	307	478	605	695	761	818
			X <sub>T</sub>	0.64	0.65	0.64	0.61	0.64	0.62	0.73	0.81	0.80	0.81
			F <sub>L</sub>	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86

#### REDUCED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1-1/2	1-5/16 (33)	3/4 (19)	C <sub>v</sub>	1.12	1.56	2.22	3.10	4.27	6.17	9.0	13.1	18.2	23.1
			X <sub>T</sub>	0.82	0.86	0.82	0.70	0.72	0.68	0.67	0.64	0.65	0.70
			F <sub>L</sub>	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
2	1-5/16 (33)	3/4 (19)	C <sub>v</sub>	0.92	1.42	2.09	2.84	4.11	5.83	8.58	12.8	18.5	24.3
			X <sub>T</sub>	0.78	0.74	0.74	0.71	0.72	0.71	0.71	0.64	0.62	0.65
			F <sub>L</sub>	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
3	2-5/16 (59)	1-1/8 (29)	C <sub>v</sub>	1.75	3.11	4.77	7.07	10.7	17.0	27.9	41.5	58.0	70.7
			X <sub>T</sub>	0.94	0.84	0.80	0.76	0.74	0.64	0.53	0.61	0.63	0.70
			F <sub>L</sub>	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
4	2-7/8 (73)	1-1/2 (38)	C <sub>v</sub>	3.82	7.65	11.4	16.9	25.5	38.2	60.5	85.7	105	112
			X <sub>T</sub>	0.75	0.70	0.69	0.67	0.64	0.63	0.59	0.64	0.74	0.81
			F <sub>L</sub>	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
6	4-3/8 (111)	2 (51)	C <sub>v</sub>	5.40	10.1	15.8	26.7	45.2	71.2	110	169	232	274
			X <sub>T</sub>	0.83	0.83	0.74	0.65	0.63	0.61	0.61	0.61	0.63	0.70
			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:

$$C_1 = 39.76 \sqrt{X_T}$$

$$C_G = C_V C_1$$

$$K_M = F_L^2$$



# Model 360 Control Valves

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Table 17

### Quick Opening Trim Sizing Coefficients (Globe Body)

#### FULL SIZED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1	1-5/16 (33)	3/4 (19)	$C_v$	4.86	9.39	13.4	16.8	18.9	20.2	21.0	21.8	21.9	22.0
			$X_T$	0.555	0.744	0.724	0.665	0.626	0.584	0.566	0.550	0.553	0.555
			$F_L$	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
1-1/2	1-7/8 (48)	3/4 (19)	$C_v$	7.78	14.4	20.5	26.7	32.0	36.5	39.4	41.3	42.7	44.0
			$X_T$	0.493	0.640	0.680	0.680	0.685	0.660	0.649	0.638	0.616	0.597
			$F_L$	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
2	2-5/16 (59)	1-1/8 (29)	$C_v$	13.4	26.8	39.8	51.2	62.8	70.6	73.7	75.6	76.8	77.6
			$X_T$	0.605	0.695	0.737	0.760	0.702	0.658	0.640	0.635	0.626	0.623
			$F_L$	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
3	3-7/16 (87)	1-1/2 (38)	$C_v$	27.1	52.2	77.8	99.5	124	140	148	154	158	161
			$X_T$	0.626	0.672	0.745	0.796	0.703	0.657	0.619	0.602	0.590	0.577
			$F_L$	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
4	4-3/8 (111)	2 (51)	$C_v$	37.7	75.0	125	162	193	220	238	247	251	251
			$X_T$	0.623	0.689	0.733	0.764	0.762	0.723	0.689	0.669	0.683	0.694
			$F_L$	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
6	7 (178)	2 (51)	$C_v$	73.6	150	232	306	353	389	416	441	451	460
			$X_T$	0.664	0.651	0.667	0.694	0.722	0.742	0.728	0.723	0.719	0.710
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
8	8 (203)	2 (51)	$C_v$	80.2	188	290	389	480	554	615	658	705	744
			$X_T$	0.670	0.628	0.678	0.730	0.766	0.806	0.829	0.859	0.863	0.866
			$F_L$	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
8	8 (203)	3 (76)	$C_v$	135	290	434	550	639	706	759	807	840	863
			$X_T$	0.643	0.699	0.757	0.807	0.838	0.861	0.857	0.841	0.838	0.827
			$F_L$	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85

#### REDUCED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1-1/2	1-5/16 (33)	3/4 (19)	$C_v$	5.05	9.99	14.7	20.0	24.0	25.6	26.1	27.4	28.6	29.9
			$X_T$	0.803	0.904	0.946	0.872	0.838	0.848	0.872	0.831	0.795	0.756
			$F_L$	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
2	1-5/16 (33)	3/4 (19)	$C_v$	4.80	9.58	14.8	20.1	25.7	29.3	31.2	31.2	31.2	31.2
			$X_T$	0.578	0.733	0.695	0.698	0.665	0.689	0.735	0.791	0.805	0.805
			$F_L$	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
3	2-5/16 (59)	1-1/8 (29)	$C_v$	15.9	31.7	47.2	60.7	74.4	83.6	87.2	89.5	91.0	91.8
			$X_T$	0.718	0.838	0.889	0.905	0.842	0.784	0.763	0.760	0.744	0.744
			$F_L$	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
4	2-7/8 (73)	1-1/2 (38)	$C_v$	25.0	47.2	70.1	88.5	101	116	123	127	128	130
			$X_T$	0.707	0.879	0.948	0.988	0.956	0.875	0.851	0.834	0.840	0.834
			$F_L$	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
6	4-3/8 (111)	2 (51)	$C_v$	52.2	101	150	199	246	284	310	329	345	358
			$X_T$	0.774	0.763	0.770	0.778	0.763	0.760	0.717	0.699	0.707	0.690
			$F_L$	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87

Relationships of note:

$$C_1 = 39.76 \sqrt{X_T}$$

$$C_G = C_V C_1$$

$$K_M = F_L^2$$

# Model 360 Control Valves

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Table 18

### Linear Trim Sizing Coefficients (Globe Body)

#### FULL SIZED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1	1-5/16 (33)	3/4 (19)	C <sub>V</sub>	3.20	5.50	8.18	10.9	13.2	15.0	16.9	18.6	19.9	20.6
			X <sub>T</sub>	0.340	0.644	0.494	0.509	0.532	0.580	0.610	0.629	0.628	0.636
			F <sub>L</sub>	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
1-1/2	1-7/8 (48)	3/4 (19)	C <sub>V</sub>	4.23	7.84	11.8	15.8	20.4	25.2	30.1	34.7	37.2	39.2
			X <sub>T</sub>	0.656	0.709	0.758	0.799	0.738	0.729	0.708	0.686	0.683	0.656
			F <sub>L</sub>	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
2	2-5/16 (59)	1-1/8 (29)	C <sub>V</sub>	7.87	16.0	24.8	33.4	42.0	51.8	62.0	68.1	70.6	72.9
			X <sub>T</sub>	0.641	0.720	0.728	0.767	0.793	0.754	0.683	0.658	0.652	0.638
			F <sub>L</sub>	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
3	3-7/16 (87)	1-1/2 (38)	C <sub>V</sub>	14.5	32.9	52.1	70.4	88.5	105	118	133	142	148
			X <sub>T</sub>	0.671	0.699	0.697	0.720	0.733	0.718	0.707	0.650	0.630	0.620
			F <sub>L</sub>	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
4	4-3/8 (111)	2 (51)	C <sub>V</sub>	23.3	50.3	78.0	105	127	152	181	203	223	236
			X <sub>T</sub>	0.690	0.714	0.720	0.731	0.764	0.757	0.748	0.762	0.732	0.688
			F <sub>L</sub>	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
6	7 (178)	2 (51)	C <sub>V</sub>	46.2	107	171	228	279	327	367	402	420	433
			X <sub>T</sub>	0.656	0.727	0.744	0.781	0.802	0.800	0.784	0.758	0.755	0.740
			F <sub>L</sub>	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
8	8 (203)	2 (51)	C <sub>V</sub>	60.1	129	206	285	363	444	526	581	640	688
			X <sub>T</sub>	0.704	0.721	0.657	0.650	0.683	0.713	0.740	0.801	0.821	0.839
			F <sub>L</sub>	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
8	8 (203)	3 (76)	C <sub>V</sub>	91.3	207	325	440	550	639	711	760	795	846
			X <sub>T</sub>	0.651	0.624	0.676	0.746	0.786	0.803	0.823	0.836	0.843	0.807
			F <sub>L</sub>	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87

#### REDUCED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1-1/2	1-5/16 (33)	3/4 (19)	C <sub>V</sub>	2.91	5.70	9.05	12.5	15.6	18.5	21.0	23.9	26.8	29.1
			X <sub>T</sub>	0.690	0.650	0.633	0.634	0.650	0.665	0.708	0.718	0.737	0.733
			F <sub>L</sub>	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
2	1-5/16 (33)	3/4 (19)	C <sub>V</sub>	3.52	6.36	9.92	13.3	16.5	19.7	22.7	25.6	29.3	33.3
			X <sub>T</sub>	0.456	0.529	0.549	0.582	0.611	0.633	0.670	0.723	0.727	0.693
			F <sub>L</sub>	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
3	2-5/16 (59)	1-1/8 (29)	C <sub>V</sub>	8.05	16.8	26.7	37.5	49.0	61.4	73.8	85.3	94.7	102
			X <sub>T</sub>	0.592	0.614	0.662	0.672	0.674	0.676	0.694	0.722	0.736	0.732
			F <sub>L</sub>	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
4	2-7/8 (73)	1-1/2 (38)	C <sub>V</sub>	9.77	22.6	37.2	51.8	65.7	77.5	87.5	97.9	107	113
			X <sub>T</sub>	0.926	0.899	0.873	0.904	0.919	0.962	0.972	0.937	0.891	0.872
			F <sub>L</sub>	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
6	4-3/8 (111)	2 (51)	C <sub>V</sub>	16.7	38.6	65.4	93.7	123	156	194	244	290	322
			X <sub>T</sub>	0.762	0.698	0.675	0.684	0.681	0.660	0.676	0.657	0.685	0.703
			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:

$$C_1 = 39.76 \sqrt{X_T}$$

$$C_G = C_V C_1$$

$$K_M = F_L^2$$



# Model 360 Control Valves

## Technical Sales Bulletin

Table 19

### Low Noise 1 (Linear) Trim Sizing Coefficients (Globe Body)

#### FULL SIZED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1	1-5/16 (33)	3/4 (19)	$C_V$	3.28	7.39	12.0	14.2	14.9	15.3	15.7	16.0	16.4	16.8
			$X_T$	0.581	0.605	0.617	0.644	0.764	0.790	0.809	0.813	0.795	0.768
1-1/2	1-7/8 (48)	3/4 (19)	$C_V$	2.62	7.42	13.9	20.8	23.1	24.2	24.9	25.4	26.1	26.7
			$X_T$	0.890	0.766	0.632	0.498	0.614	0.771	0.876	0.919	0.900	0.894
2	2-5/16 (59)	1-1/8 (29)	$C_V$	7.30	19.2	34.6	42.2	45.5	47.0	47.1	47.2	47.2	48.0
			$X_T$	0.604	0.467	0.318	0.387	0.526	0.689	0.843	0.899	0.940	0.938
3	3-7/16 (87)	1-1/2 (38)	$C_V$	16.5	40.3	70.8	88.0	92.1	90.7	90.3	92.6	95.6	99.1
			$X_T$	0.685	0.471	0.331	0.378	0.532	0.753	0.929	0.983	0.968	0.923
4	4-3/8 (111)	2 (51)	$C_V$	33.9	76.6	117	135	137	137	140	149	157	169
			$X_T$	0.607	0.385	0.352	0.467	0.682	0.887	0.977	0.958	0.921	0.811
6	7 (178)	2 (51)	$C_V$	55.8	125	196	245	270	286	297	308	323	338
			$X_T$	0.294	0.323	0.286	0.322	0.406	0.494	0.579	0.644	0.673	0.662
8 <sup>1</sup>	8 (203)	3 (76)	$C_V$	100	226	337	436	502	581	641	655	659	681
			$X_T$	0.456	0.490	0.470	0.427	0.452	0.468	0.521	0.624	0.703	0.701
8	8 (203)	4 (102)	$C_V$	142	303	428	542	611	652	669	689	700	726
			$X_T$	0.549	0.450	0.436	0.441	0.513	0.624	0.707	0.709	0.729	0.718

#### REDUCED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1-1/2	1-5/16 (33)	3/4 (19)	$C_V$	3.12	7.36	13.0	18.5	20.7	21.4	21.8	23.1	23.9	25.2
			$X_T$	0.559	0.605	0.460	0.383	0.472	0.622	0.768	0.823	0.874	0.857
2	1-5/16 (33)	3/4 (19)	$C_V$	2.86	6.79	11.7	18.4	23.6	27.9	30.9	33.5	35.3	36.7
			$X_T$	0.672	0.755	0.547	0.386	0.358	0.377	0.398	0.431	0.470	0.483
3	2-5/16 (59)	1-1/8 (29)	$C_V$	8.15	19.0	33.2	47.6	60.8	72.1	81.8	90.1	97.4	103
			$X_T$	0.720	0.660	0.500	0.439	0.406	0.412	0.437	0.472	0.504	0.510
4	2-7/8 (73)	1-1/2 (38)	$C_V$	13.6	32.5	54.3	75.5	94.6	112	127	141	153	160
			$X_T$	0.674	0.480	0.374	0.344	0.345	0.354	0.370	0.385	0.407	0.428

Relationships of note:

$$C_1 = 39.76 \sqrt{X_T}$$

$$C_G = C_V C_1$$

$$K_M = F_L^2$$

**NOTE:**

1 Travel restricted to 2.75 Inches (70 mm) with Class IV valve plug.

# Model 360 Control Valves

## Technical Sales Bulletin



Table 20

### Low-Noise III B3 (Linear) Trim Sizing Coefficients (Globe Body)

#### FULL SIZED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
2	1-5/16 (33)	1-1/4 (32)	$C_V$	2.20	4.10	6.70	9.20	11.6	13.9	16.1	18.2	20.1	22.0
			$X_T$	0.577	0.581	0.587	0.574	0.530	0.549	0.556	0.569	0.569	0.573
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
3	2-5/16 (59)	1-1/2 (38)	$C_V$	7.60	15.2	22.1	28.4	34.1	39.1	43.6	47.3	50.5	53.0
			$X_T$	0.551	0.556	0.562	0.569	0.579	0.575	0.587	0.569	0.578	0.569
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
4	3-7/16 (87)	2 (51)	$C_V$	12.9	24.3	35.0	45.0	54.2	62.7	70.4	77.3	83.5	89.0
			$X_T$	0.527	0.577	0.581	0.585	0.590	0.549	0.565	0.577	0.575	0.572
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
6	5-3/8 (137)	3 (76)	$C_V$	19.1	38.2	66.9	94.5	120	144	167	190	211	228
			$X_T$	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82

Relationships of note:

$$C_1 = 39.76 \sqrt{X_T}$$

$$C_G = C_V C_1$$

$$K_M = F_L^2$$

Table 21

### Low-Noise III D3 (Linear) Trim Sizing Coefficients (Globe Body)

#### FULL SIZED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
2	1-5/16 (33)	1-1/4 (32)	$C_V$	1.00	2.80	4.50	6.20	7.80	9.40	10.8	12.2	13.6	14.8
			$X_T$	0.579	0.582	0.587	0.573	0.549	0.547	0.556	0.571	0.603	0.568
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
4	3-7/16 (87)	2 (51)	$C_V$	3.60	8.80	16.2	23.4	30.4	37.3	44.0	50.5	56.8	63.0
			$X_T$	0.578	0.574	0.573	0.575	0.591	0.562	0.565	0.565	0.545	0.561
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
6	5-3/8 (137)	3 (76)	$C_V$	3.80	7.40	12.0	19.9	31.4	46.0	61.0	75.7	89.7	104
			$X_T$	0.563	0.563	0.563	0.563	0.563	0.563	0.563	0.563	0.563	0.563
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82

Relationships of note:

$$C_1 = 39.76 \sqrt{X_T}$$

$$C_G = C_V C_1$$

$$K_M = F_L^2$$



# Model 360 Control Valves

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Table 22

### Low-Noise III C3 (Linear) Trim Sizing Coefficients (Globe Body)

#### FULL SIZED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel										
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
2	1-5/16 (33)	1-1/4 (32)	$C_V$	1.00	2.80	4.50	6.20	7.80	9.40	10.8	12.2	13.6	14.8	
			$X_T$	0.579	0.582	0.587	0.573	0.549	0.547	0.556	0.571	0.603	0.568	
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
2	2-5/16 (59)	1-1/2 (38)	$C_V$	1.60	4.90	8.00	11.1	14.0	16.8	19.4	21.9	24.3	26.6	
			$X_T$	0.515	0.516	0.525	0.536	0.548	0.549	0.555	0.554	0.570	0.572	
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
2	1-7/8 (48)	1-1/8 (29)	$C_V$	5.30	10.0	14.4	18.5	22.3	25.8	29.0	31.9	34.4	36.7	
			$X_T$	0.515	0.516	0.524	0.536	0.545	0.549	0.550	0.554	0.569	0.572	
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
3	2-5/16 (59)	1-1/2 (38)	$C_V$	3.10	5.80	9.40	12.9	16.2	19.4	22.4	25.3	28.1	30.7	
			$X_T$	0.527	0.532	0.549	0.540	0.574	0.572	0.573	0.604	0.577	0.574	
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
4	3-7/16 (87)	2 (51)	$C_V$	3.60	8.80	16.2	23.4	30.4	37.3	44.0	50.5	56.8	63.0	
			$X_T$	0.578	0.574	0.573	0.575	0.591	0.562	0.565	0.565	0.545	0.561	
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
6	5-3/8 (137)	3 (76)	$C_V$	14.1	28.0	41.3	55.3	69.3	83.0	97.0	110	124	138	
			$X_T$	0.563	0.563	0.563	0.563	0.563	0.563	0.563	0.563	0.563	0.563	0.563
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82

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

Table 23

### Low-Noise III D1 (Linear) Trim Sizing Coefficients (Globe Body)

#### FULL SIZED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
3	1-7/8 (48)	1-1/2 (38)	$C_V$	1.70	4.00	6.70	9.20	11.6	13.9	16.1	18.2	20.1	22.0
			$X_T$	0.549	0.556	0.564	0.560	0.554	0.556	0.560	0.569	0.579	0.577
			$F_L$	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82

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



# Model 360 Control Valves

## Technical Sales Bulletin



Table 24

### Equal Percentage Trim Sizing Coefficients, Flow Down (Angle Body)

#### FULL SIZED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
2	1-7/8 (47.6)	3/4 (19.1)	$C_v$	1.67	2.60	3.82	5.43	7.79	12.2	18.9	27.4	37.8	47.2
			$X_T$	0.680	0.690	0.702	0.725	0.707	0.619	0.622	0.621	0.619	0.623
			$F_L$	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
3	2-7/8 (73.0)	1-1/2 (38.1)	$C_v$	4.59	8.29	12.0	16.9	25.0	37.7	57.3	85.1	121	148
			$X_T$	0.779	0.744	0.715	0.684	0.630	0.582	0.583	0.579	0.578	0.580
			$F_L$	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
4	3-7/16 (87.3)	1-1/2 (38.1)	$C_v$	2.51	5.10	8.03	12.0	18.7	30.7	47.4	80.3	116	156
			$X_T$	0.890	0.770	0.744	0.701	0.696	0.637	0.668	0.572	0.566	0.565
			$F_L$	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
6	4-3/8 (111.1)	2 (50.8)	$C_v$	5.51	10.9	17.9	30.2	50.5	82.0	133	200	269	328
			$X_T$	0.705	0.701	0.663	0.646	0.612	0.604	0.606	0.605	0.596	0.604
			$F_L$	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78

#### REDUCED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
2	1-5/16 (33.3)	3/4 (19.1)	$C_v$	1.11	1.55	2.05	2.87	4.07	5.95	8.84	13.4	19.6	26.8
			$X_T$	0.938	0.899	0.848	0.789	0.761	0.692	0.636	0.568	0.519	0.507
			$F_L$	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
3	1-7/8 (47.6)	3/4 (19.1)	$C_v$	1.56	2.51	3.68	5.40	7.65	11.7	18.2	27.0	37.3	47.8
			$X_T$	0.834	0.807	0.768	0.718	0.756	0.723	0.679	0.627	0.615	0.615
			$F_L$	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
4	2-5/16 (58.7)	1-1/8 (28.6)	$C_v$	2.33	3.56	5.64	8.18	11.9	18.0	28.2	42.6	62.2	81.8
			$X_T$	0.753	0.846	0.702	0.666	0.682	0.656	0.619	0.609	0.559	0.530
			$F_L$	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
6	2-7/8 (73.0)	1-1/2 (38.1)	$C_v$	4.00	7.63	11.1	15.0	23.3	35.0	53.3	79.6	112	144
			$X_T$	0.670	0.698	0.725	0.731	0.637	0.629	0.599	0.597	0.573	0.571
			$F_L$	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78

Relationships of note:

$$C_1 = 39.76 \sqrt{X_T}$$

$$C_G = C_v C_1$$

$$K_M = F_L^2$$



# Model 360 Control Valves

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Table 25

### Linear Trim Sizing Coefficients, Flow Down (Angle Body)

#### FULL SIZED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
2	1-7/8 (47.6)	3/4 (19.1)	$C_v$	3.68	6.98	11.3	15.9	20.8	26.4	32.7	39.2	45.7	52.5
			$X_T$	0.676	0.667	0.684	0.666	0.624	0.627	0.632	0.625	0.655	0.679
			$F_L$	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
3	2-7/8 (73.0)	1-1/2 (38.1)	$C_v$	10.9	25.1	41.3	58.4	75.7	93.9	112	128	143	153
			$X_T$	0.736	0.638	0.591	0.548	0.538	0.532	0.543	0.583	0.619	0.631
			$F_L$	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
4	3-7/16 (87.3)	1-1/2 (38.1)	$C_v$	14.0	33.8	56.3	80.2	104	127	148	169	185	201
			$X_T$	0.640	0.638	0.611	0.588	0.570	0.568	0.593	0.622	0.660	0.664
			$F_L$	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
6	4-3/8 (111.1)	2 (50.8)	$C_v$	24.2	51.2	81.8	109	140	171	208	256	300	341
			$X_T$	0.643	0.697	0.666	0.693	0.672	0.668	0.684	0.663	0.668	0.662
			$F_L$	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78

#### REDUCED TRIM / PORT

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Coefficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
2	1-5/16 (33.3)	3/4 (19.1)	$C_v$	3.01	5.45	8.95	12.5	15.9	19.1	23.3	28.4	33.2	37.6
			$X_T$	0.790	0.768	0.661	0.618	0.608	0.611	0.582	0.545	0.535	0.516
			$F_L$	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
3	1-7/8 (47.6)	3/4 (19.1)	$C_v$	3.61	6.92	11.1	15.5	20.6	26.4	33.2	41.4	50.1	60.2
			$X_T$	0.623	0.721	0.694	0.684	0.663	0.630	0.602	0.570	0.568	0.546
			$F_L$	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
4	2-5/16 (58.7)	1-1/8 (28.6)	$C_v$	7.02	15.7	25.7	36.9	48.6	60.9	72.9	84.6	97.2	108
			$X_T$	0.712	0.626	0.625	0.597	0.587	0.577	0.590	0.604	0.580	0.566
			$F_L$	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
6	2-7/8 (73.0)	1-1/2 (38.1)	$C_v$	10.2	22.8	36.6	52.1	68.0	84.5	102	124	147	168
			$X_T$	0.592	0.651	0.661	0.635	0.619	0.619	0.615	0.584	0.568	0.556
			$F_L$	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74

Relationships of note:

$$C_1 = 39.76 \sqrt{X_T}$$

$$C_G = C_v C_1$$

$$K_M = F_L^2$$

# Model 360 Control Valves

## Technical Sales Bulletin



Table 26

### Typical Construction Materials

Part Description	MATERIAL
BODY	SEE FIGURE 5
BONNET	SEE FIGURE 5
PACKING BOX RING	S31600*
PACKING SPRING	S30400
LANTERN RING	S31600*
SPECIAL WASHER	S30400
V-RING PACKING SET	SEE TABLE 30
PACKING FOLLOWER	S31600*
UPPER STEM WIPER	FELT
LOWER STEM WIPER	TEFLON
CAGE	SEE TABLE 27
DISK SEAT	S31600*
DISK	PTFE
DISK RETAINER	S31600*
VALVE PLUG	SEE TABLE 27
STEM	SEE TABLE 27
SEAT RING	SEE TABLE 27
SEAL RING	SEE TABLE 29
BACKUP RING	SEE TABLE 29
PACKING FLANGE	CARBON STEEL (PLATED)
PACKING NUT	SEE TABLE 28
PACKING SPRING	S30400
PACKING STUD	SEE TABLE 28
BONNET STUD	SEE TABLE 28
BONNET NUT	SEE TABLE 28
SHIM	S31600
SPIRAL WOUND GASKET	S30400 / GRAPHITE
GASKETS	S31600 / GRAPHITE

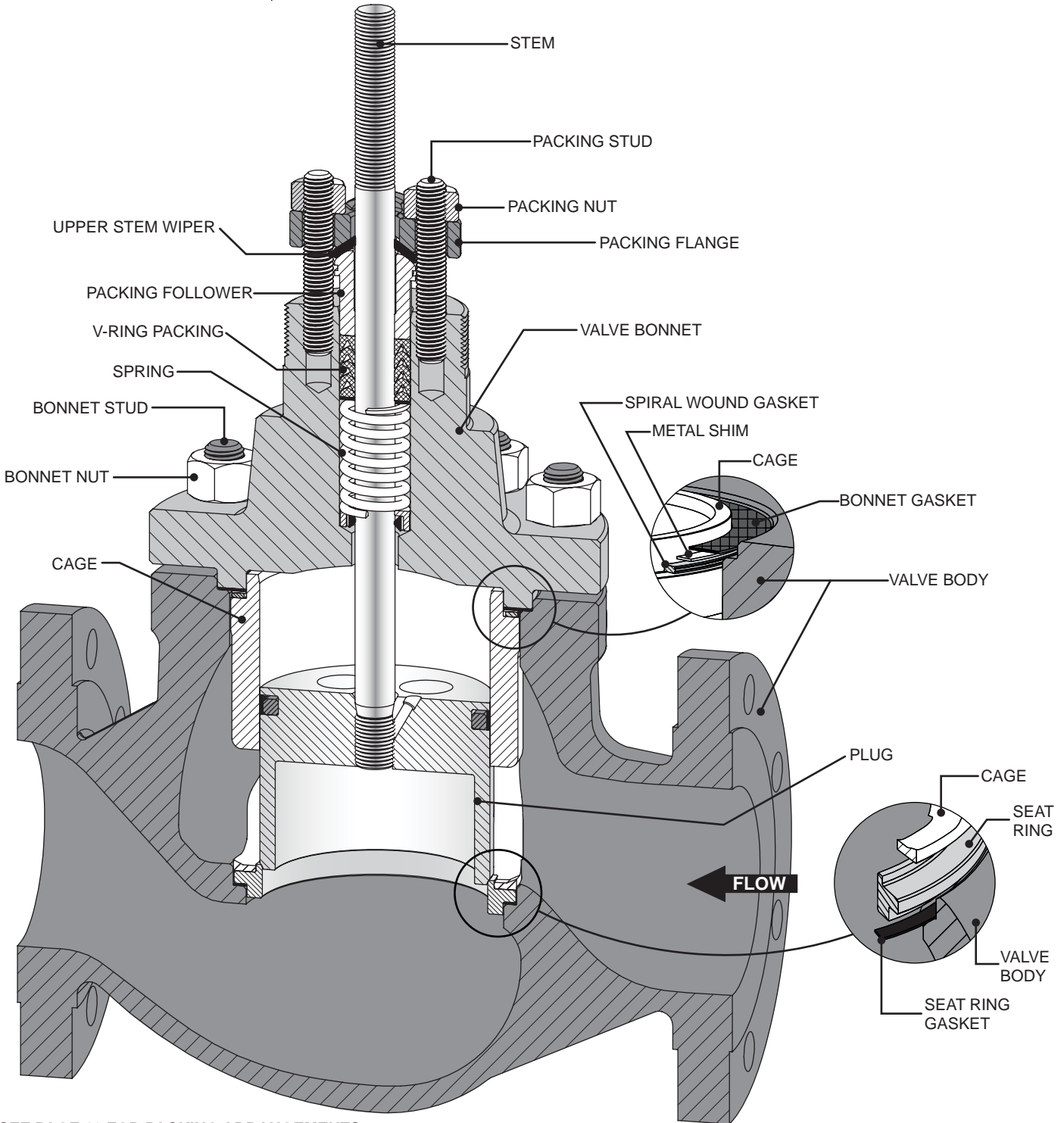
\* All S31600 barstock is dual grade S31600/S31603 (316/316L).



# Model 360 Control Valves

## Technical Sales Bulletin

**Figure 3** Cross-section of 360 Series Control Valve Standard Construction



SEE PAGE 10 FOR PACKING ARRANGEMENTS

# Model 360 Control Valves

## Technical Sales Bulletin

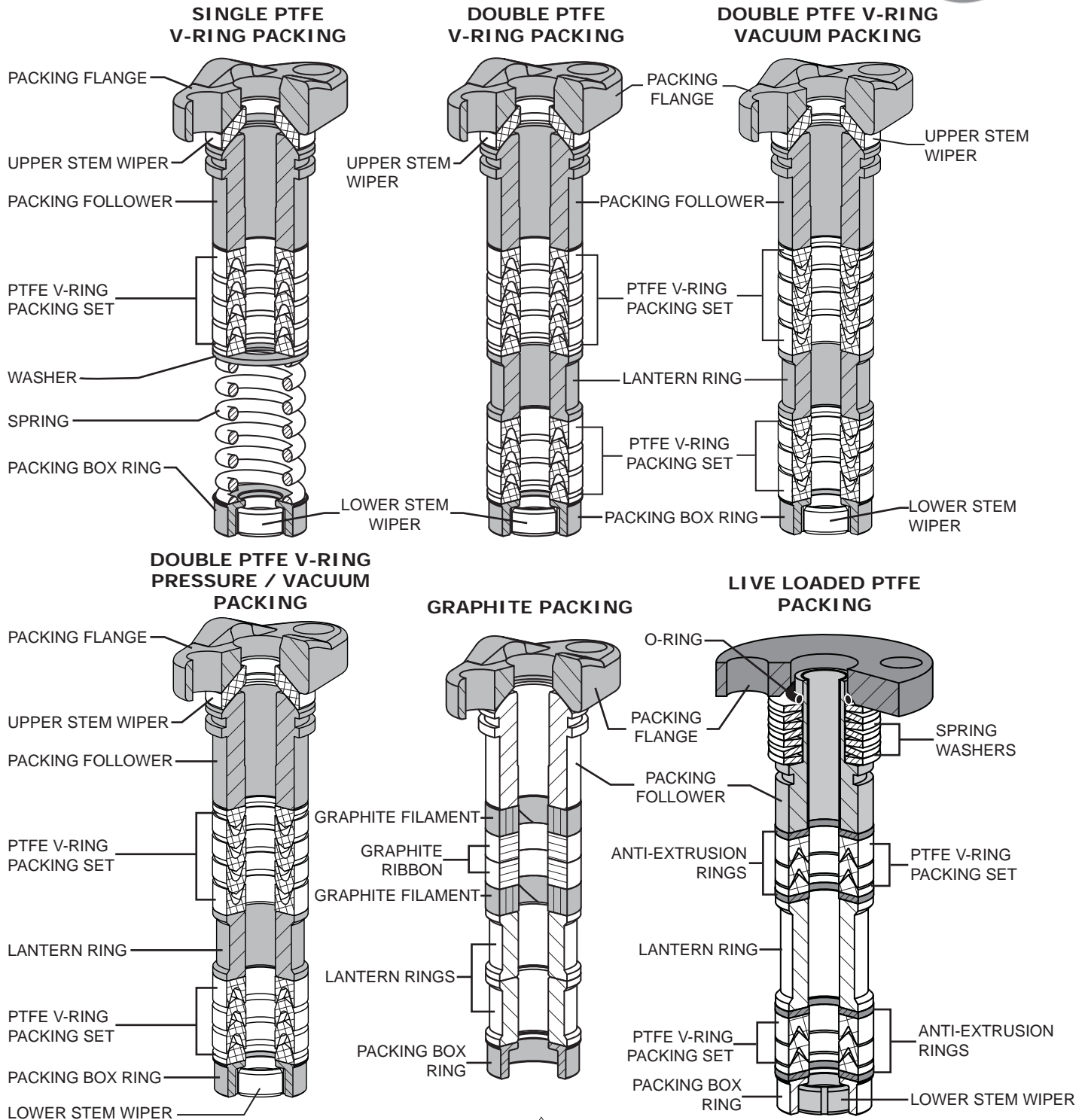


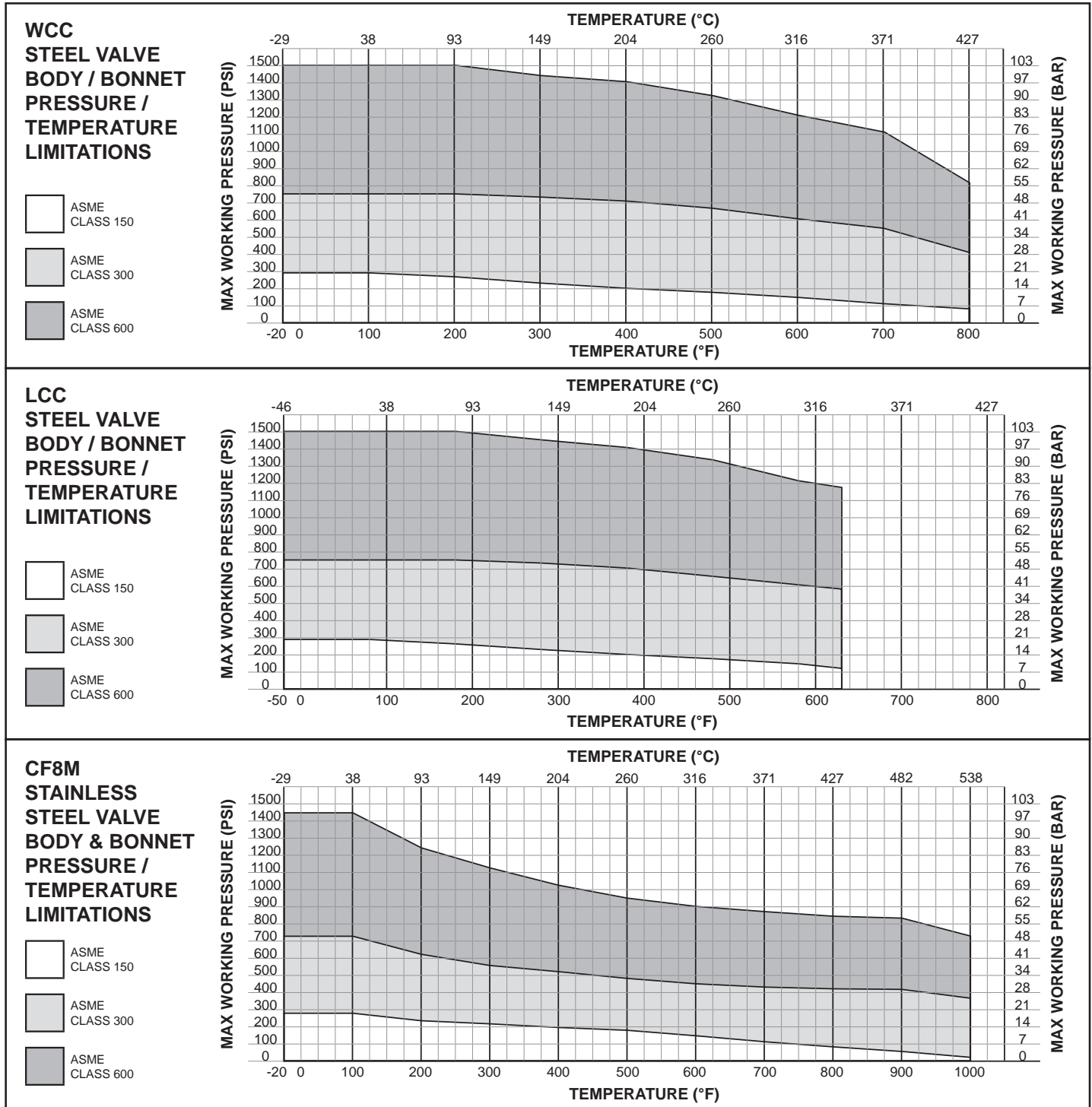
Figure 4 Typical Packing Arrangements



# Model 360 Control Valves

## Technical Sales Bulletin

Figure 5



Maximum Inlet Temperature and Pressures - Flanged valves consistent with ASME Class rating as per ASME B16.34, unless limited by either material, pressure or temperature limitations.

# Model 360 Control Valves

## Technical Sales Bulletin



Table 27

### Trim Options (See Figure 7 for pressure / temperature limits)

Trim Spec	Valve Plug	Stem	Cage	Seat Ring	Service
D1	S41600 HT	S20910	S17400 H900	S41600 HT	Standard / Non-corrosive / High Temp
	Temperature Limitation: -20°F to 800°F (-29°C TO 427°C)				
D2	S31600 <sup>2</sup> / Alloy 6 Hard Faced Seat	S20910	S17400 DH1150 <sup>1</sup>	S31600 <sup>2</sup> / Alloy 6 Hard Faced Seat	Corrosive / NACE High Temperature
	Temperature Limitation: -80°F to 600°F (-62°C TO 316°C)				
D4	S31600 <sup>2</sup>	S20910	S17400 H900	S31600 <sup>2</sup>	General / Mild Corrosive
	Temperature Limitation: -80°F to 600°F (-62°C TO 316°C)				
D5	S41600 HT	S20910	S17400 H900	S31600 <sup>2</sup> / PTFE	Standard / Non-corrosive / Tight Shut off
	Temperature Limitation: -20°F to 450°F (-29°C TO 232°C)				
D6	S31600 <sup>2</sup> / Alloy 6 Hard Faced Seat & Guide	S20910	S17400 H900	S31600 <sup>2</sup> / Alloy 6 Hard Faced Seat	Standard / Mild Corrosive / Mild Erosive
	Temperature Limitation: -80°F to 600°F (-62°C TO 316°C)				
D7	S31600 <sup>2</sup> / Alloy 6 Hard Faced Seat & Guide	S20910	S17400 DH1150 <sup>1</sup>	S31600 <sup>2</sup> / Alloy 6 Hard Faced Seat	Corrosive / High Temp / NACE / Mild Erosive
	Temperature Limitation: -80°F to 600°F (-62°C TO 316°C)				
D8	S31600 <sup>2</sup>	S20910	S17400 DH1150 <sup>1</sup>	S31600 <sup>2</sup>	NACE / Corrosive
	Temperature Limitation: -80°F to 600°F (-62°C TO 316°C)				
D9	S31600 <sup>2</sup>	S20910	S17400 DH1150 <sup>1</sup>	S31600 <sup>2</sup> / PTFE	NACE / Corrosive / Tight Shut off
	Temperature Limitation: -40°F to 450°F (-40°C TO 232°C)				
DL	S42000	S20910	S17400 H900	S17400 H900	Anti-Cavitation
	Temperature Limitation: -20°F to °F (-29°C TO °C)				
DJ	S31600 <sup>2</sup>	S20910	S31600 <sup>2</sup> / ENC	S31600 <sup>2</sup>	NACE
	Temperature Limitation: -°F to 600°F (-°C TO 316°C)				
DT	S31600 <sup>2</sup>	S20910	S31600 <sup>2</sup> / ENC	S31600 <sup>2</sup> / PTFE	NACE
	Temperature Limitation: -°F to 450°F (-°C TO 232°C)				
DE	S31600 <sup>2</sup> / Alloy 6 Hard Faced Seat & Guide	S20910	S31600 <sup>2</sup> / ENC	S31600 <sup>2</sup> / Alloy 6 Hard Faced Seat	NACE
	Temperature Limitation: -°F to 600°F (-°C TO 316°C)				
DN	S31600 <sup>2</sup> / Alloy 6 Hard Faced Seat & Guide	S20910	S31600 <sup>2</sup> / ENC	S31600 <sup>2</sup>	NACE Class VI Soft Metal
	Temperature Limitation: -°F to 600°F (-°C TO 316°C)				
DR	S31600 <sup>2</sup> / Alloy 6 Hard Faced Seat & Guide	S20910	S17400 DH1150	S31600 <sup>2</sup>	NACE Class VI Soft Metal
	Temperature Limitation: -°F to 600°F (-°C TO 316°C)				

**NOTE:**

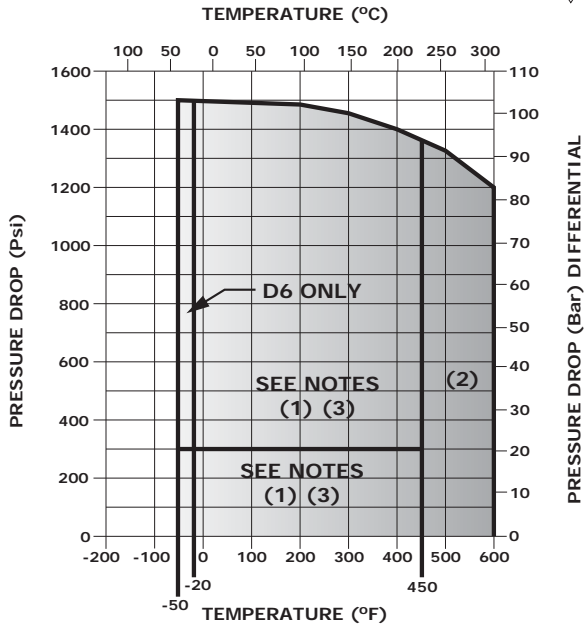
- 1 - S31600 (ENC)\* available by special request (\*Electroless Nickel Coating).
- 2 - All S31600 barstock is dual grade S31600/S31603 (316/316L).



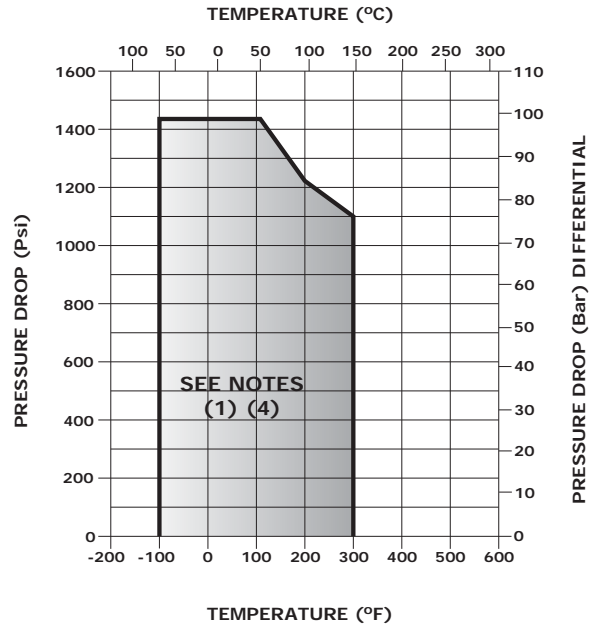
# Model 360 Control Valves

## Technical Sales Bulletin

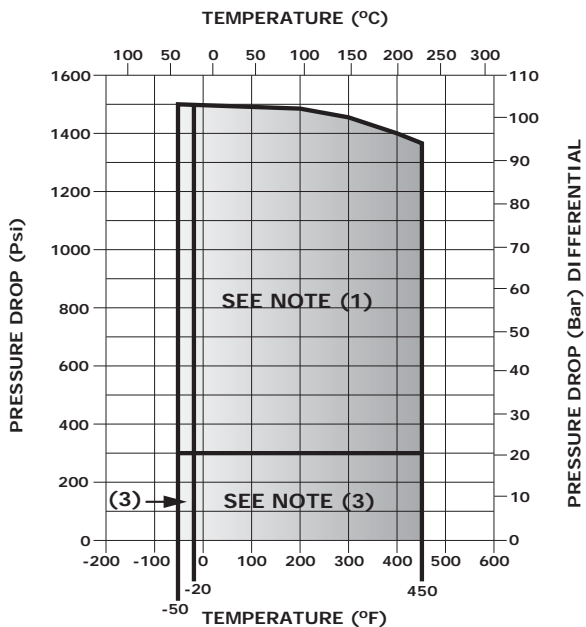
Figure 6 Typical Valve Trim Pressure and Temperature Limitations



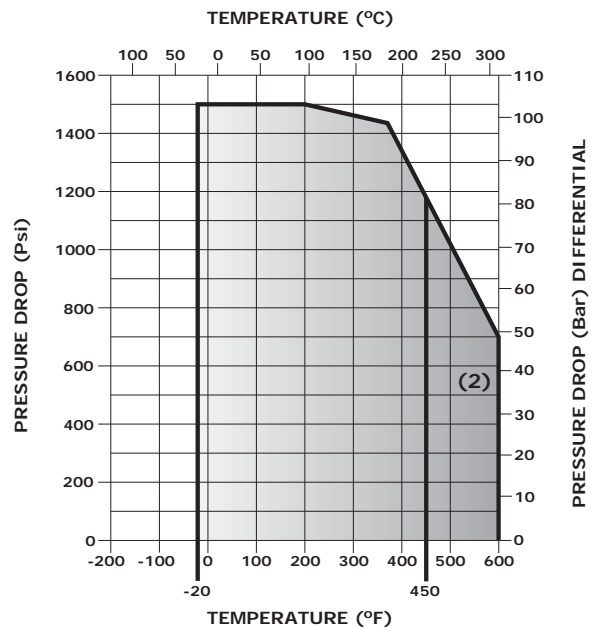
TRIM D1 & D6 WITH LCC



TRIM D2



TRIM D4 WITH LCC



TRIM D5 WITH CLASS 600 WCC

<b>NOTES:</b>	1	Trim can be used to 1,440 Psi (99 Bar) when used with clean dry gas. When used with other process fluids, do not exceed 300 Psi (21 Bar).
	2	Trim temperature limitations can be extended to 600°F (316°C) when used for non-oxidizing service or 260°F (500°C) with oxidizing service when using PEEK anti-extrusion rings and spring-loaded seal rings.

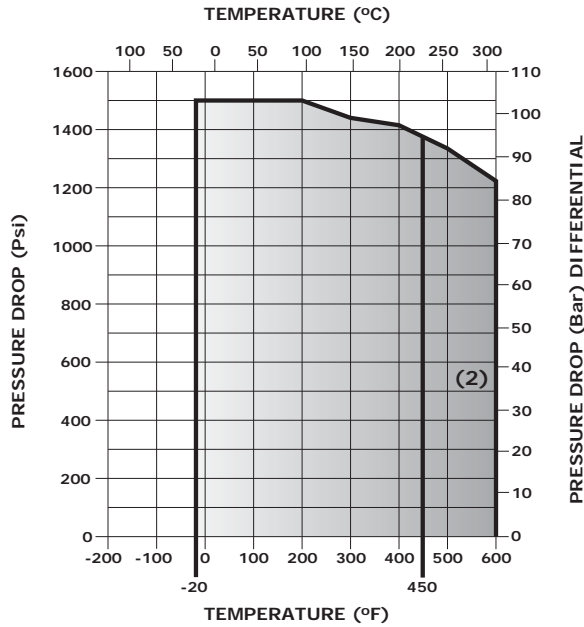


# Model 360 Control Valves

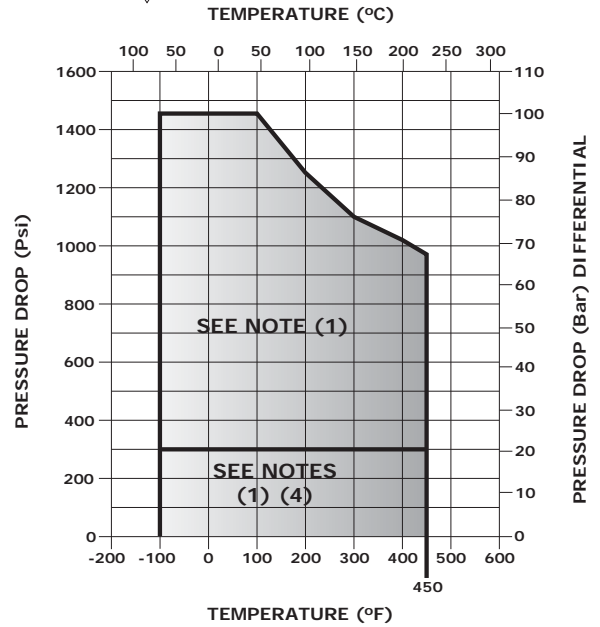
## Technical Sales Bulletin



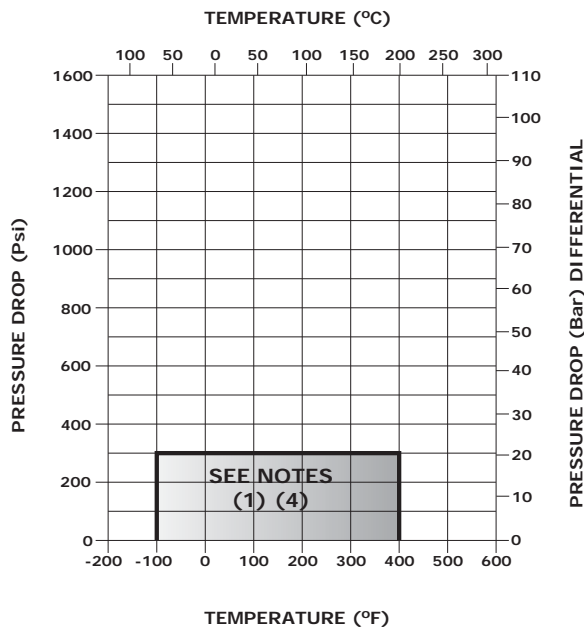
Figure 6 Continued Typical Valve Trim Pressure and Temperature Limitations



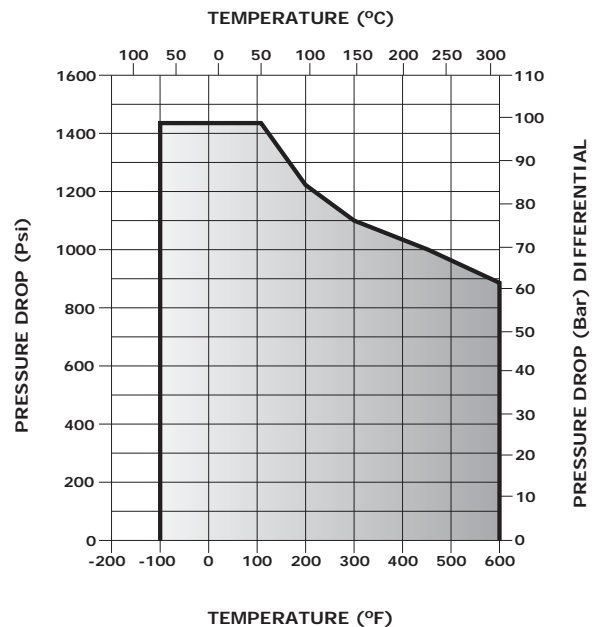
TRIM DL



TRIM DJ WITH CLASS 600 CF8M BODY



TRIM DT



TRIM DE

NOTES:	3	Temperatures above 450°F (232°C) require a spring-loaded seal ring and PEEK anti-extrusion rings.
	4	Use other trim for non-lubricating fluids (such as dry gas or steam) between 300°F (149°C) and 450°F (232°C).



# Model 360 Control Valves

## Technical Sales Bulletin

Table 28

### Valve Bolting Temperature Limitations

Stud Material	Temperature Limitation
B7 (Standard)	-50°F to 900°F (-46°C TO 482°C)
B7M (NACE 150-300 ASME Class)	-50°F TO 900°F (-46°C TO 482°C)
B8M (Stainless Steel Option)	-325°F TO 1000°F (-198°C TO 538°C)
S17400 DH1150 (NACE 600 ASME Class)	-50°F TO 650°F (-46°C TO 343°C)
Inconel 718	
B7 FLUOROKOTE #1	-50°F to 500°F (-46°C TO 260°C)
B7M FLUOROKOTE #1	-50°F TO 500°F (-46°C TO 260°C)
S17400 FLUOROKOTE #1	-50°F TO 500°F (-46°C TO 260°C)
Nut Material	Temperature Limitation
2H, 2HM & 8M	Not Limiting Factors

Table 29

### Seal Ring and Backup Ring Temperature Limitations

Part Description	Temperature Limitation
CPTFE Seal Ring (Standard)	-100°F to 450°F (-73°C TO 232°C)
KEL-F Seal Ring	
PTFE / Elgiloy Seal Ring (Spring Loaded)	-100°F to 450°F (-73°C TO 232°C)
Nitrile Backup Ring	-30°F TO 200°F (-34°C TO 93°C)
Fluoroelastomer (Viton) Backup Ring	0°F TO 400°F (-18°C TO 204°C)
Ethylene Propylene Backup Ring	-40°F TO 450°F (-40°C TO 232°C)
PEEK Anti-Extrusion Rings	Not a limiting factor.
S31600* Backup Ring (Spring Loaded)	-450°F TO 600°F (-268°C TO 316°C)
* All S31600 barstock is dual grade S31600/S31603 (316/316L).	

# Model 360 Control Valves

## Technical Sales Bulletin



Table 30

Model 360 Bonnet and Packing Selection		
Bonnet Style	Packing Material	In-Body Process Temperature Limitations
<b>Standard Bonnet:</b> Standard for all valve sizes 1 through 6.	PTFE V-Ring	0°F to 450°F (-18°C to 232°C)
	Graphite (Ribbon/Filament)	0°F to 600°F (-18°C to 316°C) <sup>2</sup>
<b>Extension Bonnet Style 1:</b> Standard for all 8 inch valves, optional for valves 1 through 6 inch.	PTFE V-Ring	-50°F to 600°F (-46°C to 316°C) <sup>2</sup>
	Graphite (Ribbon/Filament)	
<b>Extension Bonnet Style 2:</b> Optional for 1 through 8 inch valve sizes.	PTFE V-Ring	-150°F to 600°F (-101°C to 316°C) <sup>2</sup>
	Graphite (Ribbon/Filament)	
<p><b>1</b> The above temperatures assume the presence of an ambient temperature outside the valve body of 70°F (21°C) with no bonnet insulation. An extension bonnet may be required when operating valves in low temperatures to prevent damage that could occur from the formation of valve stem frost. Other limiting factors, such as trim material components, will have to be considered.</p> <p><b>2</b> Consult Dyna-Flo for temperatures above 450°F (232°C).</p>		

**NOTE:** For temperatures above or below these standard temperatures consult Dyna-Flo.

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# Model 360 Control Valves

## MODEL NUMBERING SYSTEM

**SAMPLE PART NUMBER: 360-3AFL-5FP2-VES4**

<b>BODY STYLE</b>						-
-	GLOBE	A	ANGLE			
<b>VALVE SIZE</b>						3
7	3/4 INCH	1	1 INCH	5	1-1/2 INCH	2
3	3 INCH	4	4 INCH	6	6 INCH	8
E	10 X 8 INCH					
<b>ASME RATING</b>						A
A	150	B	300	C	600	
<b>END CONNECTION</b>						F
F	RF	J	RTJ	N	NPT	T
L	BWE SCH 80	S	SOCKET WELD			
<b>BODY MATERIAL</b>						L
L	LCC	W	WCC	M	CF8M	
<b>BOLTING</b>						-
-	B7 / 2H (STANDARD)	A	B7M / 2HM			
B	B8M / 8M	C	S17400 DH1150 / 2HM			
E	INCONEL 718 / 2HM	K	B7 / 2H FLUOROKOTE #1			
L	B7M / 2HM FLUOROKOTE #1	M	S17400 / 2HM FLUOROKOTE #1			
<b>TRIM</b>						5
1	TRIM D1	2	TRIM D2	4	TRIM D4	5
6	TRIM D6	7	TRIM D7	8	TRIM D8	9
L	TRIM DL	J	TRIM DJ	T	TRIM DT	E
N	TRIM DN	R	TRIM DR			
<b>PORT SIZE</b>						F
F	FULL PORT	R	REDUCED PORT			
<b>PACKING STYLE</b>						P
P	SINGLE PTFE V-RING (PRESSURE)	J	DOUBLE PTFE V-RING (PRESSURE)			
G	SINGLE GRAPHITE (PRESSURE)	V	DOUBLE PTFE V-RING (VACUUM)			
R	DOUBLE PTFE V-RING (VACUUM / PRESSURE)	L	LIVE LOADED PTFE V-RING (PRESSURE)			
T	LIVE LOADED GRAPHITE (PRESSURE)	D	LIVE LOADED DUPLEX (PRESSURE)			
<b>YOKE BOSS SIZE</b>						2
1	2-1/8" (3/8" STEM)	2	2-13/16" (1/2" STEM)	3	3-9/16" (3/4" STEM)	5
<b>PAINT</b>						-
-	DFPS-01 (STANDARD)	2	DFPS-02 (SEVERE SERVICE)			
3	DFPS-03 (HIGH TEMPERATURE)					
<b>BACKUP RING / SEAL RING</b>						V
V	VITON / CPTFE	E	EPDM / CPTFE	P	PTFE-ELGILOY (8" 360)	
C	S31600 / PTFE-ELGILOY	R	S31600 / PTFE-ELGILOY WITH PEEK AE RINGS			
K	S31600 / KEL-F - ELGILOY					
<b>CHARACTERISTIC</b>						E
E	EQUAL PERCENT	L	LINEAR	Q	QUICK OPENING	
A	ANTI-CAVITATION 1 STAGE (LINEAR)	K	ANTI-CAVITATION 2 STAGE (LINEAR)	Z	LOW-NOISE III A1 (LINEAR)	
N	LOW-NOISE I (LINEAR)	C	LOW-NOISE III C3 (LINEAR)	D	LOW-NOISE III D3 (LINEAR)	
Y	LOW-NOISE III B3 (LINEAR)					
1	LOW-NOISE III D1 (LINEAR)					
<b>CHARACTERISTIC (EXTENDED TRAVEL)</b>						
R	EQUAL PERCENT - EXTENDED TRAVEL	S	LINEAR - EXTENDED TRAVEL			
T	QUICK OPENING - EXTENDED TRAVEL	V	ANTI-CAVITATION 1 STAGE (LINEAR) - EXTENDED TRAVEL			
P	LOW-NOISE I (LINEAR) - EXTENDED TRAVEL	W	LOW-NOISE III A1 (LINEAR) - EXTENDED TRAVEL			
4	LOW-NOISE III A1 (LINEAR) EXTENDED 4" TRAVEL (8" VALVE ONLY)					
<b>BONNET STYLE</b>						S
S	STANDARD	T	STANDARD TAPPED	E	EXTENSION STYLE 1	
H	EXTENSION STYLE 2					
<b>SHUT-OFF CLASS</b>						4
4	CLASS IV	5	CLASS V	6	CLASS VI	

**360**