

Model 363 Control Valves

Technical Sales Bulletin



Figure 1 Model 363 Control Valve

The Model 363 control valve is part of the 360 Series of control Valves.

The Model 363 is a top guided, unbalanced, single port valve that is suitable for either throttling or on off control of either liquids or gases. Metal to metal seating is standard on Model 363 valves with an option for soft seating.

The standard actuator for the Model 363 control 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.

The Model 363 control valves are manufactured to a high level of quality specifications to ensure superior performance and customer satisfaction.

Features

Versatility

Multiple port sizes make the 363 an easy valve to reconfigure when process applications change.

Rugged Design

Available severe service trim and high temperature configurations are well suited to more demanding applications.

Low Temperature Construction Standard

Model 363 valves use LCC body material, and internals rated to -50°F (-46°C).

High Temperature Option

The standard temperature rating of 450°F (232°C) can be extended to 850°F (454°C), with options available for higher temperatures.

Full Pressure Drop Capabilities

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

Sour Gas Service Capability

There are standard construction materials that comply with the recommendations of the National Association of Corrosion Engineers (NACE) MR0175.

Shut Off Capability

Shut off options are available from ASME / FCI Class II to Class VI.

Flow Characteristic Selections

Equal percentage, linear and quick-opening flow characteristics available.

Easy Maintenance

As with all 360 Series Valves, the 363 can be serviced in line with no special tools required.



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SPECIFICATIONS

Sizes and Connection Styles

Model 363

Size: 1", 1-1/2", 2"

Rating: ASME 150 / 300 / 600

Connections: RF / RTJ - All Sizes
NPT - 1", 1-1/2" and 2"

Maximum Inlet Temperature and Pressures

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

Maximum Pressure Drops

Maximum pressure drop is the same as maximum inlet pressure unless otherwise rated by a specific trim construction. See Table 6.

Standard Shut-off Classifications

In accordance with ASME / FCI 70.2

- Model 363 - Standard Class IV - Metal Seat
- Model 363 - Optional Class V - Metal Seat
- Model 363 - Optional Class VI - Metal Seat

See Table 1 for Optional Shut-off capability

Dimensions

Valve and Actuator Assembly Diagram

See Figure 2.

Valve and Actuator Assembly Dimensions

See Table 3 - 6.

Approximate Valve Body and Actuator Weights

See Table 17.

Materials

The standard body material is LCC. The standard bonnet material is LCC. CF8M is an option.

See Table 7 for typical construction materials.

See Tables 8 for trim selections.

Cross-Section of Model 363 Control Valves

See Figure 3.

Flow Characteristics

Standard trim is equal percent. Other flow characteristics are available upon request. Model 363 valves normally flow up.

Port Diameters and Maximum Valve Plug Travel

See Table 2.

Packing Type

The Standard packing is PTFE V-ring. Live-loaded low emission, graphite and other packing arrangements are available. See Figure 8 for packing diagrams.

Valve Sizing Coefficients

See Tables 10 - 16.

Actuator Sizing

Fail Open Actuator

See Table 18.

Fail Close Actuator

See Table 19.

Trim Style Service Application

See Table 8.

For more information and other options contact your Dyna-Flo Sales Office.

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Table 1

Valve Shut-off Configurations					
Valve Model	Size (inch)	Shut Off Capabilities	Valve Plug	Guide	Seat
363	1, 1-1/2 & 2	Class IV	Unbalanced	Top	Metal
	1, 1-1/2 & 2	Optional Class V	Unbalanced	Top	Metal
	1, 1-1/2 & 2	Optional Class VI	Unbalanced	Top	Metal

Table 2

Model 363 Port Diameters, Valve Plug Travel, Stem and Yoke Boss Diameter				
Valve Size	Port Diameter		Max Valve Plug Travel	
	Inch	mm	Inch	mm
1", 1-1/2" & 2" Dyna-Form	1/4	6	3/4	19
1" Dyna-Form	3/8	10	3/4	19
1" Dyna-Form	1/2	13	3/4	19
1" Dyna-Form	3/4	19	3/4	19
1" Full Port	1	25	3/4	19
1-1/2" Full Port	1-1/2	38	3/4	19
1-1/2" Reduced Port	1	25	3/4	19
1-1/2" Dyna-Form	3/8	10	3/4	19
1-1/2" Dyna-Form	1/2	13	3/4	19
1-1/2" Dyna-Form	3/4	19	3/4	19
2" Full Port	2	51	1-1/8	29
2" Reduced Port	1	25	3/4	19
2" Dyna-Form	1/4	6	3/4	19
2" Dyna-Form	3/8	10	3/4	19
2" Dyna-Form	1/2	13	3/4	19
2" Dyna-Form	3/4	19	3/4	19



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Table 3

Model 363 Port Diameters, Valve Travel and Mounting Connection

Valve Size inch	Port Diameter inch (mm)			Max Valve Travel inch (mm)	Valve Stem and Mounting Connection Diameter inch (mm)			
	Equal Percentage ¹	Linear	Quick Open		Standard		Optional	
					Stem	Yoke Boss	Stem	Yoke Boss
1	3/16 (4.8)	1 (25.4)	1 (25.4)	3/4 (19.1)	3/8 (9.5)	2-1/8 (54)	1/2 (12.7)	2-13/16 (71)
	1/4 (6.4) ²							
	3/8 (9.5)							
	1/2 (12.7)							
	3/4 (19.1)							
	1 (25.4)							
1-1/2	3/16 (4.8)	1-1/2 (38.1)	1-1/2 (38.1)	3/4 (19.1)	3/8 (9.6)	2-1/8 (54)	1/2 (12.7)	2-13/16 (71)
	1/4 (6.4) ²							
	3/8 (9.5)							
	1/2 (12.7)							
	3/4 (19.1)							
	1 (25.4)							
	1-1/2 (38.1)							
2	3/16 (4.8)	2 (50.8)	2 (50.8)	1-1/8 (29)	1/2 (12.7)	2-13/16 (71)	3/4 (19.1)	3-9/16 (90)
	1/4 (6.4) ²							
	3/8 (9.5)							
	1/2 (12.7)							
	3/4 (19.1)							
	1 (25.4)							
	1-1/2 (38.1)							
	2 (50.8)							

1 - Port Diameters 1/4 - 3/4 inch (6.4 - 19.1 mm) use Dyna-Form valve plugs.

2 - Also available in 3-flute Dyna-Flute valve plugs.

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Table 4

1" to 2" Regular Bonnet Valve Assembly with Actuator Envelope Dimensions
Inches (mm) (Refer to Figure 2)

Valve Size (inch)	End Connection	Actuator Size	A	B	C	D		E
						DFC	DFO	
1	ASME 150	1069	7.25 (184)	2.38 (60)	5.00 (127)	27.68 (703)	24.25 (616)	13.12 (333)
	ASME 300	1069	7.75 (197)	2.38 (60)	5.00 (127)	27.68 (703)	24.25 (616)	13.12 (333)
	ASME 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	ASME 150	1069	8.75 (222)	2.81 (71)	4.88 (124)	27.56 (700)	26.08 (662)	13.12 (333)
	ASME 300	1069	9.25 (235)	2.81 (71)	4.88 (124)	27.56 (700)	26.08 (662)	13.12 (333)
	ASME 600	1069	9.88 (251)	2.81 (71)	4.88 (124)	27.56 (700)	26.08 (662)	13.12 (333)
	NPT	1069	9.88 (251)	2.81 (71)	4.88 (124)	27.56 (700)	26.08 (662)	13.12 (333)
2	ASME 150	2069	10.00 (254)	3.06 (78)	6.50 (165)	29.88 (759)	27.70 (704)	13.12 (333)
	ASME 150	2105	10.00 (254)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	16.00 (406)
	ASME 300	2069	10.50 (267)	3.06 (78)	6.50 (165)	29.88 (759)	27.70 (704)	13.12 (333)
	ASME 300	2105	10.50 (267)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	16.00 (406)
	ASME 600	2069	11.25 (286)	3.06 (78)	6.50 (165)	29.88 (759)	27.70 (704)	13.12 (333)
	ASME 600	2105	11.25 (286)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	16.00 (406)
	ASME 600	2156	11.25 (286)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	18.62 (473)
	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)
NPT	2156	11.25 (286)	3.06 (78)	6.50 (165)	36.75 (933)	32.22 (818)	18.62 (473)	

Table 5

1" to 2" Extension Bonnet Dimensions (Styles 1 and 2)
inch (mm) (Refer to Figure 2)

Valve Size (inch)	C							
	Style 1				Style 2			
	Stem Diameter inch (mm)		Stem Diameter inch (mm)		Stem Diameter inch (mm)		Stem Diameter inch (mm)	
	3/8 (9.5)	1/2 (12.7)		3/8 (9.5)	1/2 (12.7)		3/8 (9.5)	1/2 (12.7)
1	8.38 (213)	9.88 (251)		11.94 (303)	12.56 (319)			
1.5	8.25 (210)	9.75 (248)		11.81 (300)	12.44 (316)			
2	---	10.50 (267)		---	18.31 (465)			

Valve Size & (Actuator Model)	D							
	Style 1				Style 2			
	Stem Diameter inch (mm)		Stem Diameter inch (mm)		Stem Diameter inch (mm)		Stem Diameter inch (mm)	
	3/8 (9.5)	1/2 (12.7)	3/8 (9.5)	1/2 (12.7)	3/8 (9.5)	1/2 (12.7)	3/8 (9.5)	1/2 (12.7)
	DFC	DFO	DFC	DFO	DFC	DFO	DFC	DFO
1" (1069)	31.06 (789)	27.63 (702)	32.56 (827)	29.13 (740)	34.62 (879)	31.19 (792)	35.24 (895)	31.81 (808)
1.5" (1069)	30.93 (786)	29.45 (748)	32.43 (824)	29.00 (737)	34.49 (876)	31.06 (789)	35.12 (892)	31.69 (805)
2" (2069)	---	---	33.88 (861)	31.70 (805)	---	---	41.69 (1059)	39.51 (1004)
2" (2105)	---	---	40.75 (1035)	36.22 (920)	---	---	48.56 (1233)	44.03 (1118)
2" (2156)	---	---	40.75 (1035)	36.22 (920)	---	---	48.56 (1233)	44.03 (1118)



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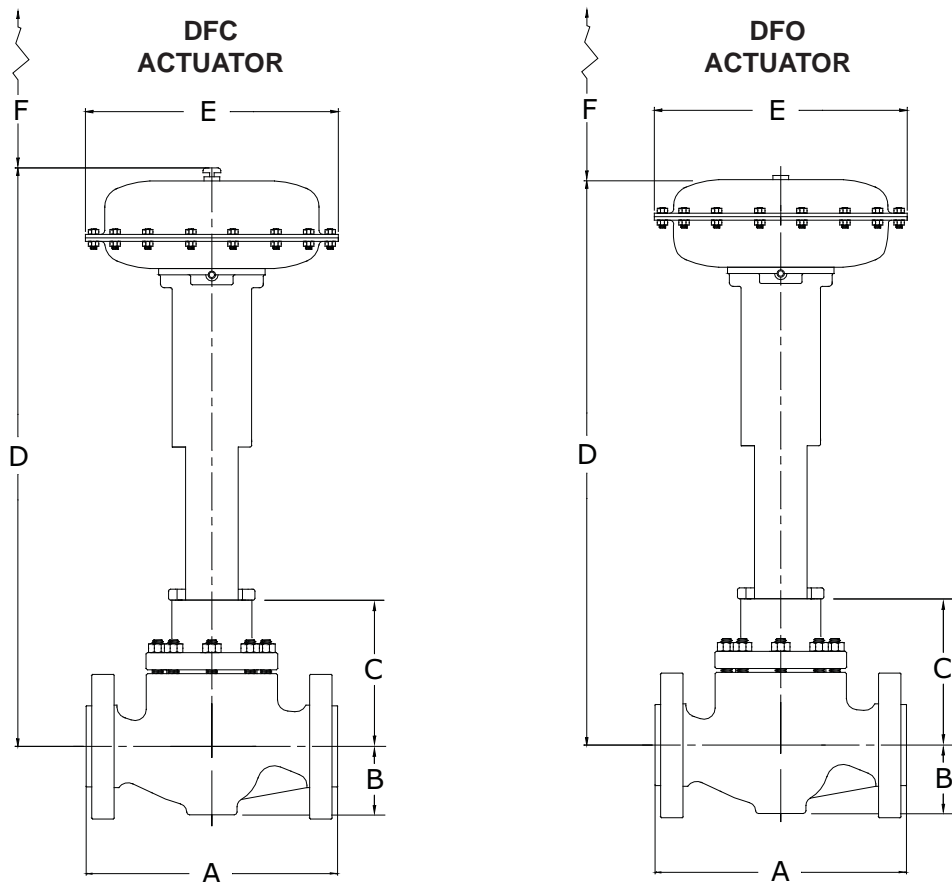
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Table 6

1" to 2" Bellows Bonnet Dimensions

(Refer to Figure 2)

Valve Size & (Actuator Model)	C		D	
	Stem Diameter inch (mm)	DFC		DFO
		Inch (mm)		Inch (mm)
1 inch (2069)	12.62 (321)	36.00 (914)	33.82 (859)	
1.5 inch (2069)	12.50 (317)	35.88 (911)	33.70 (856)	
2 inch (2069)	15.12 (384)	38.50 (978)	36.32 (923)	
2 inch (2105)	15.12 (384)	45.37 (1152)	40.84 (1037)	
2 inch (2156)	15.12 (384)	45.37 (1152)	40.84 (1037)	



F Dimension:

1", 1-1/2" Valve
5.00" (127 mm)

2"
6.88" (175 mm)

Figure 2 Valve Assembly with DFC Actuator Outline Dimensions

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Table 7

Typical Construction Materials

Part Description	Standard Construction	NACE Construction
BODY	LCC	LCC
	CF8M*	-
BONNET	LCC	LCC
	CF8M*	CF8M*
BAFFLE	S31600**	S31600**
BELLOWS BONNET	S31600** / N06625	S31600** / N06625
PACKING BOX RING	S31600**	S31600**
PACKING SPRING	S30400	N/A
SPRING WASHERS	N07718	N07718
O-RING	HNBR	HNBR
LANTERN RING	-	S31600**
SPECIAL WASHER	S30400	N/A
GUIDE BUSHING	CARBON GRAPHITE	N/A
V-RING PACKING SET	PTFE	PTFE (Double)
PACKING RIBBON	GRAPHITE	GRAPHITE
PACKING FILAMENT	GRAPHITE	GRAPHITE
PACKING FOLLOWER	S31600**	S31600**
PACKING FLANGE	1020 / ZINC	1020 / ZINC
UPPER WIPER	FELT	FELT
LOWER WIPER	TEFLON	TEFLON
VALVE PLUG - STEM ASSEMBLY	S41600 PLUG - S20910 STEM	N/A
	S31600 PLUG - S20910 STEM	S31600 PLUG - S20910 STEM
	S31600** / ALLOY 6 PLUG - S20910 STEM	S31600** / ALLOY 6 PLUG - 20910 STEM
VALVE PLUG ADAPTER	S31600**	S31600**
PIN	STEEL	STEEL
	S41600	N/A
SEAT RING	S31600** / ALLOY 6	S31600** / ALLOY 6
	S31600**	S31600**
	CF8M*	CF8M*
SEAT RING RETAINER	S31600** / ALLOY 6	S31600** / ALLOY 6
	S17400 DH1150	S17400 DH1150
PACKING FLANGE	CARBON STEEL (PLATED)	CARBON STEEL (PLATED)
PACKING NUT	2H	2H
PACKING STUD	B7	B7
BONNET NUT	2H	2HM
BONNET STUD	B7	B7M
	S17400 DH1150* (600 ASME Class)	S17400 DH1150* (600 ASME Class)
GASKETS	GRAPHITE / S31600	GRAPHITE / S31600
SPIRAL WOUND GASKET	S30400 / GRAPHITE	S30400 / GRAPHITE
SHIM	S31600	S31600
STEM SET SCREW	N07718	N07718
STEM SCREW RETAINER	18-8	18-8

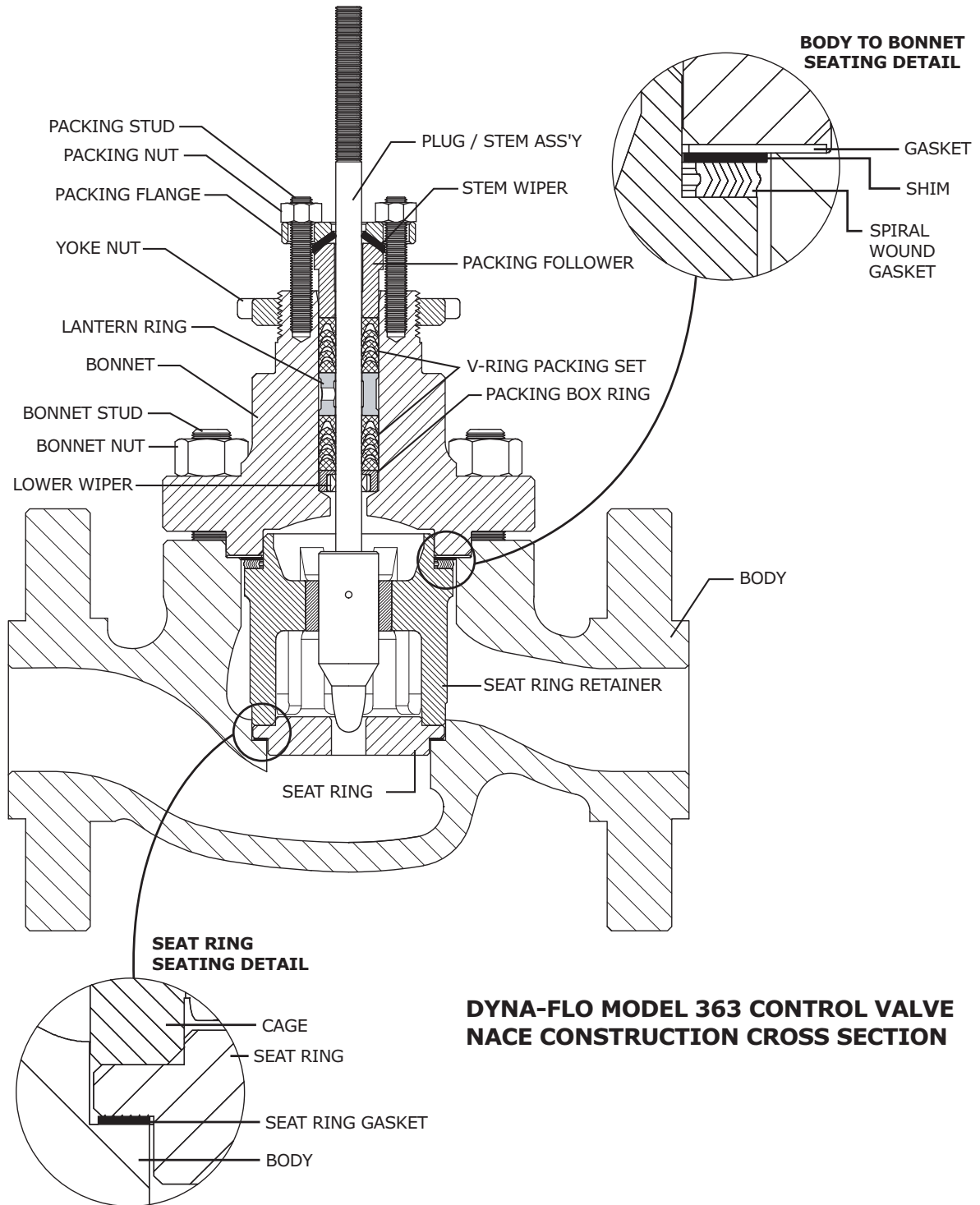
* Optional construction material **All S31600 Barstock is dual grade S31600/S31603 (316/316L).



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Figure 3 Cross-section of 363 Series Control Valve with Trim Details



DYNA-FLO MODEL 363 CONTROL VALVE NACE CONSTRUCTION CROSS SECTION

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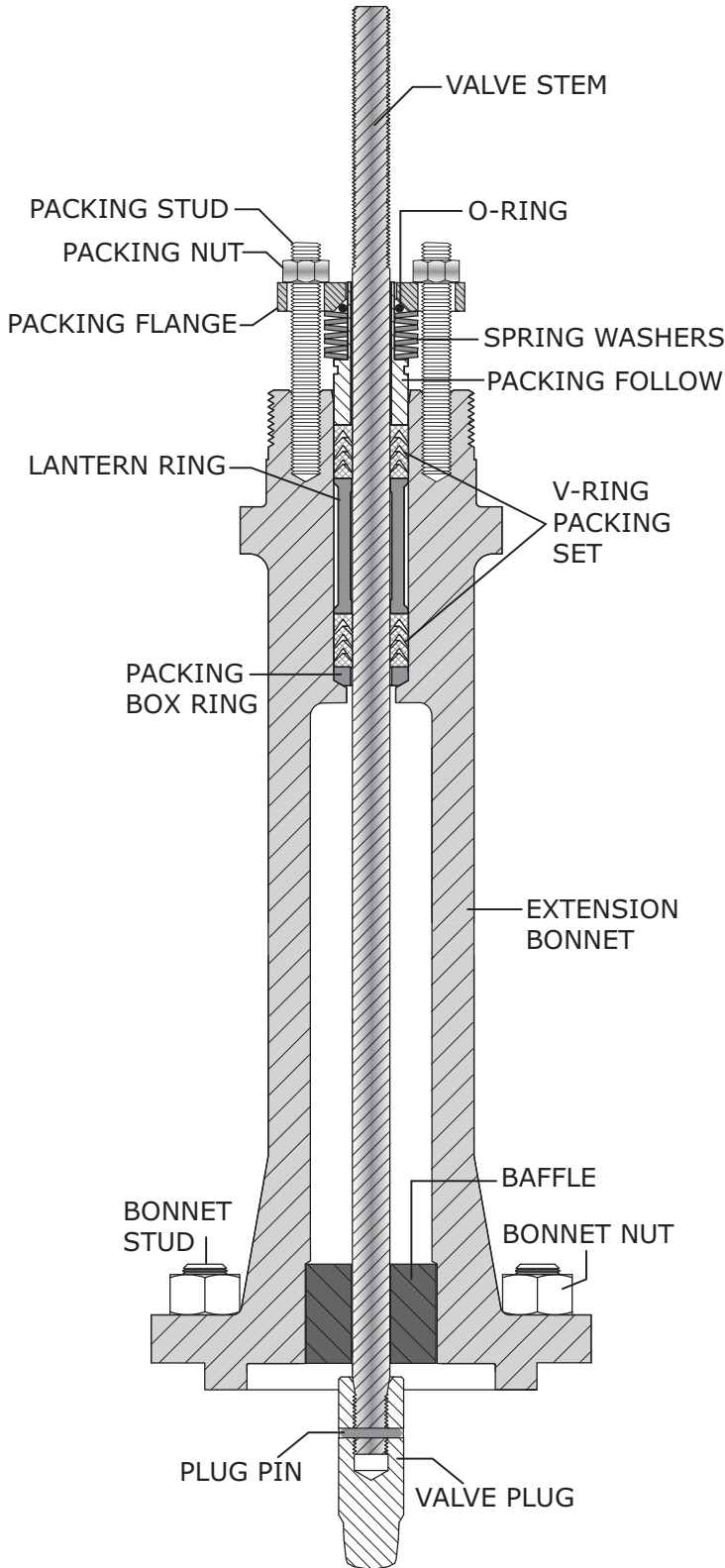
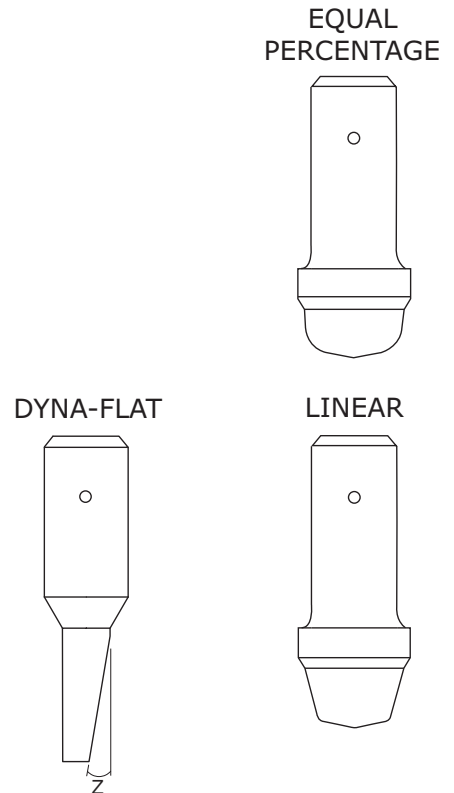


Figure 4 Model 363 Extension Bonnet Cross Section

Figure 5 Valve Plug Style Diagrams

*NOTE - plug styles continued on Page 10.



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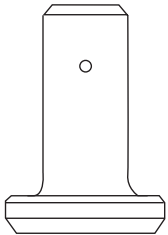


Figure 6 Model 363 Bellows Bonnet
Bonnet Cross Section

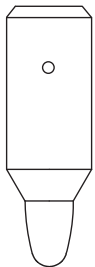
For Bellows Bonnet valves 150 - 300 Class maximum pressure is 300 Psig at 350°F.

Figure 7 Valve Plug Style Diagrams

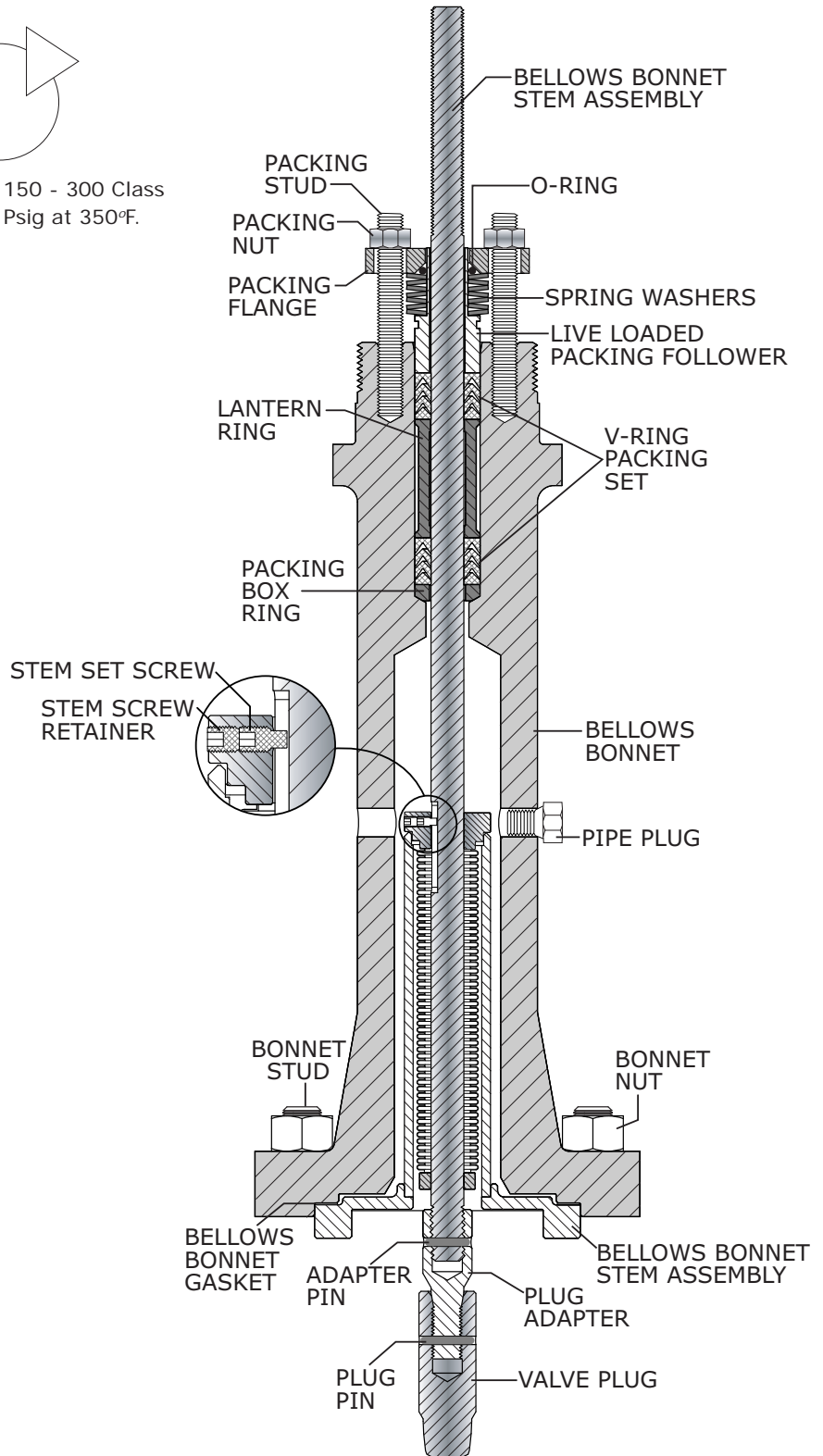
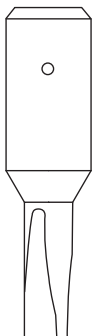
QUICK
OPEN



DYNA-FORM

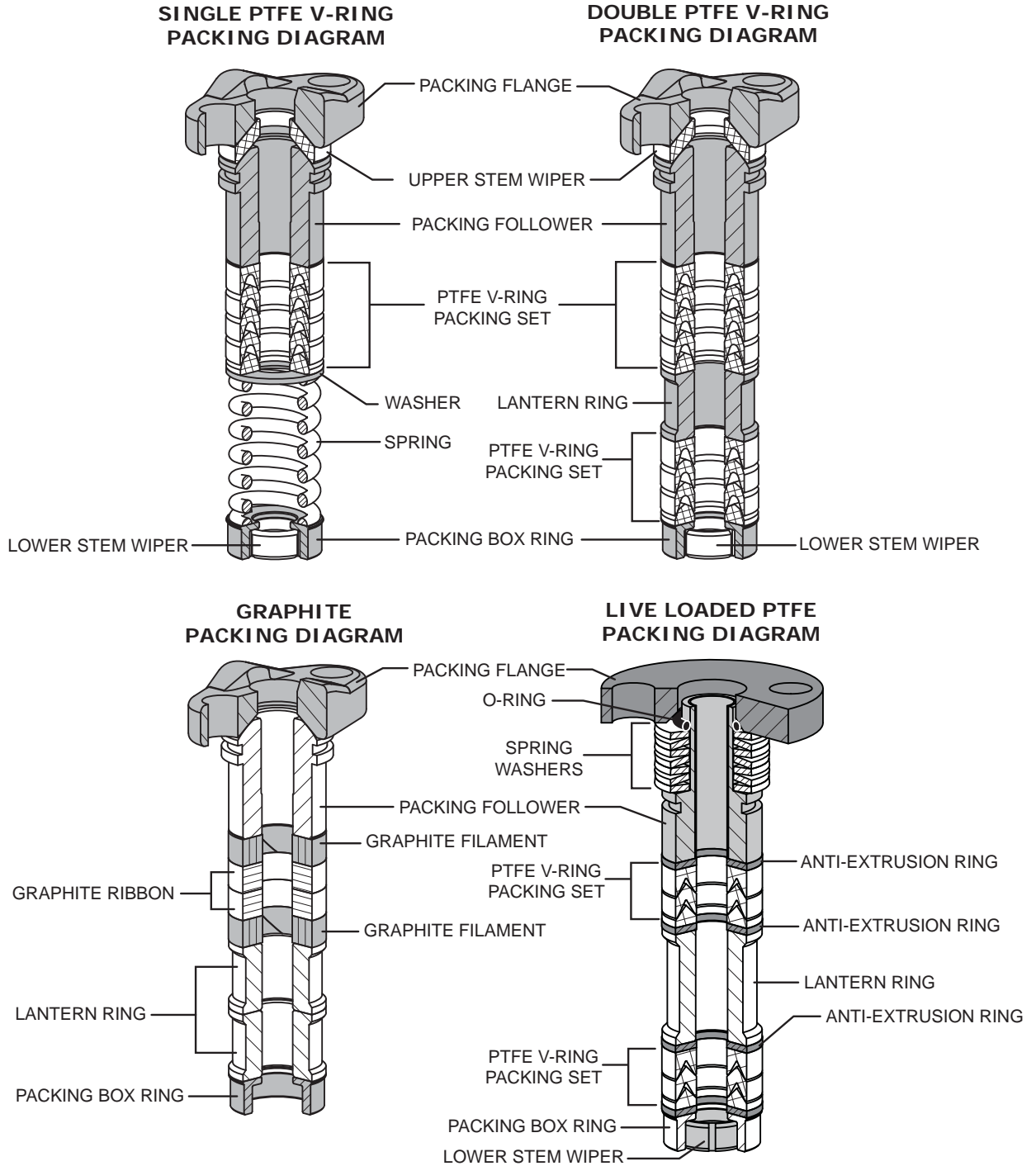


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Figure 8 Model 363 Packing Style Diagrams



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Table 8

Trim Options

Trim Spec	Valve Plug	Stem	Seat Ring Retainer	Seat Ring	Guide Bushing	Service
Z1	S41600 Hardened	S20910	CF8M	S41600 Hardened	S17400 DH1150	Standard
	Temperature Limitation: -20°F to 800°F (-29°C TO 427°C)					
Z2 ³	S31600 ²	S20910	CF8M	S31600 ²	S17400 DH1150	NACE
	Temperature Limitation: -80°F to 600°F (-62°C TO 316°C)					
Z3	S31600 ² / ALLOY 6 Hardfacing Seat	S20910	CF8M	S31600 ² / ALLOY 6 Hardfacing Seat	S17400 DH1150	NACE / Erosive
	Temperature Limitation: -80°F to 600°F (-62°C TO 316°C)					
Z4 ¹	S31600 ² / ALLOY 6 Hardfacing Seat and Guide	S20910	CF8M	S31600 ² / ALLOY 6 Hardfacing Seat and Bore	ALLOY 6	NACE / High Temperature / Erosive
	Temperature Limitation: -80°F to 600°F (-62°C TO 316°C)					
Z5	S31600 ² / Tungsten Carbide	S20910	CF8M	S31600 ² / ALLOY 6 Hardfacing Seat and Bore	S17400 DH1150	NACE
	Temperature Limitation: -325°F to 600°F (-198°C TO 316°C)					

1 - Z4 Trim for 1-1/2" & 2" Bodies with 1", 1-1/2" & 2" Ports have a hard face seat only.

2 - All S31600 barstock is dual grade S31600/S31603 (316/316L).

3 - Z2 Trim should not be used for Dyna-Flute and Dyna-Flat trim.

Table 9

Trim Style Service Application

Trim Spec	Body Material	Shut Off Class	Maximum Shutoff Pressure Drop @ 100°F ⁽¹⁾ Psig (kPag)	Minimum Temperature °F (°C)	Maximum Temperature °F (°C)
Z1	LCC	IV or V	1,500 (10,342)	-20 (-29)	650 (343)
	LCC	VI	1,500 (10,342)	-20 (-29)	450 (232)
Z2	LCC	IV or V	1,500 (10,342)	-50 (-45)	650 (343)
	LCC	VI	1,500 (10,342)	-50 (-45)	450 (232)
	CF8M	IV or V	1,500 (10,342)	-150 (-101)	700 (371)
Z3 / Z4	LCC	IV or V	1,500 (10,342)	-50 (-45)	700 (371)
	CF8M	IV or V	1,500 (10,342)	-150 (-101)	700 (371)

⁽¹⁾ Actuator sizing is also a contributing factor for Maximum Shutoff.

NOTE: For Bellows Bonnet valves 150 - 300 Class maximum pressure is 300 Psig at 350°F.

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Table 10

Equal Percentage Trim Valve Sizing Coefficients

Valve Size Inch	Port Inch (mm)	Travel Inch (mm)	Co-efficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1	1 (25.4)	3/4 (19.1)	C_v	0.80	1.25	1.80	2.50	3.61	5.26	7.60	10.5	12.5	13.1
			X_T	0.642	0.635	0.598	0.581	0.582	0.594	0.647	0.676	0.755	0.885
			F_L	0.95									
1-1/2	1-1/2 (38.1)	3/4 (19.1)	C_v	0.793	1.22	1.90	2.95	4.26	6.44	9.82	16.3	22.0	28.0
			X_T	0.725	0.674	0.732	0.644	0.587	0.556	0.598	0.652	0.775	0.839
			F_L	0.96									
1-1/2	1 (25.4)	3/4 (19.1)	C_v	0.766	1.21	1.76	2.56	3.65	5.52	8.28	12.0	15.0	17.1
			X_T	0.652	0.617	0.600	0.603	0.560	0.533	0.516	0.574	0.701	0.860
			F_L	0.98									
2	2 (50.8)	1-1/8 (28.6)	C_v	1.64	2.60	4.28	6.60	11.0	20.5	32.7	44.5	49.8	53.5
			X_T	0.653	0.580	0.521	0.557	0.550	0.527	0.652	0.798	0.901	0.898
			F_L	0.95									
2	1 (25.4)	3/4 (19.1)	C_v	1.01	1.49	2.03	2.76	3.88	5.56	8.15	11.5	14.1	15.7
			X_T	0.597	0.613	0.600	0.576	0.569	0.552	0.521	0.543	0.669	0.902
			F_L	0.91									

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

Table 11

Quick Opening Trim Valve Sizing Coefficients

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Co-efficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1	1 (25.4)	3/4 (19.1)	C_v	4.35	10.1	13.9	15.5	16.0	16.6	16.7	16.8	16.9	16.9
			X_T	0.400	0.450	0.522	0.537	0.535	0.510	0.500	0.500	0.490	0.494
			F_L	0.93									
1-1/2	1-1/2 (38.1)	3/4 (19.1)	C_v	5.62	11.8	20.5	27.2	30.5	32.2	33.1	33.5	34.0	34.1
			X_T	0.621	0.734	0.726	0.812	0.841	0.855	0.860	0.860	0.853	0.848
			F_L	0.95									
1-1/2	1 (25.4)	3/4 (19.1)	C_v	4.15	8.93	14.5	17.2	18.1	18.6	18.8	19.0	19.1	19.3
			X_T	0.615	0.790	0.792	0.904	0.925	0.925	0.922	0.915	0.905	0.879
			F_L	0.90									
2	2 (50.8)	1-1/8 (29)	C_v	13.0	30.2	44.2	52.3	56.1	57.6	58.4	58.4	58.6	58.6
			X_T	0.546	0.662	0.765	0.811	0.816	0.831	0.831	0.835	0.832	0.832
			F_L	0.93									
2	1 (25.4)	3/4 (19.1)	C_v	4.35	9.76	14.7	16.5	17.2	17.5	17.5	17.5	17.8	17.8
			X_T	0.522	0.595	0.695	0.876	0.935	0.942	0.958	0.958	0.941	0.941
			F_L	0.85									

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

Model 363 Control Valves



Table 12

Linear Trim Valve Sizing Coefficients

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Co-efficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1	1 (25.4)	3/4 (19.1)	C _V	2.20	3.86	5.27	6.55	8.21	9.80	11.1	12.0	13.1	13.5
			X _T	0.636	0.600	0.636	0.632	0.636	0.630	0.635	0.680	0.768	0.832
			F _L	0.95									
1-1/2	1-1/2 (38.1)	3/4 (19.1)	C _V	4.00	7.52	11.1	14.6	18.6	22.5	25.6	29.0	31.1	31.9
			X _T	0.634	0.650	0.656	0.690	0.672	0.672	0.695	0.702	0.756	0.817
			F _L	0.95									
1-1/2	1 (25.4)	3/4 (19.1)	C _V	1.95	3.40	4.95	6.10	7.7	9.2	10.8	13.0	15.0	16.6
			X _T	0.497	0.577	0.600	0.690	0.651	0.654	0.636	0.624	0.718	0.795
			F _L	0.95									
2	2 (50.8)	1-1/8 (29)	C _V	6.06	11.7	18.0	24.0	30.0	36.2	42.7	49.7	52.0	52.2
			X _T	0.560	0.642	0.655	0.674	0.700	0.723	0.776	0.771	0.860	0.922
			F _L	0.94									
2	1 (25.4)	3/4 (19.1)	C _V	1.87	3.40	4.95	6.47	8.04	9.65	11.22	12.76	14.34	15.5
			X _T	0.607	0.592	0.596	0.622	0.620	0.625	0.641	0.632	0.750	0.909
			F _L	0.94									

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

Table 13

Dyna-Flute Trim Valve Sizing Coefficients

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Co-efficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Dyna-Flute Plug - 1 Flute													
1, 1-1/2 & 2	1/4 (6.4)	3/4 (19.1)	C _V	0.038	0.046	0.055	0.072	0.094	0.122	0.160	0.210	0.277	0.354
			X _T	0.776	0.732	0.688	0.651	0.640	0.633	0.635	0.632	0.630	0.656
			F _L	0.86									
Dyna-Flute Plug - 3 Flutes													
1, 1-1/2 & 2	1/4 (6.4)	3/4 (19.1)	C _V	0.056	0.073	0.100	0.145	0.215	0.310	0.432	0.586	0.800	1.06
			X _T	0.690	0.646	0.638	0.625	0.600	0.585	0.595	0.612	0.620	0.622
			F _L	0.90									

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

Model 363 Control Valves



Table 14

Dyna-Form Trim Valve Sizing Coefficients

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Co-efficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1, 1-1/2 or 2	1/4 (6)	3/4 (19)	C _v	0.088	0.124	0.175	0.236	0.327	0.464	0.641	0.881	1.22	1.52
			X _T	0.771	0.717	0.658	0.645	0.620	0.585	0.596	0.596	0.603	0.647
			F _L	0.88									
1	3/8 (10)	3/4 (19)	C _v	0.129	0.199	0.308	0.448	0.62	0.882	1.29	1.8	2.43	3.07
			X _T	0.747	0.663	0.641	0.593	0.569	0.568	0.560	0.571	0.624	0.662
			F _L	0.89									
1	1/2 (13)	3/4 (19)	C _v	0.189	0.319	0.492	0.735	1.08	1.53	2.12	2.99	4.17	4.91
			X _T	0.728	0.639	0.628	0.591	0.573	0.585	0.600	0.618	0.645	0.803
			F _L	0.93									
1	3/4 (19)	3/4 (19)	C _v	0.374	0.622	0.965	1.47	2.17	3.15	4.57	6.52	8.17	8.84
			X _T	0.687	0.614	0.588	0.560	0.571	0.596	0.603	0.624	0.750	0.919
			F _L	0.97									
1-1/2 & 2	3/8 (10)	3/4 (19)	C _v	0.121	0.19	0.302	0.435	0.600	0.864	1.26	1.80	2.56	3.20
			X _T	0.915	0.763	0.699	0.657	0.640	0.624	0.608	0.596	0.594	0.648
			F _L	0.84									
1-1/2 & 2	1/2 (13)	3/4 (19)	C _v	0.199	0.323	0.503	0.735	1.07	1.54	2.14	3.08	4.36	5.18
			X _T	0.748	0.686	0.640	0.617	0.627	0.602	0.607	0.607	0.573	0.705
			F _L	0.91									
1-1/2 & 2	3/4 (19)	3/4 (19)	C _v	0.434	0.683	1.00	1.49	2.21	3.18	4.61	6.73	8.88	10.2
			X _T	0.747	0.625	0.636	0.596	0.578	0.603	0.593	0.591	0.680	0.796
			F _L	0.92									

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

Table 15

Dyna-Flat Trim Valve Sizing Coefficients

Valve Size Inches	Port Inches (mm)	Travel Inches (mm)	Co-efficient	Percentage of Valve Travel									
				10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Dyna-Flat Plug - Flat Angle 1°55' (Refer to Figure 5 Angle Z)													
1, 1-1/2 & 2	3/16 (4.8)	3/4 (19.1)	C _v	0.015	0.020	0.024	0.028	0.034	0.041	0.048	0.056	0.066	0.075
			X _T	0.964	0.888	0.906	0.947	0.942	0.928	0.949	0.947	0.918	0.934
			F _L	0.89									
Dyna-Flat Plug - Flat Angle 3°25' (Refer to Figure 5 Angle Z)													
1, 1-1/2 & 2	3/16 (4.8)	3/4 (19.1)	C _v	0.016	0.026	0.038	0.052	0.070	0.088	0.107	0.127	0.153	0.181
			X _T	0.707	0.697	0.687	0.700	0.675	0.679	0.680	0.680	0.681	0.681
			F _L	0.84									

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

Model 363 Control Valves



Table 16

Bellows Bonnet with Live Loaded Packing Valve Sizing Coefficients (C_v)

Valve Size Inch	Bellows Travel Inch (mm)	Full Size Trim			Restricted Trim		
		Equal Percentage	Linear	Quick Open	Equal Percentage	Linear	Quick Open
1	0.56 (14.2)	9.15	11.6	16.8	---	---	---
1-1/2	0.56 (14.2)	13.1	27.5	33.6	10.0	12.0	19.0
2	0.88 (22.2)*	38.8	46.2	58.5	15.9	15.7	17.9

* - Travel for Restricted Trim 0.75 inch (19.1 mm)

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

NOTE: For Bellows Bonnet valves 150 - 300 Class maximum pressure is 300 Psig at 350°F.

Table 17

Valve Body and Actuator Assembly Approximate Weights

Valve Size (inch)	Body Only lb (Kg)	With Fail Open Actuator	Assembly Weight lb (Kg)	With Fail Closed 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	165 (75)
		DFO - 2156	192 (87)	DFC - 2156	206 (94)

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Table 18

Model 363 Fail Open Actuator Maximums

6 to 30 psig signal, 35 psig supply
 Metal Seat, Single PTFE Packing
 Class IV Shut Off

Valve Size (inch)	Port Size Inch (mm)	Actuator Sizes			
		DFO - 1069	DFO - 2069	DFO - 2105	DFO - 2156
Pressure Drop Psig (Bar)					
1	1/4 (6.4)	1,500 (103.4) ¹	N/A	N/A	N/A
	3/8 (9.5)	1,500 (103.4) ²	N/A	N/A	N/A
	1/2 (12.7)	1,500 (103.4) ²	N/A	N/A	N/A
	3/4 (19.1)	1,500 (103.4) ³	N/A	N/A	N/A
	1 (25.4)	1,440 (99.3) ⁴	N/A	N/A	N/A
1-1/2	1/4 (6.4)	1,500 (103.4) ¹	N/A	N/A	N/A
	3/8 (9.5)	1,500 (103.4) ¹	N/A	N/A	N/A
	1/2 (12.7)	1,500 (103.4) ¹	N/A	N/A	N/A
	3/4 (19.1)	1,500 (103.4) ¹	N/A	N/A	N/A
	1 (25.4)	1,440 (99.3) ⁴	N/A	N/A	N/A
	1 1/2 (38.1)	613 (42.3) ⁴	N/A	N/A	N/A
2	1/4 (6.4)	N/A	1,500 (103.4) ¹	N/A	N/A
	3/8 (9.5)	N/A	1,500 (103.4) ²	N/A	N/A
	1/2 (12.7)	N/A	1,500 (103.4) ²	N/A	N/A
	3/4 (19.1)	N/A	1,500 (103.4) ³	N/A	N/A
	1 (24.4)	N/A	750 (51.7) ³	1,500 (103.4) ⁵	N/A
	2 (50.8)	N/A	290 (20.0) ⁶	N/A	845 (58.3) ⁴

Bench Set	Psig (Bar)
1	6-30 (0.41 - 2.07)
2	6-26 (0.41 - 1.79)
3	6-20 (0.41 - 1.38)
4	6-14 (0.41 - 0.97)
5	6-18 (0.41 - 1.24)
6	6-15 (0.41 - 1.03)

Please contact Dyna-Flo for higher shut off class, PTFE seating, or graphite packing.

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Table 19

Model 363 Fail Close Actuator Maximums

6 to 30 Psig signal, 35 Psig supply
Metal Seat, Single PTFE Packing
Class IV Shut Off

Valve Size (inch)	Port Size Inch (mm)	Actuator Sizes			
		DFC - 1069	DFC - 2069	DFC - 2105	DFC - 2156
Pressure Drop Psig (Bar)					
1	1/4 (6.4)	1,500 (103.4) ¹	N/A	N/A	N/A
	3/8 (9.5)	1,500 (103.4) ¹	N/A	N/A	N/A
	1/2 (12.7)	1,500 (103.4) ¹	N/A	N/A	N/A
	3/4 (19.1)	1,500 (103.4) ²	N/A	N/A	N/A
	1 (25.4)	1,328 (91.6) ³	N/A	N/A	N/A
1 1/2	1/4 (6.4)	1,500 (103.4) ¹	N/A	N/A	N/A
	3/8 (9.5)	1,500 (103.4) ¹	N/A	N/A	N/A
	1/2 (12.7)	1,500 (103.4) ¹	N/A	N/A	N/A
	3/4 (19.1)	1,500 (103.4) ²	N/A	N/A	N/A
	1 (25.4)	1,328 (91.6) ³	N/A	N/A	N/A
	1 1/2 (38.1)	552 (38.1) ³	N/A	N/A	N/A
2	1/4 (6.4)	N/A	1,500 (103.4) ¹	N/A	N/A
	3/8 (9.5)	N/A	1,500 (103.4) ¹	N/A	N/A
	1/2 (12.7)	N/A	1,500 (103.4) ¹	N/A	N/A
	3/4 (19.1)	N/A	1,500 (103.4) ³	N/A	N/A
	1 (25.4)	N/A	750 (51.7) ³	1,500 (103.4) ³	N/A
	2 (50.8)	N/A	N/A	290 (20.0) ⁵	642 (44.3) ⁴

Bench Set	Psig (Bar)
1	6-30 (0.41 - 2.07)
2	18-30 (1.24 - 2.07)
3	14-30 (0.97 - 2.07)
4	15-30 (1.03 - 2.07)
5	12-30 (0.83 - 2.07)

Please contact Dyna-Flo for higher shut off class, PTFE seating, or graphite packing.

Model 363 Control Valves



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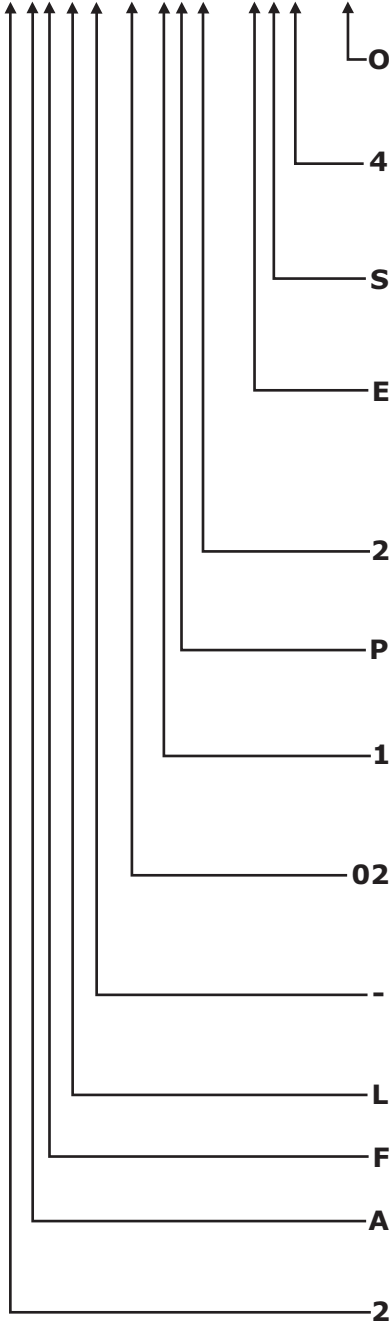


Ordering Guide

Dyna-Flo Model 363 Control Valve | Model Numbering System

Sample Part Number

363 - 2AFL - 021P2 - ES4 - O



Code	Description				
O	Cleaned and Package for O ₂ service				
Shut-off Class					
4	Class IV - Standard Metal Seat				
5	Class V - Optional Metal Seat				
6	Class VI - Optional Metal Seat				
Bonnet Style					
S	Standard	E	Extension		
B	Bellows	X	Special		
Characteristic					
E	Equal Percentage	L	Linear		
Q	Quick Open	F	3 Flute Dyna-Flute		
M	Dyna-Form	G	1 Flute Dyna-Flute		
D	Dyna-Flat	X	Special		
Valve Mounting Connection					
1	2-1/8" (3/8" stem)	2	2-13/16" (1/2" stem)		
3	3-9/16" (3/4" stem)				
Packing Style					
P	Single PTFE V-ring	J	Double PTFE V-ring		
G	Graphite	T	Live Loaded (PTFE)		
Trim Number					
1	Z1	3	Z3	5	Z5
2	Z2	4	Z4		
Port Size					
01	3/16"	02	1/4"	03	3/8"
04	1/2"	06	3/4"	08	1"
12	1-1/2"	16	2"		
Bolting					
-	B7 / 2H	A	B7M / 2HM		
B	B8M / 8M	C	17-4 DH1150		
Body Material					
L	LCC	W	WCC	M	CF8M
Connection Style					
F	RF	J	RTJ	N	NPT
ASME Rating					
A	150	B	300	C	600
Valve Size					
1	1 inch	5	1-1/2 inch		
2	2 inch				