



Model 570, 571, 573 Control Valves

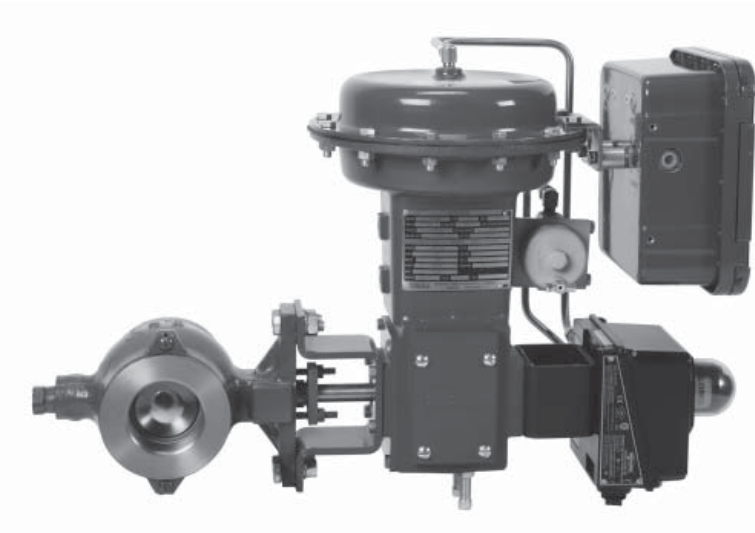


Figure 1 Dyna-Flo Model 570 Control Valve with Model DFR Size 047 Actuator Assembly

The Model 570 series segmented ball style control valve is used in all kinds of demanding applications, in oil and gas production and chemical process industries. It is also suited to high flow, low pressure drop services. The 570 series is used in both throttling and on/off control of liquids or gases.

The flangeless 570 valve mates with ASME class 150, 300, and 600 raised face flanges. Models 571 and 573 are RF flanged valves in ASME class 150 (571) and 300 (573). The straight through unrestricted flow path provides higher capacity than globe style valves. A splined shaft provides accurate control in throttling operations and flexibility in actuation options. The 570 series, when combined with a Model DFR spring and diaphragm actuator, is a rugged control valve assembly, to which a wide variety of positioners and accessories can be mounted.

The Model 570, 571 and 573 control valves are manufactured to a high level of quality specifications to ensure superior performance and customer satisfaction.

Features

Valve Sizes and Connections

The 2", 3", 4", 6", and 8" flangeless valves will mate ANSI Class 150, 300, and 600 raised face flanges.

The 2", 3", 4", 6", 8", 10", and 12" RF flanged 571 and 573 will mate with ASME Class 150 (571) and 300 (573) raised face flanges.

Maximum Temperatures

800°F (427°C) Maximum with WCC body.

NACE Service

Trim and bolting materials are available for applications handling sour fluids and gases. These construction materials comply with the recommendations of (NACE) National Association of Corrosion Engineers MR 0175.

Easy Maintenance

A unique ball to shaft connection makes for easy disassembly, and reduces packing replacement time as well. Replacing the ball seal is easily done by removing two screws.

Lightweight Installation

The 570 series is a rugged, yet light weight flangeless ball valve that is designed to easily fit in between ASME flanges.

Adjustable Shaft Packing

The shaft to body interface is sealed to atmosphere by externally adjustable PTFE or optional graphite packing rings. Live Loaded packing is available for reduced emissions.

Field Reversible

The action of all valve and actuator combinations is easily changed between fail closed and fail open without additional hardware.



Model
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Specifications

Maximum Pressure / Temperature Ratings

Consistent with applicable pressure/temperature ratings per ASME B16.34-2004. See Table 11 & 12.

Maximum Allowable Shutoff Pressure Drop

See Table 12.

750 psig (5,171 kPag) @ 100°F (38°C)
(Standard Construction)

Material Temperature Capabilities

Standard: -50°F to 450°F (-46°C to 232°C) LCC

Optional: High Temp -20°F to 800°F (-29°C to 427°C) WCC
See Table 11 & 12.

Construction Materials

See Tables 1 for construction materials
Contact your Dyna-Flo sales office for more information and other options.

Flow Direction

Forward (through seal into ball)

Actuator Mounting

Right-hand, or Left-hand (as viewed from seal end of valve).
In one of 4 positions (12 (Std.), 3, 6, and 9 o'clock) with respect to the valve body in a horizontal pipe.

Maximum Ball Rotation

90 degrees

Shutoff Classification

- Composition Ball Seal: Class VI
- Metal Ball Seal: Class IV
- Classes and testing per ASME/FCI 70-2
- Tested at the service pressure drop, or 50 psig (345 kPag), whichever is lower
- Flow Ring Design

ASME RATING	
VALVE	CLASS
570	150
	300
	600
571	150
573	300

Valve Dimensions

See Figure 8 for valve diagram
See Table 2 - 4 for valve dimensions
See Table 5 - 8 for bolting dimensions

Actuator Sizing

See Table 9.

Valve and Actuator Assembly Weight

See Table 10.

Options

Line Flange Bolting - Tables 5, 6, 7, & 8.
Stainless Steel Construction
Internal Coatings
Shaft Connections

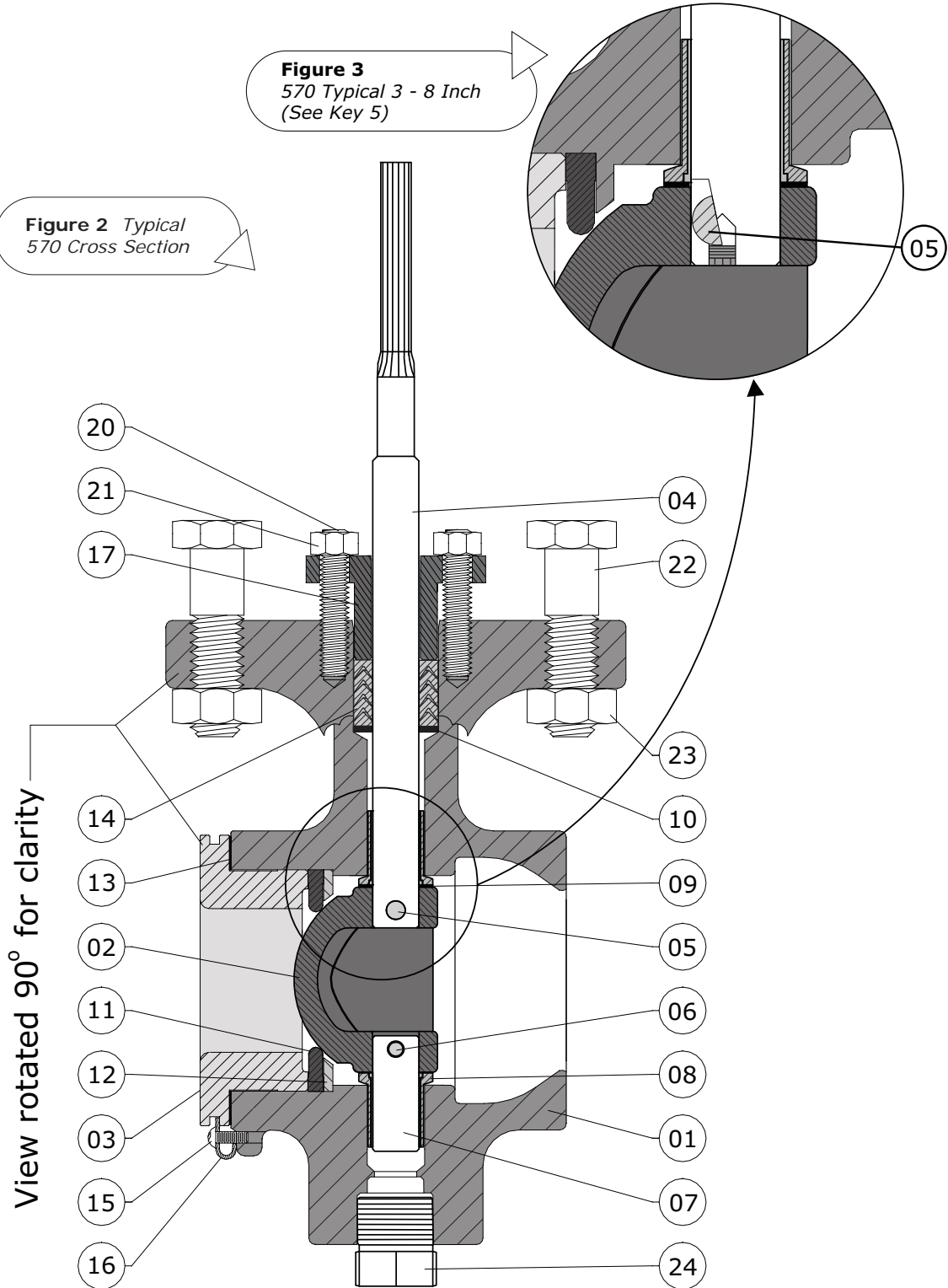
For more information and other options contact your Dyna-Flo sales office



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Figure 3
570 Typical 3 - 8 Inch
(See Key 5)

Figure 2 Typical
570 Cross Section



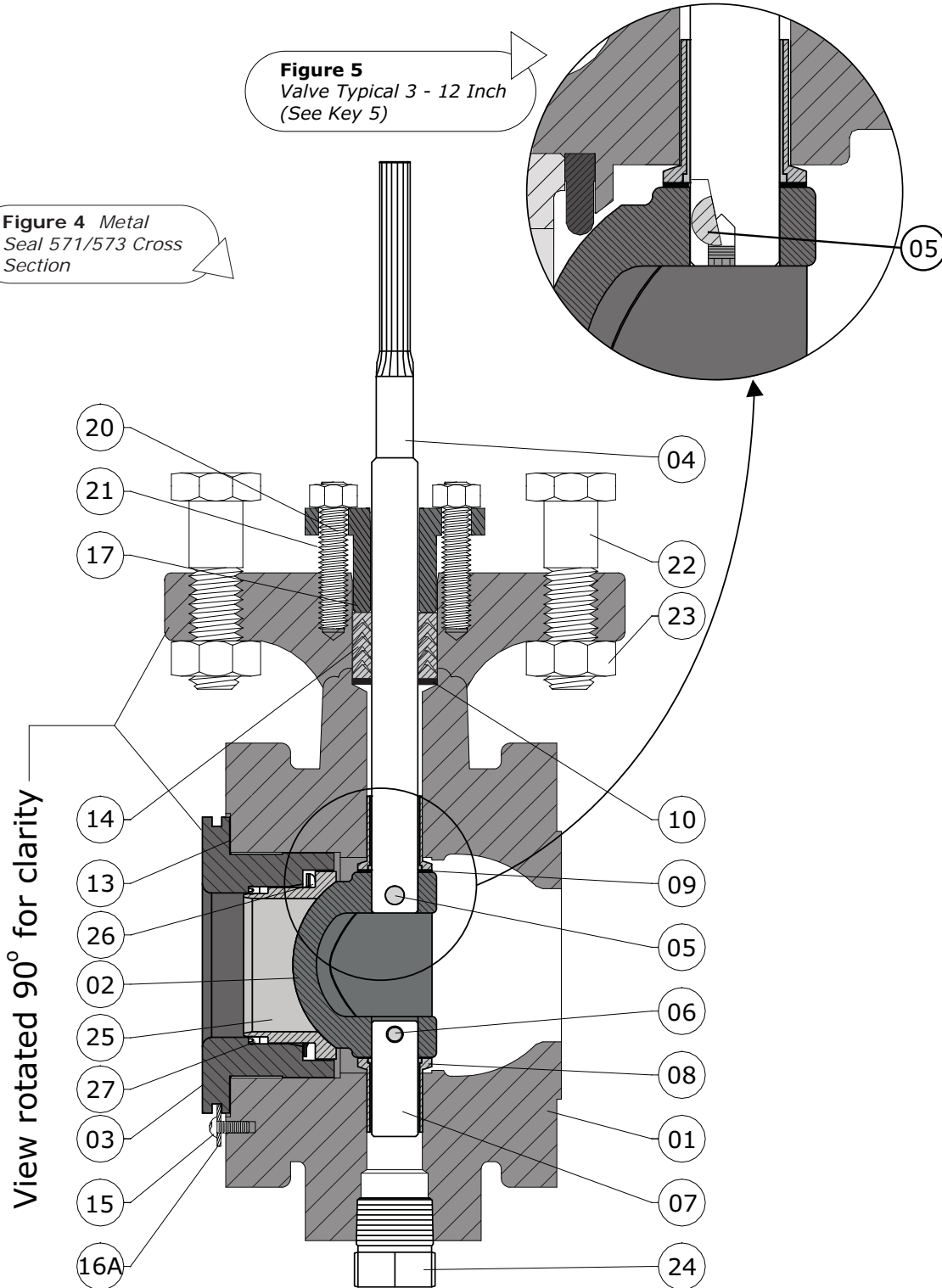
2 INCH 570 VALVE DIAGRAM



Model
570, 571, 573 Control Valves

Figure 5
Valve Typical 3 - 12 Inch
(See Key 5)

Figure 4 Metal
Seal 571/573 Cross
Section



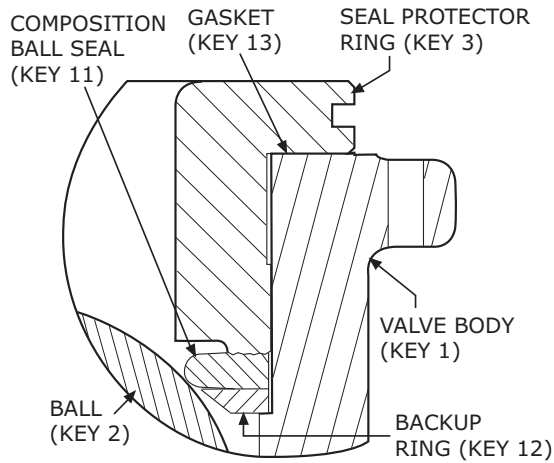
View rotated 90° for clarity

2 INCH 571 & 573 VALVE DIAGRAM

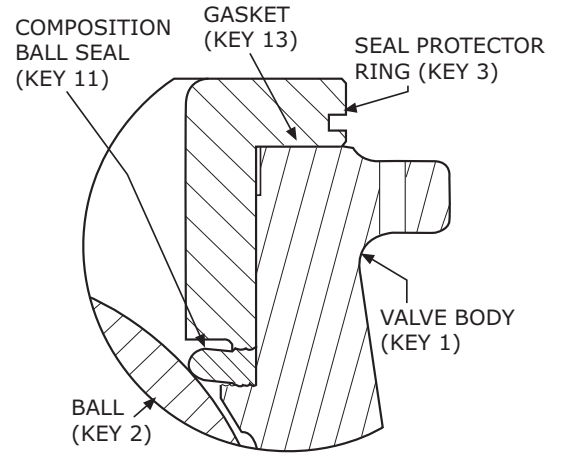


Model
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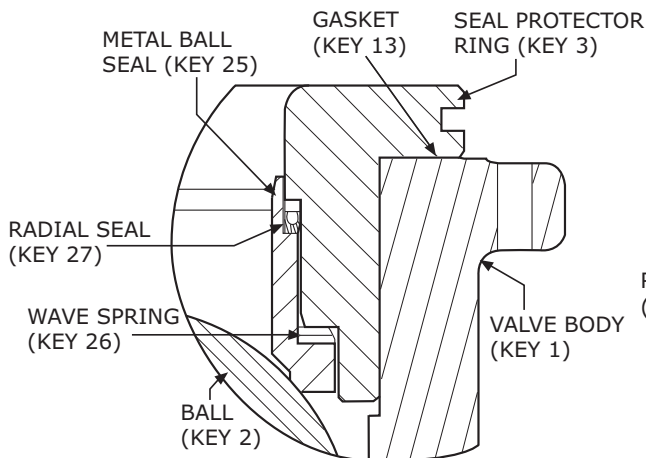
Figure 6 Ball Seal Assembly Diagrams for Valve Sizes 2 Through 12 Inch



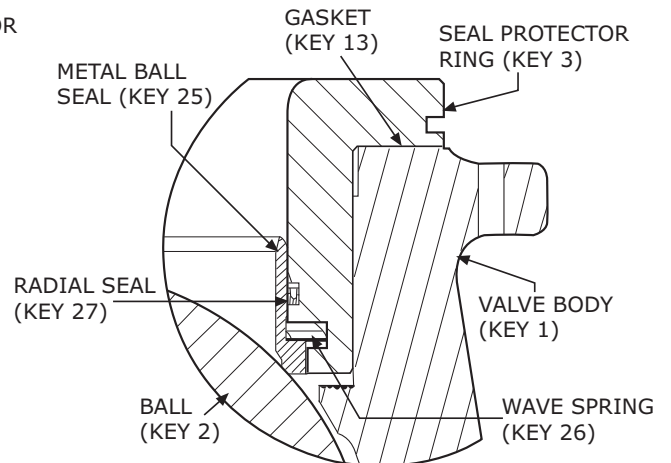
2 INCH COMPOSITION BALL SEAL & BACKUP RING



SIZE 3 THROUGH 12 INCH COMPOSITION BALL SEAL



2 INCH METAL BALL SEAL



SIZE 3 THROUGH 12 INCH METAL BALL SEAL



Model
570, 571, 573 Control Valves

Table 1

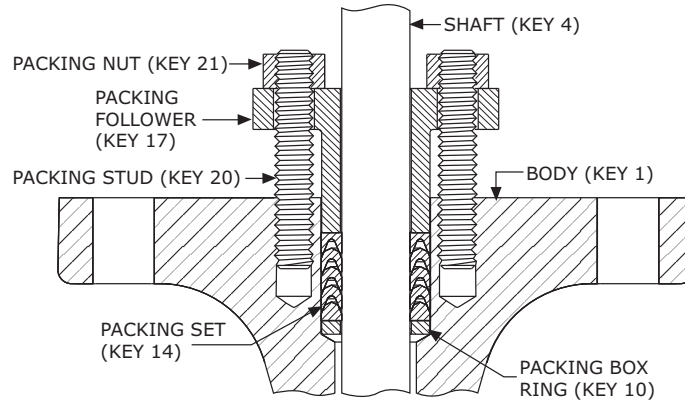
Model 570, 571, & 573 Construction Materials

Key	Part Description	Material
01	Body	ASTM (A352 LCC), ASTM (A216 WCC), ASTM (A351 CG8M)
02	Ball	CG8M (317 SST) Chrome Plated
03	Seal Protector Ring	ASTM (A350 LCC), ASTM (A216 WCC), ASTM (A351 CG8M)
*04	Shaft	S20910 (Nitronic 50), S17400 (17-4PH SST)
05	Pin for 2", Key for 3" - 12"	S20910 (Nitronic 50)
06	Pin	S31600 (316 SST)
*07	Follower Shaft	S20910 (Nitronic 50 SST), S17400 (17-4PH SST)
08	Bearing	S17400 (17-4 PH) / Carbon PTFE Lined, S31600 (316 SST) / Carbon PTFE Lined, S44004 (440C SST), R30006 (COCRA Alloy 6) (2 req'd)
09	Thrust Washer	N06625 (Monel 625) (Old Style) NOTE: New style bearings have a built in Thrust Washer
10	Packing Box Ring	S31600 (316 SST)
11	Composition Ball Seal	PTFE Composite
12	Back Up Ring (2" Valve Only)	S31600 (316 SST)
13	Gasket	Graphoil Laminate
14	Packing Set	PTFE, Carbon PTFE, Graphite, Live Loaded
15	Seal Protector Screw	S30400 (18-8 SST) (2 req'd)
16	Seal Protector Clip	Stainless Steel (2 req'd)
16A	Seal Protector Washer	Stainless Steel (2 req'd)
17	Packing Follower	CF8M (316 SST)
18	Live Loaded Packing Follower	PTFE / CF8M (316 SST)
19	Packing Flange	CF8M (316 SST)
20	Packing Stud	S31600 (316 SST), B8M (with CF8M Body) (2 req'd)
21	Packing Nut	S31600 (316 SST), 8M (with CF8M Body) (2 req'd)
22	Actuator Mounting Bolt	Plated Steel (2 req'd)
23	Actuator Mounting Nut	Plated Steel (2 req'd)
24	Pipe Plug	A105 Steel, S31600 (316)
25	Metal Ball Seal	S21800 (Nitronic 60), S31600 / R30006 (Alloy 6) (solid R30006 for 2" valves)
26	Wave Spring	N07750 (Inconel X750)
27	Radial Seal	Carbon PTFE / R30003 (Elgiloy)
28	Spring Washers	N07718 (Inconel 718)

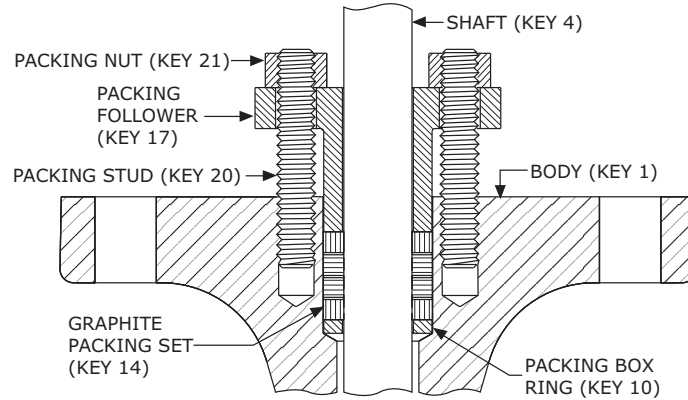
* Standard NACE Service requires Nitronic 50.



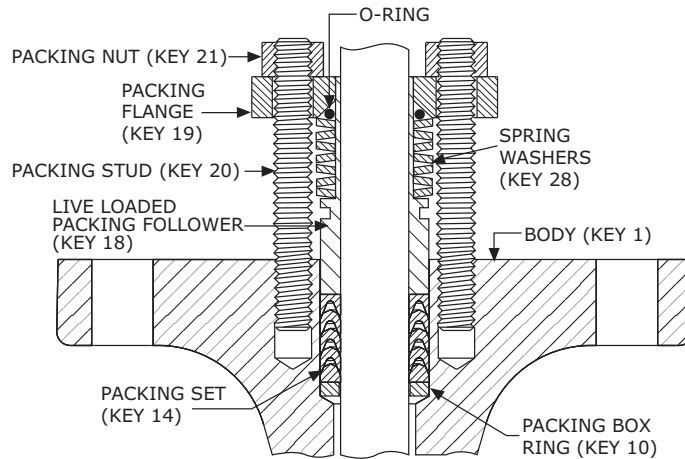
Model
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PTFE PACKING



GRAPHITE PACKING



LIVE LOADED PTFE PACKING

Figure 7 Valve Packing Configurations



Model
570, 571, 573 Control Valves

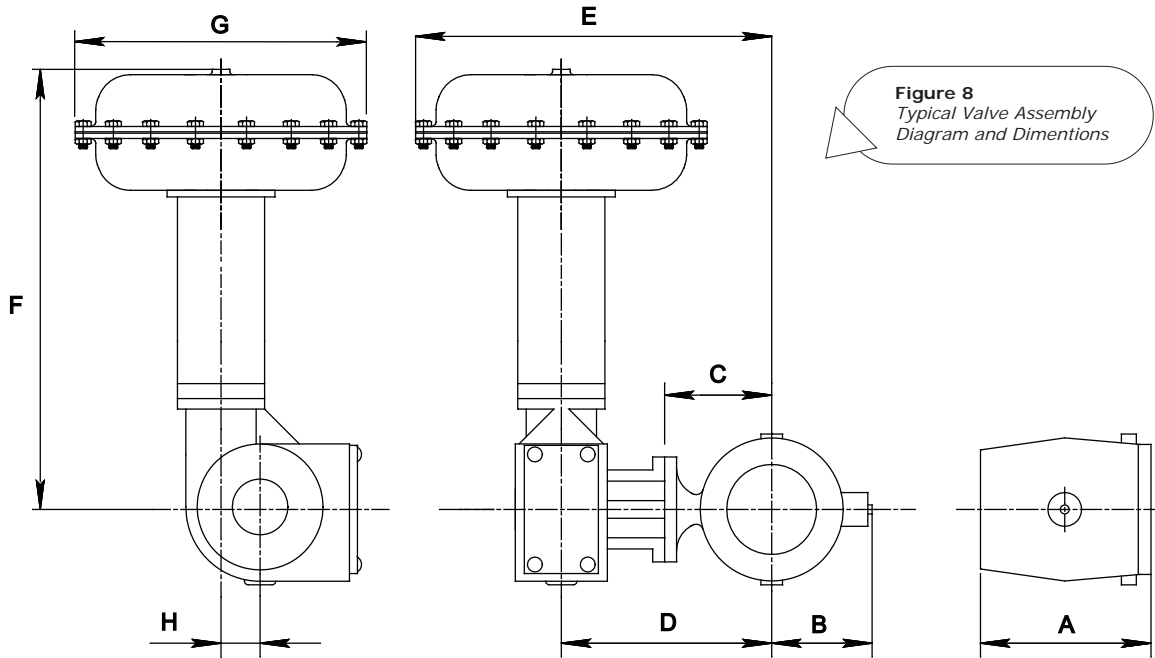
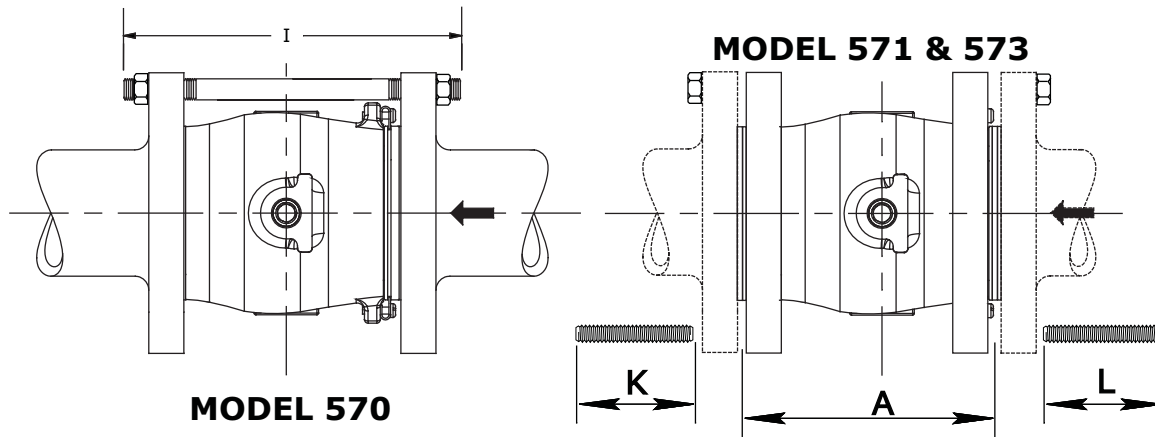
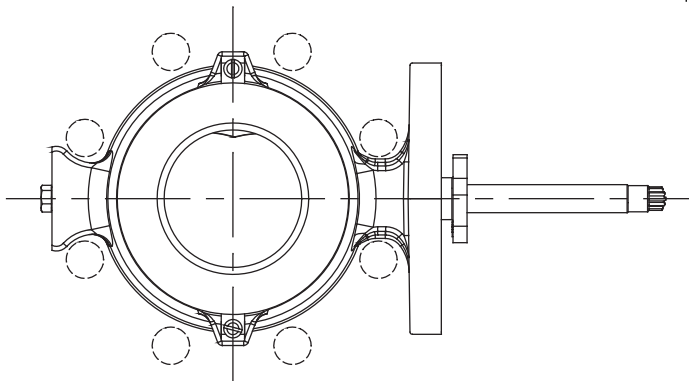


Figure 8
Typical Valve Assembly
Diagram and Dimensions



MODEL 570

MODEL 571 & 573





Model
570, 571, 573 Control Valves

Table 2

Model 570 Valve Dimensions Inch (mm)

Valve / Actuator Size	Dimensional Reference							
	A	B	C	D	E	F	G	H
2" / DFR026	4.88 (124)	4.19 (106)	5.00 (127)	10.4 (264)	15.3 (389)	10.1 (257)	9.90 (251)	0.70 (17.8)
3" / DFR047	6.50 (165)	4.62 (117)	5.12 (130)	11.4 (290)	17.1 (434)	13.3 (338)	11.4 (290)	1.31 (33.3)
4" / DFR070	7.62 (194)	5.25 (133)	5.56 (141)	11.9 (302)	18.4 (467)	23.9 (607)	13.1 (333)	2.12 (53.8)
6" / DFR156	9.00 (229)	6.25 (159)	7.06 (179)	13.4 (340)	21.8 (548)	34.5 (876)	18.6 (472)	2.50 (63.5)
8" / DFR156	9.56 (243)	7.69 (195)	9.12 (232)	14.9 (378)	24.2 (615)	34.5 (876)	18.6 (472)	2.50 (63.5)
8" / DFR220	9.56 (243)	7.69 (195)	9.12 (232)	14.9 (378)	25.5 (648)	33.4 (848)	21.1 (536)	2.50 (63.5)

ANSI Class: 150 / 300 / 600

- Envelope Dimensions are + / - 0.25 in. (6.4 mm)
- Face to Face Tolerance Per ASME

Table 3

Model 571 and 573 Valve Dimensions Inch (mm)

Valve / Actuator Size	Dimensional Reference							
	A	B	C	D	E	F	G	H
2" / DFR026	4.88 (124)	4.19 (106)	5.00 (127)	10.4 (264)	15.3 (389)	10.1 (257)	9.90 (251)	0.70 (17.8)
3" / DFR047	6.50 (165)	4.62 (117)	5.12 (130)	11.4 (290)	17.1 (434)	13.3 (338)	11.4 (290)	1.31 (33.3)
4" / DFR070	7.62 (194)	5.25 (133)	5.56 (141)	11.9 (302)	18.4 (467)	23.9 (607)	13.1 (333)	2.12 (53.8)
6" / DFR156	9.00 (229)	6.25 (159)	7.06 (179)	13.4 (340)	21.8 (548)	34.5 (876)	18.6 (472)	2.50 (63.5)
8" / DFR156	9.56 (243)	7.69 (195)	9.12 (232)	14.9 (378)	24.2 (615)	34.5 (876)	18.6 (472)	2.50 (63.5)
8" / DFR220	9.56 (243)	7.69 (195)	9.12 (232)	14.9 (378)	25.5 (648)	33.4 (848)	21.1 (536)	2.50 (63.5)
10" / DFR220	11.69 (297)	8.75 (222)	10.25 (260)	16.1 (409)	26.7 (678)	33.4 (848)	21.1 (536)	2.50 (63.5)
12" / DFR220	13.31 (338)	10.56 (268)	11.94 (303)	17.74 (451)	28.29 (719)	33.4 (848)	21.1 (536)	2.50 (63.5)

ANSI Class: 571 = 150, 573 = 300

- Envelope Dimensions are + / - 0.25 in. (6.4 mm)
- Face to Face Tolerance Per ASME



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Table 4

Valve Stem Diameters Inch (mm)

Valve Size Inch	Stem Diameter Inch (mm)
2	5/8 x 1/2 spline (15.9 x 12.7 spline)
3	3/4 (19.1)
4	3/4 (19.1)
6	1 (25.4)
8	1-1/4 (31.8)
10	1-1/4 (31.8)
12	1-1/2 (38.1)

Figure 9
Flange Stud Measuring
Method

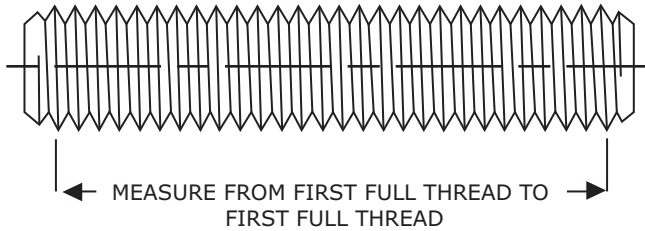


Table 5

Model 570 Flange Stud Lengths

See Figure 8 & 9

Valve Size (inches)	l		
	Class 150	Class 300	Class 600
2	8.31 (211)	9.31 (237)	9.31 (237)
3	10.00 (254)	11.00 (279)	11.25 (286)
4	11.25 (286)	12.00 (305)	13.50 (343)
6	13.50 (343)	14.25 (362)	16.25 (423)
8	13.50 (343)	15.25 (387)	16.75 (426)



Model
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Table 6

Model 571 and 573 Flange Stud Lengths Inch (mm)

See Figure 8 & 9

Valve Size Inch	571		573	
	K	L	K	L
2	3.61 (92)	4.11 (104)	3.86 (98)	4.11 (104)
3	3.86 (98)	4.11 (104)	4.65 (118)	5.15 (131)
4	3.86 (98)	4.61 (117)	4.90 (124)	5.40 (137)
6	4.40 (112)	4.90 (124)	5.40 (137)	5.90 (150)
8	4.90 (124)	5.15 (131)	5.94 (151)	6.44 (164)
10	5.19 (132)	5.69 (145)	6.75 (171)	7.25 (184)
12	5.19 (132)	5.94 (151)	7.25 (184)	7.75 (197)

Table 7

Flange Stud Diameters and Threads Per Inch (TPI)

Valve Size Inch	Stud Diameter Inch (mm)			TPI		
	Class 150	Class 300	Class 600	Class 150	Class 300	Class 600
2	5/8 (15.7)	5/8 (15.7)	5/8 (15.7)	11	11	11
3	5/8 (15.7)	3/4 (19.1)	3/4 (19.1)	11	10	10
4	5/8 (15.7)	3/4 (19.1)	7/8 (22.2)	11	10	9
6	3/4 (19.1)	3/4 (19.1)	1 (25.4)	10	10	8
8	3/4 (19.1)	7/8 (22.2)	1-1/8 (28.6)	10	9	7
10	7/8 (22.2)	1 (25.4)	1-1/4 (31.8)	9	8	7
12	7/8 (22.2)	1-1/8 (28.6)	1-1/4 (31.8)	9	7	7

Table 8

Flange Stud Quantity

Valve Size Inch	Number of Studs Required (Double for Models 571 & 573)		
	Class 150	Class 300	Class 600
2	4	8	8
3	4	8	8
4	8	8	8
6	8	12	12
8	8	12	12
10	12	16	16
12	12	16	20



Model
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Table 9

Actuator Sizing Chart

PTFE Composite Seal Ring and SST / PTFE Bearing
Forward Flow | 35 Psig Supply Pressure | Pressure Differential as Specified

Valve Size	Actuator Action	Shutoff Pressure Differential Psig (kPag)						
		100 (690)	200 (1,380)	300 (2,070)	400 (2,760)	500 (3,450)	600 (4,140)	750 (5,171)
DFR Acuator Size								
2 Inch	FAIL OPEN	026	026	026	026	026	026	026
	FAIL CLOSED	026	026	026	026	026	047	047
3 Inch	FAIL OPEN	047	047	047	047	047	047	047
	FAIL CLOSED	047	047	047	047	047	047	047
4 Inch	FAIL OPEN	047	047	047	047	047	047	047
	FAIL CLOSED	070	070	070	070	070	070	070
6 Inch	FAIL OPEN	156	156	156	156	156	156	156
	FAIL CLOSED	156	156	156	156	156	156	156
8 Inch	FAIL OPEN	156	156	156	156	156	156	156
	FAIL CLOSED	156	156	156	156	156	156	156
10 & 12 Inch	FAIL OPEN	220	220	220	220	220	220	220
	FAIL CLOSED	220	220	220	220	220	220	220

Table 10

Valve and Actuator Assembly Weights Ib (Kg)

Valve Size Inch/ Actuator model	Model			
	570	571	573	
2	DFR026	53 (24)	51 (23)	68 (31)
	DFR047	69 (31)	67 (30)	84 (38)
3	DFR047	80 (36)	89 (40)	107 (49)
4	DFR047	94 (43)	103 (47)	127 (58)
	DFR070	147 (67)	156 (71)	145 (66)
6	DFR156	283 (128)	296 (134)	336 (152)
8	DFR156	339 (154)	361 (164)	429 (195)
	DFR220	408 (185)	430 (195)	498 (226)
10	DFR220	—	507 (230)	712 (323)
12	DFR220	—	619 (281)	917 (416)



Model
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Table 11

Model 570 Body Pressure Temperature Ratings

Temperature Range	ASME Pressure Class								
	WCC Class 150	LCC ¹ Class 150	CG8M Class 150	WCC Class 300	LCC ¹ Class 300	CG8M Class 300	WCC Class 600	LCC ¹ Class 600	CG8M Class 600
°C	kPa								
-46 to -29	—	1,999	—	—	5,171	—	—	10,342	—
-29 to 38	1,999	1,999	1,896	5,171	5,171	—	10,342	10,342	—
93	1,793	1,793	1,620	5,171	5,171	—	10,342	10,342	—
149	1,586	1,586	1,482	5,033	5,033	—	10,032	10,032	—
204	1,376	1,379	1,344	4,861	4,861	—	9,722	9,722	—
260	1,172	1,172	1,172	4,585	4,585	—	9,170	9,170	—
316	965	965	965	4,171	4,171	—	8,343	8,343	—
343	862	862	862	4,068	4,068	—	8,101	8,101	—
371	758	—	758	3,827	—	—	7,826	—	—
399	655	—	655	3,842	—	—	6,964	—	—
427	552	—	552	3,482	—	—	5,688	—	—
°F	Psi								
-50 to -20	—	290	—	—	750	—	—	1,500	—
-20 to 100	290	290	275	750	750	—	1,500	1,500	—
200	260	260	235	750	750	—	1,500	1,500	—
300	230	230	215	730	730	—	1,455	1,455	—
400	200	200	195	705	705	—	1,410	1,410	—
500	170	170	170	665	665	—	1,330	1,330	—
600	140	140	140	605	605	—	1,210	1,210	—
650	125	125	125	590	590	—	1,175	1,175	—
700	110	—	110	555	—	—	1,135	—	—
750	95	—	95	505	—	—	1,010	—	—
800	80	—	80	410	—	—	825	—	—

Pressure Temperature Ratings as per ASME B16.34, 2004
For ratings above 800°F (427 °C) consult factory.

Notes:

1 - Do not use over 650 °F (343 °C)

NOTE: Do not exceed the allowable shutoff pressure drops of the valve trim material as per Table 9



Model
570, 571, 573 Control Valves

Table 12

Maximum Allowable Shutoff Pressure Drops for Bearing and Ball Seal Material

Bearing Material	Ball Seal	Temperature Range °F (°C)	Valve Size, Inches						
			2	3	4	6	8	10	12
			Psi (kPa)						
S31600/ PTFE	Composition	-50 to 100 (-46 to 38)	750 (5,171)	750 (5,171)	750 (5,171)	750 (5,171)	750 (5,171)	583 (4,020)	545 (3,758)
		200 (93)	550 (3,792)	550 (3,792)	550 (3,792)	550 (3,792)	550 (3,792)	550 (3,792)	545 (3,758)
		300 (149)	350 (2,413)	350 (2,413)	350 (2,413)	350 (2,413)	350 (2,413)	350 (2,413)	350 (2,413)
		400 (204)	150 (1,034)	150 (1,034)	150 (1,034)	150 (1,034)	150 (1,034)	150 (1,034)	150 (1,034)
		450 (232)	50 (345)	50 (345)	50 (345)	50 (345)	50 (345)	50 (345)	50 (345)
	Metal	-50 to 500 (-46 to 260)	750 (5,171)	750 (5,171)	750 (5,171)	750 (5,171)	750 (5,171)	593 (4,089)	553 (3,813)
Flow Ring	-50 to 500 (-46 to 260)	1,500 (10,342)	1,500 (10,342)	1,050 (7,239)	1,090 (7,515)	1,070 (7,377)	587 (4,047)	547 (3,771)	
S44004	Metal	-50 to 550 (-46 to 288)	371 (2,558)	252 (1,737)	160 (1,103)	157 (1,082)	162 (1,117)	89 (614)	83 (572)
	Flow Ring	-50 to 800 (-46 to 427)	386 (2,661)	272 (1,875)	157 (1,082)	162 (1,117)	160 (1,103)	88 (607)	82 (565)
R30006	Metal	-50 to 550 (-46 to 288)	371 (2,558)	252 (1,737)	160 (1,103)	157 (1,082)	162 (1,117)	89 (614)	83 (572)
	Flow Ring	-50 to 800 (-46 to 427)	386 (2,661)	272 (1,875)	157 (1,082)	162 (1,117)	160 (1,103)	88 (607)	82 (565)
R30006 Silver Plated	Composition	-50 to 550 (-46 to 288)	740 (5,100)	508 (3,503)	320 (2,206)	316 (1,634)	326 (2,248)	178 (1,227)	166 (1,145)
	Metal	500 to 800 (228 to 427)	555 (3,827)	380 (2,620)	240 (1,627)	236 (1,634)	245 (1,689)	134 (924)	125 (862)
	Flow Ring	-50 to 800 (-46 to 427)	776 (5,350)	546 (3,765)	316 (2,179)	326 (2,248)	322 (2,220)	176 (1,213)	164 (1,131)

NOTE: Do not exceed the pressure/temperature rating of the valve body material as per Table 3



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Table 13

Valve

Sizing Coefficients

Forward Flow, Composition And Metal Seals
1:1 Pipe To Valve Size Ratio

Valve Size		Degrees Opening								
		10	20	30	40	50	60	70	80	90
2 inch	C _V	0.054	3.05	9.20	18.1	30.1	42.4	61.0	84.4	112
	X _T	0.648	0.788	0.775	0.688	0.610	0.590	0.487	0.418	0.379
	F _L	0.94	0.90	0.91	0.86	0.85	0.84	0.79	0.76	0.76
3 inch	C _V	1.08	10.5	24.8	41.2	69.4	112	163	230	303
	X _T	0.689	0.608	0.640	0.636	0.588	0.558	0.461	0.399	0.315
	F _L	0.91	0.89	0.89	0.86	0.84	0.82	0.78	0.78	0.75
4 inch	C _V	3.90	21.4	47.2	77.8	117	172	248	375	519
	X _T	0.737	0.854	0.813	0.724	0.657	0.559	0.504	0.355	0.230
	F _L	0.88	0.91	0.91	0.87	0.84	0.81	0.78	0.70	0.63
6 inch	C _V	6.40	31.1	77.9	141	216	310	435	685	1,012
	X _T	0.608	0.775	0.797	0.740	0.635	0.540	0.514	0.362	0.230
	F _L	0.94	0.93	0.92	0.89	0.85	0.80	0.79	0.72	0.62
8 inch	C _V	7.50	53.5	112	203	323	465	631	915	1,670
	X _T	0.580	0.790	0.741	0.642	0.611	0.543	0.569	0.370	0.210
	F _L	0.94	0.94	0.92	0.90	0.85	0.80	0.79	0.72	0.62
10 inch	C _V	41.0	99.4	240	447	689	980	1,320	1,940	2,860
	X _T	0.413	0.652	0.620	0.459	0.510	0.480	0.452	0.310	0.242
	F _L	0.84	0.87	0.88	0.85	0.85	0.82	0.75	0.64	0.53
12 inch	C _V	40.0	152	350	640	1,030	1,460	1,980	2,840	3,710
	X _T	0.450	0.770	0.687	0.602	0.530	0.527	0.451	0.358	0.245
	F _L	0.78	0.81	0.84	0.82	0.82	0.79	0.72	0.67	0.63

Relationships Of Note:

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

$$C_g = C_V C_1$$

$$K_m = F_L^2$$



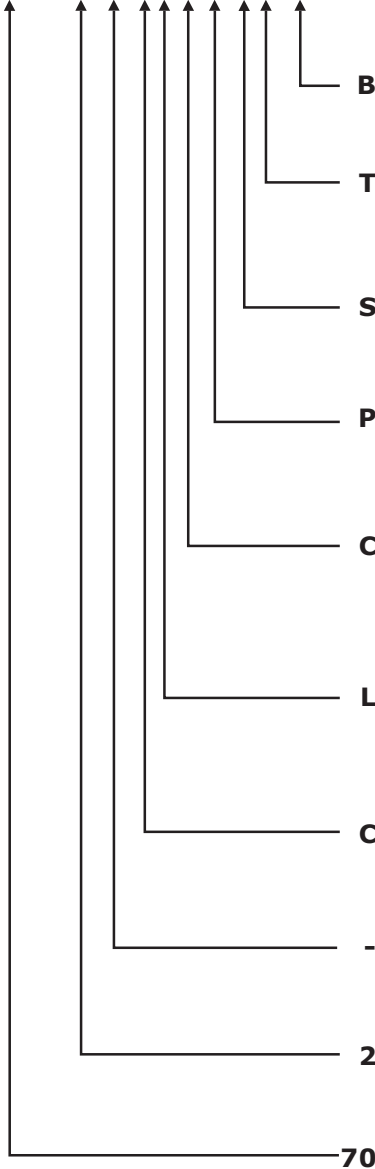
Model
570, 571, 573 Control Valves

Ordering Guide

Dyna-Flo 570 Series Control Valve | Model Numbering System

Sample Part Number

570 - 2 - CLC PST B



Code	Description				
Options					
<input type="checkbox"/>	None				
B	Bitorq				
Bearings					
T	S31600 / PTFE				
F	S44004				
A	R30006				
H	S21800 / PTFE				
Shaft					
P	S0910 Square End				
N	S20910 Splined				
Packing Material					
P	PTFE				
G	Graphite				
L	Live Loaded PTFE				
Ball Seal Material					
C	PTFE Composition				
H	S21800				
A	R30006				
Body Material					
L	A352 LCC				
W	A216 WCC				
C	A351 CG8M				
ASME Rating (See Page 2)					
A	150	D	150/300		
B	300/600	E	300		
C	150/300/600	F	600		
Ball					
-	Standard Ball				
Body Sizes					
2	2"	6	6"	B	12"
3	3"	8	8"		
4	4"	A	10"		
Model					
70	570	71	571	73	573

Our Commitment of Quality

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