



**Figure 1** Model 571S Control Valve and DFR-070 Actuator

The 570S (Slurry) Series segmented ball rotary control valve is rugged, designed with extremely erosive wear-resistant materials to combat abrasive process slurries. 570S Series control valves use of hard, protective materials, such as special trim and bearing caps, prolong the life, safety and reliability of the valve.

Models 571S and 573S are raised-face flanged valves for ASME Class 150 (571S) and 300 (573S).

The straight through unrestricted flow path delivers higher capacity flow than globe style valves. And our splined shaft provides accurate control in throttling operations and flexibility in actuation options. The 570S 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.

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

## Features

### Special Design for Extended Service

A specially engineered body liner combined with direction of flow shifts high-velocity down stream of the vena contracta, this makes exit flow parallel with the flow ring, extending trim life and reducing damage to the connected pipeline.

### Wear Resistant Construction

570S slurry valves are constructed using highly wear resistant material, areas such as the body, shaft and bearings are heavily protected from erosion.

### Easy Maintenance

Easy to replace trim parts allow the wear resistant valve body to be reused for long service life. The simple ball-to-shaft connection makes for easy disassembly while reducing packing replacement time and replacing the flow ring is easily done by removing two screws.

### Lightweight Installation

The 570S series is a rugged, yet lightweight ball valve that is designed to be easier to handle than sliding stem valves of the same size.

### Adjustable Shaft Packing

The shaft to body interface is sealed to atmosphere by externally adjustable PTFE or optional graphite packing rings. Further reduce emissions with the use of Dyna-Flo's Live Loaded PTFE and graphite packing systems.

### Industrial High Quality External Coatings

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

### Field Reversible

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

## Specifications

### Sizes and Connection Styles (Refer to Table 1)

Model:	571S & 573S
Size:	3" NPS to 8" NPS (80mm DN to 200mm DN)
Body Style:	Flanged
Rating:	ASME Class 150 or 300
Connection:	RF

### Maximum Inlet Pressures and Temperatures

Consistent with ASME Class 150 & 300 rating as per ASME B16.34, unless limited.

### Maximum Pressure Drops

Refer to Tables 14 & 15.

### Characteristic and Flow Direction

Modified Equal Percent - Reverse Flow (into back of Ball out through Flow Ring)

### Flow Coefficients

Refer to Table 13.

### Dimensions

Valve Outline Dimension Diagram: Refer to Figure 2.

Valve and Actuator Outline Dimension Diagram: Refer to Figure 2.

Valve and Actuator Assembly Dimensions: Refer to Tables 4 to 10.

Line Flange Bolting Dimensions: Refer to Tables 7 & 8.

### Approximate Valve Body and Actuator Weights

Refer to Tables 2 & 3.

### Maximum Ball Rotation

90 degrees.

### Actuator Mounting

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

### Valve Cross-Section

Refer to Figures 4 & 5.

### Material and Temperature Capabilities

#### Valve Body:

WCC (ASTM A216): -20°F to 800°F (-29°C to 427°C)

#### Packing:

PTFE: -50°F to 450°F (-46°C to 232°C)

Graphite: -325°F to 1000°F (-198°C to 538°C)

Live Loaded PTFE: -50°F to 450°F (-46°C to 232°C) for 100 ppm service requirements.

Live Loaded Graphite: 20°F to 600°F (-7°C to 316°C).

#### Ball Seals:

Flow Ring: -325°F to 800°F (-198°C to 425°C)

**NOTE:** Refer to Table 12 for more temperature limitations.

### Construction Materials

Refer to Tables 11 & 12.

### Shut-Off Classification

Flow Ring: Class I

**NOTE:** Classes and testing per ANSI/FCI 70-2 and IEC 60534-4.

### Shaft Connections

Splined (Standard)

Square (Optional) for sizes 3 to 6" NPS (80 to 150mm DN)

Keyed (Optional) for size 8" NPS (200mm DN)

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

#### **WARNING**

The pressure, temperature and material limitations listed in this bulletin and any applicable standard should not be exceeded.

Table 1

## Available Valve Configurations

Valve Model	End Connection	Body Material	Valve Size	Valve Rating
571	Flanged Mates with ASME Class 150 Raised Face Flanges	WCC	3 / 4 / 6 / 8" NPS (80 / 100 / 150 / 200 DN)	ASME Class 150
573	Flanged Mates with ASME Class 300 Raised Face Flanges	WCC	3 / 4 / 6 / 8" NPS (80 / 100 / 150 / 200 DN)	ASME Class 300

Table 2

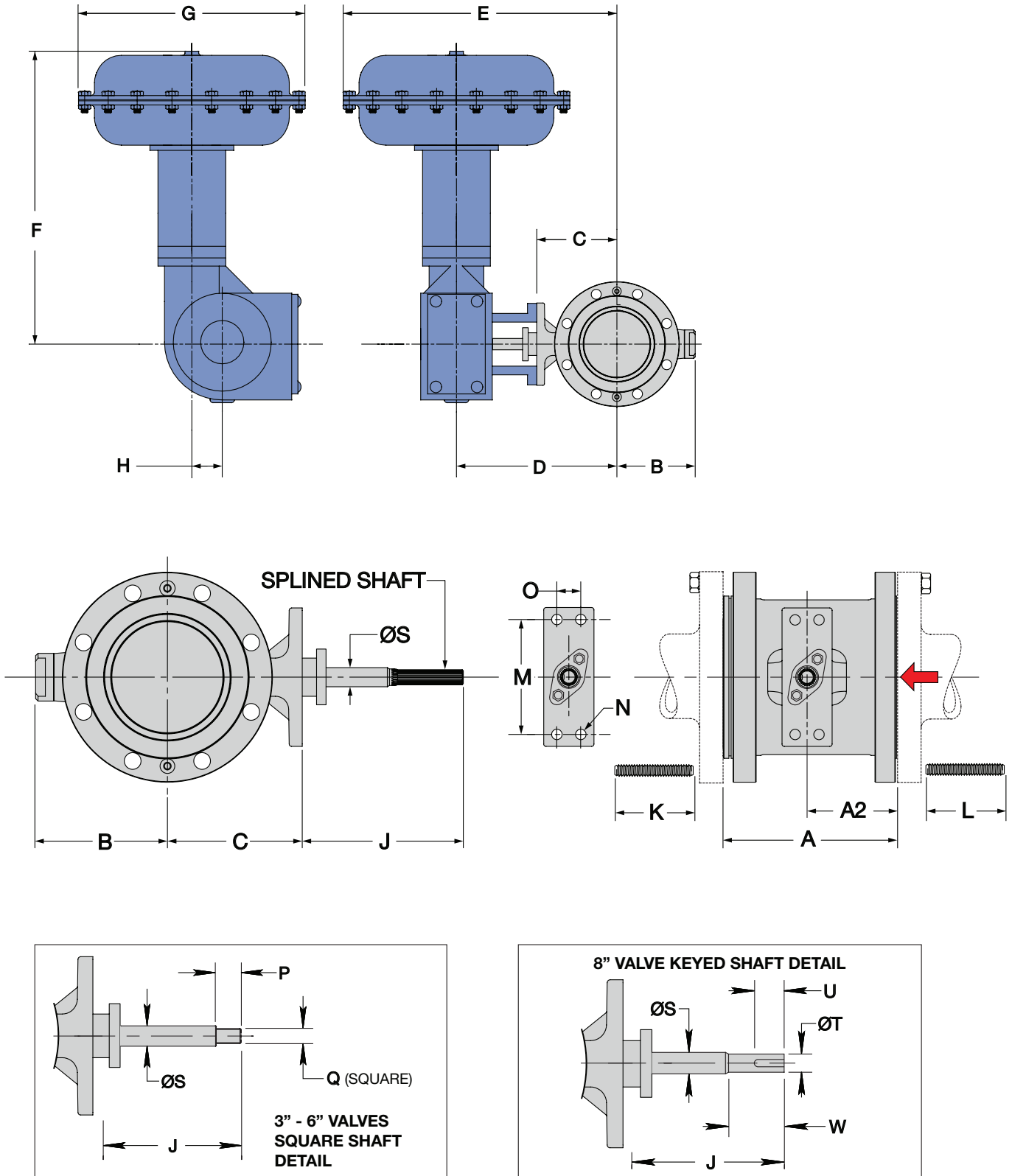
## 571 Valve and Actuator Assembly Weights

Valve Size	Valve Weight	Actuator Model Assembled Weight			
		DFR047	DFR070	DFR156	DFR220
3" NPS	33 lb	79 lb	-	-	-
4" NPS	62 lb	108 lb	161 lb	-	-
6" NPS	99 lb	-	-	302 lb	-
8" NPS	180 lb	-	-	383 lb	452 lb
80mm DN	15 Kg	36 Kg	-	-	-
100mm DN	28 Kg	49 Kg	73 Kg	-	-
150mm DN	45 Kg	-	-	137 Kg	-
200mm DN	82 Kg	-	-	174 Kg	206 Kg

Table 3

## 573 Valve and Actuator Assembly Weights

Valve Size	Valve Weight	Actuator Model Assembled Weight			
		DFR047	DFR070	DFR156	DFR220
3" NPS	66 lb	112 lb	-	-	-
4" NPS	86 lb	132 lb	185 lb	-	-
6" NPS	142 lb	-	-	345 lb	-
8" NPS	265 lb	-	-	468 lb	537 lb
80mm DN	30 Kg	51 Kg	-	-	-
100mm DN	39 Kg	60 Kg	84 Kg	-	-
150mm DN	65 Kg	-	-	157 Kg	-
200mm DN	120 Kg	-	-	212 Kg	244 Kg



**Figure 2** Typical Valve and Actuator Dimensional Diagram

Table 4

**Model 571S and 573S Valve Dimensions** (Refer to Figure 2)

Valve Size / Actuator	Dimensions - Inch								
	A	A2	B	C	D	E	F	G	H
3" NPS / DFR070	6.50	3.10	5.41	5.12	11.42	17.99	23.94	13.13	2.13
4" NPS / DFR070	7.62	3.99	5.86	5.56	11.86	18.43	23.94	13.13	2.13
6" NPS / DFR156	9.06	4.29	6.89	7.06	12.24	21.56	34.50	18.63	2.50
8" NPS Short Liner / DFR156	9.56	4.88	8.28	9.12	14.92	24.24	34.50	18.63	2.50
8" NPS Long Liner / DFR156	11.96	7.25	8.28	9.12	14.92	24.24	34.50	18.63	2.50

Valve Size / Actuator	Dimensions - mm								
	A	A2	B	C	D	E	F	G	H
80mm DN / DFR070	165	79	137	130	290	457	608	334	54.1
100mm DN / DFR070	194	101	149	141	301	468	608	334	54.1
150mm DN / DFR156	230	109	175	179	311	548	876	473	63.5
200mm DN Short Liner / DFR156	243	124	210	232	379	616	876	473	63.5
200mm DN Long Liner / DFR156	304	184	210	232	379	616	876	473	63.5

**NOTES:** Envelope Dimensions are + / - 0.25 inch (6.4 mm)

Table 5

**Splined Shaft Dimensions** (Refer to Figure 2) (Refer to Tables 9 & 10 for Square & Keyed Shafts)

Valve Size	Dimensions - Inch			
	571		573	
	J	S	J	S
3" & 4" NPS	8.44	3/4	8.44	3/4
6" NPS	8.44	1	8.44	1
8" NPS	8.19	1-1/4	8.19	1-1/4

Valve Size	Dimensions - mm			
	571		573	
	J	S	J	S
80mm & 100mm DN	214	19.1	214	19.1
150mm DN	214	25.4	214	25.4
200mm DN	208	31.8	208	31.8

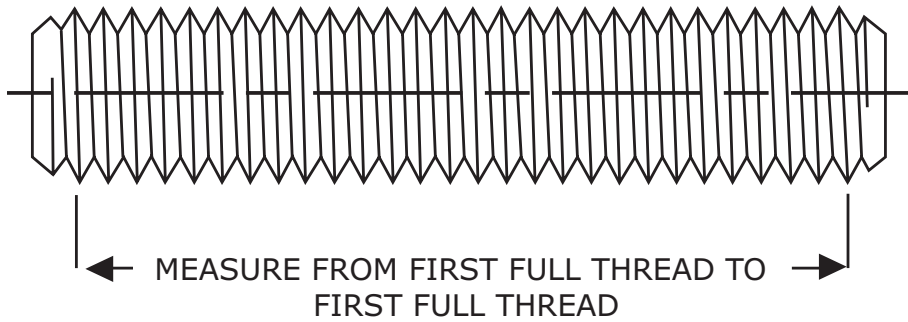
Table 6

**571S & 573S Valve Mounting Pad Dimensions** (Refer to Figure 2)

Valve Size	Dimensional Reference - Inch		
	N	M	O
3" / 4" / 6" NPS	0.56	6.00	1.25
8" NPS	0.69	9.25	1.81

Valve Size	Dimensional Reference - mm		
	N	M	O
80mm / 100mm / 150mm DN	14.2	152	31.8
200mm DN	17.5	235	46.0



**Figure 3** Flange Stud Measuring Method

**Table 7**

**Model 571S and 573S Flange Stud Lengths** (Refer to Figures 2 & 3)

Valve Size	Dimensional Reference - Inch					
	Model 571			Model 573		
	K	L	Quantity	K	L	Quantity
3" NPS	4.19	3.94	8	5.25	4.75	16
4" NPS	4.69	3.94	16	5.50	5.00	16
6" NPS	5.00	4.50	16	6.00	5.50	24
8" NPS Short Liner	5.25	5.00	16	6.50	6.00	24
8" NPS Long Liner	7.68	5.00	16	8.78	6.00	24

Valve Size	Dimensional Reference - mm					
	Model 571			Model 573		
	K	L	Quantity	K	L	Quantity
80mm DN	106	100	8	133	121	16
100mm DN	119	100	16	140	127	16
150mm DN	127	114	16	152	140	24
200mm DN Short Liner	133	127	16	165	152	24
200mm DN Long Liner	195	127	16	223	152	24

**Table 8**

**Flange Stud Diameters and Threads Per Inch (TPI)**

Valve Size	TPI	
	Model 571S (ASME Class 150)	Model 573S (ASME Class 300)
3" NPS (80mm DN)	5/8" - 11	3/4" - 10
4" NPS (100mm DN)	5/8" - 11	3/4" - 10
6" NPS (150mm DN)	3/4" - 10	3/4" - 10
8" NPS (200mm DN)	3/4" - 10	7/8" - 9

Table 9

### Square Shaft Dimensions (Refer to Figure 3)

Valve Size	Dimensional Reference - Inch			
	J	S	P	Q
3" NPS	3.82	3/4	0.75	0.550
4" NPS	3.82	3/4	0.75	0.550
6" NPS	5.07	1	1.00	0.747
Valve Size	Dimensional Reference - mm			
	J	S	P	Q
80mm DN	97.0	19.1	19.1	14.0
100mm DN	97.0	19.1	19.1	14.0
150mm DN	128.8	25.4	25.4	19.0

Table 10

### Keyed Shaft Dimensions (Refer to Figure 3)

Valve Size	Dimensional Reference - Inch				
	J	S	U	T	W
8" NPS	7.62	1-1/4	3.50	1-1/8	3.75
	8" Valve Shafts use a 1/4" x 3.25" Key Stock.				
Valve Size	Dimensional Reference - mm				
	J	S	U	T	W
200mm DN	194	31.8	88.9	28.6	95.3
	200mm DN Valve Shafts use a 6.35mm x 82.6mm Key Stock.				

Table 11

### Available Valve Trim Combinations

Trim Combination	Ball Material	Flow Ring Material	Body Liner Material	Bearing Cap Material
1 (Standard)	HCl <sup>(1)</sup>	HCl <sup>(1)</sup>	HCl <sup>(1)</sup>	HCl <sup>(1)</sup>
2	HCl <sup>(1)</sup>	HCl <sup>(1)</sup> with Ceramic Insert	HCl <sup>(1)</sup>	HCl <sup>(1)</sup>
3	Ceramic	HCl <sup>(1)</sup> with Ceramic Insert	HCl <sup>(1)</sup>	HCl <sup>(1)</sup>

**NOTES:**

1 - HCl = High Chrome Iron.

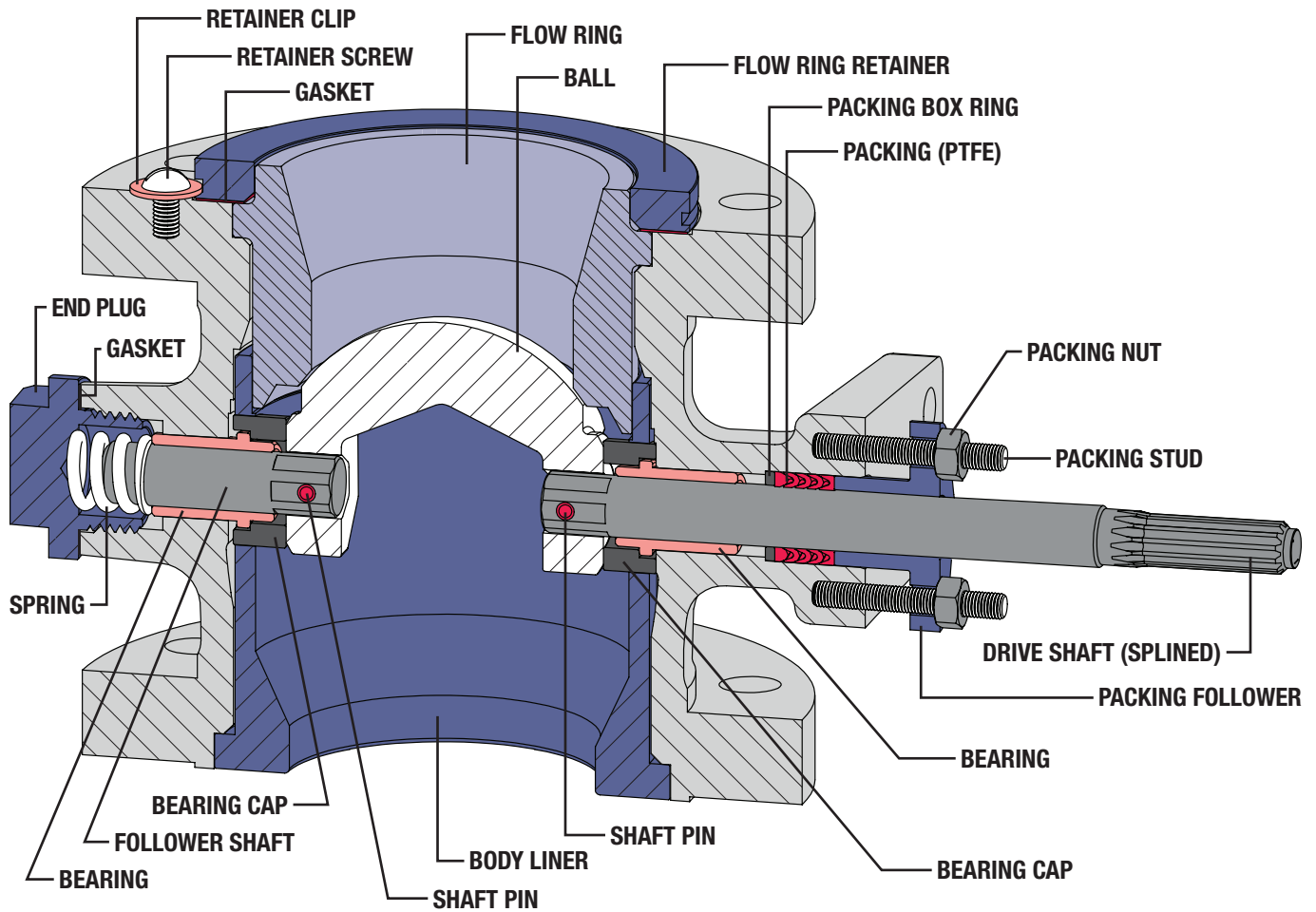
**Table 12**

**Construction Materials and Temperature Limitations**

Part	Material	Temperature Limitations			
		Min. °F	Max. °F	Min. °C	Max. °C
Ball	High Chrome Iron ASTM A532 Class III Type A	-20	800	-29	427
	Zirconia Ceramic (Optional)	-20	800	-29	427
Bearing	S44004	-20	800	-29	427
Bearing Cap	High Chrome Iron ASTM A532 Class III Type A	-20	800	-29	427
Body	WCC (ASTM A216)	-20	800	-29	427
Body Liner	High Chrome Iron ASTM A532 Class III Type A	-20	800	-29	427
Drive Shaft	S20910	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>
Flow Ring	High Chrome Iron ASTM A532 Class III Type A	-20	800	-29	427
	High Chrome Iron ASTM A532 Class III Type A with Zirconia Ceramic Insert	-20	450	-29	230
Flow Ring Retainer	ASTM A350 LF2 CL1	-50	800	-46	427
Follower Shaft	S20910	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>
Gaskets	Graphite SST Laminate	-325	800	-29	427
Packing	PTFE V-Ring	-50	450	-46	230
	Graphite	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>
Packing Box Ring	Dual Grade S31600/S31603 (316/316L)	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>
Packing Flange	Dual Grade S31600/S31603 (316/316L)	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>
Packing Follower	Dual Grade S31600/S31603 (316/316L)	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>
Packing Nuts	Dual Grade S31600/S31603 (316/316L)	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>
Packing Studs	B8M Class 2	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>
Retainer Clips (Flow Ring)	Dual Grade S31600/S31603 (316/316L)	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>
Retainer Screws (Flow Ring)	Dual Grade S31600/S31603 (316/316L)	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>
Shaft Pins	S42000	-20	800	-29	427
Spring	S30400	-20	800	-29	427
Spring Washers	N07718	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>	NLF <sup>(1)</sup>
End Plug	ASTM A350 LF2 CL1	-50	800	-46	427

**NOTES:**

**1** - NLF - This Material is Not A Limiting Factor.



**Figure 4** Standard Valve Assembly Cross Section

**Table 13**

**Valve Sizing Coefficients - Reverse Flow, Modified Equal Percentage**

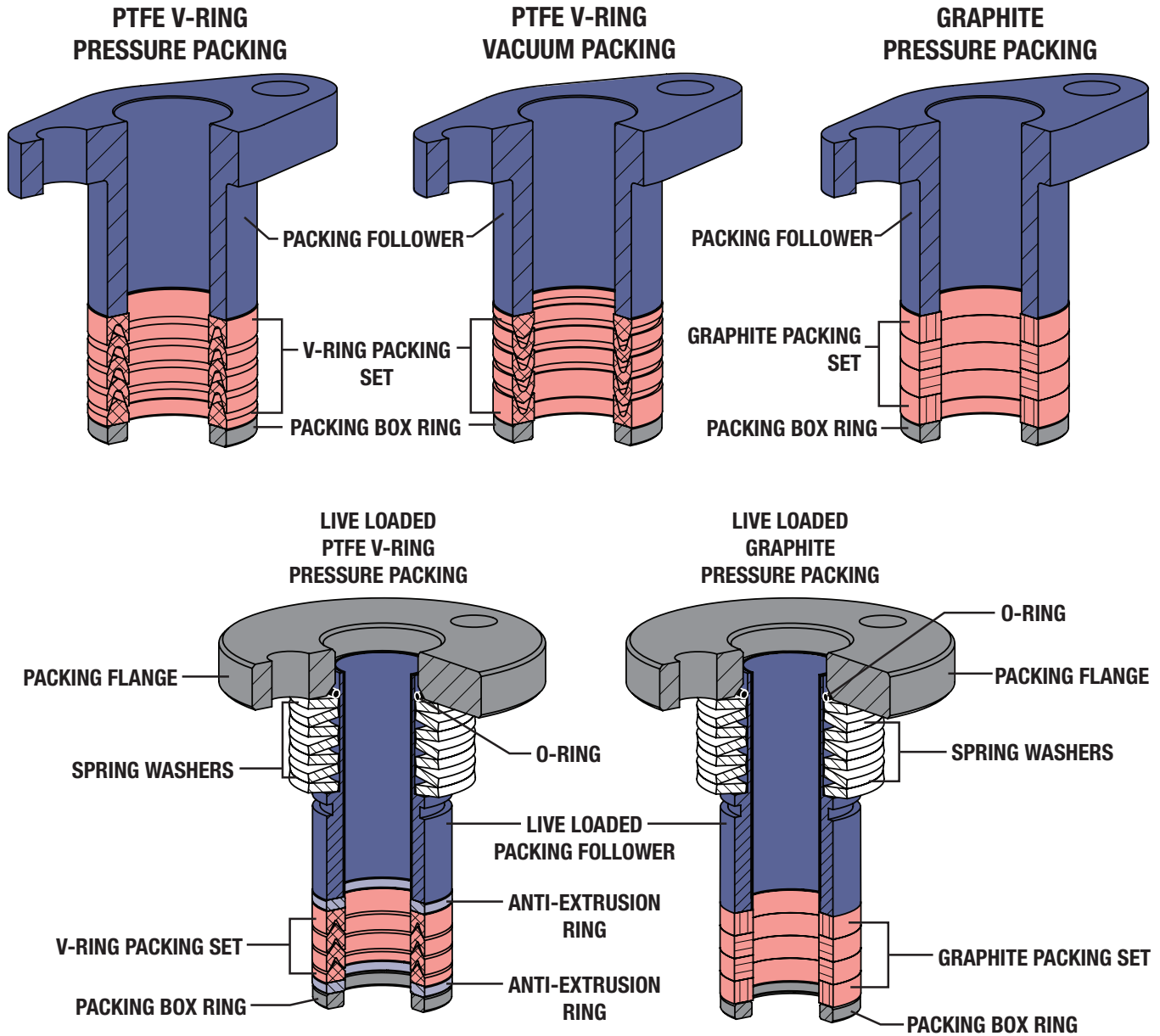
Valve Size	Coefficient	Degrees Open								
		10	20	30	40	50	60	70	80	90
3" NPS (80mm DN)	$C_v$	10	20	30	50	70	90	115	140	170
	$K_v$	8.7	17.3	26.0	43.3	60.6	77.9	99.5	121.1	147.1
	$F_L$	0.96	0.91	0.79	0.73	0.70	0.64	0.57	0.54	0.53
4" NPS (100mm DN)	$C_v$	15	30	55	85	130	180	240	310	380
	$K_v$	13.0	26.0	47.6	73.5	112.5	155.7	207.6	268.2	328.7
	$F_L$	0.98	0.93	0.84	0.72	0.67	0.65	0.62	0.62	0.61
6" NPS (150mm DN)	$C_v$	30	60	110	180	275	380	500	600	705
	$K_v$	26.0	51.9	95.2	155.7	237.9	328.7	432.5	519	609.8
	$F_L$	0.70	0.80	0.84	0.80	0.71	0.67	0.63	0.59	0.49
8" NPS (200mm DN)	$C_v$	50	75	125	225	350	510	700	900	1150
	$K_v$	43.3	64.9	108.1	194.6	302.8	441.2	605.5	778.5	994.8
	$F_L$	0.77	0.83	0.87	0.80	0.73	0.66	0.61	0.58	0.58

**Relationships Of Note:**

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

$$C_g = C_v C_1$$

$$K_m = F_L^2$$



**NOTE:** Packing arrangements may differ from those shown above depending on valve size and application.

**Figure 5** Valve Packing Configurations

Table 14

### Maximum Allowable Shutoff Pressure Drops for WCC Body Material

Pressure Rating - Psi			Pressure Rating - kPa		
Temperature Range °F	571S	573S	Temperature Range °C	571S	573S
-20 to 100°F	290	750	-29 to 38°C	1,999	5,171
200°F	260	750	93°C	1,793	5,171
300°F	230	730	149°C	1,586	5,033
400°F	200	705	204°C	1,379	4,861
450°F	185	685	232°C	1,276	4,723
500°F	170	665	260°C	1,172	4,585
550°F	155	635	288°C	1,069	4,378
600°F	140	605	316°C	965	4,171
650°F	125	590	343°C	862	4,068
700°F	110	555	371°C	758	3,827
750°F	95	505	399°C	655	3,482
800°F	80	410	427°C	552	2,827
<b>NOTES:</b>	Maximum Shutoff Pressure Drops for valve trim must also be consulted, refer to Table 15. Do not exceed the pressure/temperature rating of the valve body or flanges.				

Table 15

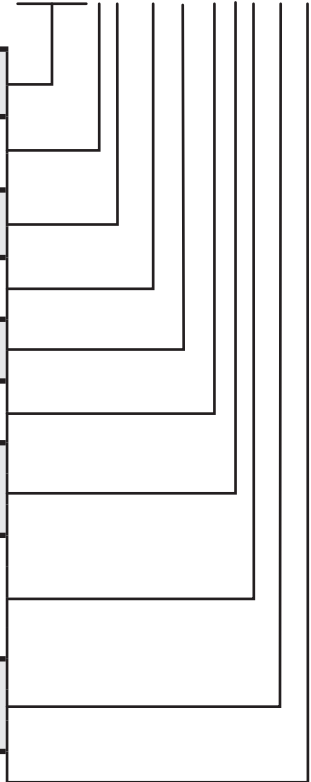
### Maximum Allowable Shutoff Pressure Drops for Standard Valve Trim

Pressure Rating - Psi				
Temperature Range °F	Valve Size - Inch			
	3" NPS	4" NPS	6" NPS	8" NPS
-20 to 800°F	680	400	410	400
Pressure Rating - kPa				
Temperature Range °C	Valve Size - mm			
	80mm DN	100mm DN	150mm DN	200mm DN
-29 to 427°C	4,688	2,758	2,827	2,758
<b>NOTES:</b>	Do not exceed the pressure/temperature rating of the valve body or flanges. Refer to Table 14 for Maximum Allowable Shutoff Pressure Drops for WCC valve body material.			

**570S SERIES NUMBERING SYSTEM**

**SAMPLE PART NUMBER: 571S-6-AWA-PNS**

				<b>MODEL</b>		<b>571S</b>		
<b>571S</b>	571S (ASME CLASS 150)		<b>573S</b>	573S (ASME CLASS 300)				
<b>PED 2014/68/EU CERTIFIED</b>								
-	NO							-
<b>VALVE SIZE</b>								
<b>3</b>	3 INCH (80 DN)		<b>4</b>	4 INCH (100 DN)		<b>6</b>	6 INCH (150 DN)	
<b>8</b>								<b>8</b>
						8 INCH (200 DN)		
<b>BALL MATERIAL</b>								
<b>A</b>	ASTM A532 CLASS III TYPE A (HCI <sup>(1)</sup> )			<b>S</b>	ZIRCONIA CERAMIC (OPTIONAL)			<b>A</b>
<b>BODY MATERIAL</b>								
<b>W</b>	WCC							<b>W</b>
<b>FLOW RING MATERIAL</b>								
<b>A</b>	HIGH CHROME IRON (HCI <sup>(1)</sup> )			<b>C</b>	HCI <sup>(1)</sup> / ZIRCONIA CERAMIC INSERT			<b>A</b>
<b>PAINT</b>								
-	DFPS-01 (STANDARD)			<b>2</b>	DFPS-02 (SEVERE SERVICE)			-
<b>3</b>	DFPS-03 (HIGH TEMPERATURE)							
<b>PACKING STYLE</b>								
<b>P</b>	SINGLE PTFE V-RING			<b>L</b>	LIVE LOADED PTFE			<b>P</b>
<b>V</b>	SINGLE PTFE V-RING (VACUUM)			<b>T</b>	LIVE LOADED GRAPHITE			
<b>G</b>	SINGLE GRAPHITE							
<b>SHAFT STYLE</b>								
<b>N</b>	SPLINED			<b>K</b>	KEYED (8"NPS/200 DN VALVES ONLY)			<b>N</b>
<b>P</b>	SQUARE END (3"-6"NPS/100-150 DN VALVES ONLY)							
<b>BODY LINER SIZE</b>								
<b>S</b>	STANDARD (SHORT)			<b>L</b>	LONG (8" NPS/200 DN VALVES ONLY)			<b>S</b>
<b>NOTES:</b>	(1) HIGH CHROME IRON ASTM A532 CLASS III TYPE A.							



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