

Figure 1 Model 580 Control Valve and
DFRP112 Actuator

Model 580 control valves (Figure 1) are heavy-duty full-bore rotary ball valves designed for automated bypass control, emergency shutoff service, batch and monitor applications. These valves are built for demanding applications where little to no flow restriction is required.

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 580 series, when combined with a Model DFRP piston actuator, is a rugged control valve assembly, to which a wide variety of positioners and accessories can be mounted.

Available with a single or dual self-adjusting piston ball seals, the Model 580 is manufactured to a high level of quality to ensure superior performance and customer satisfaction.

Features

Sour Service Capability

Standard configuration is NACE MR0175-2002 compliant.

Tight Shutoff

Single piston effect seals provide self-adjusting pressure assisted shutoff delivering reliably long service life.

Heavy Duty Construction

580 valves are built for demanding service applications and designed to reduce maintenance time with features such as robust ball trunnions and blowout proof shafts.

Pressure Drop Capabilities

Model 580 control valves are rated for full pressure drop service and will 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.

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 system.

Specifications

Configurations

The Model 580 control valve is a full-bore rotary ball valve. Single and Dual Seal Available. Refer to Table 1.

Sizes and Connection Styles (Refer to Table 1)

Model:	580
Size:	6" (150mm), 8" (200mm), 10" (250mm), 12" (300mm)
Body:	Flanged
Rating:	ASME Class 150 / 300 / 600
Connection:	RF & RTJ

Maximum Inlet Pressures and Temperatures

Flanged valves consistent with ASME Class 150, 300, and 600 rating as per ASME B16.34, unless limited.

Maximum Allowable Pressure Drops

Except where limited by the pressure/temperature rating of the valve body.

- ASME Class 150: 285 Psi (1,965 kPa) @ 100°F (38°C)
- ASME Class 300: 740 Psi (5,102 kPa) @ 100°F (38°C)
- ASME Class 600: 1,480 Psi (10,204 kPa) @ 100°F (38°C)

Valve Assembly Temperature Limitations

- -50°F (-46°C) to 400°F (204°C)

Refer to Table 5 for valve construction material and temperature limitations.

Characteristic

- Modified Equal Percentage

Flow and Shutoff Direction

Forward Flow - Seal is upstream.

- Single Seal: Forward flow and unidirectional shutoff.
- Dual Seal: Bidirectional flow.

Dimensions

Valve Outline Dimension Diagram: Refer to Figure 2.

Valve Assembly Dimensions: Refer to Tables 3 & 4.

Approximate Valve Body Weights

Refer to Table 2.

Construction Materials

Valve Body:

- LF2-CL1 (ASTM A350)

Refer to Table 5 for valve part construction materials.

Cross-Section of the Model 580 Control Valves

Refer to Figures 4 to 6.

Maximum Ball Rotation

90 degrees. Refer to Figure 7 for minimum ball rotation.

Packing Type and Examples

Standard packing is PTFE V-ring. Live-loaded low emission PTFE is also available. Refer to Figure 6.

Valve Sizing Coefficients

Refer to Table 7.

Shut-Off Classification

- Standard: Class IV
- Optional: Class VI

NOTE: Classes and testing per ANSI/FCI 70-2.

Shaft Connections

- Splined (Standard)
- Keyed (Optional)

Actuator Mounting

Right-hand or left-hand mounted as viewed from the inlet for forward flow. In one of 4 positions (12 standard, 3, 6, and 9 o'clock) with respect to the valve body in a horizontal pipe.

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

580 Available Valve Configurations

Valve Size	End Connection					
	RF ⁽¹⁾ Flanged			RTJ ⁽²⁾ Flanged		
	ASME Class 150	ASME Class 300	ASME Class 600	ASME Class 150	ASME Class 300	ASME Class 600
6" NPS (150mm DN)	✓	✓	✓	✗	✗	✓
8" NPS (200mm DN)	✓	✓	✓	✗	✗	✓
10" NPS (250mm DN)	✓	✓	✓	✗	✗	✓
12" NPS (300mm DN)	✓	✓	✓	✗	✗	✓
Notes:	1 - RF = Raised Face.					
	2 - RTJ = Ring Type Joint.					

Table 2

580 Approximate Valve Weights

Valve Size	Weight	
	lb	Kg
6" NPS (150mm DN)	701	318
8" NPS (200mm DN)	1102	500
10" NPS (250mm DN)	1964	891
12" NPS (300mm DN)	2654	1204

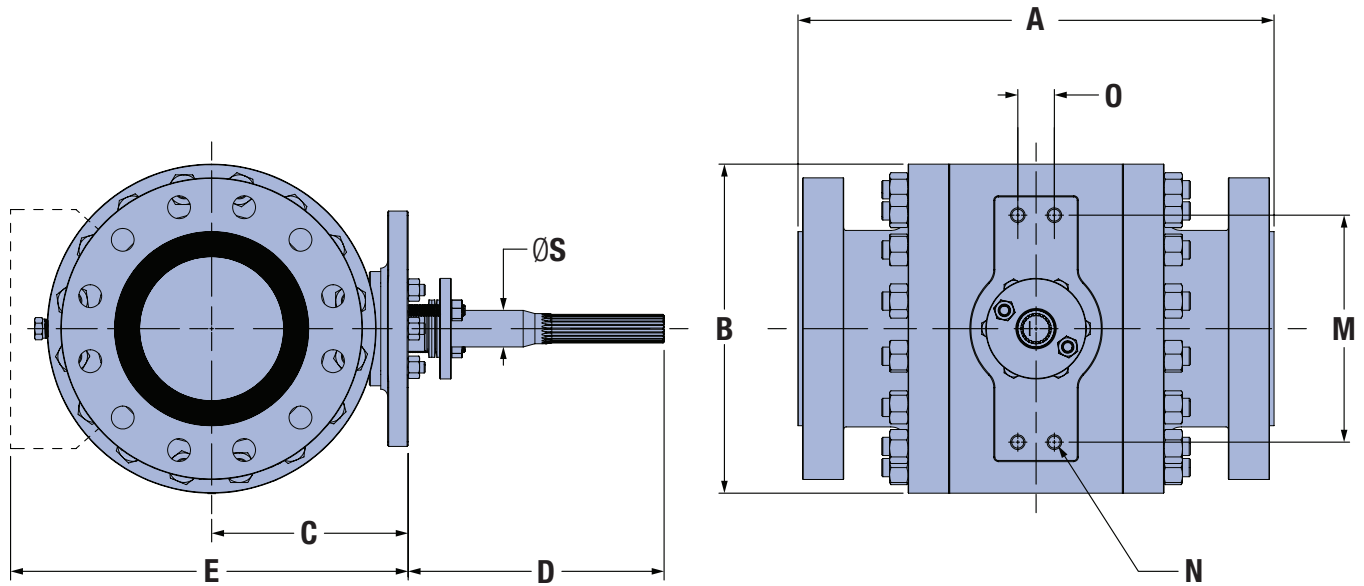


Figure 2 Typical Valve Assembly Dimensional Diagram

Table 3

Standard Valve Assembly Dimensions (Refer to Figure 2)
-With Splined Shaft

Valve Size	Dimensions - Inch										
	ØBore	A	ØB	C	D	E (Stand)	ØS		M	N (Thread Size)	O
							Shaft	Spline			
6 Inch NPS	6.00	22.00	15.00	9.25	14.00	18.75	1-3/4	1-3/4	10.75	3/4-10	2.00
8 Inch NPS	8.00	26.04	18.00	10.75	14.00	21.76	2	2	10.75	3/4-10	2.00
10 Inch NPS	10.00	31.04	21.77	12.89	14.00	25.76	2-1/2	2-1/2	13.25	7/8-9	3.00
12 Inch NPS	12.00	33.07	25.15	14.58	14.00	29.14	2-1/2	2-1/2	13.25	7/8-9	3.00
Valve Size	Dimensions - mm										
	ØBore	A	ØB	C	D	E (Stand)	ØS		M	N (Thread Size)	O
							Shaft	Spline			
150mm DN	152	559	381	235	356	476	44.5	44.5	273	see above	50.8
200mm DN	203	661	457	273	356	553	50.8	50.8	273	see above	50.8
250mm DN	254	788	553	327	356	654	63.5	63.5	337	see above	76.2
300mm DN	305	840	639	370	356	740	63.5	63.5	337	see above	76.2

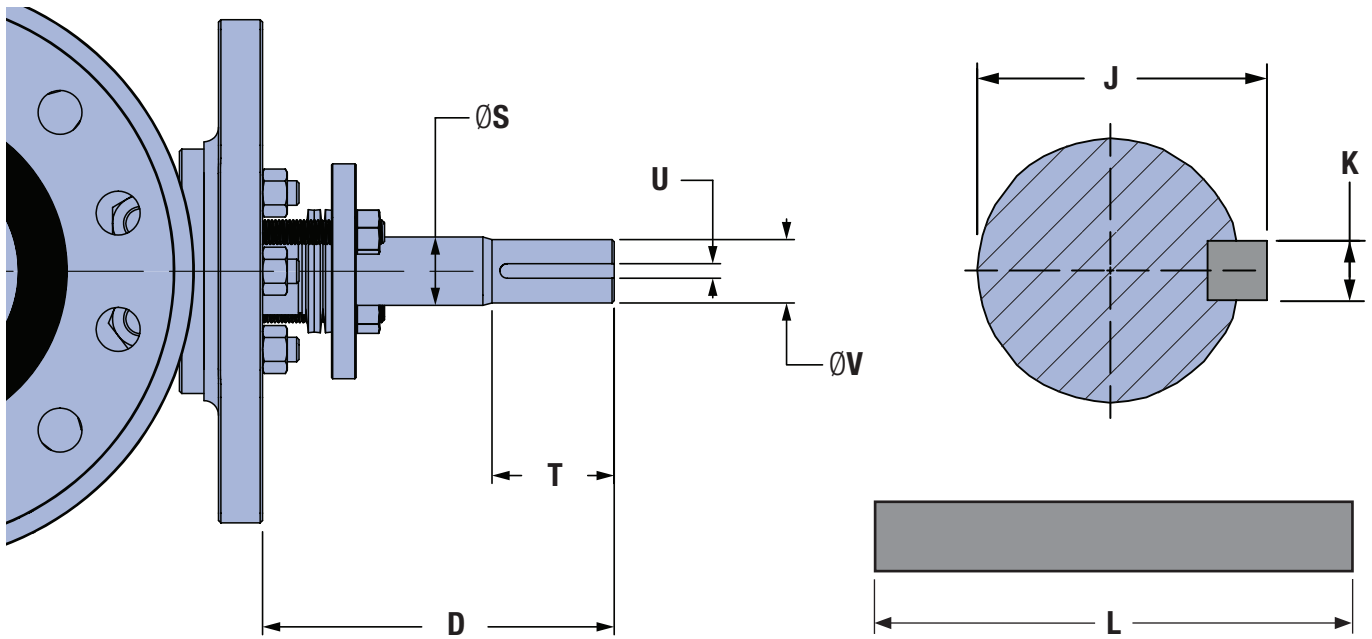


Figure 3 Square Shaft Dimensional Diagram

Table 4								
Square Shaft Dimensions (Refer to Figure 3)								
Valve Size	Dimensions - Inch							
	D	ØS	T	U	ØV	Keystock		
						J	K	L
6 Inch NPS	9.00	1-3/4	3.13	3/8	1-5/8	1.79	3/8	3-1/8
8 Inch NPS	6.45	2	2.13	1/2	1-7/8	2.09	1/2	1-3/4
10 Inch NPS	7.62	2-1/2	3.55	1/2	2-1/4	2.47	1/2	3
12 Inch NPS	7.62	2-1/2	3.55	1/2	2-1/4	2.47	1/2	3
Valve Size	Dimensions - mm							
	D	ØS	T	U	ØV	Keystock		
						J	K	L
150mm DN	229	44.5	79.5	9.5	41.3	45.5	9.5	79.4
200mm DN	164	50.8	54.1	12.7	47.6	53.1	12.7	44.5
250mm DN	194	63.5	90.2	12.7	57.2	62.7	12.7	76.2
300mm DN	194	63.5	90.2	12.7	57.2	62.7	12.7	76.2
NOTES:	Keystock is manufactured as per ASME B17.1-1967 (R2013).							

Table 5

Construction Materials and Temperature Limitations

Part	Material	Temperature Limitations			
		Min. °F	Max. °F	Min. °C	Max. °C
Backup Rings	PEEK ⁽²⁾	-50	400	-46	204
Ball	LF2 / Chrome	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Ball Seal	POM ⁽³⁾ (Standard)	-50	180	-46	82
	PEEK / PTFE ⁽⁴⁾ (Optional)	-50	400	-46	204
Bearings	PTFE / RTFE	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Bearing Plate	Carbon Steel	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Body / Tailpiece	ASTM A350 LF2 CL1	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Bolting - Packing	A193 B8M CL2 / A194 Gr. 8M	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Bolting - Tailpiece	B7M / 2HM	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Dowel Pin	18-8	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
O-Rings	Nitrile	-20	200	-29	93
	Fluorocarbon	-10	400	-23	204
	Nitrile MoS2 Impregnated	-50	200	-46	93
Packing	PTFE V-Ring	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Packing Box Housing	ASTM A350 LF2 CL1	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Packing Box Ring / Packing Follower	Dual Grade S31600/S31603 (316/316L)	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Packing Flange	Dual Grade S31600/S31603 (316/316L)	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Pipe Plug	ASTM A350 LF2 CL1	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Retaining Ring	Dual Grade S31600/S31603 (316/316L)	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Seal Retainer	Dual Grade S31600/S31603 (316/316L)	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Seal Spacer	Dual Grade S31600/S31603 (316/316L)	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Shaft	S17400 DH1150	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Spacer Ring	Dual Grade S31600/S31603 (316/316L)	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Stand	44W (CSA G40.21)	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Thrust Washer	PTFE	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾
Wave Spring	N07750	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾	NLF ⁽¹⁾

NOTES:

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

2 - PolyEtherEtherKetone.

3 - PolyOxyMethylene.

4 - PolyTetraFluoroEthylene.

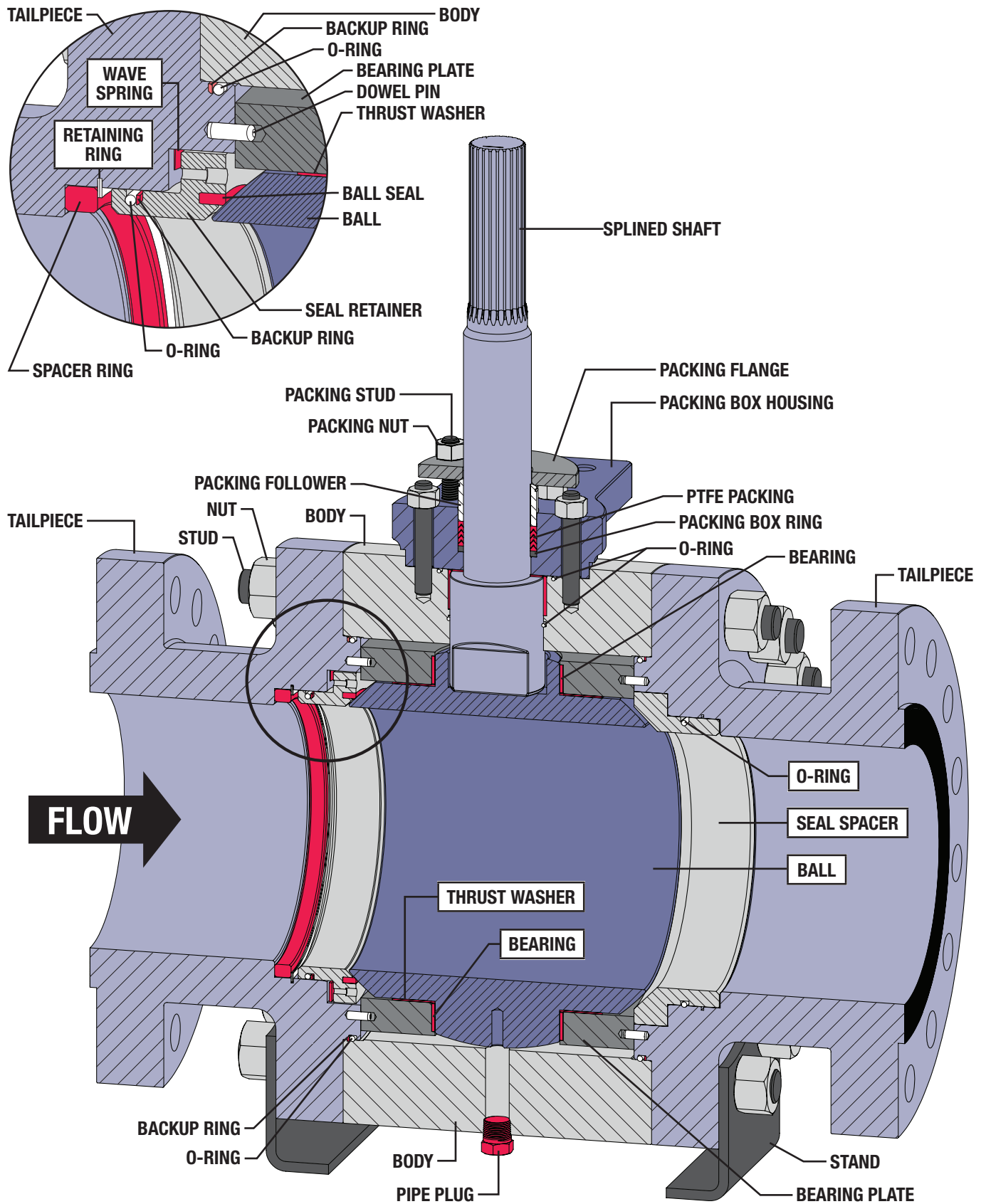


Figure 4 Single Seal Valve Assembly Cross Section

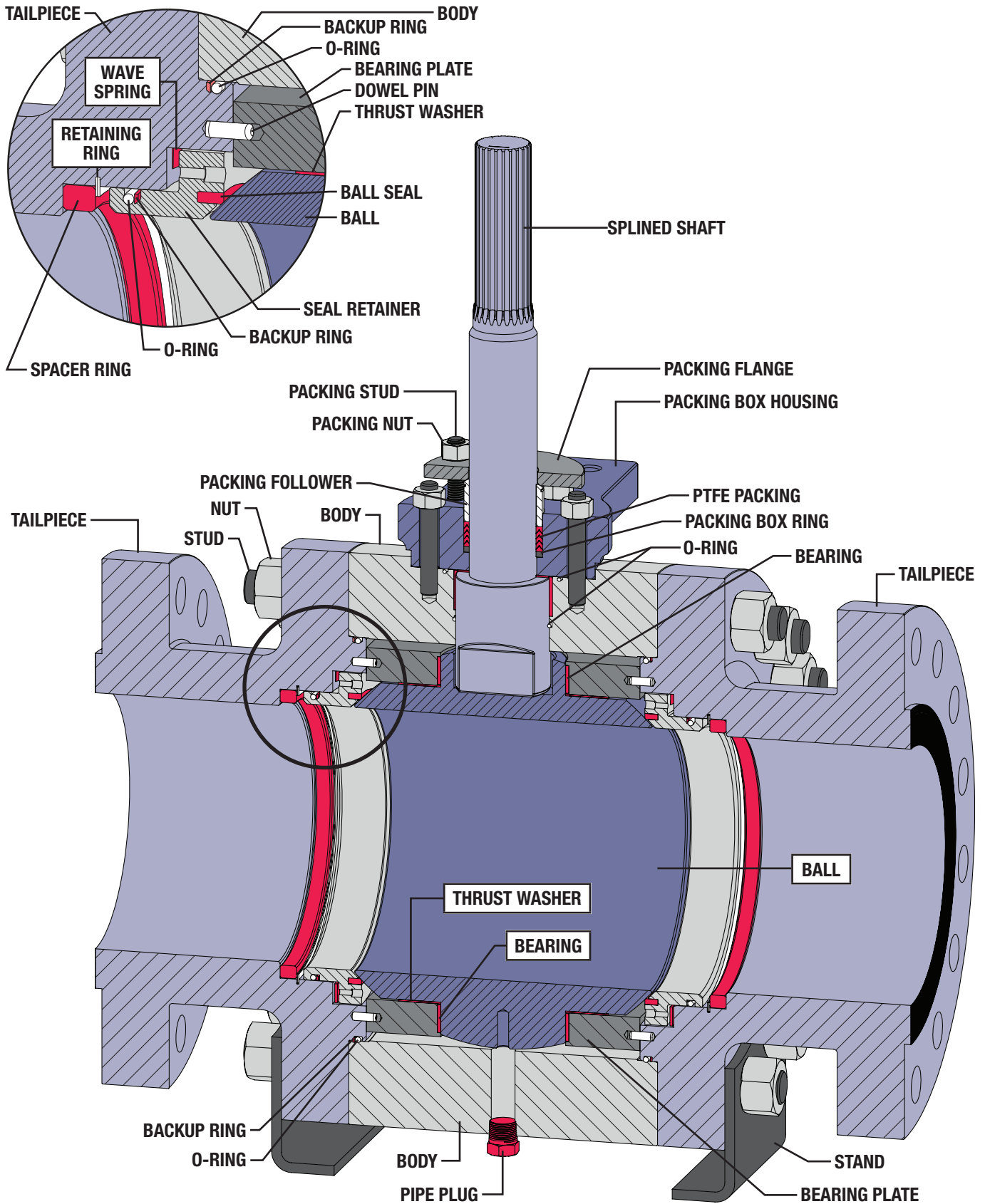


Figure 5 Dual Seal Valve Assembly Cross Section

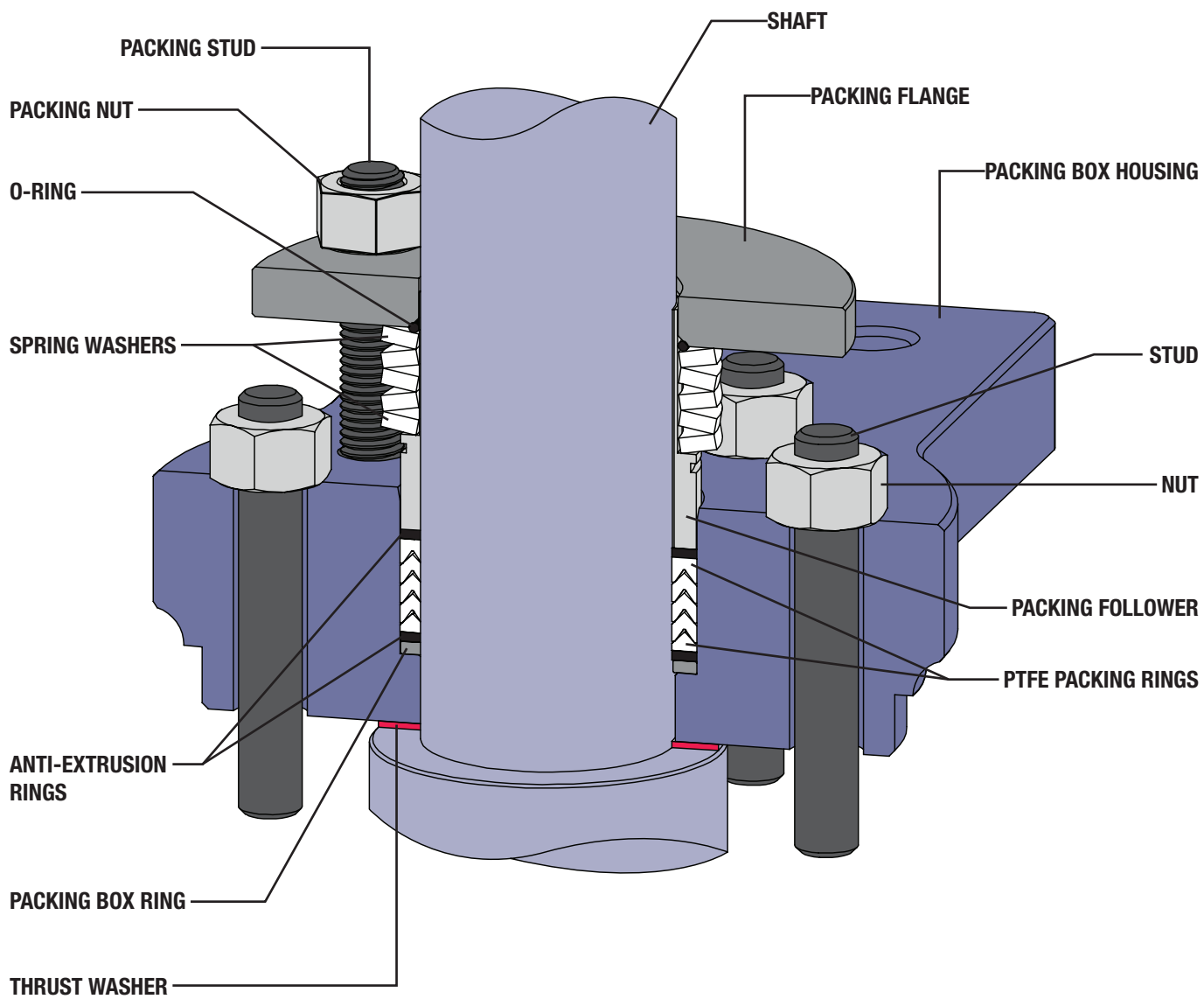
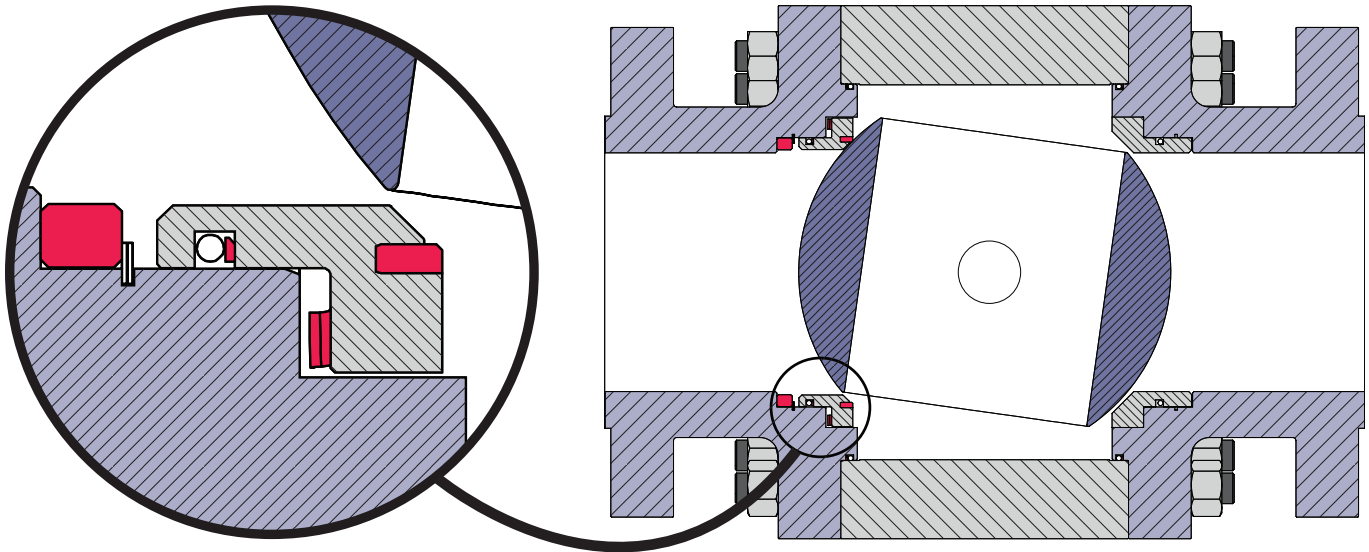


Figure 6 Live Loaded Packing Detail



NOTE: This is the amount at which controllable flow begins when the ball rotates open from closed position.

Figure 7 Dead Angle Diagram

580 Dead Angle Degrees		Table 6
Valve Size	Dead Angle	
6" NPS (150mm DN)	11 Degrees Open	
8" NPS (200mm DN)	8 Degrees Open	
10" NPS (250mm DN)	8 Degrees Open	
12" NPS (300mm DN)	7 Degrees Open	

Table 7

Valve Sizing Coefficients - Forward Flow - Modified Equal Percentage Characteristic

Valve Size		Minimum Throttling	Degrees Open								
			10	20	30	40	50	60	70	80	90
6" NPS (150 DN)	C _v	22.7	17.8	27.5	83.1	140	252	443	766	1,590	3,190
	X _T	-	0.52	0.85	0.81	0.98	0.77	0.57	0.38	0.19	0.10
	F _L	-	0.79	0.87	0.92	0.97	0.89	0.80	0.72	0.56	0.45
	F _d	-	0.34	0.65	0.79	0.88	0.94	0.96	0.99	1.00	1.00
8" NPS (200 DN)	C _v	86.7	47.3	126	236	383	607	986	1,670	3,530	10,100
	X _T	-	0.44	0.64	0.77	0.77	0.66	0.50	0.35	0.15	0.03
	F _L	-	0.79	0.87	0.91	0.91	0.85	0.80	0.70	0.54	0.32
	F _d	-	0.37	0.64	0.78	0.88	0.94	0.97	0.98	0.99	1.00
10" NPS (250 DN)	C _v	136	74.1	197	369	599	951	1,540	2,610	5,440	14,100
	X _T	-	0.44	0.64	0.77	0.77	0.66	0.50	0.35	0.15	0.03
	F _L	-	0.79	0.87	0.91	0.91	0.85	0.80	0.70	0.54	0.32
	F _d	-	0.37	0.64	0.78	0.87	0.94	0.97	0.99	0.99	1.00
12" NPS (300 DN)	C _v	196	107	284	532	863	1,370	2,220	3,750	7,840	20,500
	X _T	-	0.44	0.64	0.77	0.77	0.66	0.50	0.35	0.15	0.04
	F _L	-	0.79	0.87	0.91	0.91	0.85	0.80	0.71	0.55	0.36
	F _d	-	0.39	0.67	0.79	0.87	0.93	0.97	0.99	1.00	1.00
Relationships Of Note:			$C_1 = 39.76\sqrt{X_T}$			$C_g = C_v C_1$			$K_m = F_L^2$		

580 SERIES NUMBERING SYSTEM

SAMPLE PART NUMBER: 580-8-ASP-PNN

PED 2014/68/EU CERTIFIED						-	
-	NO					-	
VALVE SIZE						8	
6	6 INCH (150MM)	8	8 INCH (200MM)	10	10 INCH (250MM)	12	12 INCH (300MM)
BALL OPTIONS						-	
-	STANDARD (NO ATTENUATOR)					-	
ASME RATING (REFER TO PAGE 2)						A	
A	150 RF	B	300 RF	C	600 RF	G	600 RTJ
SEAL CONFIGURATION						S	
S	SINGLE SEAL	D	DUAL SEAL				
BALL SEAL MATERIAL						P	
P	POM	O	PTFE / PEEK				
PAINT						-	
-	DFPS-01 (STANDARD)			2	DFPS-02 (SEVERE SERVICE)		
3	DFPS-03 (HIGH TEMPERATURE)						
PACKING STYLE						P	
P	PTFE V-RING			L	LIVE LOADED PTFE		
SHAFT STYLE						N	
N	SPLINED			K	KEYED		
O-RINGS						N	
N	NITRILE			S	NITRILE MOS2 IMPREGNATED		
F	FLUOROCARBON						

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Curtiss-Wright Flow Control Company Canada, doing business as Dyna-Flo Control Valve Services

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Offices Worldwide: For a listing of our global sales network, visit our website at www.cw-dynaflo.com/en-gb/distribution

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