

MODEL 106-PGM / S106-PGM INTEGRAL BACK-UP, DUAL DIAPHRAGM, HYDRAULICALLY OPERATED VALVE

KEY FEATURES

- Ideal for applications requiring redundant and back-up security
- Virtually uninterrupted control under a variety of system failures
- Remote annunciation option available
- Available in globe and angle style



PRODUCT OVERVIEW

The 106-PGM and S106-PGM series valves are designed for particularly sensitive applications or situations where valves are difficult to access and maintain.

The PGM series valves provide integral back-up control and the ability to signal should the desired function move off limits. It can also provide an independent and very positive override.

It is a variation of the standard single chamber 106-PG valve with modifications that add the following features:

- Back-up diaphragm
- Completely self-contained
- Modulating or emergency close back-up
- Back-up components kept out of the main stream until required
- Extremely positive shut-off
- Emergency close for security breach or earthquake

With SRD technology the valve becomes incredibly steady throughout a complete range of flows and eradicates the need of additional low flow bypass valves.

The PGM series valves may be combined with additional Singer Valve specific accessories to add further customization such as:

- Back-up pilot system
- Annunciation with an Single Pole Double Throw Limit Switch

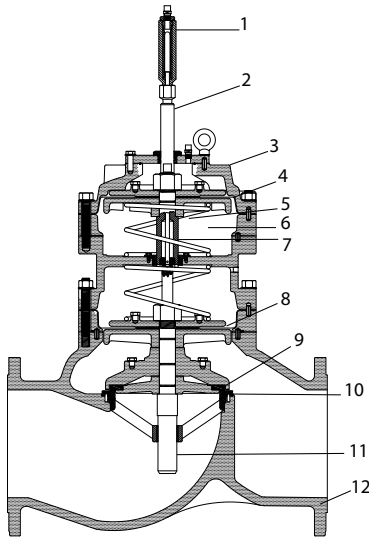
Refer to Main Valve Options on page 62 and Pilots & Accessories on page 207 to customize the valve to suit specific applications.

ALTERNATIVE MODELS



106-PGM Angle

PRODUCT LINE DRAWING



1. Primary Stem / Position Indicator
2. Secondary Stem
3. ASTM A536 Ductile Iron Construction
4. Buna-N or EPDM Secondary Diaphragm
5. Back-up Secondary Assembly
6. Open to Atmosphere
7. Sliding guide
8. Buna-N / EPDM Primary Diaphragm
9. Buna-N or EPDM Resilient Disc
10. AISI 316 Stainless Steel Seat
11. AISI 316 Stainless Steel Stem
12. NSF 61 Fusion Bonded Epoxy Coating

VALVE SIZES & MATERIALS

Valve Materials			
	Standard		Optional
Available Sizes	Threaded	Flanged	-
Globe	3 in (80 mm)	3 in to 24 in (80-600 mm)	-
Angle	3 in (80 mm)	3 in to 12 in, 16 in (80-300 mm, 400 mm)	-
Valve Components			
1. Valve Body, Cover	65-45-12 Ductile Iron		316 Stainless Steel (limited sizes)
2. Seat Ring	316 Stainless Steel		-
3. Disc Retainer	B16 Brass / B62 Bronze / A536 Ductile Iron		316 Stainless Steel
4. Stem	316 Stainless Steel		-
5. Stem Nut	B16 Brass		316 Stainless Steel
6. Spring	316 Stainless Steel		-
7. Guide Bushings	B16 Brass or SAE 660 Bronze		316 Stainless Steel
8. Diaphragm	EPDM		Buna-N / Viton (limited sizes)
9. Resilient Disc	EPDM		Buna-N / Viton (limited sizes)
10. Coating	NSF61 Approved Fusion Bonded Epoxy - Thickness 10-14 mils (250-350 microns)		Consult factory
11. Fasteners	18-8 Stainless Steel		316 Stainless Steel

SELECTION

The Singer Model 106-PGM incorporates a second actuator. If the primary system and / or the main valve fails then the back-up pilot system takes over. Under normal operating conditions, there is no external discharge from the PGM. In modulating applications, when the back-up pilot system operates, there is a small (less than 1 USGPM / 0.06 L/s) continuous discharge that should be taken to drain.

The primary pilot function can be duplicated in the secondary pilot system to provide continuing back-up operations or the secondary system can be used for override functions. Consult with Singer Valve with your specific application requirements.

Sizing of PGM valves are based on the same criteria as standard PG models.

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AVAILABLE OPTIONS

Further customize the valve by adding any of the available options below.

MAIN VALVE OPTIONS, REFER TO PAGE 62

Position Indicators (Available for install at Singer Valve or as a field modification)

- Model X129 limit switch assembly with Single Pole Double Throw limit switch (Double Pole Double Throw optional)
- Model X156 analog position transmitters (4-20 mA)

Oxy-Nitride Stem

Internal Drop Check

Grooved Ends

Reclaimed Water

PILOTS & ACCESSORIES, REFER TO PG. 207

MATERIALS OF CONSTRUCTION

Individual components can be upgraded from ductile iron, bronze and brass to stainless steel, for most sizes. Consult with Singer Valve.

ANTI-CAVITATION TRIM

Model 106-AC allows very high pressure drops in one valve, while retaining the standard 106 valve features. See page 78.

ORDERING INSTRUCTIONS

Refer to page 244 for the order form and ordering instructions.

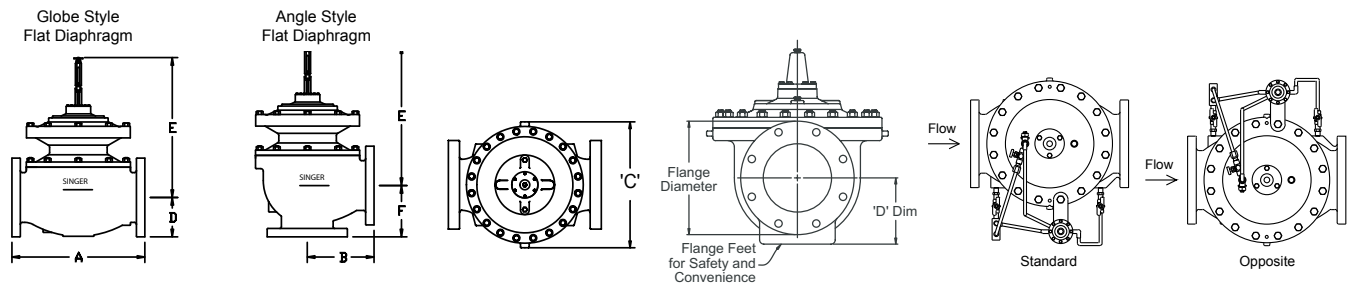
MODEL 106-PGM / S106-PGM

INTEGRAL BACK-UP, DUAL DIAPHRAGM, HYDRAULICALLY OPERATED VALVE

ANSI VALVE DATA (US UNITS)

Size	DWG	Standard	Flat Diaphragm System			
Inches	REF	ANSI	3 in	4 in	6 in	8 in
Globe Dimensions			All figures shown in inches unless otherwise stated			
Lay Length	A	FNPT	13.50	-	-	-
Centerline to Bottom	D	FNPT	3.68	-	-	-
Lay Length	A	150F	12.00	15.00	20.00	25.38
Centerline to Bottom	D	150F	3.75	4.60	5.60	7.88
Lay Length	A	300F	13.25	15.63	21.00	26.38
Centerline to Bottom	D	300F	4.13	5.09	6.34	7.88
Angle Dimensions						
Center Inlet to Discharge	B	FNPT	6.63	-	-	-
Center Discharge to Inlet	F	FNPT	4.63	-	-	-
Center Inlet to Discharge	B	150F	6.06	7.50	10.00	12.75
Center Discharge to Inlet	F	150F	4.06	5.00	6.00	8.00
Center Inlet to Discharge	B	300F	6.43	7.88	10.50	13.25
Center Discharge to Inlet	F	300F	4.43	5.31	6.50	8.50
Common Dimensions (Globe & Angle)						
Width	C		9.25	10.88	16.75	21.63
Height (To Indicator) Globe	E		17.63	19.43	21.00	26.88
Height (To Indicator) Angle	E		17.63	19.13	20.63	27.38
Body Port Tapping		FNPT	3/8	3/8	3/8	1/2
Stem Cap Plug		MNPT	3/8	3/8	3/8	3/8
Cover Port Tapping		FNPT	3/8	3/8	1/2	1/2
Valve Stroke			1-1/8	1-7/16	1-11/16	2-7/8
Displaced Bonnet Volume (Gallons)			0.1	0.2	0.6	1.7
Approximate Shipping Weight (Lbs)			150	210	450	705
Flow Capacities (USGPM) Globe & Angle						
C _v - Globe			110	200	460	800
C _v - Angle			135	230	535	950
Continuous (Globe)			460	800	1800	3100
Intermittent (Globe)			575	1000	2250	3875
Momentary (Globe)			1030	1800	4000	7000
Maximum Pressure Ratings (Ductile Only)						
PSI ¹		FNPT	400	-	-	-
PSI		150F	250	250	250	250
PSI ¹		300F	400	400	400	400
Maximum Temperature						
Fahrenheit			180°	180°	180°	180°

¹Valves rated and stamped 400 psi as standard. Valves rated and stamped 600 psi on request.



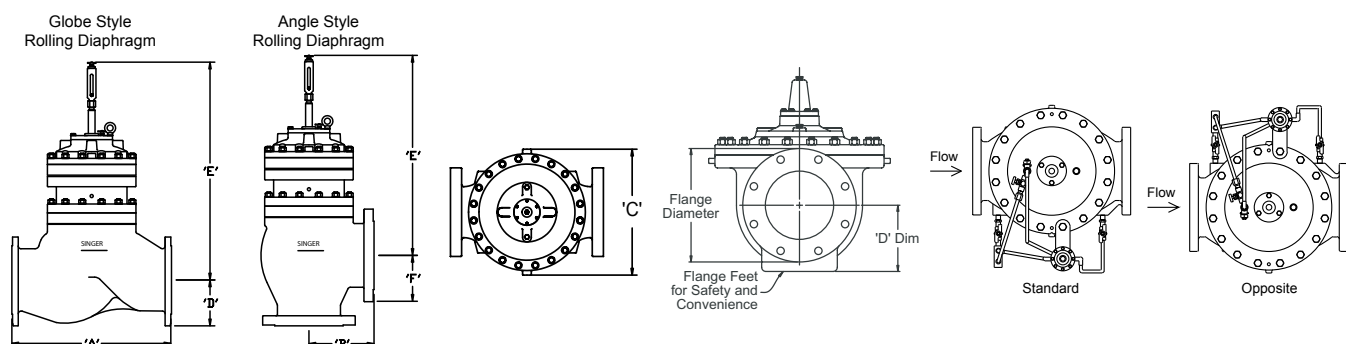
See pilot system information, page 207.
For additional Engineering notes, see page 242.

MODEL 106-PGM / S106-PGM INTEGRAL BACK-UP, DUAL DIAPHRAGM, HYDRAULICALLY OPERATED VALVE

ANSI VALVE DATA (US UNITS)

Size	DWG	Standard	Rolling Diaphragm System							
Inches	REF	ANSI	6 in	8 in	10 in	12 in	14 in	16 in	20 in	24 in
Globe Dimensions			All figures shown in inches unless otherwise stated.							
Lay Length	A	FNPT	Consult with Singer Valve for availability	-	-	-	-	-	-	-
Centerline to Bottom	D	FNPT		-	-	-	-	-	-	-
Lay Length	A	150F		29.75	34.00	31.00	41.38	52.00	61.50	
Centerline to Bottom	D	150F		8.56	9.50	10.50	11.75	14.43	17.13	
Lay Length	A	300F		31.12	35.50	32.50	43.50	53.62	63.25	
Centerline to Bottom	D	300F		9.31	10.25	11.50	12.75	15.75	19.65	
Angle Dimensions										
Center Inlet to Discharge	B	FNPT	-	-	-	-	-	-	-	-
Center Discharge to Inlet	F	FNPT	-	-	-	-	-	-	-	-
Center Inlet to Discharge	B	150F	-	-	11.50	13.75	-	18.00	-	-
Center Discharge to Inlet	F	150F	-	-	12.50	12.50	-	15.69	-	-
Center Inlet to Discharge	B	300F	-	-	12.19	14.50	-	18.81	-	-
Center Discharge to Inlet	F	300F	-	-	13.19	13.25	-	16.50	-	-
Common Dimensions (Globe and Angle)										
Width	C		-	-	22.13	26.00	26.00	32.00	35.00	49.68
Height (To Indicator) Globe	E		-	-	39.38	44.50	44.63	52.13	59.50	61.50
Height (To Indicator) Angle	E		-	-	36.00	41.50	-	49.13	-	-
Body Port Tapping		FNPT	-	-	1/2	3/4	3/4	3/4	3/4	3/4
Stem Cap Plug		MNPT	-	-	3/4	3/4	3/4	3/4	3/4	3/4
Cover Port Tapping		FNPT	-	-	3/4	3/4	3/4	3/4	3/4	3/4
Valve Stroke			-	-	3-1/4	3-3/4	3-3/4	4-3/4	5-9/16	6
Displaced Bonnet Volume (Gallons)			-	-	1.5	2.3	2.3	6.8	9.0	14.8
Approximate Shipping Weight (Lbs)			-	-	1000	1365	1500	2600	4315	7500
Flow Capacities (USGPM) Globe & Angle										
C _v - Globe			-	-	1300	2100	2575	3300	5100	7600
C _v - Angle			-	-	1400	2450	-	4000	-	-
Continuous (Globe)			-	-	4900	7000	8500	11000	17500	25000
Intermittent (Globe)			-	-	6100	8800	11500	14250	21700	31200
Momentary (Globe)			-	-	11000	16000	19000	25000	39000	56200
Maximum Pressure Ratings (Ductile Only)										
PSI ¹		FNPT	-	-	-	-	-	-	-	-
PSI		150F	-	-	250	250	250	250	250	250
PSI ¹		300F	-	-	400	400	400	400	400	400
Maximum Temperature										
Fahrenheit			-	-	180°	180°	180°	180°	180°	180°

¹Valves rated and stamped 400 psi as standard. Valves rated and stamped 600 psi on request.



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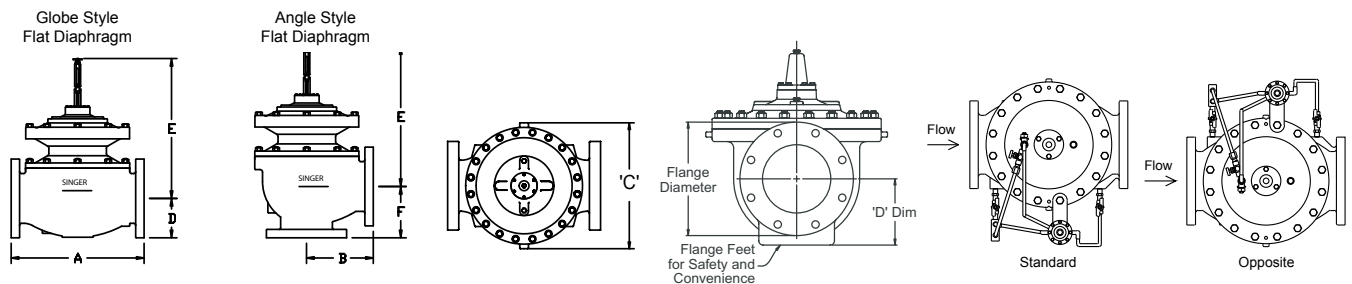
MODEL 106-PGM / S106-PGM

INTEGRAL BACK-UP, DUAL DIAPHRAGM, HYDRAULICALLY OPERATED VALVE

ANSI VALVE DATA (METRIC UNITS)

Size	DWG	Standard	Flat Diaphragm System			
mm	REF	ANSI	80 mm	100 mm	150 mm	200 mm
Globe Dimensions			All figures shown in mm unless otherwise stated			
Lay Length	A	FNPT	343	-	-	-
Centerline to Bottom	D	FNPT	93	-	-	-
Lay Length	A	150F	305	381	508	645
Centerline to Bottom	D	150F	95	117	142	200
Lay Length	A	300F	337	397	533	670
Centerline to Bottom	D	300F	105	129	161	200
Angle Dimensions						
Center Inlet to Discharge	B	FNPT	168	-	-	-
Center Discharge to Inlet	F	FNPT	118	-	-	-
Center Inlet to Discharge	B	150F	154	191	254	324
Center Discharge to Inlet	F	150F	103	127	152	203
Center Inlet to Discharge	B	300F	163	200	267	337
Center Discharge to Inlet	F	300F	113	135	165	216
Common Dimensions (Globe & Angle)						
Width	C		235	276	425	549
Height (To Indicator) Globe	E		448	494	533	683
Height (To Indicator) Angle	E		448	486	524	695
Body Port Tapping	FNPT	Inches	3/8	3/8	3/8	1/2
Stem Cap Plug	MNPT	Inches	3/8	3/8	3/8	3/8
Cover Port Tapping	FNPT	Inches	3/8	3/8	1/2	1/2
Valve Stroke		mm	29	37	43	73
Displaced Bonnet Volume (Litres)			0.3	0.8	2.1	6.3
Approximate Shipping Weight (Kilograms)			68	95	204	320
Flow Capacities (L/s) (Globe & Angle)						
K_v - Globe			26	47	110	190
K_v - Angle			32	55	123	225
Continuous (Globe)			29	50	114	196
Intermittent (Globe)			36	63	142	244
Momentary (Globe)			65	114	252	442
Maximum Pressure Ratings (Ductile Only)						
Bar ¹		FNPT	27.6	-	-	-
Bar		150F	17	17	17	17
Bar ¹		300F	27.6	27.6	27.6	27.6
Maximum Temperature						
Celcius			82°	82°	82°	82°

¹Valves rated and stamped 27.6 bar as standard. Valves rated and stamped 41 bar on request



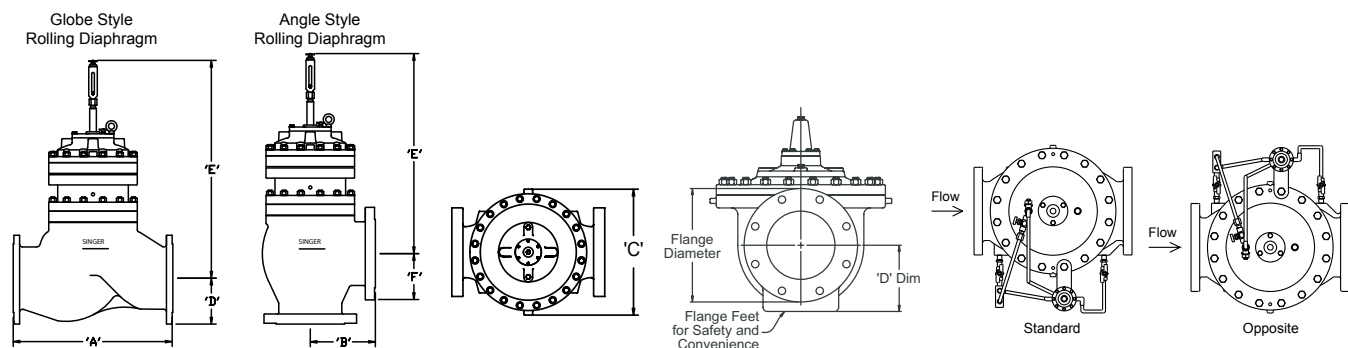
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MODEL 106-PGM / S106-PGM INTEGRAL BACK-UP, DUAL DIAPHRAGM, HYDRAULICALLY OPERATED VALVE

ANSI VALVE DATA (METRIC UNITS)

Size	DWG	Standard	Rolling Diaphragm System							
			150 mm	200 mm	250 mm	300 mm	350 mm	400 mm	500 mm	600 mm
Globe Dimensions			All figures shown in mm unless otherwise stated							
Lay Length	A	FNPT	Consult with Singer Valve for availability	-	-	-	-	-	-	-
Centerline to Bottom	D	FNPT		-	-	-	-	-	-	-
Lay Length	A	150F		756	864	787	1051	1321	1562	
Centerline to Bottom	D	150F		217	241	267	298	367	435	
Lay Length	A	300F		790	902	826	1105	1362	1607	
Centerline to Bottom	D	300F		236	260	292	324	400	499	
Angle Dimensions										
Center Inlet to Discharge	B	FNPT	-	-	-	-	-	-	-	
Center Discharge to Inlet	F	FNPT	-	-	-	-	-	-	-	
Center Inlet to Discharge	B	150F	-	-	292	349	-	457	-	
Center Discharge to Inlet	F	150F	-	-	318	318	-	399	-	
Center Inlet to Discharge	B	300F	-	-	310	368	-	478	-	
Center Discharge to Inlet	F	300F	-	-	335	337	-	419	-	
Common Dimensions (Globe & Angle)										
Width	C		-	-	562	660	660	813	889	1262
Height (To Indicator) Globe	E		-	-	1000	1130	1134	1324	1551	1562
Height (To Indicator) Angle	E		-	-	914	1054	-	1248	-	-
Body Port Tapping	FNPT	Inches	-	-	1/2	3/4	3/4	3/4	3/4	3/4
Stem Cap Plug	MNPT	Inches	-	-	3/4	3/4	3/4	3/4	3/4	3/4
Cover Port Tapping	FNPT	Inches	-	-	3/4	3/4	3/4	3/4	3/4	3/4
Valve Stroke		mm	-	-	83	95	95	120	141	150
Displaced Bonnet Volume (Litres)			-	-	6	9	9	26	34	56
Approximate Shipping Weight (Kilograms)			-	-	454	619	680	1179	1957	3400
Flow Capacities (L/s) (Globe & Angle)										
K _v - Globe			-	-	310	500	610	780	1210	1800
K _v - Angle			-	-	332	581	-	948	-	-
Continuous (Globe)			-	-	309	442	536	694	1104	1577
Intermittent (Globe)			-	-	385	555	726	899	1370	1968
Momentary (Globe)			-	-	694	1009	1199	1577	2460	3546
Maximum Pressure Ratings (Ductile Only)										
Bar ¹	FNPT		-	-	-	-	-	-	-	-
Bar	150F		-	-	17	17	17	17	17	17
Bar ¹	300F		-	-	27.6	27.6	27.6	27.6	27.6	27.6
Maximum Temperature										
Celcius			-	-	82°	82°	82°	82°	82°	82°

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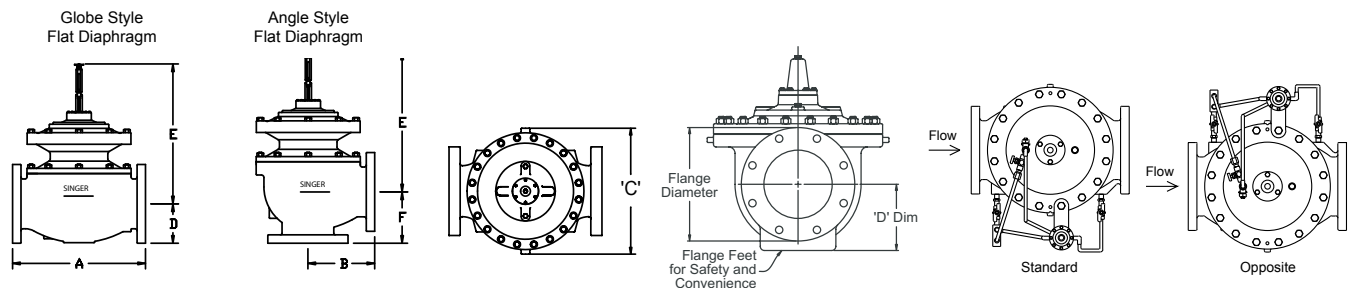
MODEL 106-PGM / S106-PGM

INTEGRAL BACK-UP, DUAL DIAPHRAGM, HYDRAULICALLY OPERATED VALVE

ISO VALVE DATA (METRIC UNITS)

Size	DWG	Standard	Flat Diaphragm System			
mm	REF	ANSI	80 mm	100 mm	150 mm	200 mm
Globe Dimensions			All figures shown in mm unless otherwise stated			
Lay Length	A	FNPT	343	-	-	-
Centerline to Bottom	D	FNPT	93	-	-	-
Lay Length	A	150F	305	381	508	645
Centerline to Bottom	D	150F	95	117	142	200
Lay Length	A	300F	337	397	533	670
Centerline to Bottom	D	300F	105	129	161	200
Angle Dimensions						
Center Inlet to Discharge	B	FNPT	168	-	-	-
Center Discharge to Inlet	F	FNPT	118	-	-	-
Center Inlet to Discharge	B	150F	154	191	254	324
Center Discharge to Inlet	F	150F	103	127	152	203
Center Inlet to Discharge	B	300F	163	200	267	337
Center Discharge to Inlet	F	300F	113	135	165	216
Common Dimensions (Globe & Angle)						
Width	C		235	276	425	549
Height (To Indicator) Globe	E		448	494	533	683
Height (To Indicator) Angle	E		448	486	524	695
Body Port Tapping	FNPT	Inches	3/8	3/8	3/8	1/2
Stem Cap Plug	MNPT	Inches	3/8	3/8	3/8	3/8
Cover Port Tapping	FNPT	Inches	3/8	3/8	1/2	1/2
Valve Stroke		mm	29	37	43	73
Displaced Bonnet Volume (Litres)			0.3	0.8	2.1	6.3
Approximate Shipping Weight (Kilograms)			68	95	204	320
Flow Capacities (L/s) (Globe & Angle)						
K_v - Globe			26	47	110	190
K_v - Angle			32	55	123	225
Continuous (Globe)			29	50	114	196
Intermittent (Globe)			36	63	142	244
Momentary (Globe)			65	114	252	442
Maximum Pressure Ratings (Ductile Only)						
Bar ¹		FNPT	27.6	-	-	-
Bar		150F	17	17	17	17
Bar ¹		300F	27.6	27.6	27.6	27.6
Maximum Temperature						
Celcius			82°	82°	82°	82°

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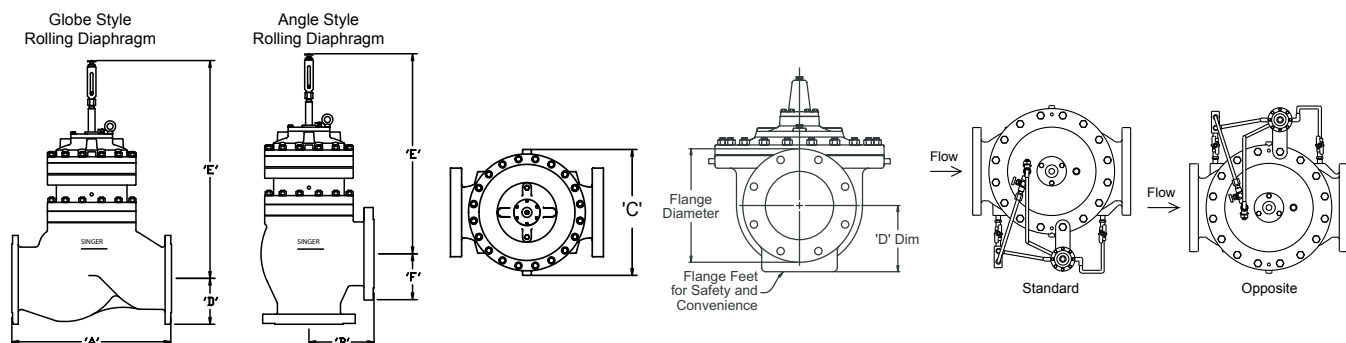
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ISO VALVE DATA (METRIC UNITS)

Size	DWG	Standard	Rolling Diaphragm System							
			150 mm	200 mm	250 mm	300 mm	350 mm	400 mm	500 mm	600 mm
Globe Dimensions			All figures shown in mm unless otherwise stated							
Lay Length	A	FNPT	Consult with Singer Valve for availability	-	-	-	-	-	-	-
Centerline to Bottom	D	FNPT		-	-	-	-	-	-	-
Lay Length	A	150F		756	864	787	1051	1321	1562	
Centerline to Bottom	D	150F		217	241	267	298	367	435	
Lay Length	A	300F		790	902	826	1105	1362	1607	
Centerline to Bottom	D	300F		236	260	292	324	400	499	
Angle Dimensions										
Center Inlet to Discharge	B	FNPT	-	-	-	-	-	-	-	
Center Discharge to Inlet	F	FNPT	-	-	-	-	-	-	-	
Center Inlet to Discharge	B	150F	-	-	292	349	-	457	-	
Center Discharge to Inlet	F	150F	-	-	318	318	-	399	-	
Center Inlet to Discharge	B	300F	-	-	310	368	-	478	-	
Center Discharge to Inlet	F	300F	-	-	335	337	-	419	-	
Common Dimensions (Globe & Angle)										
Width	C		-	-	562	660	660	813	889	1262
Height (To Indicator) Globe	E		-	-	1000	1130	1134	1324	1551	1562
Height (To Indicator) Angle	E		-	-	914	1054	-	1248	-	-
Body Port Tapping	FNPT	Inches	-	-	1/2	3/4	3/4	3/4	3/4	3/4
Stem Cap Plug	MNPT	Inches	-	-	3/4	3/4	3/4	3/4	3/4	3/4
Cover Port Tapping	FNPT	Inches	-	-	3/4	3/4	3/4	3/4	3/4	3/4
Valve Stroke		mm	-	-	83	95	95	120	141	150
Displaced Bonnet Volume (Litres)			-	-	6	9	9	26	34	56
Approximate Shipping Weight (Kilograms)			-	-	454	619	680	1179	1957	3400
Flow Capacities (L/s) (Globe & Angle)										
K_v - Globe			-	-	310	500	610	780	1210	1800
K_v - Angle			-	-	332	581	-	948	-	-
Continuous (Globe)			-	-	309	442	536	694	1104	1577
Intermittent (Globe)			-	-	385	555	726	899	1370	1968
Momentary (Globe)			-	-	694	1009	1199	1577	2460	3546
Maximum Pressure Ratings (Ductile Only)										
Bar ¹		FNPT	-	-	-	-	-	-	-	-
Bar		150F	-	-	17	17	17	17	17	17
Bar ¹		300F	-	-	27.6	27.6	27.6	27.6	27.6	27.6
Maximum Temperature										
Celsius			-	-	82°	82°	82°	82°	82°	82°

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