

# MODEL 106-PT / 106-PTC / S106-PT / S106-PTC DOUBLE CHAMBER HYDRAULICALLY OPERATED VALVE

## KEY FEATURES

- Maintains positive control under all operating pressures
- Precise positioning
- Internal drop check option included on the PTC model
- Available in globe and angle style

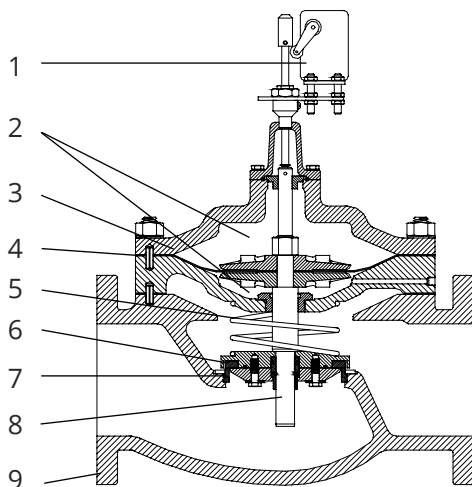
## PRODUCT OVERVIEW

The 106-PT and 106-PTC series control valves are hydraulically operated by introducing or releasing water from the control chambers. PT and PTC valves have two operating chambers that are divided from each other by the diaphragm, and are separated from the flowing media by an adaptor plate. 106-PTC is an enhancement of the 106-PT and includes an internal drop check feature. This mechanical check provides non-slam closure on reverse flow, independently of the stem position or the pilot operation. PT and PTC valves are usually combined with Singer Valve specific purpose pilots and accessories to provide control for a wide range of functions: typically pump control and solenoid control applications. Refer to Main Valve Options on page 62 and Pilots & Accessories on page 207 to further customize the valve to suit specific applications. and accessories options. Customize for functions like controlling pressure, flow or level or in almost limitless combinations to suit specific applications.



## PRODUCT LINE DRAWING

1. Optional Model X129 Limit Switch Assembly
2. Double Chambers Separated From The Flowing Media
3. ASTM A536 Ductile Iron Construction
4. Diaphragm Buna-N or EPDM
5. Optional Internal Check Feature (for PT series)
6. Buna-N or EPDM Resilient Disc
7. AISI 316 Stainless Steel Seat
8. AISI 316 Stainless Steel Stem
9. NSF 61 Fusion Bonded Epoxy Coating



## ALTERNATIVE MODELS



A106-PT Angle

## SELECTION

The 106-PT and 106-PTC valves operate by introducing or exhausting water from the upper and lower chambers at controlled rates. Since the operating chambers are separated from the flowing media, a positive and precise differential pressure can be established across the diaphragm. Valves are sized to provide an appropriate pressure drop for each application. Valves usually exhaust to atmosphere. Sizing is ultimately determined by the specific application. Refer to the capacity charts for general guidelines.

## VALVE SIZES & MATERIALS

Valve Materials			
	Standard		Optional
Available Sizes	Threaded	Flanged	-
Globe	2 in to 3 in (50-80 mm)	2 in to 24 in (50-600 mm)	-
Angle	2 in to 3 in (50 mm-80 mm)	2 in to 12 in, 16 in (50-300 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

Double-chambered automatic control valves are typically used for pump control. Other uses would include but not be limited to low-pressure differential applications. 106-PT and 106-PTC valves are particularly well suited for applications that require valves to open fully regardless of flow or pressure drop or any application where more relatively constant, controlled speed is required.

### 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 X107 stem mounted position indicators
- 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.

Not available on PTC valves.

### ORDERING INSTRUCTIONS

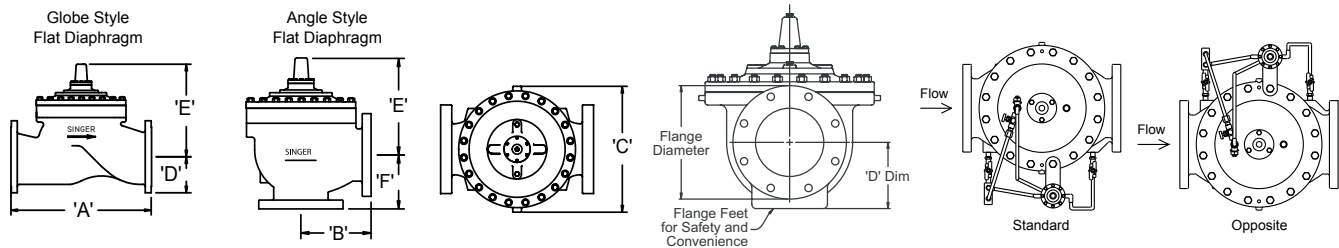
Refer to page 244 for the order form and ordering instructions.

# MODEL 106-PT / 106-PTC / S106-PT / S106-PTC DOUBLE CHAMBER HYDRAULICALLY OPERATED VALVE

## ANSI VALVE DATA (US UNITS)

Size	DWG	Standard	Flat Diaphragm System					
Inches	REF	ANSI	2 in	2-1/2 in	3 in	4 in	6 in	8 in
<b>Globe Dimensions</b>			<b>All figures show in inches unless otherwise stated</b>					
Lay Length	A	FNPT	9.38	11.00	13.50	-	-	-
Centerline to Bottom	D	FNPT	2.75	3.38	3.68	-	-	-
Lay Length	A	150F	9.38	11.00	12.00	15.00	20.00	25.38
Centerline to Bottom	D	150F	3.00	3.50	3.75	4.60	5.60	7.88
Lay Length	A	300F	10.00	11.63	13.25	15.63	21.00	26.38
Centerline to Bottom	D	300F	3.25	3.75	4.13	5.09	6.34	7.88
<b>Angle Dimensions</b>								
Center Inlet to Discharge	B	FNPT	4.69	5.50	6.63	-	-	-
Center Discharge to Inlet	F	FNPT	3.25	4.00	4.63	-	-	-
Center Inlet to Discharge	B	150F	4.75	5.50	6.06	7.50	10.00	12.75
Center Discharge to Inlet	F	150F	3.25	4.00	4.06	5.00	6.00	8.00
Center Inlet to Discharge	B	300F	5.00	5.88	6.43	7.88	10.50	13.25
Center Discharge to Inlet	F	300F	3.50	4.31	4.43	5.31	6.50	8.50
<b>Common Dimensions (Globe &amp; Angle)</b>								
Width	C		6.50	8.19	9.25	10.88	16.75	21.63
Height (To Stem Cap) Globe	E		6.13	8.93	9.75	10.88	13.88	17.75
Height (To Stem Cap) Angle	E		6.13	8.93	9.75	10.88	13.88	17.75
Body Port Tapping		FNPT	3/8	3/8	3/8	3/8	3/8	1/2
Stem Cap Plug		MNPT	3/8	3/8	3/8	3/8	3/8	3/8
Cover Port Tapping		FNPT	3/8	3/8	3/8	3/8	1/2	1/2
Valve Stroke			9/16	1	1-1/8	1-7/16	1-11/16	2-7/8
Displaced Bonnet Volume (Gallons)			0.02	0.1	0.1	0.2	0.6	1.7
Approximate Shipping Weight (Lbs)			40	65	100	175	400	650
<b>Flow Capacities (USGPM) Globe &amp; Angle</b>								
C <sub>v</sub> - Globe			55	80	110	200	460	800
C <sub>v</sub> - Angle			63	90	135	230	535	950
Continuous (Globe)			210	300	460	800	1800	3100
Intermittent (Globe)			260	375	575	1000	2250	3875
Momentary (Globe)			470	670	1030	1800	4000	7000
<b>Maximum Pressure Ratings (Ductile Only)</b>								
PSI <sup>1</sup>		FNPT	400	400	400	-	-	-
PSI		150F	250	250	250	250	250	250
PSI <sup>1</sup>		300F	400	400	400	400	400	400
<b>Maximum Temperature</b>								
Fahrenheit			180°	180°	180°	180°	180°	180°

<sup>1</sup>Valves rated and stamped 400 psi as standard. Valves rated and stamped 600 psi on request.



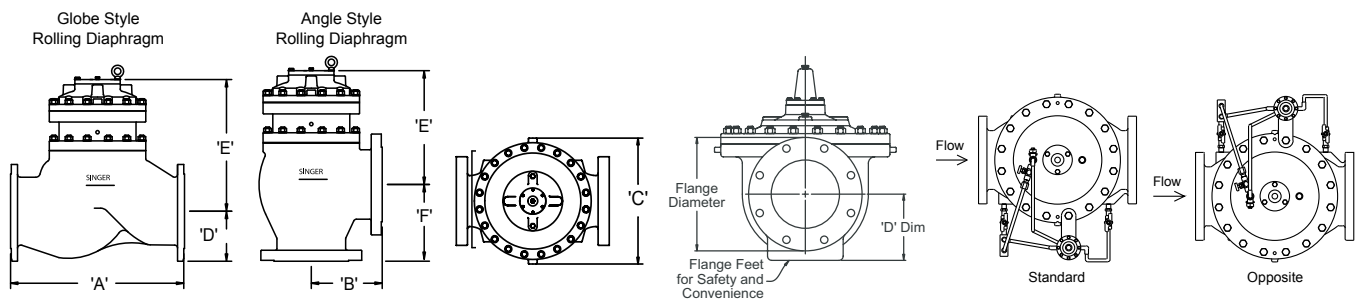
See pilot system information, page 207.  
For additional Engineering notes, see page 242.

# MODEL 106-PT / 106-PTC / S106-PT / S106-PTC DOUBLE CHAMBER HYDRAULICALLY OPERATED VALVE

## ANSI VALVE DATA (US UNITS)

Size	DWG	Standard	Rolling Diaphragm System							
			6 in	8 in	10 in	12 in	14 in	16 in	20 in	24 in
<b>Inches</b>	<b>REF</b>	<b>ANSI</b>	<b>All figures shown in inches unless otherwise stated</b>							
<b>Globe Dimensions</b>										
Lay Length	A	FNPT	-	-	-	-	-	-	-	-
Centerline to Bottom	D	FNPT	-	-	-	-	-	-	-	-
Lay Length	A	150F	Consult with Singer Valve for availability		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
<b>Angle Dimensions</b>										
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	-	-
<b>Common Dimensions (Globe &amp; Angle)</b>										
Width	C		-	-	22.13	26.00	26.00	32.00	35.00	49.68
Height (To Stem Cap) Globe	E		-	-	22.63	27.00	27.00	32.50	41.75	44.30
Height (To Stem Cap) Angle	E		-	-	19.34	24.00	-	29.50	-	-
Body Port Tapping		FNPT	-	-	3/4	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)			-	-	900	1300	1400	2300	3670	5000
<b>Flow Capacities (USGPM) Globe &amp; Angle</b>										
C <sub>v</sub> - Globe			-	-	1300	2100	2575	3300	5100	7600
C <sub>v</sub> - 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
<b>Maximum Pressure Ratings (Ductile Only)</b>										
PSI <sup>1</sup>		FNPT	-	-	-	-	-	-	-	-
PSI		150F	-	-	250	250	250	250	250	250
PSI <sup>1</sup>		300F	-	-	400	400	400	400	400	400
<b>Maximum Temperature</b>										
Fahrenheit			-	-	180°	180°	180°	180°	180°	180°

<sup>1</sup>Valves rated and stamped 400 psi as standard. Valves rated and stamped 600 psi on request.



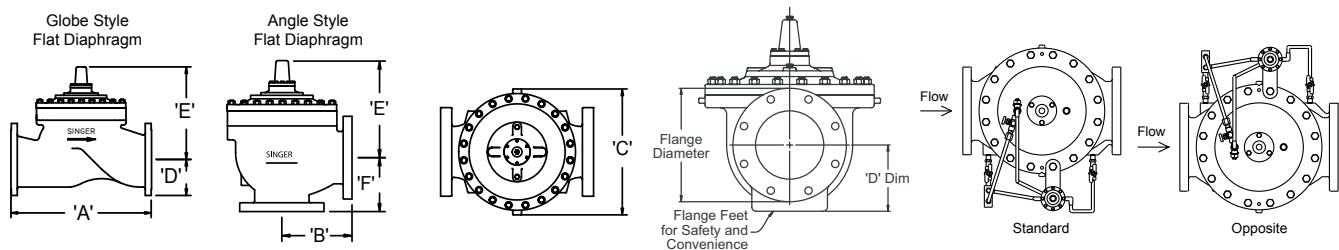
See pilot system information, page 207.  
For additional Engineering notes, see page 242.

# MODEL 106-PT / 106-PTC / S106-PT / S106-PTC DOUBLE CHAMBER HYDRAULICALLY OPERATED VALVE

## ANSI VALVE DATA (METRIC UNITS)

Size	DWG	Standard	Flat Diaphragm System					
mm	REF	ANSI	50 mm	65 mm	80 mm	100 mm	150 mm	200 mm
<b>Globe Dimensions</b>			<b>All figures show in mm unless otherwise stated</b>					
Lay Length	A	FNPT	238	279	343	-	-	-
Centerline to Bottom	D	FNPT	70	86	93	-	-	-
Lay Length	A	150F	238	279	305	381	508	645
Centerline to Bottom	D	150F	76	89	95	117	142	200
Lay Length	A	300F	254	295	337	397	533	670
Centerline to Bottom	D	300F	83	95	105	129	161	200
<b>Angle Dimensions</b>								
Center Inlet to Discharge	B	FNPT	119	140	168	-	-	-
Center Discharge to Inlet	F	FNPT	83	102	118	-	-	-
Center Inlet to Discharge	B	150F	121	140	154	191	254	324
Center Discharge to Inlet	F	150F	83	102	103	127	152	203
Center Inlet to Discharge	B	300F	127	149	163	200	267	337
Center Discharge to Inlet	F	300F	89	109	113	135	165	216
<b>Common Dimensions (Globe &amp; Angle)</b>								
Width	C		165	208	235	276	425	549
Height (To Stem Cap) Globe	E		156	227	248	276	353	451
Height (To Stem Cap) Angle	E		156	227	248	276	353	451
Body Port Tapping	FNPT	Inches	3/8	3/8	3/8	3/8	3/8	1/2
Stem Cap Plug	MNPT	Inches	3/8	3/8	3/8	3/8	3/8	3/8
Cover Port Tapping	FNPT	Inches	3/8	3/8	3/8	3/8	1/2	1/2
Valve Stroke		mm	14	25	29	37	43	73
Displaced Bonnet Volume (Litres)			0.1	0.3	0.3	0.8	2.1	6.3
Approximate Shipping Weight (Kilograms)			18	29	45	79	181	295
<b>Flow Capacities (L/s) Globe &amp; Angle</b>								
$K_v$ - Globe			13	19	26	47	110	190
$K_v$ - Angle			15	21	32	55	123	225
Continuous (Globe)			13	19	29	50	114	196
Intermittent (Globe)			16	24	36	63	142	244
Momentary (Globe)			30	42	65	114	252	442
<b>Maximum Pressure Ratings</b>								
Bar <sup>1</sup>		FNPT	27.6	27.6	27.6	-	-	-
Bar		150F	17	17	17	17	17	17
Bar		300F	27.6	27.6	27.6	27.6	27.6	27.6
<b>Maximum Temperature</b>								
Celsius			82°	82°	82°	82°	82°	82°

<sup>1</sup>Valves rated and stamped 27.6 bar as standard. Valves rated and stamped 41 bar on request



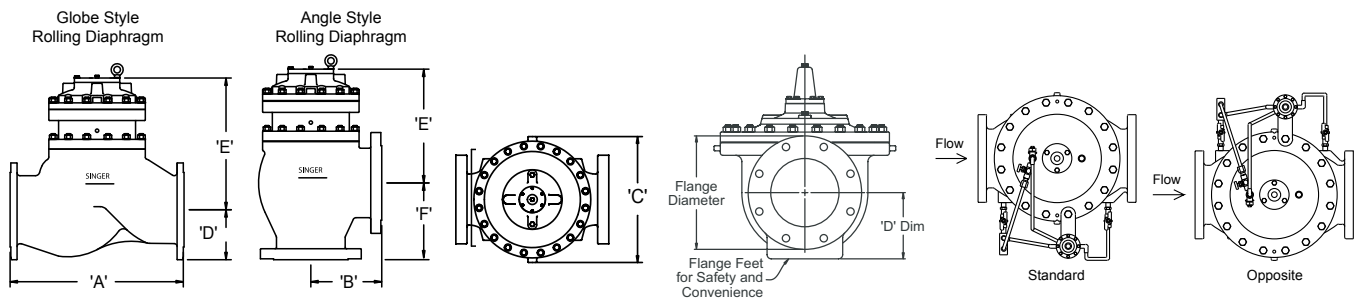
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# MODEL 106-PT / 106-PTC / S106-PT / S106-PTC DOUBLE CHAMBER HYDRAULICALLY OPERATED VALVE

## 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
mm	REF	ANSI	All figures shown in mm unless otherwise stated							
<b>Globe Dimensions</b>			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		243	260	292	324	400	499	
<b>Angle Dimensions</b>										
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	-	-
<b>Common Dimensions (Globe &amp; Angle)</b>										
Width	C		-	-	562	660	660	813	889	1262
Height (To Stem Cap) Globe	E		-	-	575	686	686	826	1060	1125
Height (To Stem Cap) Angle	E		-	-	491	610	-	749	-	-
Body Port Tapping	FNPT	Inches	-	-	3/4	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)			-	-	480	590	635	1043	1665	2268
<b>Flow Capacities (L/s) Globe &amp; Angle</b>										
$K_v$ - 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
<b>Maximum Pressure Ratings</b>										
Bar <sup>1</sup>		FNPT	-	-	-	-	-	-	-	-
Bar		150F	-	-	17	17	17	17	17	17
Bar <sup>1</sup>		300F	-	-	27.6	27.6	27.6	27.6	27.6	27.6
<b>Maximum Temperature</b>										
Celcius			-	-	82°	82°	82°	82°	82°	82°

<sup>1</sup>Valves rated and stamped 27.6 Bar as standard. Valves rated and stamped 41 Bar on request.



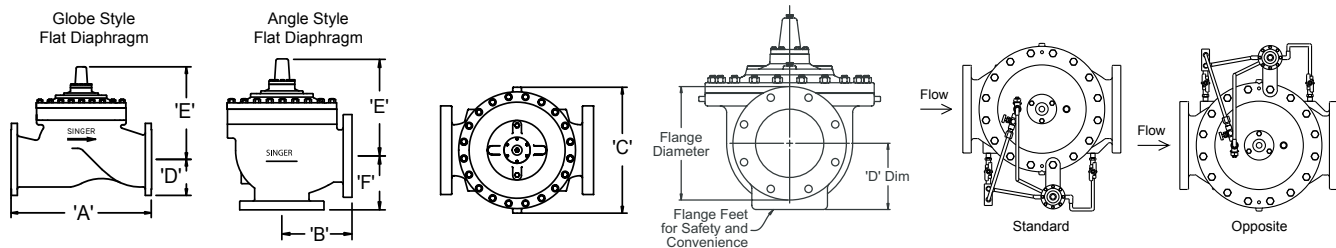
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# MODEL 106-PT / 106-PTC / S106-PT / S106-PTC DOUBLE CHAMBER HYDRAULICALLY OPERATED VALVE

## ISO VALVE DATA (METRIC UNITS)

Size	DWG	Standard	Flat Diaphragm System					
mm	REF	ISO	50 mm	65 mm	80 mm	100 mm	150 mm	200 mm
<b>Globe Dimensions</b>			<b>All figures shown in mm unless otherwise stated</b>					
Lay Length	A	BSPT	238	279	343	-	-	-
Centerline to Bottom	D	BSPT	70	86	93	-	-	-
Lay Length	A	PN10 / PN16	238	279	318	381	508	645
Centerline to Bottom	D	PN10 / PN16	76	89	100	117	142	200
Lay Length	A	PN25 / PN40	238	279	318	397	533	670
Centerline to Bottom	D	PN25 / PN40	76	89	100	129	161	200
<b>Angle Dimensions</b>								
Center Inlet to Discharge	B	BSPT	119	140	168	-	-	-
Center Discharge to Inlet	F	BSPT	83	102	118	-	-	-
Center Inlet to Discharge	B	PN10 / PN16	121	140	163	191	254	324
Center Discharge to Inlet	F	PN10 / PN16	83	102	113	127	152	203
Center Inlet to Discharge	B	PN25 / PN40	121	140	163	200	267	337
Center Discharge to Inlet	F	PN25 / PN40	83	102	113	135	165	216
<b>Common Dimensions (Globe &amp; Angle)</b>								
Width	C		165	208	235	276	425	549
Height (To Stem Cap) Globe	E		156	227	248	276	353	451
Height (To Stem Cap) Angle	E		156	227	248	276	353	451
Body Port Tapping	FNPT	Inches	3/8	3/8	3/8	3/8	3/8	1/2
Stem Cap Plug	MNPT	Inches	3/8	3/8	3/8	3/8	3/8	3/8
Cover Port Tapping	FNPT	Inches	3/8	3/8	3/8	3/8	1/2	1/2
Valve Stroke		mm	14	25	29	37	43	73
Displaced Bonnet Volume (Litres)			0.1	0.3	0.3	0.8	2.1	6.3
Approximate Shipping Weight (Kilograms)			18	29	45	79	181	295
<b>Flow Capacities (L/s) Globe &amp; Angle</b>								
$K_v$ - Globe			13	19	26	47	110	190
$K_v$ - Angle			15	21	32	55	123	225
Continuous (Globe)			13	19	29	50	114	196
Intermittent (Globe)			16	24	36	63	142	244
Momentary (Globe)			30	42	65	114	252	442
<b>Maximum Pressure Ratings</b>								
Bar		BSPT	27.6	27.6	27.6	-	-	-
Bar		PN16	16	16	16	16	16	16
Bar		PN25	25	25	25	25	25	25
<b>Maximum Temperature</b>								
Celcius			82°	82°	82°	82°	82°	82°

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



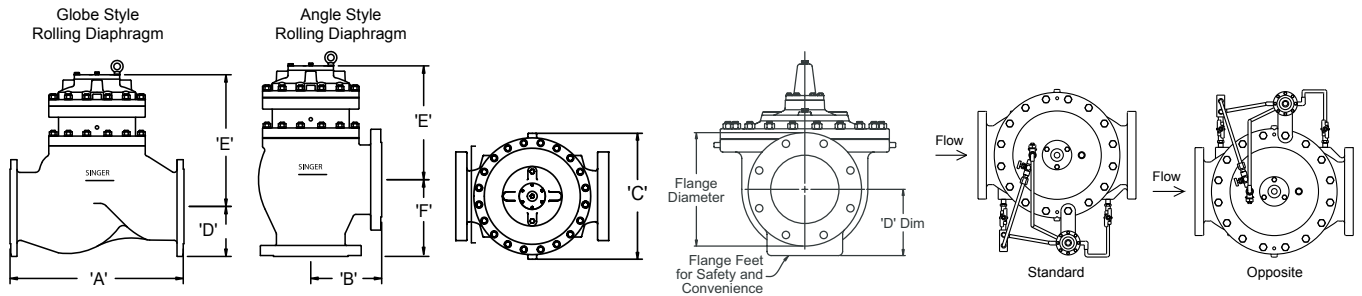
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## ISO VALVE DATA (METRIC UNITS)

Size	DWG	Standard	Rolling Diaphragm System							
			150 mm	200 mm	250 mm	300 mm	350 mm	400 mm	500 mm	600 mm
mm	REF	ANSI	All figures shown in mm unless otherwise stated							
<b>Globe Dimensions</b>			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		243	260	292	324	400	499	
<b>Angle Dimensions</b>										
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	-	-
<b>Common Dimensions (Globe &amp; Angle)</b>										
Width	C		-	-	562	660	660	813	889	1262
Height (To Stem Cap) Globe	E		-	-	575	686	686	826	1060	1125
Height (To Stem Cap) Angle	E		-	-	491	610	-	749	-	-
Body Port Tapping	FNPT	Inches	-	-	3/4	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)			-	-	480	590	635	1043	1665	2268
<b>Flow Capacities (L/s) Globe &amp; Angle</b>										
$K_v$ - 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
<b>Maximum Pressure Ratings</b>										
Bar <sup>1</sup>		FNPT	-	-	-	-	-	-	-	-
Bar		150F	-	-	17	17	17	17	17	17
Bar <sup>1</sup>		300F	-	-	27.6	27.6	27.6	27.6	27.6	27.6
<b>Maximum Temperature</b>										
Celcius			-	-	82°	82°	82°	82°	82°	82°

<sup>1</sup>Valves rated and stamped 27.6 Bar as standard. Valves rated and stamped 41 Bar on request.



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