

SINGER MODEL 106/206-PTC

Power Globe Valve with Double Acting Actuator and Built in Check Valve

SIZE 2" DWG. A0891A SIZES: 106 - 2-1/2" to 8" 206 - 4" to 10" DWG. A0947A

Installation, Operation and Maintenance Instructions

DESCRIPTION:

Singer Model 106/206-PTC is a hydraulically operated, diaphragm actuated valve with two operating chambers and a sliding inner valve to check reverse flow regardless of stem position.

Unless otherwise specified, the valve will be assembled for service temperatures to 180^o F (80^o C).

DESCRIPTION OF OPERATION:

The valve is normally open when the operating chambers are vented to atmosphere and inlet pressure exceeds the outlet pressure.

When the top side of the diaphragm is pressurized and the bottom side of the diaphragm is vented to atmosphere, the valve will close.

By varying the operating pressures in the operating chambers with a SINGER Automatic Pilot Circuit the valve can be made to modulate.

The operating pressure may be either line pressure or external pressure. If external pressure is used, it must be equal to or greater than line pressure.

The sliding inner valve is free to close regardless of stem position when pressure reversal occurs.

STORAGE:

This valve must be stored indoors, away from direct sunlight.

INSTALLATION:

Use washers under nuts when bolting valve flanges to pipe flanges to protect the Epoxy Coating.

- 1. It is possible that diaphragms may take a set after shipping and storage. It is highly recommended that Bonnet and Body Bolts or Nuts be tightened after installation but before pressurizing the valve. If a leak develops after pressurizing, de-pressurize the valve and tighten the bolts or nuts.**
2. For the most convenient operation and maintenance, manual shut off valves should be installed.
3. A suitable bypass should be provided to allow for servicing of the valve without interrupting the flow stream.
4. Install pressure gauges upstream and/or downstream of valve as appropriate. This will make it easier to set the pilot system.
5. A strainer with a suitable basket should be installed ahead of the valve to protect it from foreign material.
6. Sufficient space should be provided around the valve for disassembly.
7. Flush system of all foreign matter before installing the valve.
8. Check direction of flow (arrow in the body shows flow direction) and install the valve accordingly.
9. After installation, and when the valve is pressurized, loosen fittings at high points to vent air. Note the bleed screw at the side of the limit switch adapter (item 63 on drawing A0707A).

SERVICE SUGGESTIONS

TROUBLE: Fails to Open

POSSIBLE CAUSE / REMEDY

1. Insufficient inlet pressure.
2. Pressure in the top chamber is not released or lack of pressure in the bottom chamber due to:
 - a) Isolating valves on pilot lines closed.
 - b) Pilot components not functioning. / Refer to specific instructions on pilot components.
 - c) Foreign material in pilot system.
 - d) Ruptured diaphragm.

TROUBLE: Fails to Close

1. Lack of pressure in the top chamber or pressure in bottom chamber is not released due to:
 - Isolating valves on pilot lines closed.
 - Pilot components not functioning.
 - Foreign material in pilot system.
 - Ruptured diaphragm.
2. Obstruction in valve.
3. Worn main valve disc.

MAINTENANCE:

The SINGER Model 106/206-PTC requires a minimum of maintenance. All parts are accessible for inspection and repair without removing the valve from the line.

DISASSEMBLY: Refer to drawing A0891A/A0947A for main valve and drawing A0707A for limit switch details.

1. Isolate the valve.
2. Disconnect pilot lines.
3. Remove limit switch assembly. Refer to drawing A0707A.
4. Refer to drawing A0891A/A0947A. Remove bonnet. If bonnet does not come free readily, it can be pried loose with a small pry-bar. Check that diaphragm does not adhere to the bonnet. If required, loosen the diaphragm completely from the bonnet to avoid damaging the diaphragm.

5. Loosen the diaphragm from the adapter to avoid damage to the diaphragm. Pull the stem/diaphragm assembly straight up to remove it.
6. Remove adapter. Loosen the Body Gasket from the adapter to avoid damage to the Body Gasket.
7. Remove inner valve. **NOTE: Avoid damaging seat when removing inner valve.**
8. Do not attempt to remove seat ring unless inspection shows that seat is damaged. When necessary to remove seat ring on sizes 2" and 2-1/2" (threaded in), make a wrench out of a length of pipe. Cut three notches into one end to engage the spokes of the seat ring. Insert the wrench and turn counterclockwise. On sizes 3" and over, the seat ring is held by Seat Ring Screws and Retaining Washers. To remove seat ring, remove Seat Ring Screws and Retaining Washers.

CLEANING AND INSPECTION:

1. Clean all parts, paying particular attention to resilient disc, diaphragm, 'O' rings, 'O' ring grooves and guiding and sealing surfaces.
2. Use suitable lubricant such as silicon lubricant when assembling 'O' rings.
3. Assure that parts are assembled as shown in the enclosed drawing.
4. Assure that pilot piping is assembled as shown in the enclosed drawings or schematics.

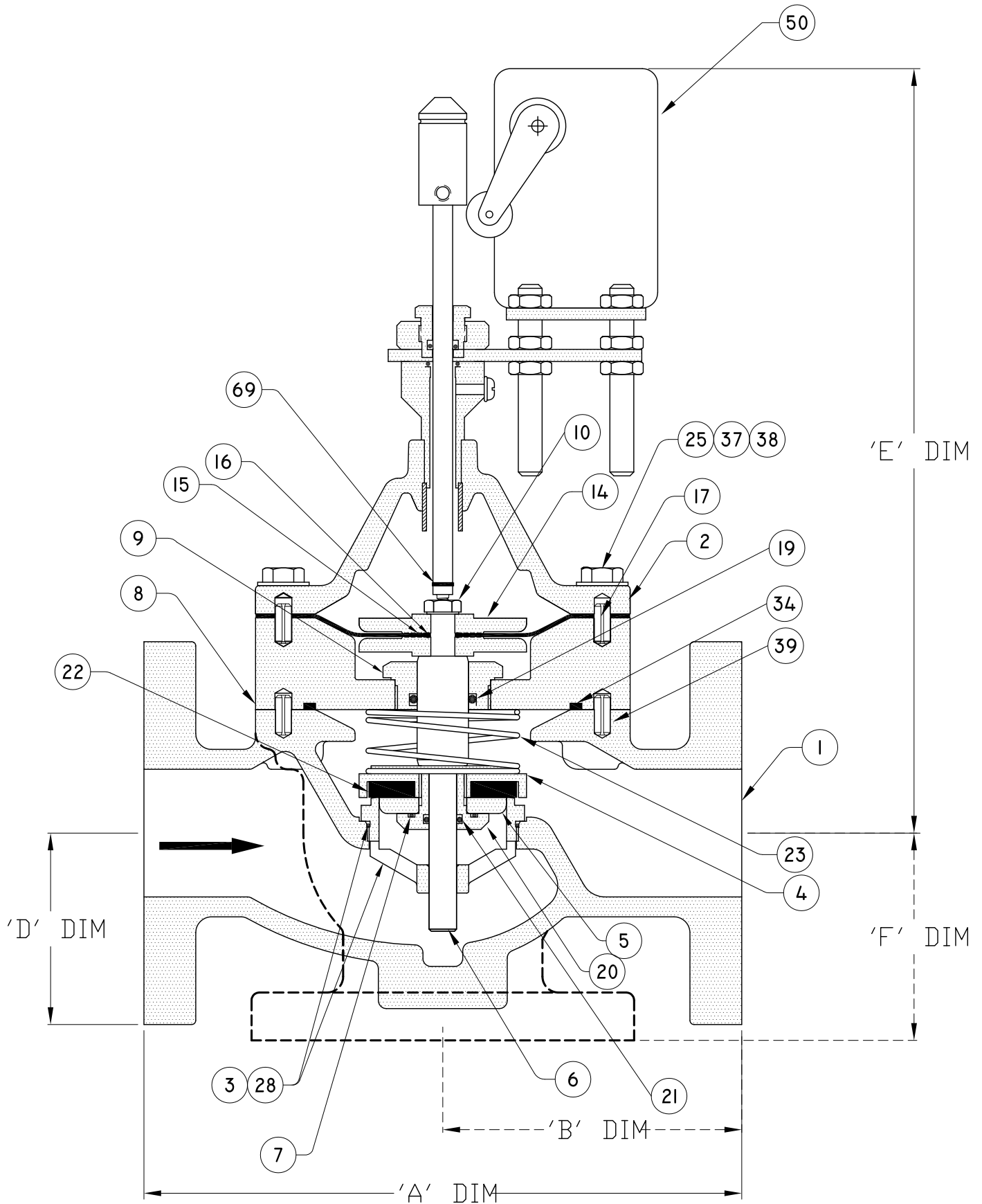
NOTE REGARDING FREEZING:

This valve does not drain completely when inlet and outlet pipes are drained. Where freezing conditions are expected, one of the following must be performed:

1. Drain valve and pilot system completely.
2. Provide insulation and/or heating to keep the valve from freezing.

SINGER MODEL 106 PT-C

POWER OPERATED VALVE WITH DOUBLE ACTING ACTUATOR
& BUILT IN CHECK VALVE, GLOBE STYLE, SIZES: 2"



SINGER MODEL 106 PT-C GLOBE AND ANGLE STYLE SIZES 2”
MATERIAL SPECIFICATION FOR DRAWING A0891A

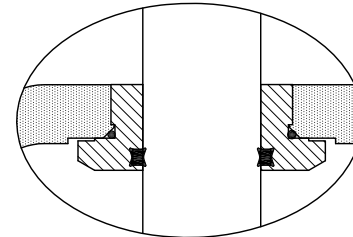
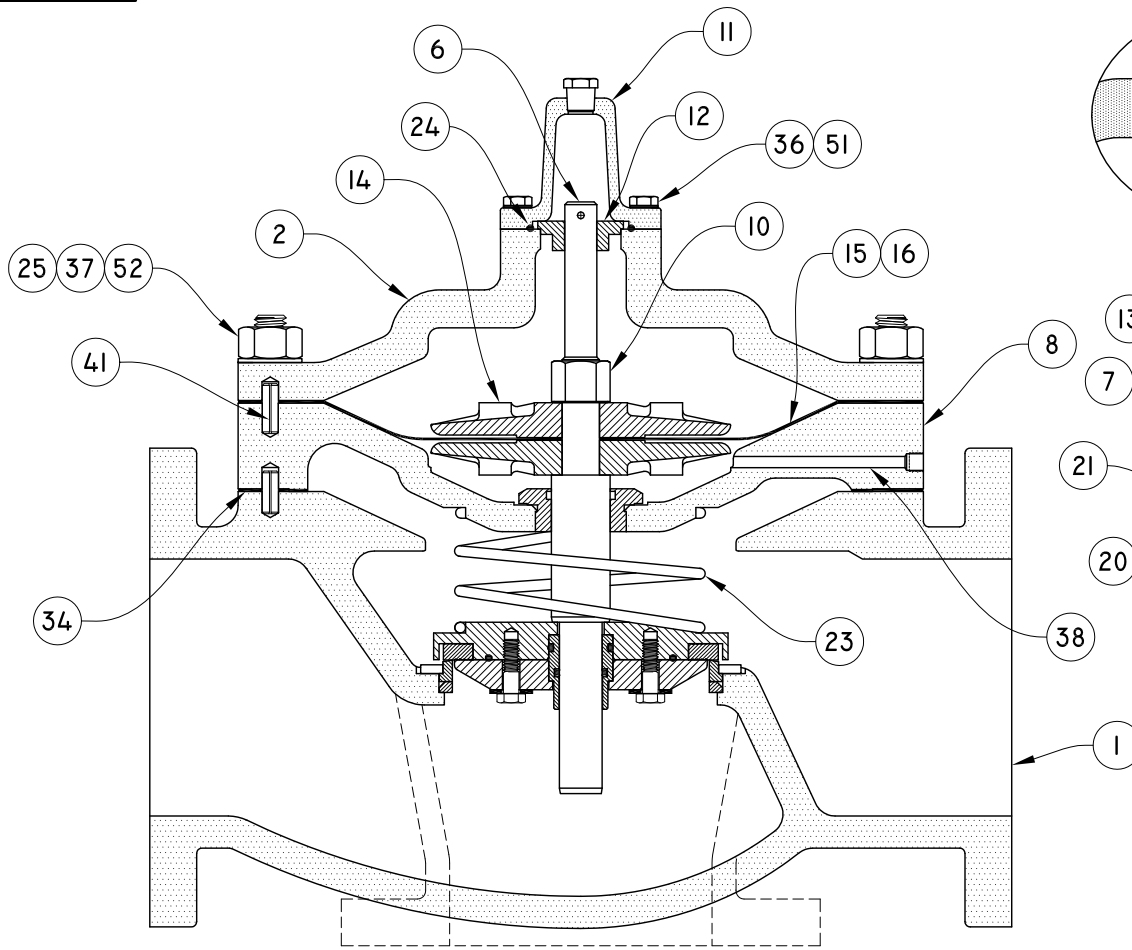
<u>ITEM</u>	<u>PART</u>	<u>MATERIAL</u>
1	Body	Ductile Iron
2	Bonnet	Ductile Iron
3	Seat Ring	Stainless Steel
4	Inner Valve	Ductile Iron
5	Disc Retainer	Ductile Iron
6	Stem	Stainless Steel
7 **	Disc Retainer Seal	Buna-N
8	Adaptor	Ductile Iron
9	Adaptor Bushing	Brass
10	Stem Nut	Brass
14	Clamp Plate	Cast Iron
15 **	Diaphragm	Neoprene
16 **	Diaphragm Seal	Buna - N
18 **	Adaptor Seal	Buna - N
19 **	Adaptor Bushing Seal	Buna - N
20	Inner Valve Sleeve	Brass
21 **	Inner Valve Sleeve Seal	Buna - N
22 **	Resilient Disc	EPDM or Buna-N
23	Spring	Stainless Steel
24 **	Stem Cap Seal	Buna-N
25	Adapter Studs	Stainless Steel
28 **	Seat Ring Seal	Buna-N
34 **	Body Seal	Buna-N
36	Stem Cap Capscrew	Stainless Steel
37	Adaptor Nuts	Stainless Steel
38	Adaptor Washers	Stainless Steel
39	Locating Pins	Stainless Steel
50	Limit Switch Assembly	Refer to Dwg A0707A

**** Recommended spare parts are included in parts KIT.**

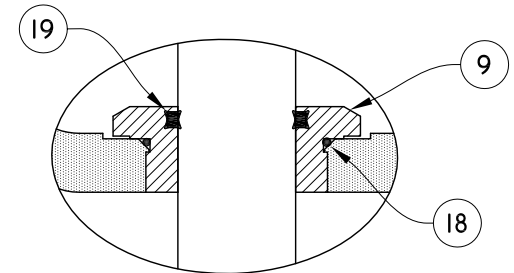
DIMENSIONS : SIZE 2”

Globe	150 Flanged	300 Flanged	300 SCREWED
A	9-3/8”	10”	9-3/8”
D	3”	3-1/4”	3”
C	5-7/8”	5-7/8”	5-7/8”
E	12”	12”	12”
Cv 55			
ANGLE	150 Flanged	300 Flanged	300 SCREWED
B	4-3/4”	5”	4-11/16”
F	3-1/4”	3-1/2”	3-1/4”
C	5-7/8”	5-7/8”	5-7/8”
E	12”	12”	12”
Cv 63			

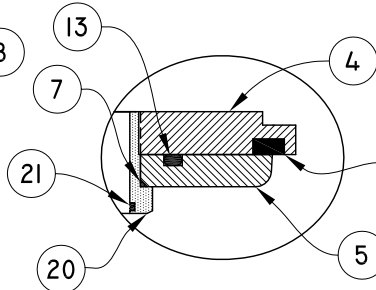
February 2004



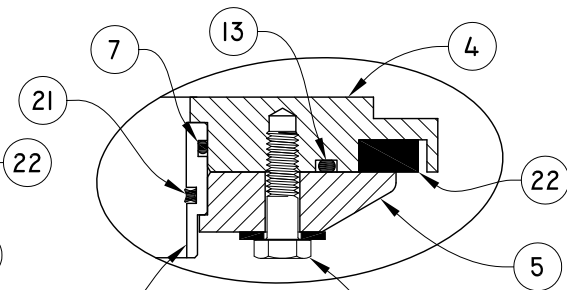
ADAPTOR BUSHING DETAIL
(2.5" 106 / 3" 206)



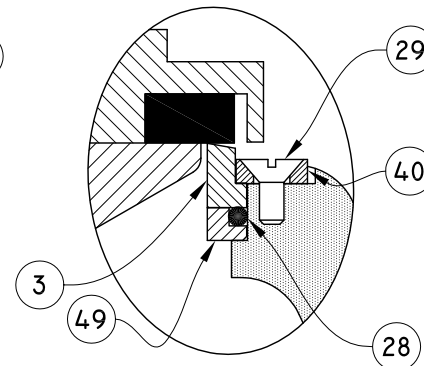
ADAPTOR BUSHING DETAIL
(3" - 8" 106 / 4" - 10" 206)



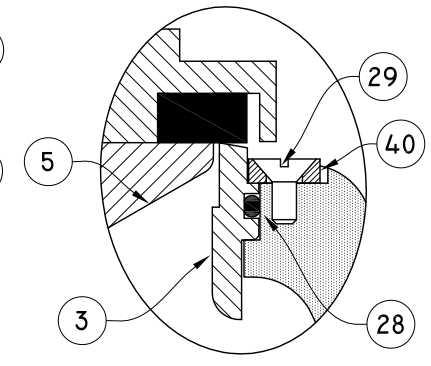
INNER VALVE DETAIL
(2.5" & 3" 106 / 3" & 4" 206)



INNER VALVE DETAIL
(4" 106 - 8" 106 / 6" - 10" 206)



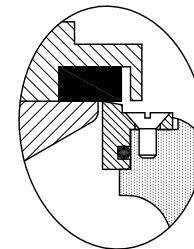
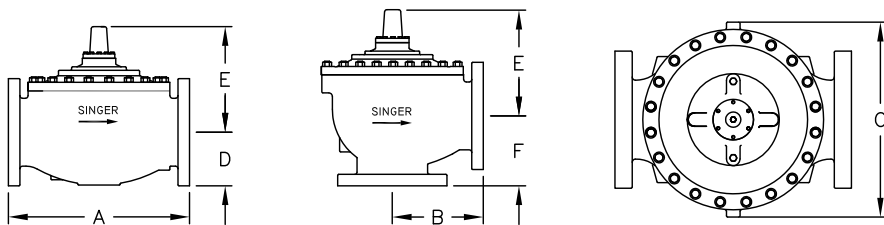
TWO PIECE SEAT DETAIL



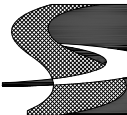
ONE PIECE SEAT DETAIL

DOUBLE CHAMBER MAIN VALVE WITH INTERNAL MECHANICAL CHECK (SLIDING INNER VALVE)

SIZES 2-1/2" TO 8" (65MM TO 200MM) 106 & A106
SIZES 3" TO 10" (80MM TO 250MM) 206 & A206



NOTE: SOME SIZES MAY HAVE A SINGLE PIECE SEAT, SPACER RING AND RETAINING WASHER

 SINGER VALVE <i>Result-Based Solutions. Globally.™</i>	
www.singervalue.com 12850-87th Avenue, Surrey, B.C. V3W 3H9	
Drawn By:	Approved By:
STEPHEN BISHOP	
Date:	Drawing:
DECEMBER 27th 2007	A0947A
MODEL 106-PTC, 206-PTC, A106-PTC & A206-PTC	

Material Specifications & Dimensions

2-1/2"-8" (65mm-200mm) 106-PTC & A106-PTC; 3"-10" (80mm-250mm) 206-PTC & A206-PTC
 For Drawing A0947A

Item	Part	Material	Item	Part	Material
1	Body	Ductile Iron	21 **	Inner Valve Stem Seal	Buna-N
2	Bonnet	Ductile Iron	22 **	Resilient Disc	EPDM or Buna-N
3	Seat Ring	Stainless Steel	23	Spring	Stainless Steel
4	Inner Valve	Ductile Iron	24 **	Stem Cap Seal	Buna-N
5	Disc Retainer	Ductile Iron	25	Adapter Studs	Stainless Steel
6	Stem	Stainless Steel	28 **	Seat Ring Seal	Buna-N
7 **	Disc Retainer Seal	Buna-N	29	Seat Ring Screw	Stainless Steel
8	Adaptor	Ductile Iron	34 **	Body Gasket	Cork-Nitrile
9	Adaptor Bushing	Brass	36	Stem Cap Capscrew	Stainless Steel
10	Stem Nut	Brass	37	Adapter Nuts	Stainless Steel
11	Stem Cap	Ductile Iron	38	Adapter Tube	Copper
12	Guide Bushing	Brass	40	Retaining Washer	Stainless Steel
13 **	Inner Valve Seal	Buna-N	41	Bonnet Locating Pins	Steel
14	Clamp Plate	Ductile Iron	42	Adaptor Locating Pins	Steel
15 **	Diaphragm	EPDM	49	Spacer Ring	Bronze
16 **	Diaphragm Seal	Buna-N	51	Stem Cap Washers	Stainless Steel
18 **	Adapter Seal	Buna-N	52	Bonnet Washer	Stainless Steel
19 **	Adapter Stem Seal	Buna-N	53	SIV Retaining Screw	Stainless Steel
20	Inner Valve Sleeve	Brass	54	SIV Retaining Washer	Stainless Steel

** Recommended spare parts (included in the Rebuild Kit)

106-PTC & A106-PTC		Globe			Globe & Ang	Angle		
		A	D	E	C	B	E	F
2-1/2" 65mm	NPT / BSPT	11" 279mm	3.38" 86mm	8.93" 227mm	8.19" 208mm	5.50" 140mm	8.93" 227mm	4" 102mm
	150F / PN10, PN16, PN25, PN40	11" 279mm	3.50" 89mm	8.93" 227mm	8.19" 208mm	5.50" 140mm	8.93" 227mm	4" 102mm
	300F	11.63" 295mm	3.75" 95mm	8.93" 227mm	8.19" 208mm	5.88" 149mm	8.93" 227mm	4.31" 109mm
3" 80mm	NPT / BSPT	13.50" 343mm	3.68" 93mm	9.75" 248mm	9.25" 235mm	6.63" 168mm	9.75" 248mm	4.63" 118mm
	150F	12" 305mm	3.75" 95mm	9.75" 248mm	9.25" 235mm	6" 152mm	9.75" 248mm	4" 102mm
	300F	13.25" 337mm	4.13" 105mm	9.75" 248mm	9.25" 235mm	6.38" 162mm	9.75" 248mm	4.38" 111mm
	PN10, PN16, PN25, PN40	318mm	100mm	248mm	235mm	162mm	248mm	111mm
4" 100mm	150F / PN10, PN16, PN25, PN40	15" 381mm	4.60" 117mm	10.88" 276mm	10.88" 276mm	7.50" 191mm	10.88" 276mm	5" 127mm
	300F	15.63" 397mm	5.09" 129mm	10.88" 276mm	10.88" 276mm	7.88" 200mm	10.88" 276mm	5.31" 135mm
	150F / PN10, PN16	20" 508mm	5.60" 142mm	13.88" 353mm	16.63" 422mm	10" 254mm	13.88" 353mm	6" 152mm
6" 150mm	300F / PN25, PN40	21" 533mm	6.34" 161mm	13.88" 353mm	16.63" 422mm	10.50" 267mm	13.88" 353mm	6.50" 165mm
	150F / PN10, PN16	25.38" 645mm	7.63" 194mm	17.75" 451mm	21.63" 549mm	12.75" 324mm	17.75" 451mm	8" 203mm
8" 200mm	300F / PN25, PN40	26.38" 670mm	7.63" 194mm	17.75" 451mm	21.63" 549mm	13.25" 337mm	17.75" 451mm	8.50" 216mm

206-PTC & A206-PTC		Globe			Globe & Ang	Angle		
		A	D	E	C	B	E	F
3" 80mm	150F / PN10, PN16	12" 305mm	4" 102mm	8.93" 227mm	8.19" 208mm	-	-	-
	4" 100mm	15" 381mm	4.60" 117mm	11.28" 287mm	10" 254mm	7.56" 192mm	9.50" 241mm	5.94" 151mm
6" 150mm	300F	15.63" 397mm	5" 127mm	11.28" 287mm	10" 254mm	7.88" 200mm	9.50" 241mm	6.25" 159mm
	150F / PN10, PN16	20.12" 511"	5.62" 143mm	12.18" 308mm	12.50" 318mm	10.19" 259mm	10.50" 267mm	6.19" 157mm
8" 200mm	300F / PN25, PN40	21" 533mm	6.34" 161mm	12.18" 308mm	12.50" 318mm	10.63" 270mm	10.50" 267mm	6.81" 173mm
	150F / PN10, PN16	25" 635mm	6.75" 171mm	16.25" 413mm	16" 406mm	12.50" 318mm	13.43" 341mm	9" 229mm
10" 250mm	300F / PN25, PN40	26" 660mm	7.50" 191mm	16.25" 413mm	16" 406mm	13" 330mm	13.43" 341mm	9.50" 241mm
	150F / PN10, PN16	24.50" 622mm	8" 203mm	21.38" 543mm	20" 508mm	-	-	-
300F / PN25, PN40	25.88" 657mm	8.63" 219mm	21.38" 543mm	20" 508mm	-	-	-	

SINGER MODEL S106/S206-PTC

Double Chamber Globe Valve with Internal Drop Check Feature

SIZES: S106 - 10" to 16" SA106 – 10" & 12" S206 - 12" to 24"
DWG. A0925A

Installation, Operation and Maintenance Instructions

DESCRIPTION:

Singer Model S106/S206-PTC is a hydraulically operated, diaphragm actuated valve with two operating chambers and a sliding inner valve to check reverse flow regardless of stem position.

Unless otherwise specified, the valve will be assembled for service temperatures to 180^o F (80^o C).

DESCRIPTION OF OPERATION:

The valve is normally open when the operating chambers are vented to atmosphere and inlet pressure exceeds the outlet pressure.

When the top side of Diaphragm (46) is pressurized and the bottom side of the Diaphragm is vented to atmosphere, the valve will close.

By varying the operating pressures in the operating chambers with a SINGER Automatic Pilot Circuit the valve can be made to modulate.

The operating pressure may be either line pressure or external pressure.

The sliding inner valve is free to close regardless of stem position when pressure reversal occurs.

STORAGE:

This valve must be stored indoors, away from direct sunlight.

INSTALLATION:

Use washers under nuts when bolting valve flanges to pipe flanges to protect the Epoxy Coating.

- 1. This valve MUST be installed in a horizontal pipe with the bonnet up.**
- 2. Flush system of all foreign matter before installing the valve.**
- 3. It is possible that diaphragms may take a set after shipping and storage. It is highly**

recommended that Bonnet and Body Bolts or Nuts be tightened after installation but before pressurizing the valve. If a leak develops after pressurizing, de-pressurize the valve and tighten the bolts or nuts.

4. For the most convenient operation and maintenance, manual shut off valves should be installed.
5. A suitable bypass should be provided to allow for servicing of the valve without interrupting the flow stream.
6. Install pressure gauges upstream and/or downstream of valve as appropriate. This will make it easier to set the pilot system.
7. A strainer with a suitable basket should be installed ahead of the valve to protect it from foreign material.
8. Sufficient space should be provided around the valve for disassembly.
9. Check direction of flow (arrow in the body shows flow direction) and install the valve accordingly.
10. After installation, and when the valve is pressurized, loosen fittings at high points to vent air. Note the bleed screw at the side of the limit switch adapter (item 63 on drawing A0707A).

SERVICE SUGGESTIONS

**TROUBLE: Fails to Open
POSSIBLE CAUSE / REMEDY**

1. Insufficient inlet pressure.
2. Pressure in the top chamber is not released or lack of pressure in the bottom chamber due to:
 - a) Isolating valves on pilot lines closed.
 - b) Pilot components not functioning. / Refer to specific instructions on pilot components.
 - c) Foreign material in pilot system.
 - d) Ruptured diaphragm.

Service Suggestions (Cont.):

TROUBLE: Fails to Close

1. Lack of pressure in the top chamber or pressure in bottom chamber is not released due to:
 - Isolating valves on pilot lines closed.
 - Pilot components not functioning.
 - Foreign material in pilot system.
 - Ruptured diaphragm.
2. Obstruction in valve.
3. Worn main valve disc.

MAINTENANCE:

The SINGER Model 106/206-PTC requires a minimum of maintenance. All parts are accessible for inspection and repair without removing the valve from the line.

DISASSEMBLY: Refer to drawing A0925A for Main Valve and drawing A0707A for Limit Switch details.

1. Isolate the valve.
2. Disconnect pilot lines.
3. Remove limit switch assembly. Refer to drawing A0707A.
4. Refer to drawing A0925A. Remove Bonnet (2). If the Bonnet does not come free readily, it can be pried loose with a small pry-bar. Check that diaphragm does not adhere to the bonnet. If required, loosen the diaphragm completely from the bonnet to avoid damaging the diaphragm.
5. Loosen the diaphragm from the adapter to avoid damage to the diaphragm.

6. Remove Clamp Plate Screws (48) and use Eye Bolts (34) to pull the Stem/Diaphragm assembly straight up to remove it.
7. Remove Adaptor (3). Protect Adaptor Seal (28) from damage.
8. Remove Set Screws from Inner Valve.
9. Using Eye Bolts (34), remove the Inner Valve assembly. **NOTE: Avoid damaging the Seat Ring when removing the Inner Valve assembly.**
10. Do not attempt to remove Seat Ring (8) unless inspection shows that the Seat Ring is damaged.

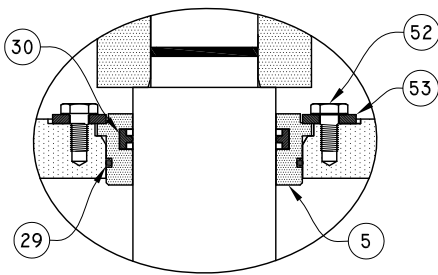
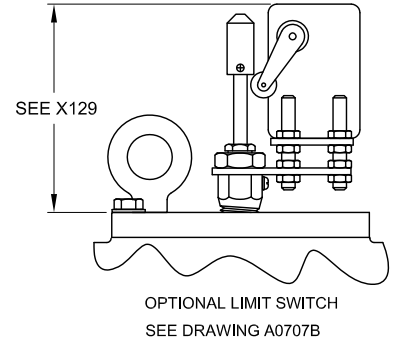
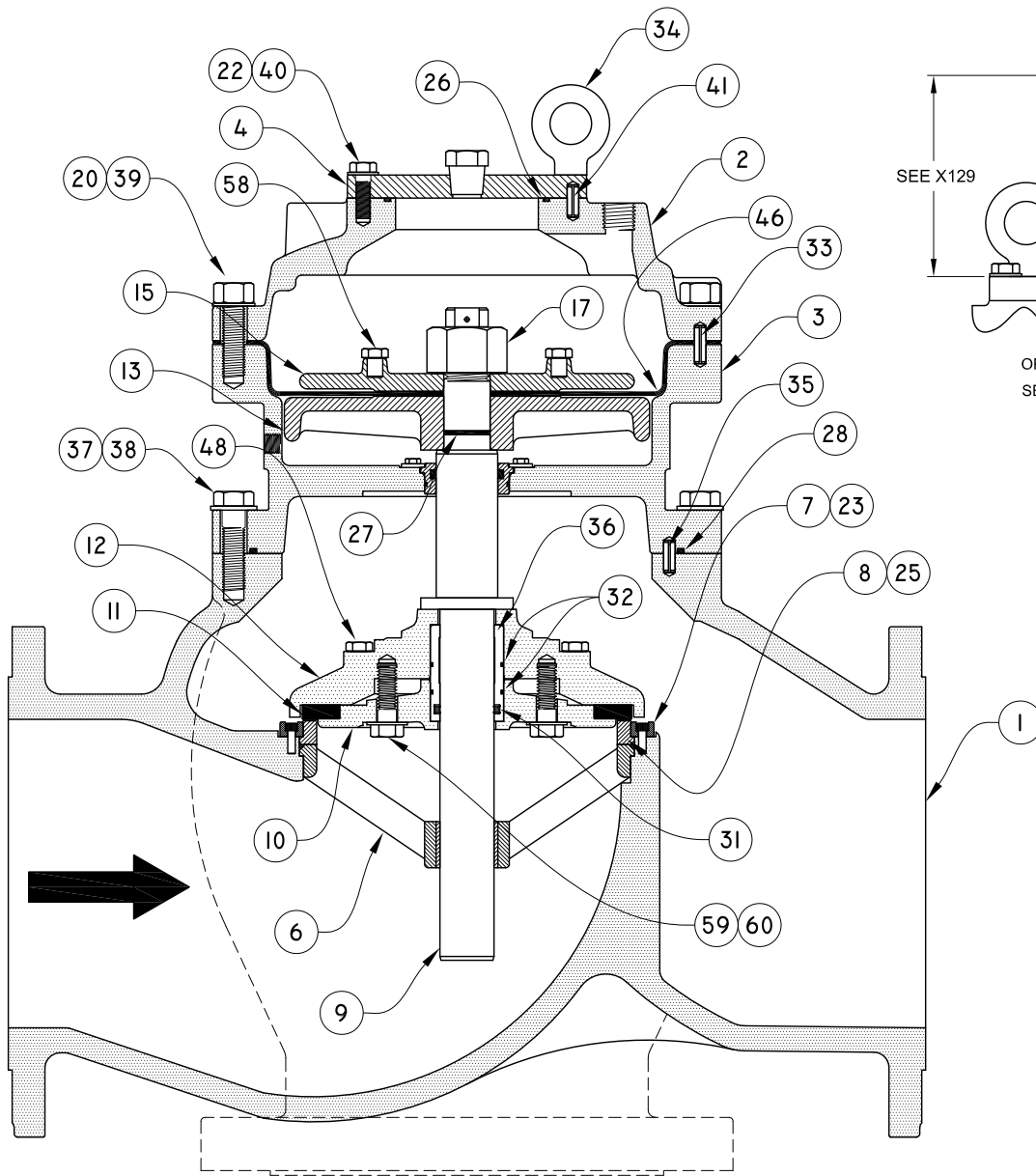
CLEANING AND INSPECTION:

1. Clean all parts, paying particular attention to Resilient Disc (11), Diaphragm (46), O-Rings, O-Ring grooves and guiding and sealing surfaces.
2. Use suitable lubricant such as silicon lubricant when assembling O-rings.
3. Assure that parts are assembled as shown in the enclosed drawing.
4. Assure that pilot piping is assembled as shown in the enclosed drawings or schematics.

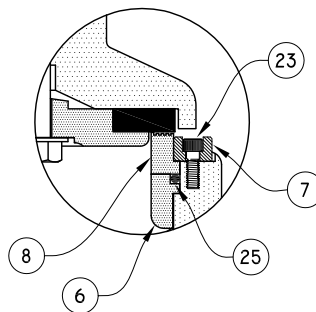
NOTE REGARDING FREEZING:

This valve does not drain completely when inlet and outlet pipes are drained. Where freezing conditions are expected, one of the following must be performed:

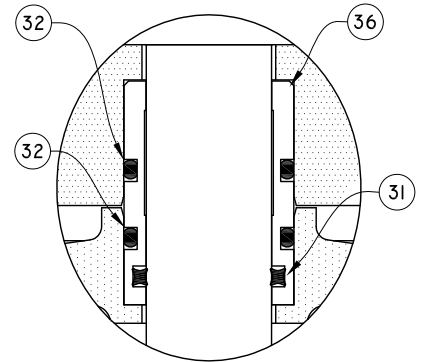
1. Drain valve and pilot system completely.
2. Provide insulation and/or heating to keep the valve from freezing.



UPPER GUIDE DETAIL



SEAT RING DETAIL



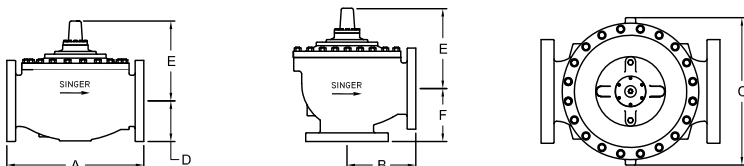
SLIDING INNER VALVE DETAIL

DOUBLE CHAMBER MAIN VALVE

c/w MECHANICAL INTERNAL DROP CHECK (IDC)

SIZES 10" to 16" (250MM to 400MM) SI06-PTC & SAI06-PTC

SIZES 12" to 24" (300MM to 600MM) S206-PTC



SINGER VALVE

Result-Based Solutions. Globally.™

www.singervalve.com

12850-87th Avenue, Surrey, B.C. V3W 3H9

Drawn By:

STEPHEN BISHOP

Approved By:

Date:

AUGUST 5th 2008

Drawing:

A0925A

10"-16" SI06-PTC & 12"-24" S206-PTC

Material Specifications & Dimensions

10"-16" (250mm-400mm) S106-PTC & SA106-PTC
12"-24" (300mm-600mm) S206-PTC
For Drawing A0925A

Item	Part Name	Material	Item	Part Name	Material
1	Body	Ductile Iron	31 **	IDC Stem Seal	Buna-N
2	Bonnet	Ductile Iron	32 **	IDC Sleeve Seal	Buna-N
3	Adaptor	Ductile Iron	33	Bonnet Locating Pins	Steel
4	Top Cover	Ductile Iron	34	Eye Bolt	Steel
5	Upper Guide	Delrin	35	Adaptor Locating Pins	Steel
6	Bottom Guide	Ductile Iron & Bronze	36	IDC Sleeve	Bronze
7	Seat Ring Washer	Stainless Steel	37	Body Bolt	Stainless Steel
8	Seat Ring	Stainless Steel	38	Body Washer	Stainless Steel
9	Stem	Stainless Steel	39	Bonnet Washer	Stainless Steel
10	Disc Retainer	Ductile Iron	40	Top Cover Washer	Stainless Steel
11 **	Resilient Disc	EPDM or Buna-N	41	Top Cover Locating Pins	Steel
12	Inner Valve	Ductile Iron	46 **	Diaphragm	Buna-N
13	Piston	Ductile Iron	48	Inner Valve Plugs	Stainless Steel
15	Clamp Plate	Ductile Iron	52	Upper Guide Screw	Stainless Steel
17	Stem Nut	Brass ASTM	53	Upper Guide Washer	Stainless Steel
20	Bonnet Bolts	Stainless Steel	58	Clamp Plate Plugs	Stainless Steel
22	Top Cover Screw	Stainless Steel	59	Disc Retainer Screw	Stainless Steel
23	Seat Retaining Screw	Stainless Steel	60	Disc Retainer Washer	Stainless Steel
25 **	Seat Ring Seal	Buna-N			
26 **	Top Cover Seal	Buna-N			
27 **	Stem Seal	Buna-N			
28 **	Adaptor Seal	Buna-N			
29 **	Upper Guide Seal	Buna-N			
30 **	Adaptor Stem Seal	Buna-N			

** Recommended spare parts (included in the Rebuild Kit)

S106-PTC & SA106-PTC		Globe			Globe & Ang	Angle		
		A	D	E	C	B	E	F
10" 250mm	150F / PN10, PN16	29.75" 756mm	8.56" 217mm	22.63" 575mm	22.13" 562mm	11.50" 292mm	19.34" 491mm	12.50" 318mm
	300F / PN25, PN40	31.12" 790mm	9.56" 243mm	22.63" 575mm	22.13" 562mm	12.19" 310mm	19.34" 491mm	13.19" 335mm
12" 300mm	150F / PN10, PN16	34" 864mm	9.50" 241mm	27" 686mm	26" 660mm	13.75" 349mm	24" 610mm	12.50" 318mm
	300F / PN25, PN40	35.50" 902mm	10.25" 260mm	27" 686mm	26" 660mm	14.50" 368mm	24" 610mm	13.25" 337mm
14" 350mm	150F / PN10, PN16	31" 787mm	10.50" 267mm	27" 686mm	26" 660mm	-	-	-
	300F / PN25, PN40	32.50" 826mm	11.50" 292mm	27" 686mm	26" 660mm	-	-	-
16" 400mm	150F / PN10, PN16	41.38" 1051mm	11.75" 298mm	32.50" 826mm	32" 813mm	18" 457mm	29.50" 749mm	15.69" 399mm
	300F / PN25, PN40	43.50" 1105mm	12.75" 324mm	32.50" 826mm	32" 813mm	18.81" 478mm	29.50" 749mm	16.50" 419mm

S206-PTC		Globe			Globe & Ang	Angle		
		A	D	E	C	B	E	F
12" 300mm	150F / PN10, PN16	27.50" 699mm	9.50" 241mm	22.63" 575mm	22.12" 562mm	-	-	-
	300F / PN25, PN40	29" 737mm	10.50" 267mm	22.63" 575mm	22.12" 562mm	-	-	-
16" 400mm	150F / PN10, PN16	36" 914mm	11.75" 298mm	27" 686mm	26" 660mm	-	-	-
	300F / PN25, PN40	37.63" 956mm	12.75" 324mm	27" 686mm	26" 660mm	-	-	-
18" 450mm	150F / PN10, PN16	42" 1067mm	12.50" 318mm	32.38" 822mm	30.31" 770mm	-	-	-
	300F / PN25, PN40	43.63" 1108mm	14" 356mm	32.38" 822mm	30.31" 770mm	-	-	-
20" 500mm	150F / PN10, PN16	45" 1143mm	13.75" 349mm	32.38" 822mm	30.50" 775mm	-	-	-
	300F / PN25, PN40	46.38" 1178mm	15.25" 387mm	32.38" 822mm	30.50" 775mm	-	-	-
24" 600mm	150F / PN10, PN16	50.50" 1283mm	16" 406mm	32.38" 822mm	36" 914mm	-	-	-
	300F / PN25, PN40	52.25" 1327mm	18" 457mm	32.38" 822mm	36" 914mm	-	-	-