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Model 5800

Installation, Operation, and Maintenance Instructions

1.0 GENERAL

1.1 Model Number Information

Sample Model Number: 5800 - 2 F 6 - G S - 1 S G

BODY SIZE	CODE
2.00"	2
3.00"	3
4.00"	4
END CONNECTIONS	CODE
Female NPT	S
Raised Face (RF) Flange	F
Ring Type Joint (RTJ) Flange	J
Other	(special)
ANSI CLASS (PRESSURE RATING)	CODE
150 (275 psig)	1
300 (740 psig)	3
600 (1480 psig)	6
900 (2220 psig)	9
1500 (3750 psig)	5
Other	(special)
MATERIALS OF CONSTRUCTION	CODE
Carbon Steel - Standard Service	-
Carbon Steel - NACE MR-01-75	N
BODY STYLE	CODE
Globe	G
Globe with Drain	D
LOAD SPRING / GASKETS	CODE
316 SST - Spring / 304/Grf Gaskets	S
Inconel - Spring / Inc/Grf Gaskets	N
TRIM MATERIAL	CODE
Tungsten Carbide	2
316 Stainless Steel	3
316 Stainless Steel with TFEG Plug Insert	8
Other	(special)
PISTON SEAL	CODE
TFE/Elgiloy Spring Energized	S
Other	(special)
SERVICE APPLICATION	CODE
Gas	G
Liquid	L

1.2 Specifications

1.2.1 Available Body Sizes

- 2.00" (50mm)
- 3.00" (80mm)
- 4.00" (100mm)

1.2.2 End Connections / Pressure Ratings¹

- FNPT 3750 psig (259 bar)
- 150# RF 290 psig (20 bar)
- 300# RF 750 psig (52 bar)
- 600# RF 1500 psig (103 bar)
- 600# RTJ 1500 psig (103 bar)
- 900# RF 2250 psig (155 bar)
- 900# RTJ 2250 psig (155 bar)
- 1500# RF 3750 psig (259 bar)
- 1500# RTJ 3750 psig (259 bar)

⁽¹⁾ Maximum pressure ratings @ 100°F (38°C)

1.2.3 Temperature Limits

- Standard Valve Configuration:
-20° to 400° F (-29° to 204° C)
- Modified Valve Configurations available for the following temperature limits. Consult Factory.
-50° to 600° F (-46° to 316° C)

1.2.4 Maximum Flow Coefficients

- 2" Body: 70 C_v
- 3" Body: 128 C_v
- 4" Body: 198 C_v

1.2.5 Materials of Construction (Std Configuration)

- Body ASTM A216 WCC C.S.
- Bonnet ASTM A516 Gr.70 C.S.
- Body Studs ASTM A193 Gr. B7
- Stud Nuts ASTM A194 Gr. 2H
- Pipe Plug ASTM A105 C.S.
- Internals:
 - Plug 316 SST
 - Plug Insert (Optional) TFE or Carbide
 - Seat 316 SST
 - Cage 17-4Ph SST H1150M
 - Guide 316 SST
 - Spring 316 SST
 - Ball Check Assembly 316 SST
 - Orifice Plug 316 SST
 - Piston Seal PTFE / Elgiloy
 - Gaskets 304SST / Grf
 - Lifting Screw SST

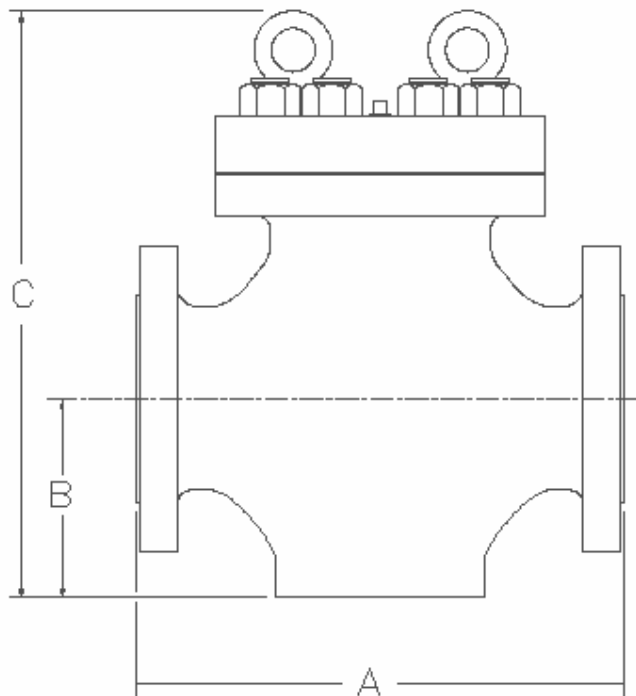
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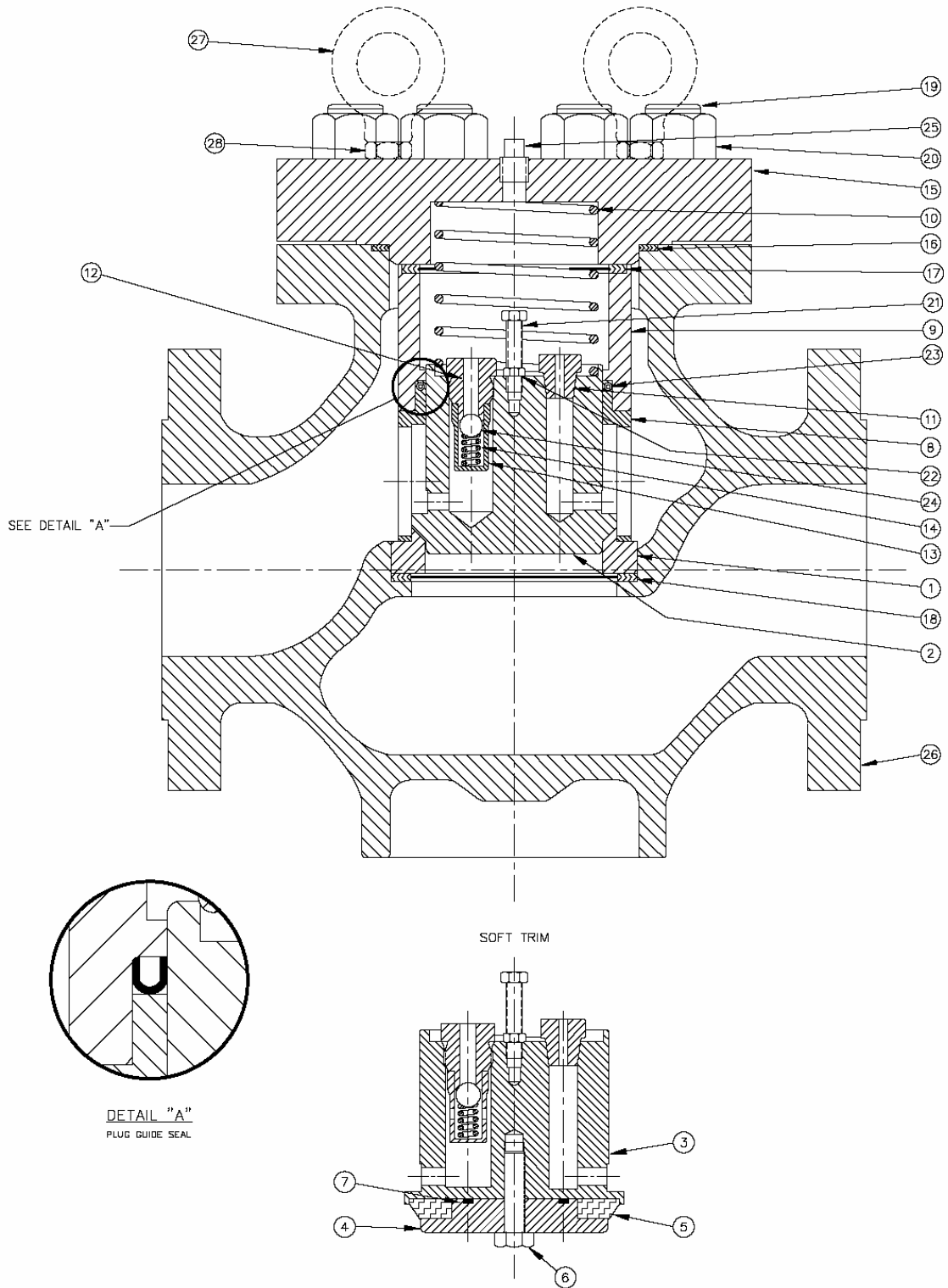
1.3 Dimensions, Inches (mm)

Body End Conn. Style	2.00"			3.00"			4.00"		
	"A"	"B" Max.	"C" Max.	"A"	"B" Max.	"C" Max.	"A"	"B" Max.	"C" Max.
FNPT	11.25 (286)	4.38 (111)	12.12 (308)	N/A	6.25 (159)	16.88 (428)	N/A	7.50 (190)	19.38 (492)
BWE	11.25 (286)			9.62 (244)			10.88 (276)		
SWE	11.25 (286)			*			*		
150# RF	10.00 (254)			11.75 (298)			13.88 (352)		
150# RTJ	10.50 (266)			12.25 (311)			14.38 (365)		
300# RF	10.50 (266)			12.50 (317)			14.50 (368)		
300# RTJ	11.12 (282)			13.12 (333)			15.12 (384)		
600# RF	11.25 (286)			13.25 (336)			15.50 (393)		
600# RTJ	11.38 (289)			13.38 (339)			15.62 (397)		
900# RF	14.75 (374)			15.50 (393)			17.00 (431)		
900# RTJ	14.88 (378)			15.62 (397)			17.12 (435)		
1500# RF	14.75 (374)			18.12 (460)			20.88 (530)		
1500# RTJ	14.88 (378)			18.25 (463)			21.00 (533)		

* Consult Factory



1.4 Parts List



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ITEM	DESCRIPTION	MATERIAL	PART NUMBER			QTY.
			2"	3"	4"	
1	VALVE SEAT	316 SST	55006	55138	55218	1
2	SOLID PLUG GAS	316 SST	58002	58004	58006	1
	SOLID PLUG LIQUID	316 SST	58074	58076	58078	
3	BUTT PLUG GAS	316 SST	58008	58010	58012	1
	BUTT PLUG LIQUID	316 SST	58080	58082	58084	
4	INSERT RETAINER	316 SST	58014	58016	58018	1
5	INSERT	TFE	55026	55144	55226	1
6	RETAINER SCREW	SST	58020	58022	58022	1
* 7	INSERT O-RING	TFE	55036	55036	55036	1
8	VALVE CAGE	17-4PH/H1150M	55050	55160	55250	1
9	VALVE GUIDE	316 SST	55054	55164	55254	1
10	VALVE SPRING	316 SST φ INCONEL	58026 58028	58030 58032	58034 58036	1
11	ORIFICE PLUG, GAS ORIFICE PLUG, LIQUID	316 SST	58038	58038	58038	1
			58039	58039	58039	
12	BALL CHECK SEAT 2.00" & 3.00"	316 SST	58040	58040	58040	1
	BALL CHECK SEAT 4.00"					(2)
13	BALL CHECK CAGE 2.00" & 3.00"	316 SST	58042	58042	58042	1
	BALL CHECK CAGE 4.00"					(2)
14	BALL CHECK SPRING (GAS ONLY) 2.00" & 3.00"	INCONEL	58044	58044	58044	1
	BALL CHECK SPRING (GAS ONLY) 4.00"					(2)
15	BONNET, BELOW ANSI 1500 BONNET, ANSI 1500	CSTL	58046	58048	58052	1
			58046	58050	58054	
* 16	BONNET GASKET	304 SST/GRF φ INCONEL/GRF	55120 55122	55198 55200	55288 55290	1
* 17	GUIDE GASKET	304 SST/GRF φ INCONEL/GRF	55068 55070	55170 55172	55260 55262	1
* 18	SEAT GASKET	304 SST/GRF φ INCONEL/GRF	55094 55096	55190 55192	55280 55282	1
19	BONNET STUD, BELOW ANSI 1500 BONNET STUD, ANSI 1500	STEEL	55124	55124	55292	8
			55124 (8)	55202 (8)	55202	12
20	BONNET NUT, BELOW ANSI 1500 BONNET NUT, ANSI 1500	STEEL	55126	55126	55296	8
			55126 (8)	55204 (8)	55204	12
21	LIFTING SCREW	SST	58058	58056	58058	1
22	HEX NUT	SST	58060	58060	58062	1
* 23	PLUG GUIDE SEAL	TFE/ELG'Y	58064	58066	58068	1
24	BALL (GAS ONLY) 2.00" & 3.00"	302 SST	58070	58070	58070	1
	BALL (GAS ONLY) 4.00"					(2)
25	PIPE PLUG	A105 STL	58072	58072	58072	1
26	BODY, NPT	WCC STL	55072	-	-	1
	BODY, SOCKET WELD		55074	-	-	
	BODY, BUTTWELD, SCH. 80		55076	-	-	
	BODY, 150# RF		55078	55174	55264	
	BODY, 300# RF		55080	55176	55266	
	BODY, 600# RF		55082	55178	55268	
	BODY, 600# RJ		55084	55180	55270	
	BODY, 900# RF		55086	55182	55272	
	BODY, 900# RJ		55088	55184	55274	
	BODY, 1500# RF		55090	55186	55276	
	BODY 1500# RJ		55092	55188	55278	
	27		EYE BOLT	ALLOY STEEL	N/A	
28	HEX JAM NUT	SST	N/A	55306 (ANSI 1500 ONLY)	55306	2

* INCLUDED IN REPAIR KITS

φ MEETS NACE MR-01-75 SPECIFICATIONS

TRIM REPLACEMENT KITS (INCLUDES SEAT, PLUG & GASKETS)

DESCRIPTION	2"	3"	4"
316 SST TRIM LIQUID	80022	80024	80026
316 SST TRIM W/TFE INSERT LIQUID	80028	80030	80032
316 SST TRIM GAS	85002	85004	85006
316 SST TRIM W/TFE INSERT GAS	85008	85010	85012

SEAL KITS

VALVE SIZE	STANDARD	NACE
2"	80036	80122
3"	80038	80123
4"	80040	80124

2.0 INSTALLATION

1. Prior to valve installation, inspect the unit for damages which might have occurred during shipment and handling. Remove process connection protectors. Inspect the inlet and outlet connections to assure that no debris has become lodged inside the valve.
2. Flush out inlet piping to remove any foreign materials.
3. When installing the valve into the pipeline, ensure that the valve is installed so that flow is in the direction as indicated by the flow arrow on the valve body.
4. Install valve using good piping practices. For flanged valve bodies, use a suitable gasket between the valve and the pipeline flange.
5. Model 5800 valve bodies conform to ANSI class 150, 300, 600, 900, and 1500 pressure / temperature ratings. Do not install the valve in applications where the working pressure exceeds the pressure limits identified in the ANSI standards.

3.0 MAINTENANCE

Refer to parts list and drawing (section 1.3, pages 4 and 5 of this document) for location of parts referred to in this instruction.

3.1 Valve Disassembly

WARNING: Pressure must be completely released from valve body prior to any maintenance involving disassembly. Before unbolting the bonnet, slowly loosen the pipe plug in the top center of the bonnet. While loosening the plug, listen for escaping gas pressure around the plug. Do not remove the bonnet until all pressure is released from the valve body.

1. Remove nuts from bonnet studs.
2. Lift bonnet straight up and remove from body.
3. Valve plug, cage, and guide may be removed by pulling upward on lifting screw.
4. After removal from body, the plug, cage, and guide may be separated by lifting guide, then cage, over the top of the plug.
5. Remove plug guide seal from recess in lower end of guide.
6. Remove seat and seat gasket by lifting them out of recess in body.

3.2 Inspection

1. Plug Guide Seal
Construction consists of a stainless steel spring surrounded by a PTFE jacket. Examine spring to be sure it is not bent or permanently crimped. The PTFE jacket should be carefully examined under good lighting. In order to function properly, the jacket must be free of scratches, cuts, and tears.
2. Valve Plug
O.D. of plug must be free of nicks and scratches that could damage the plug guide seal PTFE jacket. Handle plug carefully to avoid damage during maintenance.

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Examine seating surface for scratches, nicks, or gouges that could impair shutoff. If the plug as a non-metallic soft insert, the insert should be closely examined, since it is particularly susceptible to damage. If damage is found on any parts making up the insert-type plug, follow the repair procedure (section 3.3 of this document).

3. Ball Check and Orifice Plug
The ball check and orifice plug contain small fluid passages which must be free of foreign matter for proper valve operation. Inspect as follows:
 - a. Place plug in upright position.
 - b. Remove ball check from valve plug using a 13/16" wrench.
 - c. Examine ball check and remove any foreign matter present.
 - d. Verify operation of ball check by inserting a small rod, less than 1/4" diameter, from upper end. Only light pressure should be required to push ball off the seat. With pressure removed, the ball should snap back against the seat.
 - e. After inspection and cleaning, reinstall ball check in valve plug.
 - f. Remove orifice plug with a 5/8" allen wrench. Examine orifice for presence of foreign matter. Clean as required.
 - g. Reinstall orifice plug in valve plug.
4. Valve Seat
Beveled surface must be free of nicks and scratches. Inspect under side of seat for scratches or other imperfections that would impair proper sealing against seat gasket.
5. Cage, Guide, and Valve Spring
These components should not suffer any damage from normal operation. However, they should be examined while the valve is disassembled to verify that they are in good condition.
6. Valve Body
With seat and bonnet gaskets removed from body, inspect gasket recesses for scratches or foreign matter that would impair gasket sealing. Clean gasket recesses as required.

3.3 Insert-type Plug Repair

If inspection of insert-type plug reveals damage, disassemble as follows:

1. Plug may be secured in the inverted position in a vise for disassembly. However, if using a vise, place blocks of wood or other soft material on both sides of plug to protect surface.
2. Remove insert retaining screw.
3. Remove insert retainer, insert, and insert o-ring seal from butt plug.
4. Replace damaged part(s) and reassemble.

3.4 Valve Reassembly

1. Place seat gasket in body recess and install seat on top of gasket. NOTE: Seat must be oriented with 45° bevel surface facing upward.
2. Place valve guide on work surface in inverted position. Install plug guide seal in deep recess in valve guide. Orientation of plug guide seal must be such that open side of seal, with spring visible, faces upper end of valve guide. (With valve guide in inverted position, only the PTFE jacket will be visible after the plug guide seal is installed.)

3. Place valve plug on work surface in normal upright position. Place valve cage over plug with extended shoulder on cage oriented toward top of plug.
4. Turn valve guide over to its normal position and slip over top of plug. NOTE: Due to plug guide seal being squeezed between guide and plug, it may be necessary to gently tap guide into place.
5. Place the guide gasket in the recess in top of valve guide.
6. The entire plug / cage / guide assembly may be picked up by the lifting screw and placed into the valve body. Carefully position the cage over locating shoulder on seat.
7. Install valve spring in recess on top of valve plug.
8. Place bonnet gasket on top of valve body.
9. Install bonnet on top of body.
10. Follow good bolting practice. Lubricate bolts as required. Tighten bonnet bolts to the recommended torques given in the following table:

Valve Size	Torque, ft-lbs				
	ANSI 150	ANSI 300	ANSI 600	ANSI 900	ANSI 1500
2"	230	230	230	230	230
3"	230	230	230	230	500
4"	350	350	350	350	500

11. Tighten bleeder plug (pipe plug) in top of bonnet.