SHURJOINT® Metals Inc.

Installation, Operation & Maintenance

SJ-300F BUTTERFLY VALVE

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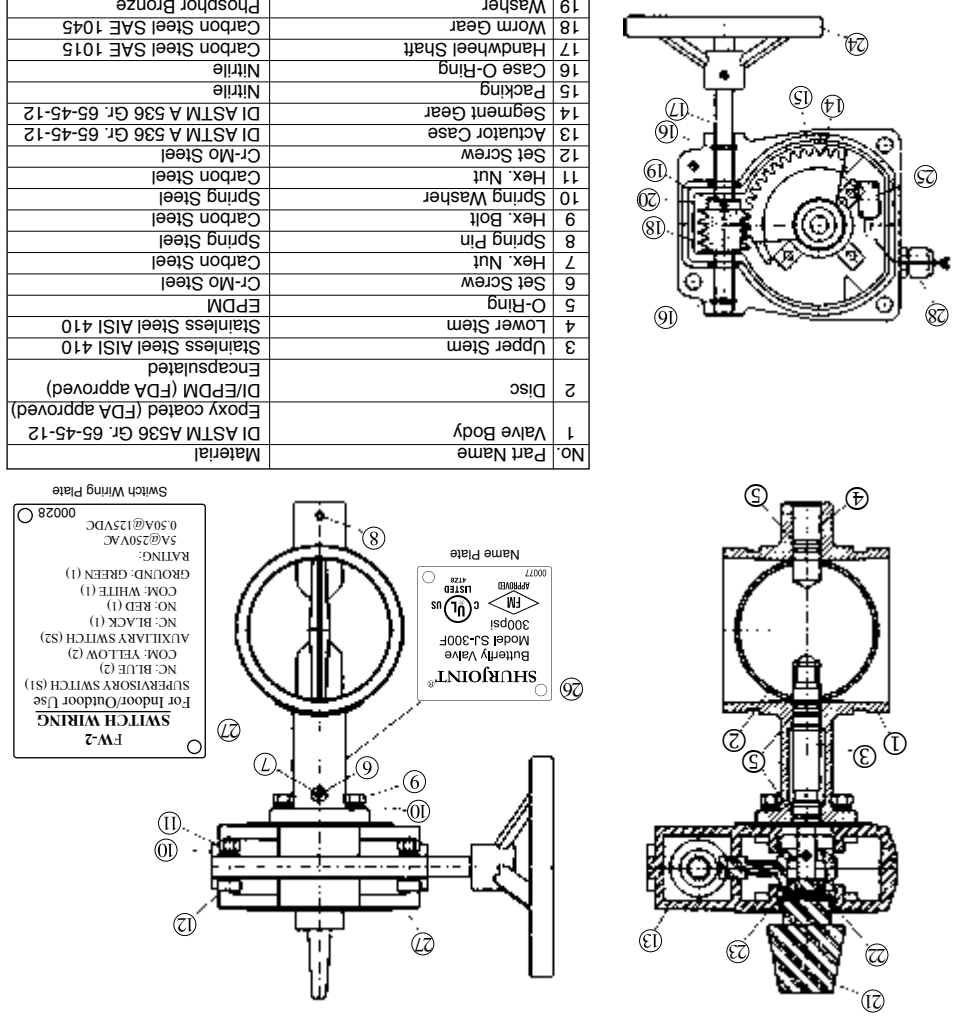
II / SJ-300F / 5



Part List

No.	Part Name	Material
1	Valve Body	DI ASTM A536 Gr. 65-45-12 Epoxy coated (FDA approved)
2	Disc	DI/EPDM (FDA approved) Encapsulated
3	Upper Stem	Stainless Steel AISI 410
4	Lower Stem	Stainless Steel AISI 410
5	O-Ring	EPDM
6	Set Screw	Cr-Mo Steel
7	Hex. Nut	Carbon Steel
8	Spring Pin	Spring Steel
9	Hex. Bolt	Carbon Steel
10	Spring Washer	Spring Steel
11	Hex. Nut	Carbon Steel
12	Set Screw	Cr-Mo Steel
13	Actuator Case	DI ASTM A 536 Gr. 65-45-12
14	Segment Gear	DI ASTM A 536 Gr. 65-45-12
15	Packing	Nitrile
16	Case O-Ring	Nitrile
17	Handwheel Shaft	Carbon Steel SAE 1015
18	Worm Gear	Carbon Steel SAE 1045
19	Washer	Phosphor Bronze
20	Spring Pin	Spring Steel
21	Indicator Flag	DI ASTM A536 Gr. 65-45-12
22	Indicator O-Ring	Nitrile
23	Snap Ring	Carbon Steel
24	Handwheel	DI ASTM A536 Gr. 65-45-12
25	Switches & Wiring	UL listed
26	Name Plate	Aluminum
27	Switch Wiring Plate Model No. FW-1 for 2" ~ 3", FW-2 for 4" ~ 6" and FW-3 for 8" ~ 12".	Aluminum
28	Conduit Fitting	Commercial

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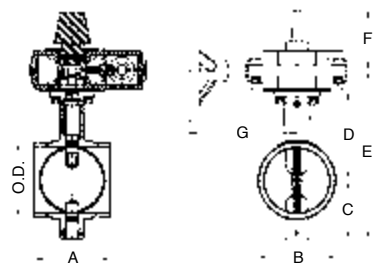
Performance Data



SJ-300F

Nominal Size	Pipe OD	Dimensions A(1)	B	C	D	E	F	G	Weight(2)
in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	Lbs Kgs
2 50	2.375 60.3	3.19 81	2.56 65	2.48 63	4.17 106	7.87 200	3.62 92	6.42 163	16.70 7.60
2½ 65	2.875 73.0	3.81 97	3.15 80	2.68 68	4.37 111	8.27 210	3.62 92	6.42 163	18.26 8.30
76.1mm	3.000 76.1	3.81 97	3.15 80	2.68 68	4.37 111	8.27 210	3.62 92	6.42 163	18.41 8.37
3 80	3.500 88.9	3.81 97	3.62 92	3.00 76	4.96 126	9.17 233	3.62 92	6.42 163	18.92 8.60
4 100	4.500 114.3	4.56 116	4.65 118	3.50 89	5.31 135	10.04 255	3.62 92	6.42 163	21.78 9.90
139.7mm	5.500 139.7	5.81 148	5.71 145	4.00 102	6.61 168	11.85 301	3.62 92	6.42 163	27.01 12.25
5 125	5.500 141.3	5.81 148	5.71 145	4.00 102	6.61 168	11.85 301	3.62 92	6.42 163	26.84 12.20
165.1mm	6.500 165.1	5.81 148	6.77 172	4.50 114	7.25 184	12.95 329	3.62 92	6.42 163	30.38 13.81
6 150	6.625 168.3	5.81 148	6.77 172	4.50 114	7.25 184	12.95 329	3.62 92	6.42 163	30.14 13.70
8 200	8.625 219.1	5.24 133	8.74 222	5.51 140	8.19 208	14.92 379	3.62 92	6.42 163	38.72 17.60
200 JIS	8.516 216.3	5.24 133	8.74 222	5.51 140	8.19 208	14.92 379	3.62 92	6.42 163	38.72 17.60
10 250	10.750 273.0	6.25 159	10.87 276	6.69 170	9.25 235	17.17 436	3.62 92	6.42 163	59.27 26.88
12 300	12.750 323.9	6.50 165	12.87 327	8.07 205	10.24 260	19.53 496	3.62 92	6.42 163	74.97 34.00

(1) End to end dimensions conforms to MSS SP-67.
(2) The weight includes the worm gear operator.

MODEL SHURJOINT SJ-300F BUTTERFLY VALVE

Resilient Seated Butterfly Valve from 2” to 12”

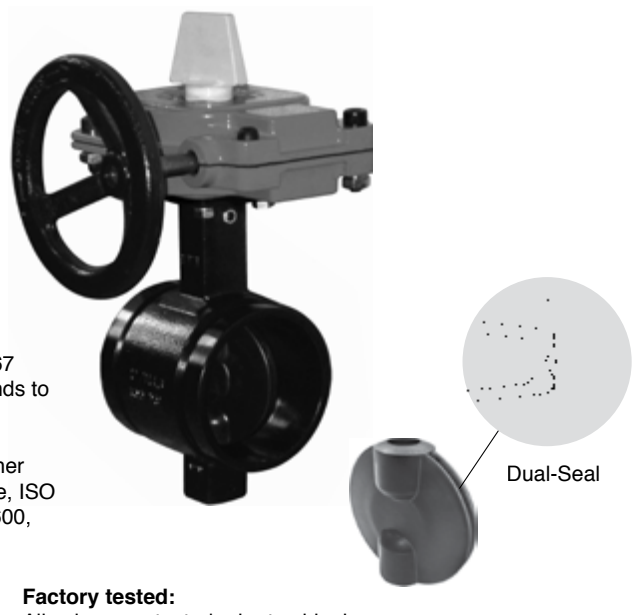
Product Description
The Model SJ-300F Butterfly Valve is a grooved-end shut-off valve equipped with a worm gear operator and supervisory switch and wiring.

The Model SJ-300F is cULus* and FM* approved 300 psi (20 Bar, 2.0 MPa) WWP (water working pressure) for indoor and outdoor use. Flow characteristics satisfy UL Specification 1091 and FM Approval Standard 1112.

* For approval information, please visit Shurjoint website, www.shurjoint.com for details.

When the Model SJ-300F Butterfly Valve is used in fire protection applications, installations shall conform to NFPA 13 and NFPA 72.

The valve consists of an epoxy powder coated ductile iron body and EPDM rubber encapsulated dual-seal disc. The EPDM disc encapsulation rubber is certified under NSF/ANSI 61 & NSF/ANSI 372 for use in potable water systems.



Specifications:
Overall dimension: MSS SP 67
End connections: Grooved ends to ANSI/AWWA C-606
Applicable pipe:
ASTM A53, A135, A795 or other UL listed or FM approved pipe, ISO 4200, DIN 2448, BSI 1387-3600, NFA 49004

Technical Data:
Range: 2” – 12”
Working pressure: 300 psi (20 Bar, 2.0 MPa)

Factory tested:
All valves are tested prior to shipping.
Sealing test: 110% of working pressure
Shell test: 200% of working pressure

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II / SJ-300F / 5

Maintenance

Outdoor use:
Always install a weatherproof conduit and conduit connection on the housing to protect the supervisory switches.

Disassembly of valve:
1) Drain the fluid completely from the pipeline.
2) Leave the valve slightly opened.
3) Loosen the coupling bolts and nuts.
4) Remove the valve from the pipeline.

Always wear safety glasses, hardhat, and foot protection before attempting to disassemble the Model SJ-300F Butterfly Valve for maintenance. Failure to do so may cause serious personal injury and or property damage.

Maintenance
When the gear operator or other component fails during service, it is recommended to change the whole valve rather than to repair or replace the failed component(s). All replacement parts must be obtained from the manufacturer to assure proper operation of the valve, and to maintain cULus listing and FM approval of the device. Only trained or authorized personnel are allowed to replace the failed component(s). Contact Shurjoint for further details.

Failure to do so may cause improper valve operation, serious personal injury and or property damage.

WARNING

This valve is cULus listed and FM approved as a complete set with the worm gear operator. Use it as factory supplied and do not dismantle the worm gear operator or other components. No modification to lever handle operation or chain-wheel operation is permitted.

Only good for above-ground, ambient temperature use. No submerged use is acceptable.

The valve disc which is encapsulated with EPDM is only good for water and oil-free air services. EPDM rubber is not compatible with petroleum or oil services.

Only good for grooved-end carbon steel pipes. Do not use it with plain-end carbon steel pipe or grooved-end ductile iron pipe.

Failure to do so may cause improper valve operation, serious personal injury and or property damage.

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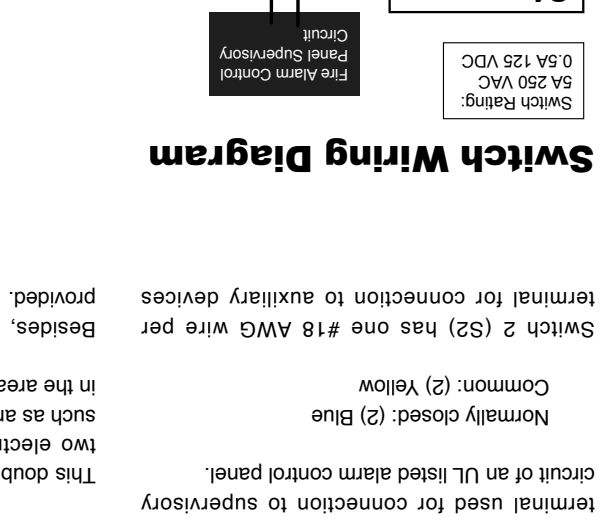
II / SJ-300F / 5

Switch Wiring Diagram



The diagram shows a typical connection between the common terminal and the normally closed terminal. The indicator light and alarm will stay on until the valve is fully open. When the valve is fully open, the indicator light and alarm will go out.

The connection of the alarm switch wiring shall be in accordance with NFPA 72 and the auxiliary switch per NFPA 70 (NEC).

Switch & Wiring

Switch & Wiring
The supervisory switch is designed to supervise in the "open" position and contains two, single pole, double throw, pre-wired switches.

Switch 1 (S1) has two #18 AWG wires per terminal used for connection to supervisory circuit of an UL listed alarm control panel.

Normally closed: (2) Blue
Common: (2) Yellow

Switch 2 (S2) has one #18 AWG wire per terminal for connection to auxiliary devices which may be required by the authority having jurisdiction.

Normally closed: (1) Black
Normally open: (1) Red
Common: (1) White

This double circuit provides flexibility to operate two electrical devices at separate locations, such as an indicating light and an audible alarm, in the area that the valve is installed.

Besides, a #14 AWG ground lead (green) is provided.

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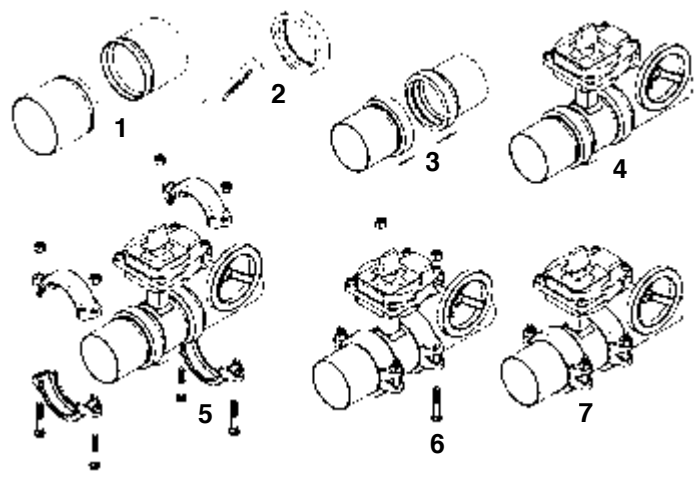
Mounting Instructions



1. **Pipe End Preparation**
Prepare the right OD pipe to match the valve size and process a groove at each pipe end. Make sure that the seating surface is free from roll marks or other harmful defects that could affect seating.

2. Lubricate gaskets
Apply thin coat of lubricant to gasket lips and complete exterior of gaskets.

3. Install gaskets
Place a gasket on each pipe end, and make sure that gasket lips do not overhang pipe ends.

4. Position the butterfly valve
Position the valve between pipe ends and butt to mating pipe ends. Slide the gasket over the ends and center it between the grooves on the pipe end and valve. No part of the gasket should protrude into the groove of either pipe or valve. The gear-operator should be in a position that an observer can see the indicator clearly and can tell that the valve is open or closed.

5. Install coupling halves
Place the coupling halves over the gasket and make sure that the coupling keys are engaged into the grooves.
Caution: Use at least one Shurjoint rigid coupling for installation. If two flexible couplings are used, the valve may rotate after installation and additional support may be required.

6. Insert bolts
Insert the factory supplied bolts and nuts of the couplings. Make sure that the oval neck of the bolt engages into the bolt hole of the housing. Valve position can be adjusted prior to tightening.

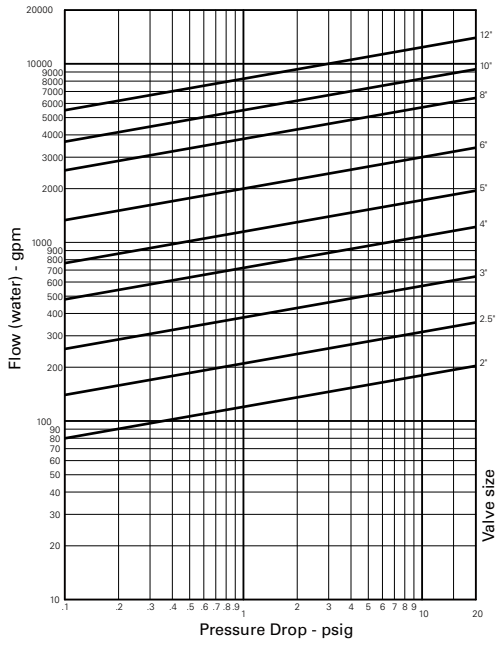
7. Tighten nuts
Tighten the nuts alternately and equally until the bolt pads come together, metal-to-metal.

Flow Data / Operating Torque

Flow Data
Equivalent length and Cv values for flow of water are shown below (water temperature at +20°C or +68°F).

Nominal Size (In)	Equiv. Length of Sch. 40 pipe* Feet (Meter)	Cv Value (Full Open)
2	4.7 (1.4)	120
2½	5.2 (1.6)	210
3	5.5 (1.7)	380
4	6.8 (2.1)	720
5	8.5 (2.6)	1150
6	7.4 (2.3)	2000
8	9.2 (2.8)	3800
10	13.5 (4.1)	5500
12	15.1 (4.6)	8250

* At 15 feet/sec, (4.6m/s) Velocity of water



Operating Torque

Nominal Size	Pipe OD	Torque
in / mm	in / mm	In-Lbs / Nm
2	2.375	80
50	60.3	9.0
2½	2.875	120
65	73.0	13.7
76.1mm	3.000	120
	76.1	13.7
3	3.500	160
80	88.9	18.1
4	4.500	450
100	114.3	50.9
139.7mm	5.500	700
	139.7	79.1
5	5.563	700
125	141.3	79.1
165.1mm	6.500	900
	165.1	101.7
6	6.625	900
150	168.3	101.7
8	8.625	1200
200	219.1	135.6
200 JIS	8.516	1200
	216.3	135.6
10	10.750	1800
250	273.0	203.4
12	12.750	2500
300	323.9	282.5

Notes: The torque values are based on liquid applications. For dry or non-lubricating applications add a 25% service factor to the above values.

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II / SJ-300F / 5