

## Model BFV-300/BFV-300C Butterfly Valve Grooved End

### General Description

The TYCO Models BFV-300 (normally Open) and BFV-300C (normally Closed) Grooved End Butterfly Valves (Ref. Figure 1) are indicating type valves designed for use in fire protection systems where a visual indication is required as to whether the valve is open or closed. They are used, for example, as system, sectional, and pump water control valves. They have cut groove inlet and outlet connections that are suitable for use with grooved end pipe couplings that are listed and approved for fire protection systems.

For applications requiring supervision of the open or closed position of the valve, the Gear Operators for the Model BFV-300/BFV-300C Butterfly Valves are provided with two sets of factory installed internal switches each having SPDT contacts (Ref. Figures 4 and 5). The supervisory switches transfer their electrical contacts when there is movement from the valve's normally open or normally closed position during the first two revolutions of the handwheel.

#### NOTICE

*The Model BFV-300/BFV-300C Grooved End Butterfly Valves described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the performance of these devices.*

*The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.*

### Technical Data

#### Sizes: ANSI Inches (DN)

2-1/2 (DN65), 3 (DN80), 4 (DN100),  
5 (DN125), 6 (DN150), 8 (DN200),  
10 (DN250)

#### Approvals

UL Listed  
FM Approved  
CE Certified

All laboratory listings and approvals are for indoor and outdoor use.

#### Maximum Working Pressure

2-1/2 to 8 Inch (DN65 to DN200):  
300 psi (20,7) bar

10 Inch (DN250):

175 psi (12,0 bar)

#### Maximum Working Temperature

According to UL 1091: 212° F (100° C)

### Materials of Construction

#### Body

Ductile iron conforming to ASTM  
A536

#### Body Coating

Nylon: Rilsan Pine Powders (PA11)  
Black

#### Disc

Ductile iron conforming to ASTM A395

#### Disc Seal

Grade EPDM "E" encapsulated rubber  
conforming to ASTM D2000

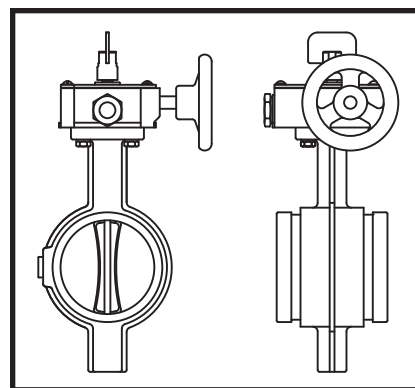
#### Upper & Lower Stem

Type 416 Stainless Steel conforming  
to ASTM 582

#### Actuator

2-1/2 to 6 Inch – IP 65, bronze  
traveling nut gearbox with internal  
dual switch in ductile iron housing

8 and 10 Inch – IP 65, segmented  
gearbox with internal dual switch in  
ductile iron housing



#### Tapping Bosses

Two factory-plugged NPT threaded tapping bosses are located in the valve body on the up and downstream sides of the disc for connection to valve trim.

2-1/2 and 3 inch: . . . . 2 x 1/4 inch Tapping Boss  
4 to 10 inch: . . . . . 2 x 1/2 inch Tapping Boss  
conforming to UL 260 - ANSI/NFPA 13

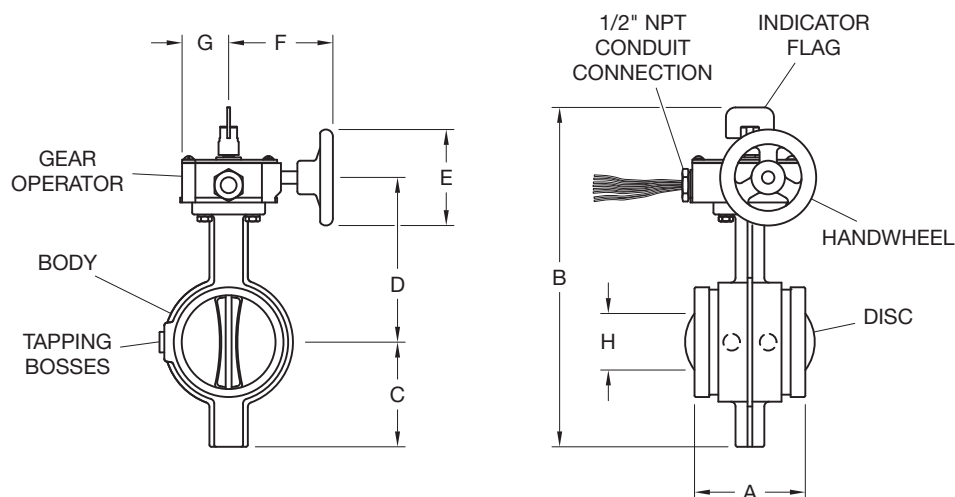
#### 100% Silicone Free

BFV-300/BFV-300C Butterfly Valves are produced and assembled not using silicone lubricants in any form (like grease or aerosol spray) and are suitable for paint or oxygen applications.

#### Control Valve Seat Leakage Class IEC 60534-4

CLASS VI (Type C) Control Valve Seat  
Leakage according to ANSI/FCI  
70-2-2006 (ASME B16.104)

Nominal Valve Sizes Inches (DN)	Pipe OD Inches (mm)	Nominal Installation Dimensions Inches (mm)									Weight Lbs. (kg)
		A	B	C	D	E	F	G	H	I	
2-1/2 (65)	2.88 (73,0)	3.8 (96,4)	11.72 (297,8)	3.35 (85)	5.5 (139,8)	4.92 (125)	4.28 (108,6)	1.99 (50,5)	0	0	11.24 (5,1)
76,1 (65)	3 (76,1)	3.8 (96,4)	11.72 (297,8)	3.35 (85)	5.5 (139,8)	4.92 (125)	4.28 (108,6)	1.99 (50,5)	0	0	11.24 (5,1)
3 (80)	3.5 (88,9)	3.8 (96,4)	12.22 (310,3)	3.58 (91)	5.76 (146,3)	4.92 (125)	4.28 (108,6)	1.99 (50,5)	0	0	12.57 (5,7)
4 (100)	4.5 (114,3)	4.54 (115,4)	13.92 (353,5)	4.29 (109)	6.75 (171,5)	4.92 (125)	4.28 (108,6)	1.99 (50,5)	0	0	15.65 (7,1)
139,7 (125)	5.5 (139,7)	5.83 (148)	16 (406,6)	5.16 (131)	7.93 (201,5)	5.91 (150)	5.79 (147)	2.32 (58,9)	0	0	25.79 (11,7)
5 (125)	5.56 (141,3)	5.83 (148)	16 (406,6)	5.16 (131)	7.93 (201,5)	5.91 (150)	5.79 (147)	2.32 (58,9)	0	0	25.79 (11,7)
(150)	6.5 (165,1)	5.83 (148)	17.07 (433,6)	5.71 (145)	8.44 (214,5)	5.91 (150)	5.79 (147)	2.32 (58,9)	0	0	28,66 (13)
6 (150)	6.63 (168,3)	5.83 (148)	17.07 (433,6)	5.71 (145)	8.44 (214,5)	5.91 (150)	5.79 (147)	2.32 (58,9)	0	0	28,66 (13)
8 (200)	8.63 (219,1)	5.24 (133)	19.67 (499,5)	6.69 (170)	9.29 (236)	8.86 (225)	8.19 (208)	2.76 (70)	5.66 (143,7)	1.24 (31,4)	46.9 (22,5)
10 (250)	10.75 (273)	6.26 (159)	22.46 (570,5)	7.68 (195)	11.1 (282)	11.14 (283)	8.19 (208)	2.91 (74)	7.21 (183,1)	165 (41,8)	72.75 (33)



**FIGURE 1**  
**MODEL BFV-300/BFV-300C GROOVED END BUTTERFLY VALVE**  
**NOMINAL DIMENSIONS**

## Installation

The Model BFV-300/BFV-300C Grooved End Butterfly Valves may be installed with flow in either direction and can be positioned either horizontally or vertically.

The grooved end pipe couplings used with the Model BFV-300/BFV-300C must be listed or approved for fire protection service and installed in accordance with the manufacturers instructions.

The Model BFV-300/BFV-300C Butterfly Valve may be installed with any schedule of pressure class of pipe or tubing that is listed or approved for fire protection.

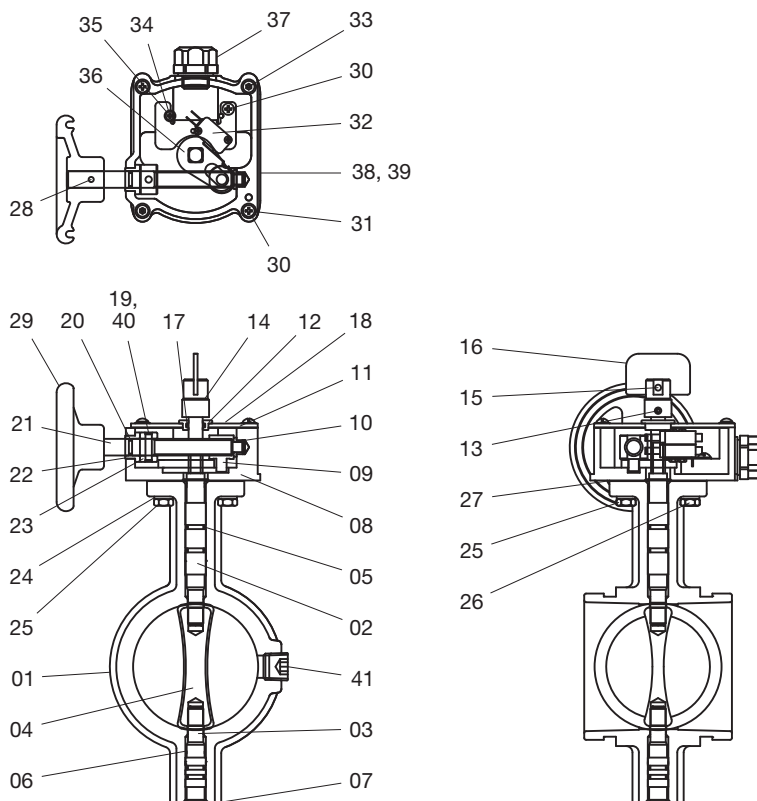
As applicable, refer to Figure 4 or 5 for the internal switch wiring diagram.

Conduit and electrical connections are to be made in accordance with the authority having jurisdiction and/or the National Electrical Code. With reference to Figure 4 for the open position or Figure 5 for the closed position, the supervisory switch is intended for con-

nection to the supervisory circuit of a fire alarm control panel in accordance with NFPA 72. The auxiliary switch is intended for the unsupervised connection to auxiliary equipment in accordance with NFPA 70, National Electric Code.

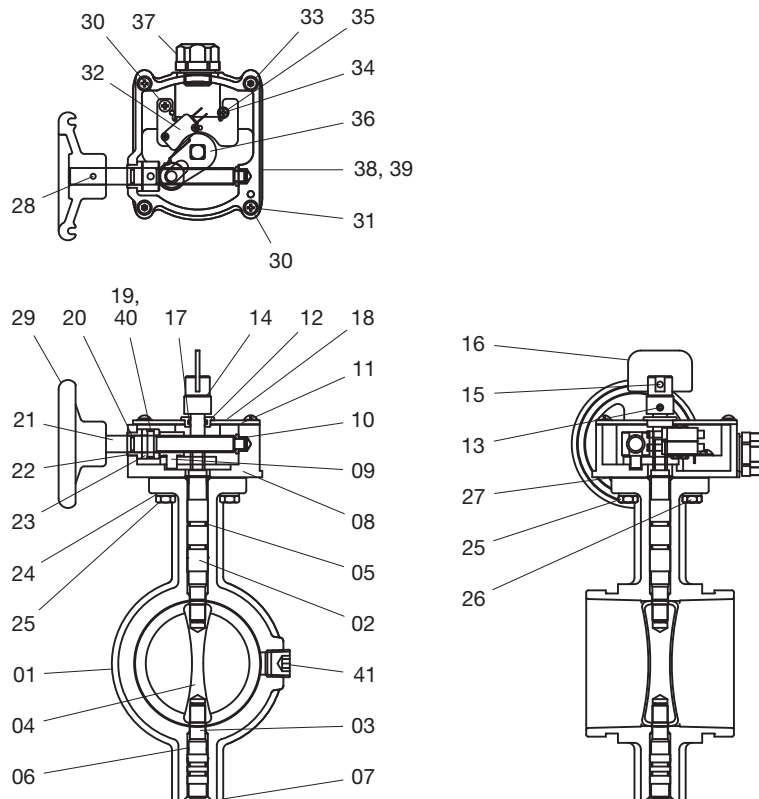
**NOTE:** For outdoor applications with internal supervisory switches, it is recommended that wiring connections be made at a temperature above 15°F (-9°C), in order to insure sufficient flexibility of the wire lead insulation.

Detail	Part	Material	Qty.	Detail	Part	Material	Qty.	Detail	Part	Material	Qty.
01	Body	ASTM A-536	1	14	Stem Housing	Fe	1	28	Spring Pin Ø4x0.8t x25	ASTM A-228	1
02	Upper Stem	AISI 410	1	15	Spring Pin	ASTM A-228	1	29	Handwheel	ASTM A-536	1
03	Lower Stem	AISI 410	1	16	Indicator	ASTM A-619	1	30	Bolt (Round)	ASTM A-167	3
04	Disc	EPDM	1	17	O-Ring	NBR	1	31	Plate Washer	ASTM A-167	4
05	O-Ring (P12)	EPDM	4	18	Cover Gasket	Paper	1	32	Switch Assembly	—	1
06	Oilless B/R (MB1410)	—	4	19	Spring Pin Ø5 x 1T x25	ASTM A-228	1	33	T/R Bolt	ASTM A-307	2
07	End Cap 2-1/2"~4"	EPDM	1	20	O-Ring (P10)	EPDM	1	34	Tapping Screw ST3.5 x 7.5	S10C	1
08	Gear Box	ASTM A-536	1	21	Worm Shaft	AISI 410	1	35	Tooth Washer 4#	S10C	1
09	2-1/2 to 6 Inch Traveling Nut	Bronze	1	22	Bushing (1)	FD-0205-45	1	36	Lever	ASTM A-619	1
09	8 and 10 Inch Segment Gear	C3604BD	1	23	Collar	FD-0205-45	1	37	Connector	—	1
10	Bushing (2)	FD-0205-45	1	24	Spring Washer	ASTM A-167	4	38	Sticker	—	1
11	Cover	ASTM A-619	1	25	Hex. Bolt M8 x 20L	ASTM A-167	2	39	Sticker	v	1
12	Bushing	Fe	1	26	Hex. Bolt M8 x 25L	ASTM A-167	2	40	Spring Pin Ø3x0.6T x25	ASTM A-228	1
13	Headless Wrench Bolt M5 x 7L	ASTM A-307	1	27	Gasket	Paper	1	41	Headless Wrench Bolt 1/2" - 14 NPT	ASTM A-307	2

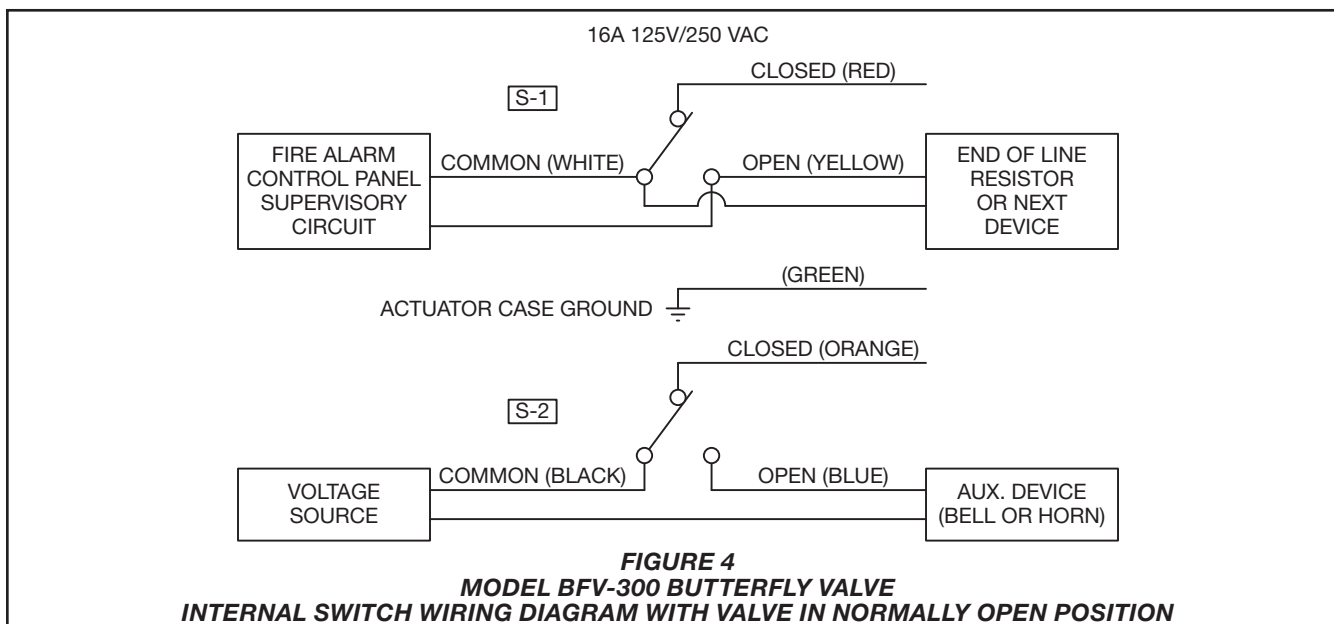
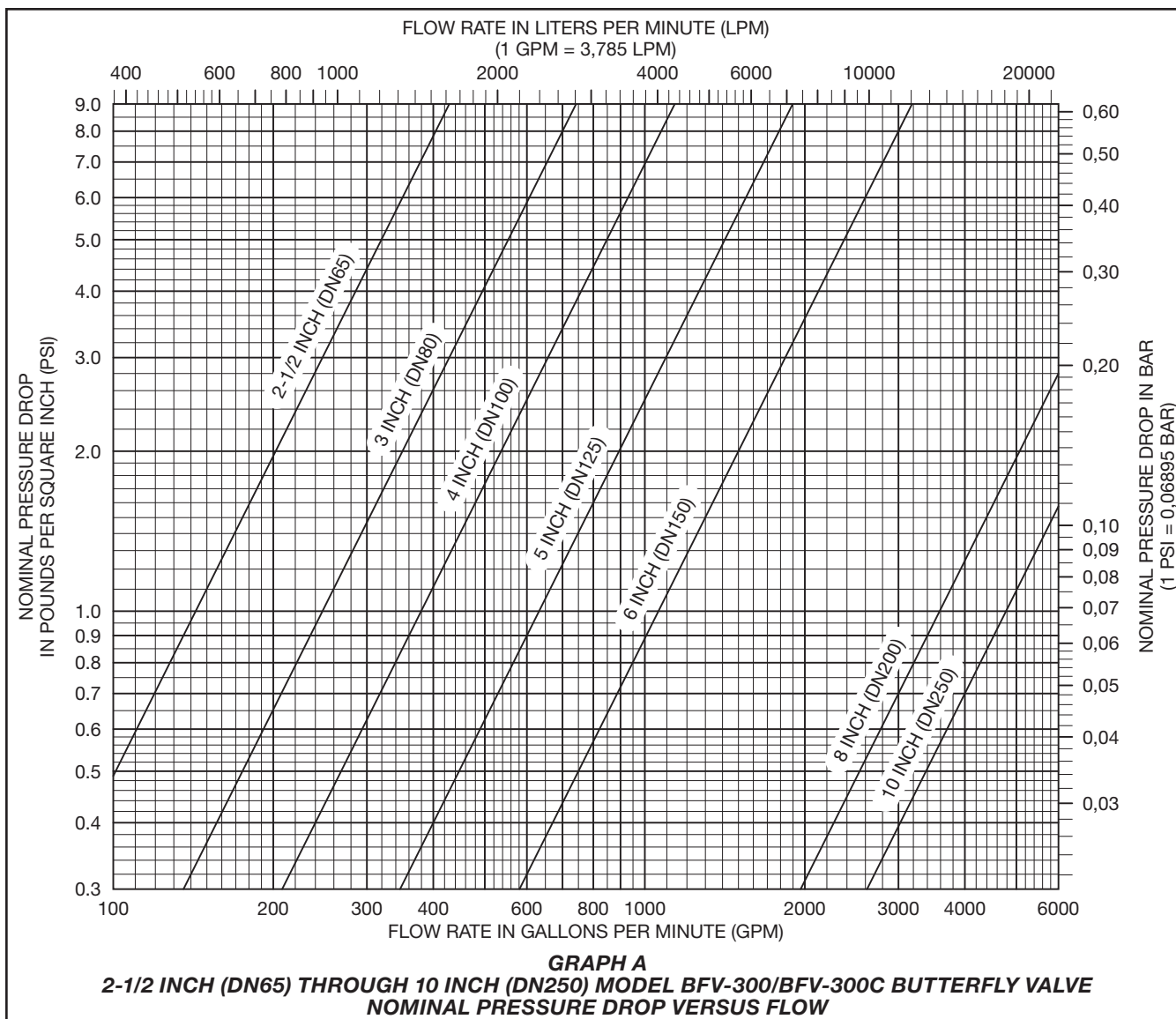


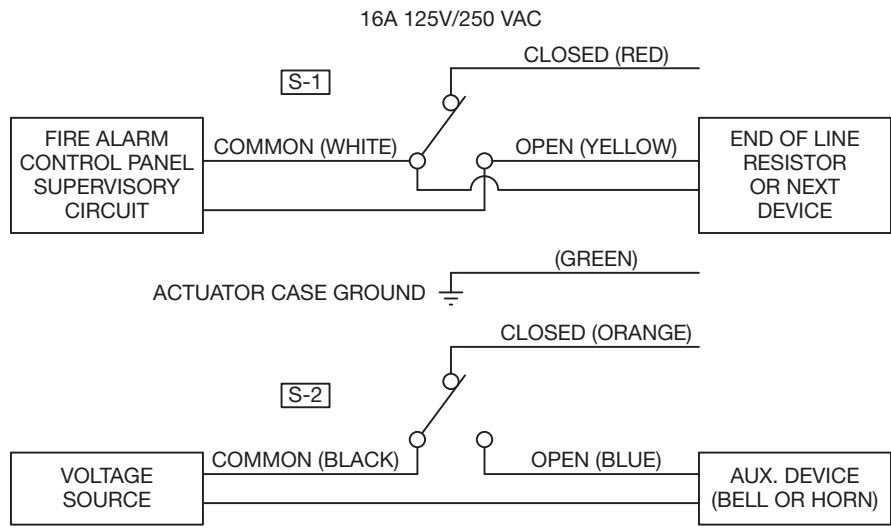
**FIGURE 2**  
**MODEL BFV-300 GROOVED END BUTTERFLY VALVE**  
**ASSEMBLY DRAWING**

Detail	Part	Material	Qty.	Detail	Part	Material	Qty.	Detail	Part	Material	Qty.
01	Body	ASTM A-536	1	14	Stem Housing	Fe	1	28	Spring Pin Ø4x0.8t x25	ASTM A-228	1
02	Upper Stem	AISI 410	1	15	Spring Pin	ASTM A-228	1	29	Handwheel	ASTM A-536	1
03	Lower Stem	AISI 410	1	16	Indicator	ASTM A-619	1	30	Bolt (Round)	ASTM A-167	3
04	Disc	EPDM	1	17	O-Ring	NBR	1	31	Plate Washer	ASTM A-167	4
05	O-Ring (P12)	EPDM	4	18	Cover Gasket	Paper	1	32	Switch Assembly	—	1
06	Oilless B/R (MB1410)	—	4	19	Spring Pin Ø5x1T x25	ASTM A-228	1	33	T/R Bolt	ASTM A-307	2
07	End Cap 2-1/2"~4"	EPDM	1	20	O-Ring (P10)	EPDM	1	34	Tapping Screw ST3.5 x 7.5	S10C	1
08	Gear Box	ASTM A-536	1	21	Worm Shaft	AISI 410	1	35	Tooth Washer 4#	S10C	1
09	2-1/2 to 6 Inch Traveling Nut	Bronze	1	22	Bushing (1)	FD-0205-45	1	36	Lever	ASTM A-619	1
09	8 and 10 Inch Segment Gear	C3604BD	1	23	Collar	FD-0205-45	1	37	Connector	—	1
10	Bushing (2)	FD-0205-45	1	24	Spring Washer	ASTM A-167	4	38	Sticker	—	1
11	Cover	ASTM A-619	1	25	Hex. Bolt M8 x 20L	ASTM A-167	2	39	Sticker	v	1
12	Bushing	Fe	1	26	Hex. Bolt M8 x 25L	ASTM A-167	2	40	Spring Pin Ø3x0.6T x25	ASTM A-228	1
13	Headless Wrench Bolt M5 x 7L	ASTM A-307	1	27	Gasket	Paper	1	41	Headless Wrench Bolt 1/2" - 14 NPT	ASTM A-307	2



**FIGURE 3**  
**MODEL BFV-300C GROOVED END BUTTERFLY VALVE**  
**ASSEMBLY DRAWING**





**FIGURE 5**  
**MODEL BFV-300C BUTTERFLY VALVE**  
**INTERNAL SWITCH WIRING DIAGRAM WITH VALVE IN NORMALLY CLOSED POSITION**

Valve Size Inch (DN)	Pipe OD Inches (mm)	psi (bar)	BFV-300 Part Number Supervisory OPEN	BFV-300C Part Number Supervisory CLOSED	CE	UL	C-UL	FM	VdS	CCCf	PAVUS	VNIPPO
2-1/2 (65)	2.88 (73,0)	300 (20,7)	59300G025WS	59300G025WSC	•	•		•				
(65)	(76,1)	300 (20,7)	59300G026WS	59300G026WSC	•	•		•				
3 (80)	3,5 (88,9)	300 (20,7)	59300G030WS	59300G030WSC	•	•		•				
4 100	4.5 (114,3)	300 (20,7)	59300G040WS	59300G040WSC	•	•		•				
(125)	5.5 (139,7)	300 (20,7)	59300G056WS	59300G056WSC	•			•				
5 (125)	5.56 (141,3)	300 (20,7)	59300G050WS	59300G050WSC	•			•				
(150)	6.5 (165,1)	300 (20,7)	59300G066WS	59300G066WSC	•	•		•				
6 (150)	6.63 (168,3)	300 (20,7)	59300G060WS	59300G060WSC	•	•		•				
8 (200)	8.63 (219,1)	300 (20,7)	59300G080WS	59300G080WSC	•	•		•				
10 (250)	10.75 (273)	175 (12)	59300G100WS	59300G100WSC	•	•		•				

**TABLE A**  
**MODEL BFV-300/BFV-300C GROOVED END BUTTERFLY VALVE**  
**WITH INTERNAL NORMALLY OPEN OR CLOSED SUPERVISORY SWITCHES**  
**PART NUMBER SELECTION AND AGENCY LISTINGS/APPROVALS**

Valve Size Inch (DN)	Pipe OD Inches (mm)	psi (bar)	BFV-300 Part Number Supervisory OPEN	BFV-300C Part Number Supervisory CLOSED	CE	UL	C-UL	FM	VdS	CCCf	APSAD	PAVUS	VNIPPO
2-1/2 (65)	2.88 (73,0)	300 (20,7)	59300G025AWS	59300G025AWSC	•	•		•			•		
(65)	(76,1)	300 (20,7)	59300G026AWS	59300G026AWSC	•	•		•			•		
3 (80)	3.5 (88,9)	300 (20,7)	59300G030AWS	59300G030AWSC	•	•		•			•		
4 100	4.5 (114,3)	300 (20,7)	59300G040AWS	59300G040AWSC	•	•		•			•		
(125)	5.5 (139,7)	300 (20,7)	59300G056AWS	59300G056AWSC	•			•			•		
5 (125)	5.56 (141,3)	300 (20,7)	59300G050AWS	59300G050AWSC	•			•			•		
(150)	6.5 (165,1)	300 (20,7)	59300G066AWS	59300G066AWSC	•	•		•			•		
6 (150)	6.63 (168,3)	300 (20,7)	59300G060AWS	59300G060AWSC	•	•		•			•		
8 (200)	8.63 (219,1)	300 (20,7)	59300G080AWS	59300G080AWSC	•	•		•			•		
10 (250)	10.75 (273)	175 (12)	59300G100AWS	59300G100AWSC	•	•		•			•		

**TABLE B**  
**MODEL BFV-300/BFV-300C GROOVED END BUTTERFLY VALVE**  
**WITH INTERNAL NORMALLY OPEN OR CLOSED SUPERVISORY SWITCHES—APSAD**  
**PART NUMBER SELECTION AND AGENCY LISTINGS/APPROVALS**

Valve Size Inch (DN)	Pipe OD Inches (mm)	psi (bar)	Part Number	CE	UL	C-UL	FM	VdS	CCCf	PAVUS	VNIPPO
2-1/2 (65)	2.88 (73,0)	300 (20,7)	59300G025NS	•	•		•				
(65)	(76,1)	300 (20,7)	59300G026NS	•	•		•				
3 (80)	3.5 (88,9)	300 (20,7)	59300G030NS	•	•		•				
4 100	4.5 (114,3)	300 (20,7)	59300G040NS	•	•		•				
(125)	5.5 (139,7)	300 (20,7)	59300G056NS	•			•				
5 (125)	5.56 (141,3)	300 (20,7)	59300G050NS	•			•				
(150)	6.5 (165,1)	300 (20,7)	59300G066NS	•	•		•				
6 (150)	6.63 (168,3)	300 (20,7)	59300G060NS	•	•		•				
8 (200)	8.63 (219,1)	300 (20,7)	59300G080NS	•	•		•				
10 (250)	10.75 (273)	175 (12)	59300G100NS	•	•		•				

**TABLE C**  
**MODEL BFV-300 GROOVED END BUTTERFLY VALVE**  
**WITHOUT SUPERVISORY SWITCHES**  
**PART NUMBER SELECTION AND AGENCY LISTINGS/APPROVALS**



Valve Size Inch (DN)	Part Number		
	Bernstein i88-IP65 Regular Switch	Bernstein i88-IP65 LED Switch-24V	Bernstein GC-SU1Z Ex IP-66/67 ATEX (II 2 Ex d IIC T6) Switch
2-1/2 to 4 (65 to 100)	59300SPBRACKSW10	59300SPBRACKSW10LED	59300SPBRACKSW10ATEX
5 to 6 (125 to 150)	59300SPBRACKSW20	59300SPBRACKSW20LED	59300SPBRACKSW20ATEX
8 and 10 (200 and 250)	59300SPBRACKSW30	59300SPBRACKSW30LED	59300SPBRACKSW30ATEX

**TABLE D**  
**MODEL BFV-300 GROOVED END BUTTERFLY VALVE**  
**MOUNTING BRACKET ASSEMBLY INCLUDING BERNSTEIN EXTERNAL SWITCH**  
**PART NUMBER SELECTION**

Valve Size Inch (DN)	Part Number
2-1/2 to 4 (65 to 100)	59300SPHWHEEL10
5 to 6 (125 to 150)	59300SPHWHEEL20
8 and 10 (200 and 250)	59300SPHWHEEL30

**TABLE E**  
**BFV-300/BFV-300C GROOVED END BUTTERFLY VALVE HANDWHEEL WITH PIN**  
**PART NUMBER SELECTION**

## Care and Maintenance

Before closing a fire protection system control valve for maintenance or inspection work on either the valve or fire protection system which it controls, permission to shut down the affected fire protection systems must be obtained from the proper authorities and all personnel who may be affected by this decision must be notified.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in accordance with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any authority having jurisdiction. Contact the installing contractor or product manufacturer with any questions. Any impairment must be immediately corrected.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified inspection service.

## Limited Warranty

For warranty terms and conditions, visit [www.tyco-fire.com](http://www.tyco-fire.com).

## Ordering Procedure

### Model BFV-300/BFV-300 Grooved End Butterfly Valves

#### BFV-300 With Internal Normally Open Supervisory Switches

Specify: (specify size) Model BFV-300 Grooved End Butterfly Valve, Internal Normally Open Supervisory Switches, P/N (specify per Table A)

#### BFV-300C With Internal Normally Closed Supervisory Switches

Specify: (specify size) Model BFV-300C Grooved End Butterfly Valve, Internal Normally Open Supervisory Switches, P/N (specify per Table A)

#### BFV-300 With Internal Normally Open Supervisory Switches – APSAD Approved

Specify: (specify size) Model BFV-300 Grooved End Butterfly Valve, Internal Normally Open Supervisory Switches, APSAD Approved, P/N (specify per Table B)

### BFV-300C With Internal Normally Closed Supervisory Switches – APSAD Approved

Specify: (specify size) Model BFV-300C Grooved End Butterfly Valve, Internal Normally Open Supervisory Switches, APSAD Approved, P/N (specify per Table B)

#### Without Supervisory Switches

Specify: (specify size) Model BFV-300 Grooved End Butterfly Valve, P/N (specify per Table C)

#### Replacement Parts

Refer to Figure 2 or 3 to identify parts.

**NOTE:** Only items described in this section are offered as replacement parts.

#### Mounting Bracket Assembly with Bernstein External Switch

Specify: Mounting Bracket with Bernstein (specify model per Table D) External Switch, (specify size) Model BFV-300 Grooved End Butterfly Valve, P/N (specify per Table D)

#### Handwheel with Pin

Specify: Handwheel with Pin, (specify size) Model BFV-300/BFV-300C Grooved End Butterfly Valve, P/N (specify per Table E)