

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

General Description

The TYCO Models BFV-300 and BFV-300C Grooved End Butterfly Valves are indicating type valves designed for use in fire protection systems where a visual indication of open or closed valve condition is required. They are used, for example, as system, sectional and pump water control valves. They have grooved inlet and outlet connections that are suitable for use with grooved end pipe couplings listed or approved for fire protection systems.

For applications requiring supervision of the open or closed state of the valve, the Gear Operators for the Model BFV-300/BFV-300C Butterfly Valves feature two sets of factory installed internal switches each having SPDT contacts, see Figure 3. The supervisory switches transfer their electrical contacts when there is movement from the open or closed disc position during the first two revolutions of the handwheel.

Note: If the butterfly valve is required in a foam system, verify the valve is compatible by referring to the foam concentrate manufacturer technical literature for information about foam compatibility, and acceptable system equipment materials of construction.

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

IMPORTANT

Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information.

and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.

Technical Data

Approvals

UL and ULC Listed
FM Approved
CE Certified
VdS Approved
Russian Fire Certificate
CNPP R1 Listed-APSA
Listed by California State Fire Marshall

Refer to Tables A, B and C for applicability.

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

Sizes

2 in.-12 in. (DN50-DN300)

UL/ULC/FM Maximum Working Pressure

2 in.-8 in. (DN50-DN200) . . . 300 psi (20,7 bar)
10 in. (DN250) 232 psi (16,0 bar)
12 in. (DN300) 175 psi (12,1 bar)

VdS Maximum Working Pressure

2 in.-8 in. (DN50-DN200) . . . 300 psi (20,7 bar)
10 in. (DN250) 232 psi (16,0 bar)
12 in. (DN300) 175 psi (12,1 bar)

Maximum Working Temperature

212°F (100°C) in accordance with UL 1091

Materials of Construction

Body Ductile Iron
Body Coating RILSAN PA11 Black Disc Ductile Iron
Disc Seal EPDM Encapsulated Upper & Lower Stem Stainless Steel Handwheel Ductile Iron (BFV-300 red painted; BFV-300C black painted)
Actuator, 2 in. -6 in. (DN50-DN150):
• IP 65, bronze traveling nut gearbox, ductile iron housing
Actuator, 8 in. -12 in. (DN200-DN300):
• IP 65, brass segmented gearbox, ductile iron housing

Silicone Free Model Availability

Silicone free models are available. Contact TYCO sales for information.

Tapping Bosses

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

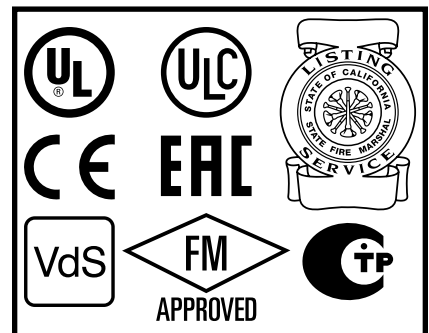
2 in. -3 in. (DN50-DN80) 3/8 NPT
4 in. -12 in. (DN100-DN300) 1/2 NPT



MODEL BFV-300
OPEN SUPERVISORY SWITCHES



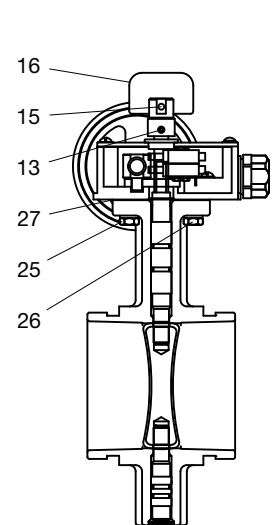
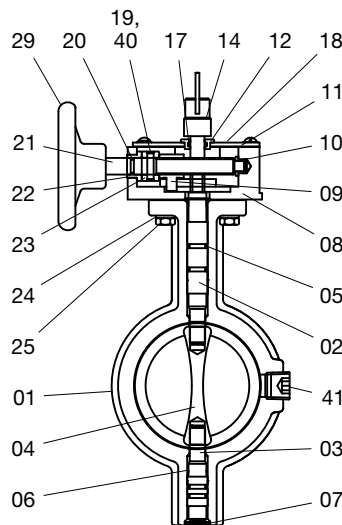
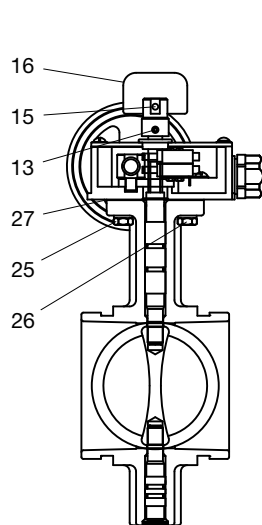
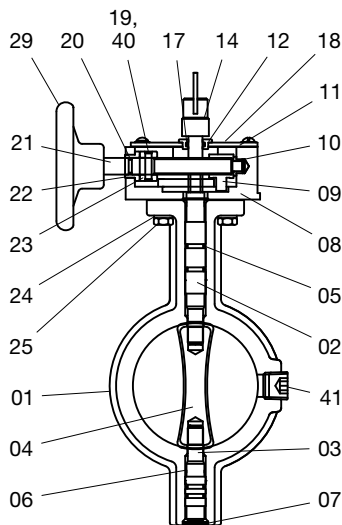
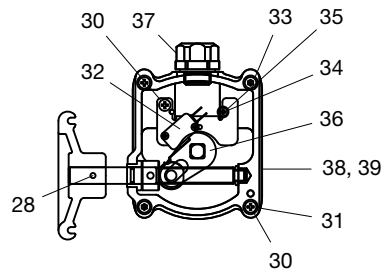
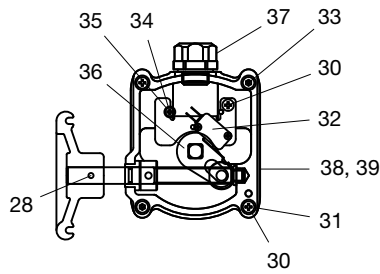
MODEL BFV-300C
CLOSED SUPERVISORY SWITCHES



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)

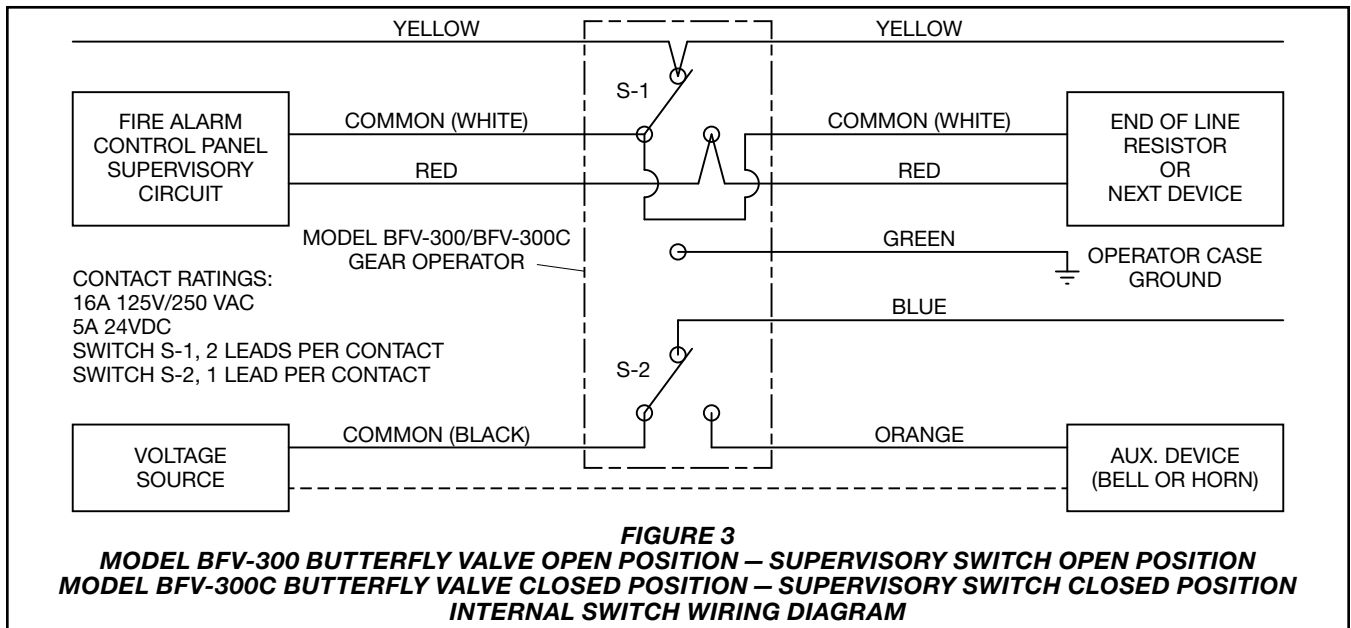
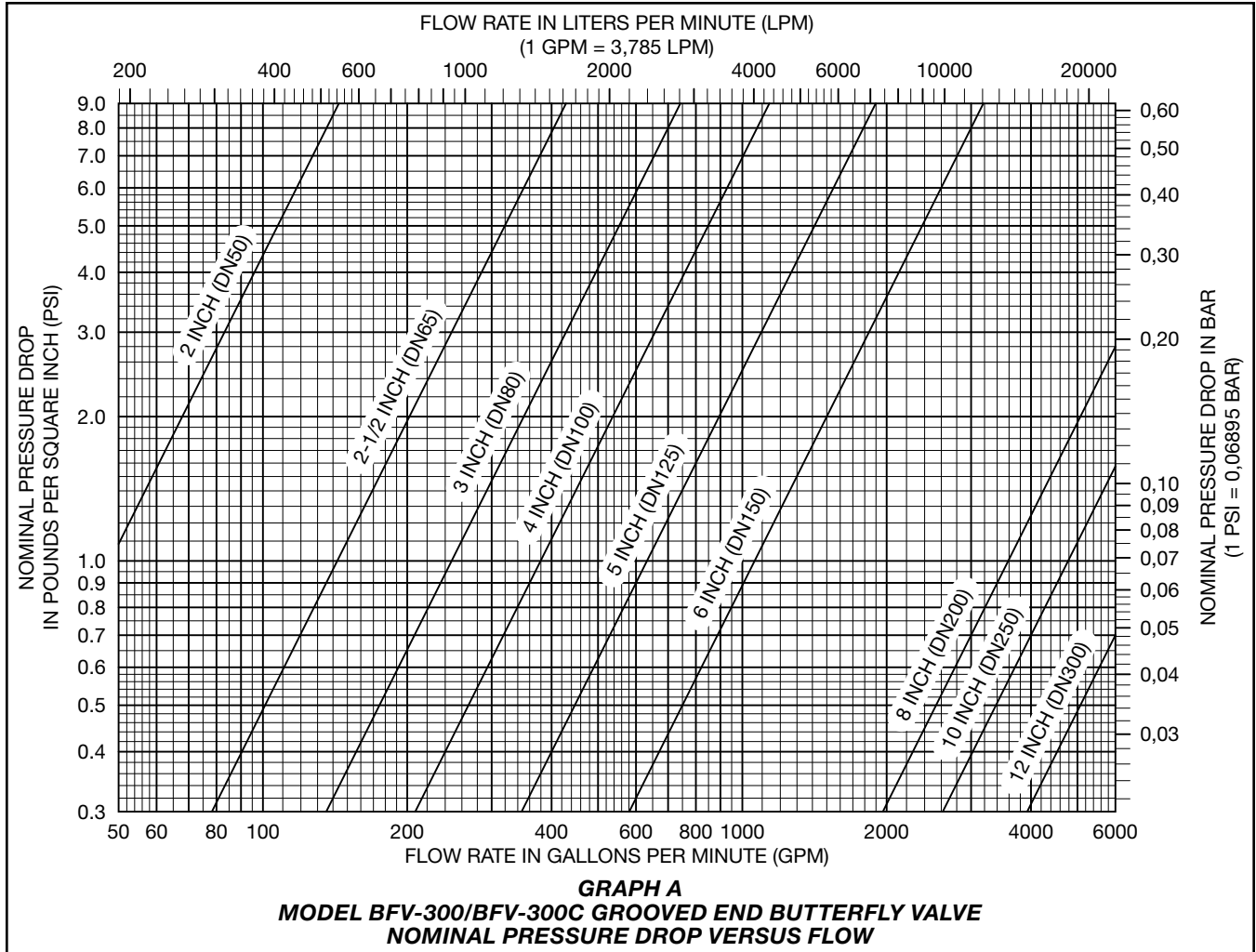
| No. | Part | Material | Qty. | No. | Part | Material | Qty. | No. | Part | Material | Qty. |
|-----|------------------------------|------------|------|-----|------------------------|------------|------|-----|---------------------------------|------------|------|
| 01 | Body | ASTM A-536 | 1 | 15 | Spring Pin | ASTM A-228 | 1 | 30 | Bolt (Round) | ASTM A-167 | 3 |
| 02 | Upper Stem | AISI 410 | 1 | 16 | Indicator | ASTM A-619 | 1 | 31 | Plate Washer | ASTM A-167 | 4 |
| 03 | Lower Stem | AISI 410 | 1 | 17 | O-Ring | NBR | 1 | 32 | Switch Assembly | — | 1 |
| 04 | Disc | EPDM | 1 | 18 | Cover Gasket | Paper | 1 | 33 | T/R Bolt | ASTM A-307 | 2 |
| 05 | O-Ring (P12) | EPDM | 4 | 19 | Spring Pin Ø5x1T x25 | ASTM A-228 | 1 | 34 | Tapping Screw ST3.5 x 7.5 | S10C | 1 |
| 06 | Oiless B/R (MB1410) | — | 4 | 20 | O-Ring (P10) | EPDM | 1 | 35 | Tooth Washer 4# | S10C | 1 |
| 07 | End Cap 2-1/2-4 Inch | EPDM | 1 | 21 | Worm Shaft | AISI 410 | 1 | 36 | Lever | ASTM A-619 | 1 |
| 08 | Gear Box | ASTM A-536 | 1 | 22 | Bushing (1) | FD-0205-45 | 1 | 37 | Connector | — | 1 |
| 09 | Traveling Nut 2-6 Inch | Bronze | 1 | 23 | Collar | FD-0205-45 | 1 | 38 | Sticker | — | 1 |
| | Segment Gear 8-12 Inch | C3604BD | 1 | 24 | Spring Washer | ASTM A-167 | 4 | 39 | Sticker | — | 1 |
| 10 | Bushing (2) | FD-0205-45 | 1 | 25 | Hex Bolt M8 x 20L | ASTM A-167 | 2 | 40 | Spring Pin Ø3x0.6T x25 | ASTM A-228 | 1 |
| 11 | Cover | ASTM A-619 | 1 | 26 | Hex Bolt M8 x 25L | ASTM A-167 | 2 | 41 | Headless Plug 3/8 NPT 2-3 Inch | ASTM A-307 | 2 |
| 12 | Bushing | Fe | 1 | 27 | Gasket | Paper | 1 | | Headless Plug 1/2 NPT 4-12 Inch | | |
| 13 | Headless Wrench Bolt M5 x 7L | ASTM A-307 | 1 | 28 | Spring Pin Ø4x0.8t x25 | ASTM A-228 | 1 | | | | |
| 14 | Stem Housing | Fe | 1 | 29 | Handwheel | ASTM A-536 | 1 | | | | |



**BFV-300 Normally Open Valve
Supervisory Switch Arrangement**

**BFV-300C Normally Closed Valve
Supervisory Switch Arrangement**

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



| Nominal Valve Size Inches (DN) | Pipe O.D. Inches (mm) | Max. PSI (bar) | Part Number | | Agency Listing/Approval | | | | | | | | |
|--------------------------------|-----------------------|----------------|---------------------------|------------------------------|-------------------------|----|-----|----|-----|------------------|------|-------|--------------------|
| | | | BFV-300 Supv. Switch OPEN | BFV-300C Supv. Switch CLOSED | CE | UL | ULC | FM | VdS | CA Fire Marshall | CNPP | PAVUS | Russian Fire Cert. |
| 2 (DN50) | 2.38 (60,3) | 300 (20,7) | 59300G020WS | 59300G020WSC | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ |
| 2-1/2 (DN65) | 2.88 (73,0) | 300 (20,7) | 59300G025WS | 59300G025WSC | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| — DN65 | 3 76,1 | 300 (20,7) | 59300G026WS | 59300G026WSC | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ |
| 3 (DN80) | 3.5 (88,9) | 300 (20,7) | 59300G030WS | 59300G030WSC | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 4 (DN100) | 4.5 (114,3) | 300 (20,7) | 59300G040WS | 59300G040WSC | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| — DN125 | 5.5 (139,7) | 300 (20,7) | 59300G056WS | 59300G056WSC | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ |
| 5 (DN125) | 5.56 (141,3) | 300 (20,7) | 59300G050WS | 59300G050WSC | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| — DN150 | 6.5 (165,1) | 300 (20,7) | 59300G066WS | 59300G066WSC | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ |
| 6 (DN150) | 6.63 (168,3) | 300 (20,7) | 59300G060WS | 59300G060WSC | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 8 (DN200) | 8.63 (219,1) | 300 (20,7) | 59300G080WS | 59300G080WSC | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 10 (DN250) | 10.75 (273) | 175 (12,1) | 59300G100WS | 59300G100WSC | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 12 (DN300) | 12.75 (323,9) | 175 (12,1) | 59300G120WS | 59300G120WSC | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ |

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

| Nominal Valve Size Inches (DN) | Pipe O.D. Inches (mm) | Max. PSI (bar) | Part Number | | Agency Listing/Approval | | |
|--------------------------------|-----------------------|----------------|---------------------------|------------------------------|-------------------------|-----|------|
| | | | BFV-300 Supv. Switch OPEN | BFV-300C Supv. Switch CLOSED | CE | VdS | CNPP |
| 2 (DN50) | 2.38 (60,3) | 300 (20,7) | 59300G020AWS | 59300G020AWSC | ✓ | ✓ | ✓ |
| 2-1/2 (DN65) | 2.88 (73,0) | 300 (20,7) | 59300G025AWS | 59300G025AWSC | ✓ | ✓ | ✓ |
| — DN65 | 3 76,1 | 300 (20,7) | 59300G026AWS | 59300G026AWSC | ✓ | ✓ | ✓ |
| 3 (DN80) | 3.5 (88,9) | 300 (20,7) | 59300G030AWS | 59300G030AWSC | ✓ | ✓ | ✓ |
| 4 (DN100) | 4.5 (114,3) | 300 (20,7) | 59300G040AWS | 59300G040AWSC | ✓ | ✓ | ✓ |
| — DN125 | 5.5 (139,7) | 300 (20,7) | 59300G056AWS | 59300G056AWSC | ✓ | ✓ | ✓ |
| 5 (DN125) | 5.56 (141,3) | 300 (20,7) | 59300G050AWS | 59300G050AWSC | ✓ | ✓ | ✓ |
| — DN150 | 6.5 (165,1) | 300 (20,7) | 59300G066AWS | 59300G066AWSC | ✓ | ✓ | ✓ |
| 6 (DN150) | 6.63 (168,3) | 300 (20,7) | 59300G060AWS | 59300G060AWSC | ✓ | ✓ | ✓ |
| 8 (DN200) | 8.63 (219,1) | 300 (20,7) | 59300G080AWS | 59300G080AWSC | ✓ | ✓ | ✓ |
| 10 (DN250) | 10.75 (273) | 175 (12,1) | 59300G100AWS | 59300G100AWSC | ✓ | ✓ | ✓ |
| 12 (DN300) | 12.75 (323,9) | 175 (12,1) | 59300G120AWS | 59300G120AWSC | ✓ | ✓ | ✓ |

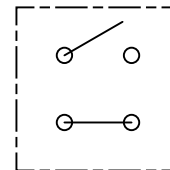
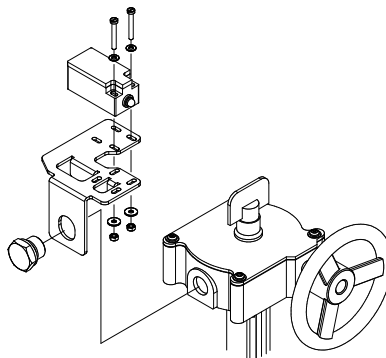
TABLE B
MODEL BFV-300/BFV-300C GROOVED END BUTTERFLY VALVE
WITH CNPP-APSA LARGE 100 X 100 MM FLAG AND INTERNAL SUPERVISORY SWITCHES
PART NUMBER SELECTION AND AGENCY LISTINGS/APPROVALS

| Nominal Valve Size Inches (DN) | Pipe O.D. Inches (mm) | Max. PSI (bar) | Part Number | Agency Listing/Approval | | | | | | | | |
|--------------------------------|-----------------------|----------------|-------------|-------------------------|----|-----|----|-----|------------------|------|-------|--------------------|
| | | | | CE | UL | ULC | FM | VdS | CA Fire Marshall | CNPP | PAVUS | Russian Fire Cert. |
| 2 (DN50) | 2.38 (60,3) | 300 (20,7) | 59300G020NS | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ |
| 2-1/2 (DN65) | 2.88 (73,0) | 300 (20,7) | 59300G025NS | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| — DN65 | 3 (76,1) | 300 (20,7) | 59300G026NS | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ |
| 3 (DN80) | 3.5 (88,9) | 300 (20,7) | 59300G030NS | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 4 (DN100) | 4.5 (114,3) | 300 (20,7) | 59300G040NS | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| — DN125 | 5.5 (139,7) | 300 (20,7) | 59300G056NS | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ |
| 5 (DN125) | 5.56 (141,3) | 300 (20,7) | 59300G050NS | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| — DN150 | 6.5 (165,1) | 300 (20,7) | 59300G066NS | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ |
| 6 (DN150) | 6.63 (168,3) | 300 (20,7) | 59300G060NS | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 8 (DN200) | 8.63 (219,1) | 300 (20,7) | 59300G080NS | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 10 (DN250) | 10.75 (273) | 175 (12,1) | 59300G100NS | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 12 (DN300) | 12.75 (323,9) | 175 (12,1) | 59300G120NS | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ |

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

| Nominal Valve Size Inches (DN) | Gear Operator Type | Part Number | | | |
|--------------------------------|--------------------|--------------------------------------|-----------------------------------|-----------------------------------|---|
| | | Mounting Bracket with Mounting Bolts | Bernstein i88-IP65 Regular Switch | Bernstein i88-IP65 LED Switch 24V | Bernstein GC-SU1Z Ex IP-66/67 ATEX (Ex II2G Ex dIIC T6 Gb) Switch |
| 2-4 (DN50-DN100) | Travelling Nut | 59300SPBRACKET10 | 59300SPSW | 59300SPSWLED | 59300SPSWATEX |
| 5-6 (DN125-DN200) | | 59300SPBRACKET20 | | | |
| 8 (DN200) | Segmented Gear | 59300SPBRACKET25 | | | |
| 10-12 (DN250-DN300) | | 59300SPBRACKET30 | | | |

Notes:
1. Install a single switch in either bracket mounting position to monitor Open or Closed valve condition



Bernstein Switch Wiring Diagram

TABLE D
MODEL BFV-300 GROOVED END BUTTERFLY VALVE WITHOUT INTERNAL SUPERVISORY SWITCHES
ACCESSORY EXTERNAL SUPERVISORY SWITCHES AND MOUNTING BRACKETS
PART NUMBER SELECTION

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.

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 3, the supervisory switch is intended for connection 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.

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, for example, 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.

| Nominal Valve Size Inches (DN) | Part Number | |
|--------------------------------------|----------------------|-------------------------|
| | BFV-300, Red Painted | BFV-300C, Black Painted |
| 2-4 (DN50-DN100) | 59300SPHWHEEL10 | 59300SPHWHEEL10B |
| 5-8 (DN125-DN200) | 59300SPHWHEEL20 | 59300SPHWHEEL20B |
| 10-12 (DN250-DN300) | 59300SPHWHEEL30 | 59300SPHWHEEL30B |

TABLE E
BFV-300/BFV-300C GROOVED END BUTTERFLY VALVE
REPLACEMENT HANDWHEEL
PART NUMBER SELECTION

Limited Warranty

For warranty terms and conditions, visit www.tyco-fire.com.

Ordering Procedure

Contact your local distributor for availability. When placing an order, indicate the full product name and Part Number (P/N).

Butterfly Valves

Model BFV-300 with Internal Open Supervisory Switches

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

Model BFV-300C with Internal Closed Supervisory Switches

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

Model BFV-300 with Internal Open Supervisory Switches, APSAD Approved

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

Model BFV-300C with Internal Closed Supervisory Switches, APSAD Approved

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

Model BFV-300 without Internal Supervisory Switches

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

Accessories

External Supervisory Switch and Mounting Bracket

Note: Accessory external supervisory switches and mounting brackets are applicable only to valves without factory-installed internal supervisory switches.

Refer to Table D for switch models and part numbers.

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

Replacement Parts

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

Handwheel

Replacement handwheel includes pin. Refer to Table E for part numbers.

Model BFV-300, Red Painted

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

Model BFV-300C, Black Painted

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

