

Model BFV-250 Butterfly Valve Wafer Style

General Description

The TYCO Model BFV-250 Wafer Style Butterfly Valves 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, and are suitable for installation between ANSI Class 125/150 flanges as well as PN10/16 flanges without the need for flange gaskets.

For applications requiring supervision of the open position of the valve, the Gear Operators for the Model BFV-250 Butterfly Valves are provided with two sets of factory installed internal switches each having SPDT contacts (Ref. Figure 3). The supervisory switches transfer their electrical contacts when there is movement from the open disc position during the first two revolutions of the handwheel.

NOTICE

The TYCO Model BFV-250 Wafer Style 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

Approvals

Russian Fire Approval
FM Approved

Refer to Table A for applicability.

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

Sizes

2–12 Inch (DN50–DN300)

Maximum Working Pressure

2–8 Inch (DN50–DN200)250 psi (17,3 bar)
10–12 Inch (DN250–DN300) . . .175 psi (12,1 bar)

Maximum Working Temperature

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

Materials of Construction

2, 10 and 12 Inch
(DN50, DN250 and DN300):

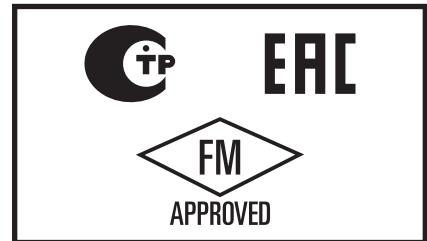
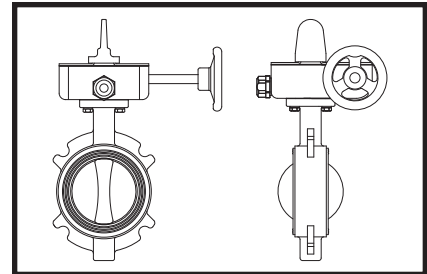
Body Ductile Iron
Body Coating RILSAN PA11 Black
Body Gasket EPDM
Disc Ductile Iron, EPDM Encapsulated
Upper & Lower Stem Stainless Steel
Handwheel Ductile Iron

2-1/2–8 Inch
(DN65–DN200):

Body Ductile Iron
Body Coating EPDM Encapsulated
Disc Ductile Iron, Nickel Chrome Plated
Upper & Lower Stem Stainless Steel
Handwheel Ductile Iron

Actuator, 2–12 Inch (DN50–DN300):

IP 65, segmented gearbox, internal dual switch,
ductile iron housing



Nominal Valve Sizes Inches (DN)	Nominal Dimensions Inches (mm)								Weight Lbs. (kg)
	A	B	C	D	E	F	G	H	
2 (DN50)	1.5 (38)	10.6 (270)	2.85 (72,5)	4.90 (124,5)	4.92 (125)	4.28 (108,6)	1.99 (50,5)	1.34 (34,0)	13.45 (6,1)
2-1/2 (DN65)	1.93 (49)	12.99 (330)	3.35 (85)	5.91 (150)	4.92 (125)	6.61 (168)	2.76 (70)	1.68 (42,7)	17.24 (7,8)
3 (DN80)	1.93 (49)	13.54 (344)	3.62 (92)	6.18 (157)	4.92 (125)	6.61 (168)	2.76 (70)	2.39 (60,7)	18.52 (8,4)
— (DN80)	1.93 (49)	13.54 (344)	4.25 (108)	6.18 (157)	4.92 (125)	6.61 (168)	2.76 (70)	2.39 (60,7)	18.52 (8,4)
4 (DN100)	2.16 (55)	14.88 (378)	4.25 (108)	6.89 (175)	4.92 (125)	6.61 (168)	2.76 (70)	3.42 (86,8)	19.40 (8,8)
5 (DN125)	2.32 (59)	16.33 (415)	4.72 (120)	7.93 (201,5)	8.86 (225)	8.19 (208)	2.76 (70)	4.52 (114,8)	23.94 (10,9)
6 (DN150)	2.32 (59)	17.72 (450)	5.71 (145)	8.27 (210)	8.86 (225)	8.19 (208)	2.76 (70)	5.29 (134,3)	28.48 (12,9)
8 (DN200)	2.48 (63)	19.65 (499)	6.69 (170)	9.21 (234)	8.86 (225)	8.19 (208)	2.76 (70)	7.35 (186,6)	36.82 (16,7)
— (DN200)	2.48 (63)	19.65 (499)	6.69 (170)	9.21 (234)	8.86 (225)	8.19 (208)	2.76 (70)	7.35 (186,6)	36.82 (16,7)
10 (DN250)	2.91 (74)	23.01 (584,5)	8.27 (210)	11.1 (282)	11.14 (283)	8.19 (208)	2.91 (74)	9.05 (230)	63.9 (29)
12 (DN300)	3.03 (77)	25.16 (639)	9.5 (241,5)	12.2 (310)	11.14 (283)	8.19 (208)	2.91 (74)	11.53 (292,8)	86.42 (39,2)

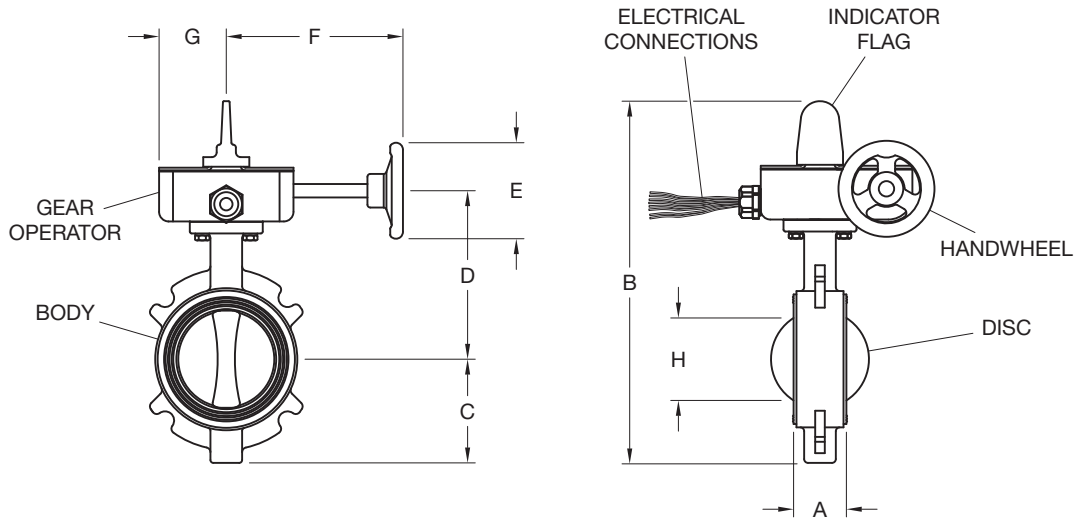


FIGURE 1
MODEL BFV-250 WAFER STYLE BUTTERFLY VALVE
NOMINAL DIMENSIONS

No.	Part	Material	Qty.	No.	Part	Material	Qty.	No.	Part	Material	Qty.
01	Body	ASTM A-536	1	14	Switch Plate	ASTM A-619	1	27	Washer	AISI 304	2
02	Disc	Ni-Cr PLATED	1	15	Spring Pin	ASTM A-228	1	28	T/R Bolt	ASTM A-307	2
03	Upper Stem	AISI 410	1	16	Stem O-Ring	EPDM	4	29	O-Ring	EPDM	1
04	Lower Stem	AISI 410	1	17	End Cap	EPDM	1	30	Spring Washer	AISI 304	4
05	Gear Box	ASTM A-536	1	18	Spring Pin	ASTM A-228	1	31	O-Ring	EPDM	1
06	Segment Gear	ASTM A-536	1	19	Shear Pin (S.O.W.)	ASTM A-510	1	32	Oiless Bearing		2
07	Worm Gear	AISI 410	1	20	Oiless Bearing		4	33	Spring Pin	ASTM A-228	1
08	Worm Shaft	AISI 410	1	21	Washer	ASTM B-36	2	34	Stopper Bolt	ASTM A-290	2
09	Indicator	ASTM A-536	1	22	Washer	PTFE	2	35	Connector		1
10	Handle	ASTM A-536	1	23	Headless Wrench Bolt	ASTM A-307	1	36	Sticker		1
11	Gasket		1	24	Cover	ASTM A-619	1	37	Sticker		1
12	Worm Shaft O-Ring	EPDM	1	25	Gasket		1				
13	Hex Bolt	AISI 304	4	26	Bolt	AISI 304	2				

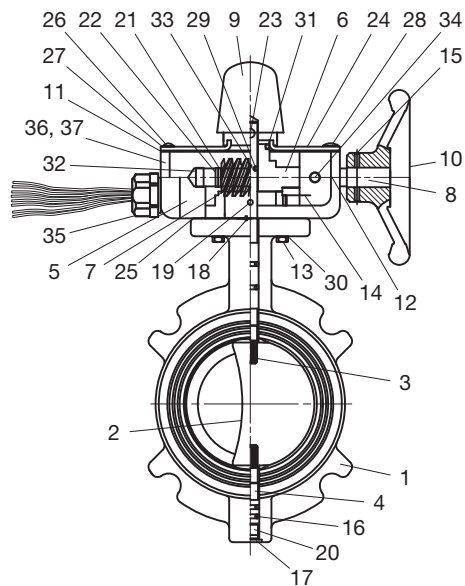
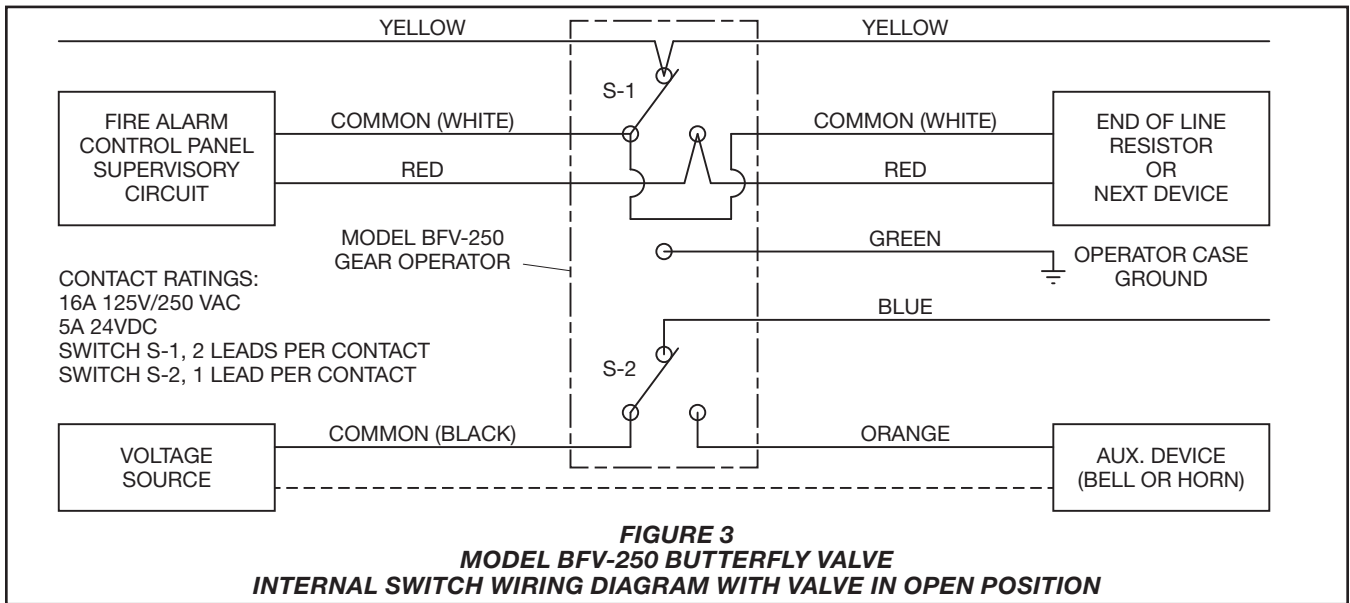
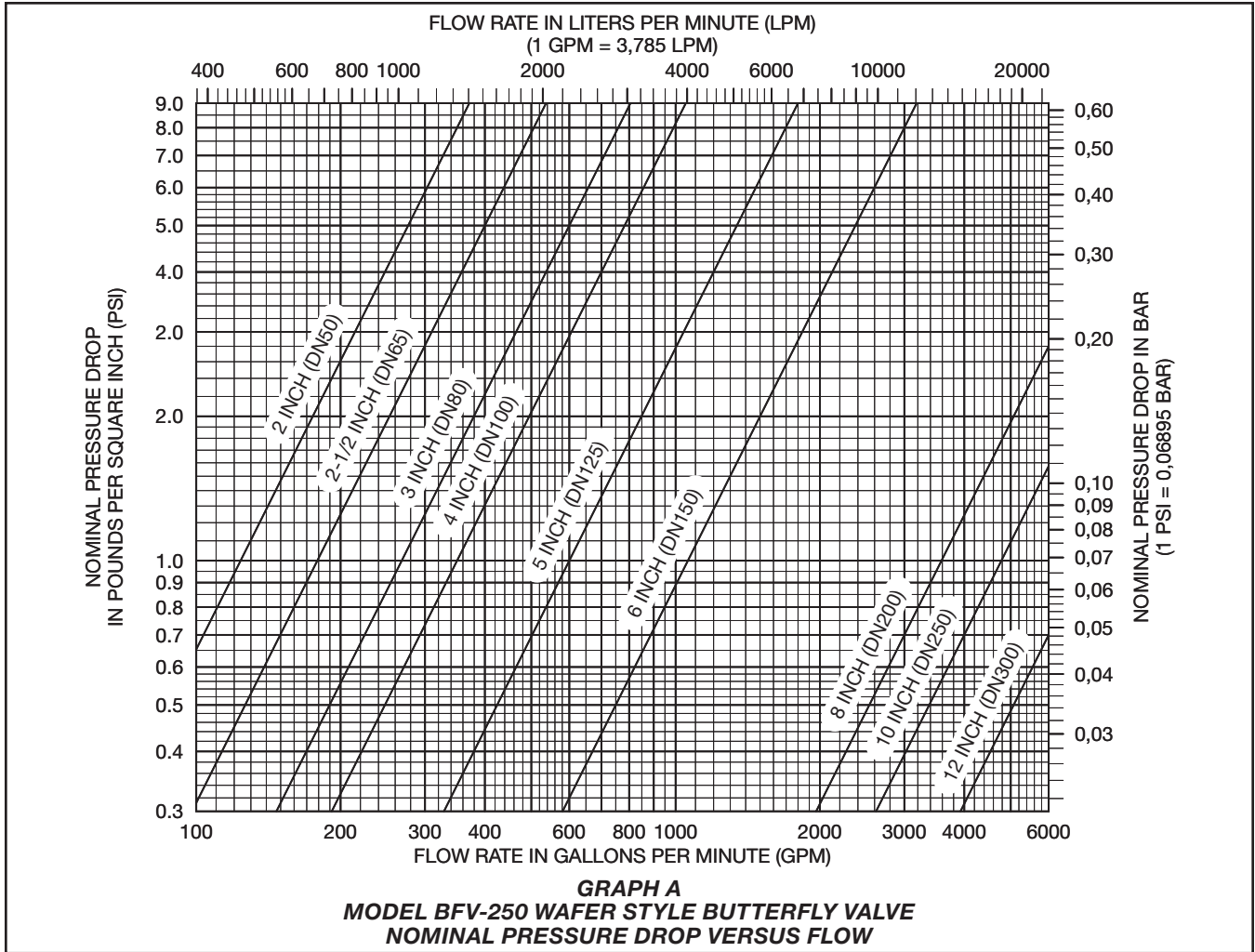


FIGURE 2
MODEL BFV-250 WAFER STYLE BUTTERFLY VALVE
ASSEMBLY



Nominal Valve Size Inches (DN)	Max. PSI (bar)	Flange Face	Part Number	Agency Listing/Approval	
				FM	Russian Fire Approval
2 (DN50)	250 (17,2)	ANSI 16.5, PN16	59250W020WS		✓
2-1/2 (DN65)	250 (17,2)	ANSI 16.5, PN16	59250W025WS	✓	✓
3 (DN80)	250 (17,2)	ANSI 16.5	59250W030WS	✓	✓
— (DN80)	250 (17,2)	BS PN16	59250W036WS	✓	✓
4 (DN100)	250 (17,2)	ANSI 16.5, BS PN16, AS 2129 Table E	59250W040WS	✓	✓
5 (DN125)	250 (17,2)	ANSI 16.5, BS PN16	59250W050WS	✓	✓
6 (DN150)	250 (17,2)	ANSI 16.5, BS PN16, AS 2129 Table E	59250W060WS	✓	✓
8 (DN200)	250 (17,2)	ANSI 16.5	59250W080WS	✓	✓
— (DN200)	250 (17,2)	BS PN16	59250W086WS	✓	✓
10 (DN250)	175 (12,1)	PN10/ANSI 16.5/ BS PN16	59250W100WS	✓	✓
12 (DN300)	175 (12,1)	PN10/ANSI 16.5/ BS PN16	59250W120WS		✓

TABLE A
MODEL BFV-250 WAFER STYLE BUTTERFLY VALVE
WITH INTERNAL SUPERVISORY SWITCHES
PART NUMBER SELECTION AND AGENCY LISTINGS/APPROVALS

Installation

The TYCO Model BFV-250 Wafer Style Butterfly Valves may be installed with flow in either direction and can be positioned either horizontally or vertically. They are designed for installation between the faces of ANSI Class 125 and 150 flanges as well as PN10/16 flanges without the need for flange gaskets. The Series BFV-250 are self-sealing between mating flanges; therefore, they do not require the use of additional gaskets.

The Model BFV-250 may be installed with any pressure class or schedule of pipe or tubing no greater than schedule 40 that is listed or approved for fire protection service and installed in accordance with the manufacturers instructions.

The wafer bodies have locating lugs to ensure proper centering of the valve body when flange bolts are installed. Refer to Figure 2 for bolt diameter. Bolts and studs must meet the minimum

strength requirements of ASTM A307 (Grade B), and the nuts must meet the minimum strength requirements of ASTM A563 (Grade A).

Prior to installation, close the valve. Spread the flanges apart to allow the valve to slip easily between the flanges. Make sure the pipe flange faces are clean of any foreign material such as scale, metal shavings, or welding slag. Insert the valve between the flanges (without flange gaskets). Do not apply lubricant to the seat faces as this may damage the seat material. Be sure to center the valve and do not damage the liner. Relax the separation of the flanges, install, and hand-tighten all flange bolts. Slowly open the valve, checking for free movement of the disc. If valve opens freely, leave the valve in the open position, and using a cross-draw sequence, tighten all flange bolts until the valve is metal-to-metal with both mating flanges.

Be certain to keep flange faces as parallel as possible during and after tightening bolts or studs. After final tightening, again check the valve for full opening and closing.

As applicable, refer to Figure 3 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 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

The TYCO Model BFV-250 Wafer Style Butterfly Valves must be maintained and serviced in accordance with this section.

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.

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-250 With Internal Open Supervisory Switches

Specify: (specify size) Model BFV-250 Wafer Style Butterfly Valve, Internal Open Supervisory Switches, P/N (specify per Table A)

Replacement Parts

Note: Only items described in this section are offered as replacement parts. Refer to Figure 2 to identify the part described below.

Handwheel

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

Model BFV-250

Specify: Handwheel, (specify size) Model BFV-250 Wafer Style Butterfly Valve, P/N (specify)

Nominal Valve Size Inches (DN)	Part Number
2-4 (DN50-DN100)	59300SPHWHEEL10
5-8 (DN125-DN200)	59300SPHWHEEL20
10-12 (DN250-DN300)	59300SPHWHEEL30

TABLE B
BFV-250 WAFER STYLE
BUTTERFLY VALVE
REPLACEMENT HANDWHEEL
PART NUMBER SELECTION