

Model BFV-N Butterfly Valve Wafer Style 2 Inch - 12 Inch (DN50 - DN300)

General Description

The Model BFV-N Wafer Style 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 are suitable for installation between ANSI Class 125 or 150 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-N Butterfly Valves are provided with two sets of factory installed internal switches each having SPDT contacts. The supervisory switches transfer their electrical contacts when there is movement from the valve's normal open position during the first two revolutions of the handwheel.

WARNINGS

The Model BFV-N 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. The installing contractor or sprinkler manufacturer should be contacted with any questions.

Technical Data

Model
BFV-N

Sizes: ANSI Inches / DN
2 (DN50), 2-1/2 (DN65), 3 (DN80),
4 (DN100), 5 (DN125), 6 (DN150),
8 (DN200), 10 (DN250), 12 (DN300)

Approvals

The 2 through 12 inch (DN50 - DN300) Model BFV-N Wafer Style Butterfly Valves are UL and C-UL Listed and FM Approved.

In addition, the Model BFV-N Wafer Style Butterfly Valves are listed by the California State Fire Marshall under Listing No. 7770-1670:101.

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

Maximum Working Pressure
250 psi (17,2) bar

Materials of Construction:

Body

Ductile iron conforming to ASTM A-536

Disc

Ductile iron conforming to ASTM A-395,
Nickel Plated

Seat Material

Grade EPDM "E" rubber conforming
to ASTM D-2000

Upper Stem

Type 416 Stainless Steel conforming
to ASTM 582

Operator

Gear operator with iron housing



Friction Loss

The approximate friction loss, based on the Hazen Williams formula and expressed in equivalent length of pipe with C= 120, is as follows. Unless otherwise indicated, the data is based on friction loss information collected at a typical flow rate of 15 feet per second.

- 4.4 feet of 2 inch Sch. 40 pipe for the 2 inch valve.
- 6.2 feet of 2-1/2 inch Sch. 40 pipe for the 2-1/2 inch valve.
- 7.6 feet of 3 inch Sch. 40 pipe for the 3 inch valve.
- 9.2 feet of 4 inch Sch. 40 pipe for the 4 inch valve.
- 9.0 feet* of 5 inch Sch. 40 pipe for the 5 inch valve.
- 8.2 feet of 6 inch Sch. 40 pipe for the 6 inch valve.
- 12.7 feet* of 8 inch Sch. 30 pipe for the 8 inch valve.
- 20.1 feet* of 10 inch Sch. 30 pipe for the 10 inch valve.
- 22.3 feet* of 12 inch Sch. 30 pipe for the 12 inch valve.

*NFPA 13

Nominal Valve Sizes	Nominal Installation Dimensions in Inches and (mm)										Weight
	A	B	C	D	E	F	G	H	J	K	lbs. (kg)
2" DN50	2.53 (64,0)	1.68 (43,0)	12.62 (320,5)	2.88 (73,0)	6.48 (164,6)	6.00 (152,4)	5.80 (147,3)	2.12 (53,8)	1.38 (35,1)	5/8 (15,9)	21 (10,0)
2-1/2" DN65	2.90 (74,0)	1.81 (46,0)	13.51 (343,1)	3.25 (83,0)	6.98 (177,3)	6.00 (152,4)	5.80 (147,3)	2.12 (53,8)	2.00 (50,8)	5/8 (15,9)	24 (11,0)
3" DN80	3.17 (81,0)	1.81 (46,0)	13.88 (352,6)	3.38 (86,0)	7.22 (183,4)	6.00 (152,4)	5.80 (147,3)	2.12 (53,8)	2.55 (64,8)	5/8 (15,9)	24 (11,0)
4" DN100	4.17 (106,0)	2.06 (52,0)	15.24 (387,0)	4.00 (102,0)	7.98 (202,7)	6.00 (152,4)	5.80 (147,3)	2.12 (53,8)	2.58 (65,5)	5/8 (15,9)	27 (12,0)
5" DN125	5.17 (131,0)	2.19 (56,0)	16.49 (418,8)	4.75 (121,0)	8.48 (215,4)	6.00 (152,4)	7.80 (198,1)	2.12 (53,8)	4.64 (117,9)	3/4 (19,1)	31 (14,0)
6" DN150	6.17 (157,0)	2.19 (56,0)	17.65 (448,3)	5.25 (133,0)	9.10 (231,1)	6.00 (152,4)	7.80 (198,1)	2.12 (53,8)	5.75 (146,1)	3/4 (19,1)	34 (15,0)
8" DN200	8.17 (208,0)	2.38 (60,0)	20.11 (510,8)	6.50 (165,0)	10.35 (262,9)	10.00 (254,0)	7.90 (200,7)	2.12 (53,8)	7.77 (197,4)	3/4 (19,1)	49 (22,0)
10" DN250	10.17 (258,0)	2.68 (69,0)	23.35 (593,1)	8.00 (203,0)	12.27 (311,7)	11.80 (300,0)	9.50 (241,3)	3.03 (77,0)	9.77 (248,2)	7/8 (22,2)	78 (35,0)
12" DN300	12.17 (309,0)	3.00 (76,0)	26.10 (663,0)	9.25 (235,0)	13.77 (349,8)	11.80 (300,0)	9.50 (241,3)	3.03 (77,0)	11.75 (298,5)	7/8 (22,2)	103 (47,0)

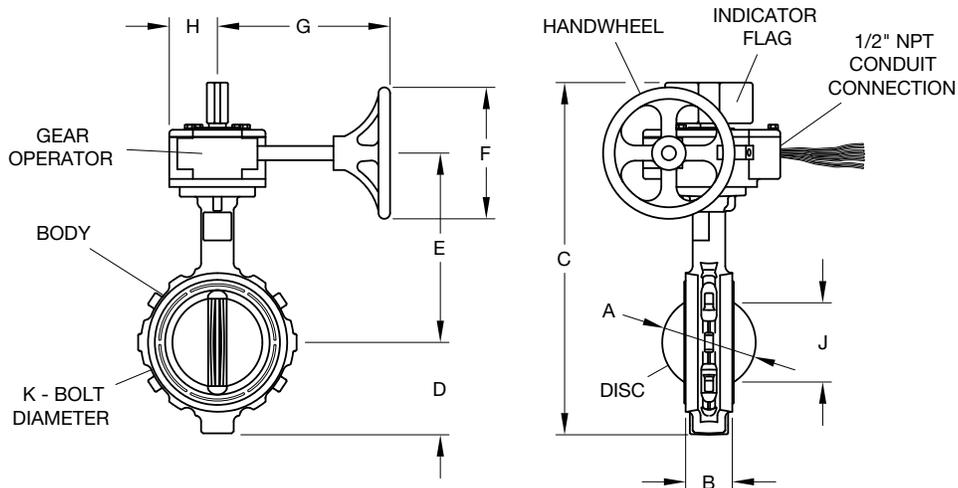


FIGURE 1
MODEL BFV-N WAFER STYLE BUTTERFLY VALVE
- NOMINAL DIMENSIONS -

Installation

The BFV-N 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. The Series BFV-N are self-sealing between mating flanges; therefore, they do not require the use of additional gaskets.

The BFV-N 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 1 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. Recommended tightening torques are listed in Table 1.

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 2 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 2, 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.

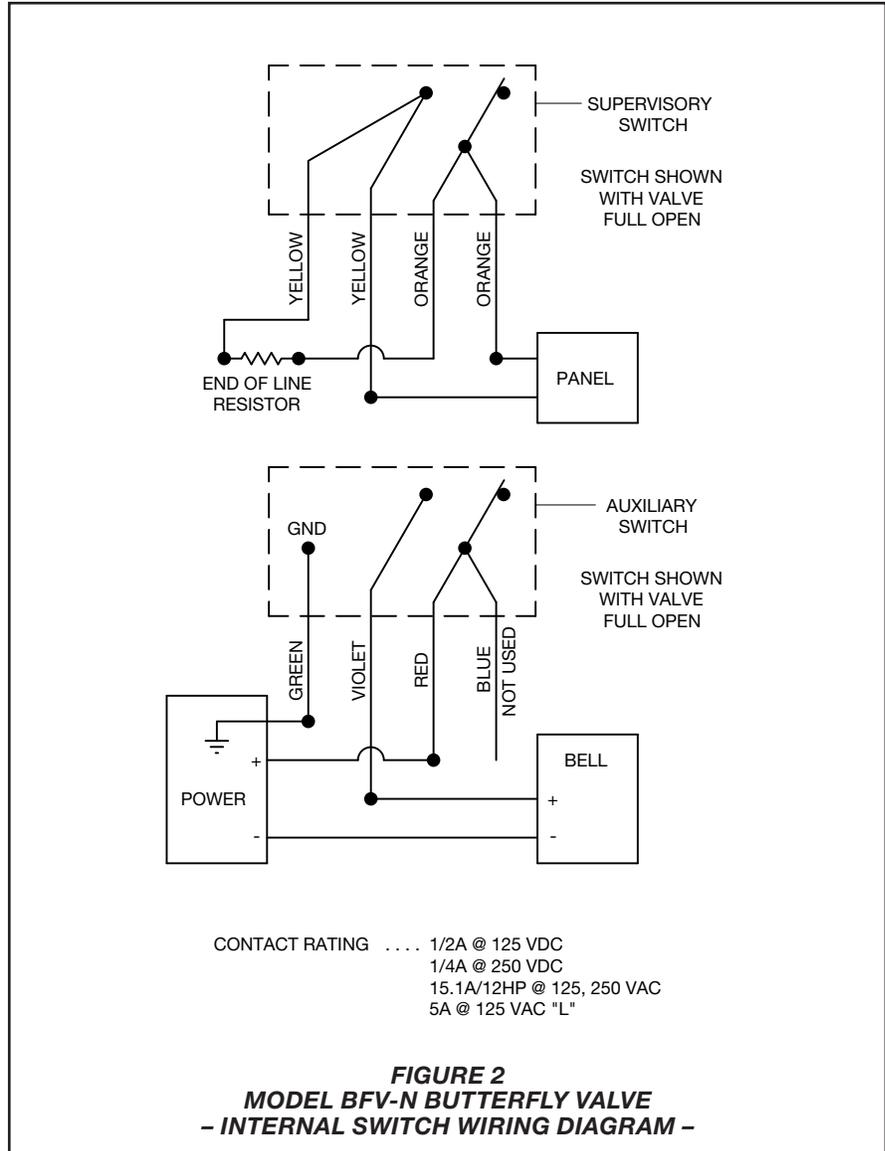


FIGURE 2
MODEL BFV-N BUTTERFLY VALVE
- INTERNAL SWITCH WIRING DIAGRAM -

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.

Nominal Flange Size ANSI Inches DN	Recommended Minimum Torque
	Ft. Lbs (Nm)
2 - 4 DN50 - DN100	20 - 30 (27,1 - 40,7)
5 - 8 DN125 - DN200	33 - 50 (44,7 - 67,8)
10 DN250	53 - 75 (71,8 - 101,7)
12 DN300	80 - 110 (108,4 - 149,1)

TABLE 1
RECOMMENDED TORQUES

Care and Maintenance

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., NFPA25), in addition to the standards of any authority having jurisdiction. The installing contractor or product manufacturer should be contacted relative to 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.

NOTE

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.

Limited Warranty

Products manufactured by Tyco Fire & Building Products (TFBP) are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by TFBP. No warranty is given for products or components manufactured by companies not affiliated by ownership with TFBP or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by TFBP to be defective shall be either repaired or replaced, at TFBP's sole option. TFBP neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. TFBP shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

In no event shall TFBP be liable, in contract, tort, strict liability or under any other legal theory, for incidental, indirect, special or consequential damages, including but not limited to labor charges, regardless of whether TFBP was informed about the possibility of such damages, and in no event shall TFBP's liability exceed an amount equal to the sales price.

The foregoing warranty is made in lieu of any and all other warranties, express or implied, including warranties of merchantability and fitness for a particular purpose.

This limited warranty sets forth the exclusive remedy for claims based on failure of or defect in products, materials or components, whether the claim is made in contract, tort, strict liability or any other legal theory.

This warranty will apply to the full extent permitted by law. The invalidity, in whole or part, of any portion of this warranty will not affect the remainder.

Ordering Procedure

Wafer Style Butterfly Valves:

Specify: (specify inch size) Model BFV-N Wafer Style Butterfly Valve with internal supervisory switches, P/N (specify).

Valve Size	Valve Part Number
2.....	59-801-1-020N
2-1/2.....	59-801-1-025N
3.....	59-801-1-030N
4.....	59-801-1-040N
5.....	59-801-1-050N
6.....	59-801-1-060N
8.....	59-801-1-080N
10.....	59-801-1-100N
12.....	59-801-1-120N