Control Valves & Devices | Butterfly Valves | Grooved - External Monitoring Switch | BVG-1-MON





SPECIFICATIONS	
Models	**BVG-1-MON**: With switches
Sizes (nominal)	2"/DN50, 2-1/2" /DN65, 3"/DN80, 4"/DN100, 5"/DN125, 6"/DN150, 8"/DN200, 10"/DN250 & 12"/DN300
Approvals*	UL FM APPROVED CE
Max. working pressure	• ***21 bar (300 psi)*** - UL/FM
Test pressure	Leak & Shell, 1.5x working pressure
Working temperature	0 °C - 80 °C
Connections	Grooved joint dimensions, in accordance with: ANSI/AWWA C606 or ISO 6182
Operation	Gear operated
Finish	Epoxy coated ductile iron
Supervisory switches	***BVG-1-MON*** is supplied with a bracket for externally mounting a supervisory switch (also included - FMZ version **790400**) for normally-open OR normally-closed operation*. The valve gearbox also contains one internal supervisory and one auxiliary switch configured for normally-open operation. If the interior switches are not required then the cable should be cut and the cable junction plugged. * Alternatively also with switches for use with other control panels (order standard BVG-1 + **828482** + **926637**).
Note	• The valves are suitable for use outdoors. Some degradation of the painted/coated surfaces may occur (including rusting) which will not affect the performance of the valve. The UL listing specifically ensures the switch operation is not affected by outdoor conditions, providing the proper installation instructions are followed. • Butterfly valves should be installed a reasonable distance from pumps, elbows, expanders, reducers, or similar devices. Typical piping practices suggest a minimum distance of five times the pipe diameter for general use.

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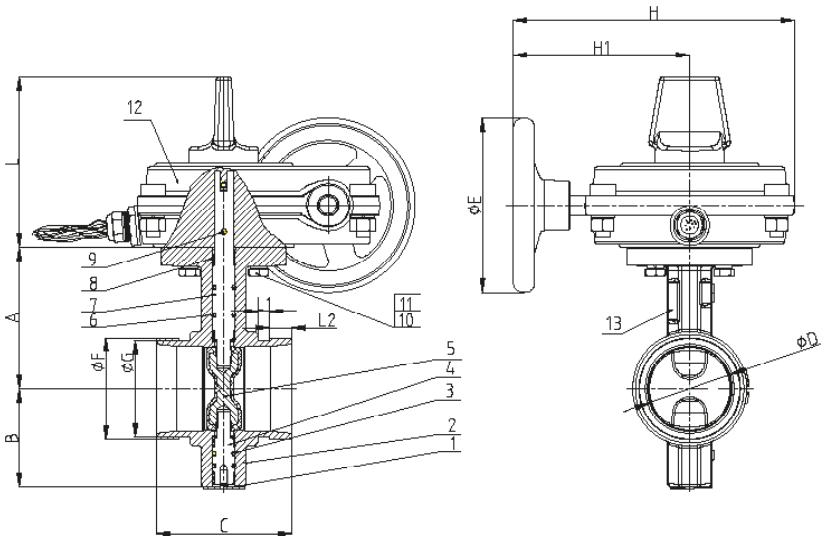
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Dimensions | BVG-1-MON

Size	Dimensions (mm)													
	A	B	C	ØD	ØE	ØF	ØG	L	L1	L2	H1	H	ISO 5211 Actuator	Flag
2"/DN50	89	65	81	50	125	60,3	57,2	123	7,9	15,9	127	202	F07	60 x 40
2-1/2"/DN65	102	71	97	61	125	76,1	72,3	123	7,9	15,9	127	202	F07	
3"/DN80	109	81	97	76	125	88,9	84,9	123	7,9	15,9	127	202	F07	
4"/DN100	128	95	116	99	125	114,3	110,1	123	9,5	15,9	127	202	F07	
5"/DN125	141	111	148	123	125	139,7	135,5	123	9,5	15,9	127	202	F07	
6"/DN150	153	133	148	148	225	168,3	164,0	123	9,5	15,9	127	202	F07	
8"/DN200	184	164	133	199	225	219,1	214,4	123	11,1	19,1	185	260	F10	68 x 40
10"/DN250	216	196	159	252	225	273,1	268,3	123	12,7	19,1	185	260	F10	
12"/DN300	254	226	165	301	225	323,9	318,3	132	12,7	19,1	203	298	F10	

Dimensional drawing | BVG-1-MON



Materials | BVG-1-MON

Item	Description	Material	Specification
1	Plug	EPDM	EPDM
2	Valve body	Ductile iron	EN-GJS-450-10
3	O-Ring	NBR	NBR
4	Stub shaft	Stainless steel	AISI 431
5	Disc	Ductile iron	EN-GJS-450-10 + EPDM
6	O-Ring	NBR	NBR
7	Stem	Stainless steel	AISI 431
8	Bushing	Stainless steel	AISI 304 + PTFE
9	Cylindrical pin	Stainless steel	AISI 304
10	Hex nut	Stainless steel	AISI 304
11	Spring washer	Stainless steel	AISI 304
12	Signal gear box	Ductile iron	EN-GJS-450-10
13	Name plate	Stainless steel	SS 304

Part numbers & technical data | BVG-1-MON

Size	BVG-1-MON | With external supervisory switch			
	Approvals	Part number	Contents	Weight (kg)
2"/DN 50	CE, UL, FM	**BVG-1-060-MON**	BVG-1-060-MON + Bracket Kit + Switch	8,0
2-1/2"/DN 65	CE, UL, FM	**BVG-1-076-MON**	BVG-1-076-MON + Bracket Kit + Switch	8,6
3"/DN 80	CE, UL, FM	**BVG-1-089-MON**	BVG-1-089-MON + Bracket Kit + Switch	9,2
4"/DN 100	CE, UL, FM	**BVG-1-114-MON**	BVG-1-114-MON + Bracket Kit + Switch	10,7
5"/DN 125	CE, UL, FM	**BVG-1-139-MON**	BVG-1-139-MON + Bracket Kit + Switch	13,7
6"/DN 150	CE, UL, FM	**BVG-1-168-MON**	BVG-1-168-MON + Bracket Kit + Switch	18,1
8"/DN 200	CE, UL, FM	**BVG-1-219-MON**	BVG-1-219-MON + Bracket Kit + Switch	22,7
10"/DN 250	CE, UL, FM	**BVG-1-273-MON**	BVG-1-273-MON + Bracket Kit + Switch	33,7
12"/DN 300	CE, UL, FM	**BVG-1-324-MON**	BVG-1-324-MON + Bracket Kit + Switch	48,6

Switch and bracket are unmounted

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Design requirements | BVG-1-MON

The butterfly valve should be connected to the piping system with approved couplings. Flow may be from either direction through the valve, and the valve may be positioned in any direction. The gearbox has been designed with a slow close handwheel operator that effectively minimizes water hammer during the opening or closing of valve during flow conditions. These valves feature minimum flow restriction and pressure loss when in the fully open position.

Installation | BVG-1-MON

When the valves are received from Viking they should be handled carefully to avoid breakage and damage to the seating area. Before installation of the valve:

1. Check the valve pressure rating is compatible with service conditions.
2. Clean the piping, and connecting couplings.
3. Position the valve centrally between mating pipes
4. Lubricate the coupling gaskets and slide them into position. Assemble the couplings according to their instructions.
5. The valve should be installed in an almost closed position.
6. Interference between the butterfly valve disc and the mating pipes should be avoided under all circumstances. Before fully tightening the coupling bolts, carefully open the valve to the open position and check for any disc interference.
7. To prevent distortion, properly support the piping adjacent to the inlet and outlet of the valve. Avoid damage and do not use the valve to force the piping into position.
8. The valve should never be forced to seat by applying excessive torque to the gearbox or through the use of a wrench. This may distort the valve components or score the sealing surface. The use of excessive force to open or close the valve violates all warranties whether express or implied.
9. Conduit and electrical connections to the supervisory/ auxiliary switches must be in accordance with the requirements of the Authority Having Jurisdiction.

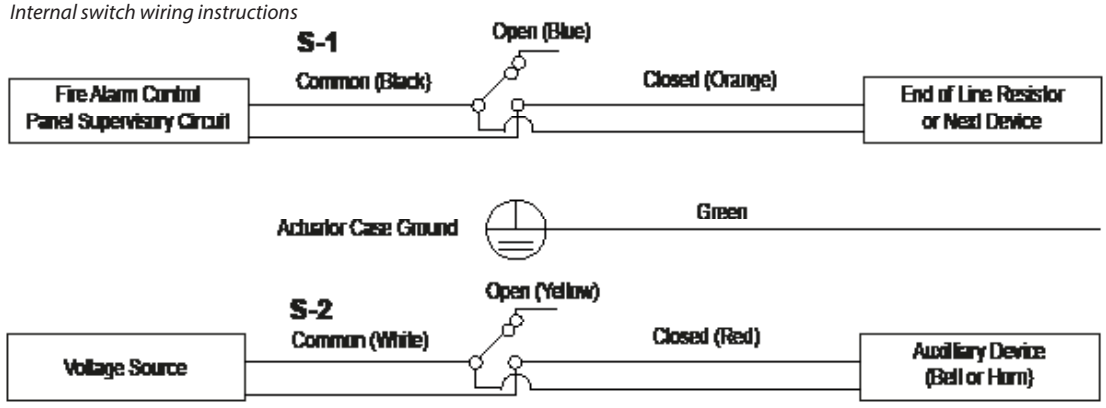
Care & maintenance | BVG-1-MON

Inspect and verify proper operation on an annual basis or according to the requirements of the Authority Having Jurisdiction. Check for leakage at the valve pipe connection and body-to-operator connection. Installation, inspection and maintenance should be performed by a qualified person certified by the Authority Having Jurisdiction. If the valve closes hard, check to make sure that there is no debris lodged in the waterway around the seating area. Backing off the handwheel and closing the valve again can often correct this condition. All replacement parts must be obtained from the manufacturer to assure proper operation of the valve and to maintain approval of the device.

Wiring instructions | BVG-1-MON

The BVG-1-MON butterfly valve comes supplied with one external monitoring switch (unmounted) which can be configured for normally-open or normally-closed operation. The valve gearbox contains one internal supervisory switch and one internal auxiliary switch both of which are configured for normally-open operation.The supervisory/auxiliary switches operate by a cam connected to the valve stem and are designed to notify in the case of valve closure. Please refer to the relevant installation standard and Authority Having Jurisdiction. The switches will change position and close within two (2) full turns of the hand wheel from the fully open position.

Internal switch wiring instructions



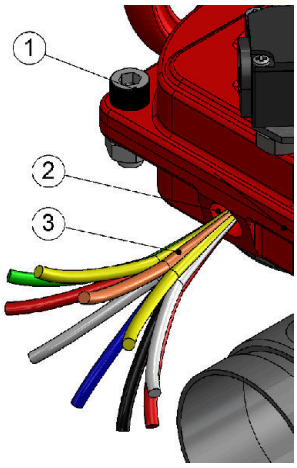
Switch parameters: 16A 1/2HP 125/250VAC

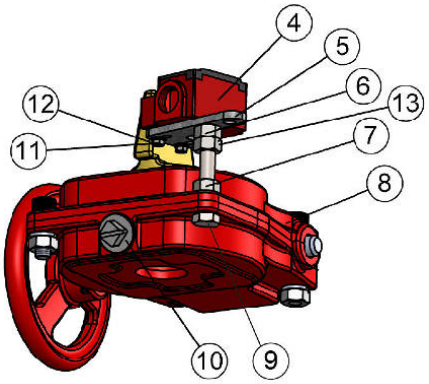
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Mounting of external switch and bracket | BVG-1-MON

To mount of the external monitoring switch (**part number 790400 for use with FMZ panels, part number 828482 for other panels**), an external bracket kit (**part number 926637**) is used. The bracket and switch combination may also be used if monitoring of the valve is required in CLOSED position. In this case the internal switches inside the gearbox are not used.





1	Internal hex bolt (wrench size 8)
2	Cable outlet 1/2"
3	Cable
4	Limit switch
5	Switch bracket with integrated thread
6	Hexagon nut M10 (wrench size 16)
7	Hexagon nut M10 (wrench size 17) with spring ring (re-use from butterfly valve)
8	Gear housing
9	Hex bolt M10 x 65 (wrench size 17)
10	Plug G1/2" (wrench size 7)
11	Flange nut M4 (wrench size 7)
12	Pan head screw M4 x 30 (PH2)
13	Hexagonal nut M10 (wrench size 16)

Mounting procedure:

1. Bring the butterfly valve to be monitored into the end position „OPEN" or „CLOSED".
2. Remove the internal hex bolt (1) from the gear housing (***8***) as shown above.
3. Insert the hex bolt (***9***) through the housing from below and fix it with the spring ring and hexagon nut (***7***). If the situation requires it, the second hexagonal nut provided can be used to lower the bracket (***Fig. 1***). Otherwise, the second hexagonal nut can be used to counter the hexagonal nut on the switch bracket (***Fig. 2***).
4. Assemble and tighten the lock nut (***6***) and bracket (***5***).
5. Loosely pre-mount the limit switch (***4***) onto the switch bracket (***5***) using the pan head screw (***11***) and the flange nut (***10***).
6. Set the switching point at the limit switch by moving the limit switch and turning the switch bracket in such a way that it switches evenly. Set the limit switch so that an electrical signal is given before a change in aperture exceeds 10 %. This will typically be met if the limit switch trips after 5 turns of the hand wheel from the open or closed position.
7. Tighten the hex bolt (***9***) at the gear housing (***8***) with hexagon nut and spring ring (***7***), hold the bolt in place with a wrench.
8. Tighten the pan head screws (***11***) and flange nuts (***10***) to the limit switch.
9. Check the performance of the switch.
10. If the internal switches are not required then cut cables of internal switches as close to the butterfly valve as possible and use the plug to close the cable outlet.

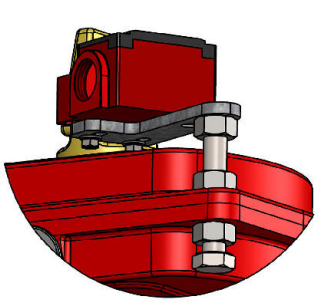


Fig.1

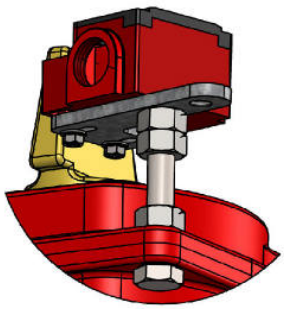
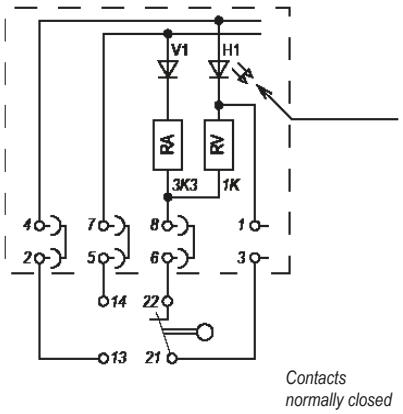


Fig.2

External switch wiring instructions



Included with switch bracket 926637:

Switch bracket: 1 piece
Hexagon nut M10: 2 pieces
Hex bolt M10 x 65: 1 piece
Plug G1/2": 1 piece
Flange nut M4: 2 pieces
Pan head screw M4 x 30: 2 pieces

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