Operating Instructions Flow monitor Type BFS-30 N / L and Flow monitor Type BFS-30-O

1. Installation

Operating of the BFS-30 N/L flow monitors and indicators is based on the movement of a spring-loaded piston within a cylindrical tube. The instrument can be mounted in any position in a system. Flow direction is from the lowest to the highest value, indicated on the scale. The viscosity-compenstion is achieved by the combination of the spring and the calibrated orifice inside the piston and guaranties high accuracy over a viscosity range up to 600 cSt.

The flow media must be free of particle contamination, otherwise the instruments will not function properly. Particularly magnetic particles may cause faults. We recommend the use of dirt filters or magnetic filters. All non standard applications should be discussed with our technical engineers.

The flow monitors must not be positioned in inductive or magnetic fields. Minimum distance from iron parts: 10 mm.

All connection sizes comply with the R-standard (DIN 2999, part 1). Only suitable thread and sealing material should be used for installation, otherwise the correct function of the equipment may be affected.

To avoid the risk of measure faults, the upstream line should be 10 x D and the downstream line 5 x D (where D = internal diameter of the tube).

The highest accuracy will be reached by mounting the flow monitors vertically, with flow direction from bottom to the top.

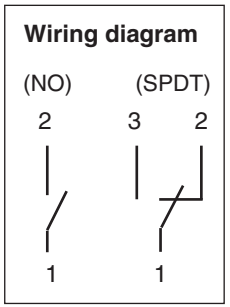
When screwing the fittings, take care of the max. lengh of the threads. Too long threads may cause damage of the flow monitor.

(BFS-30-O:
When screwing the fittings, the flowmeter threads must be fixed with a spanner. Never rotate the flowmeter connections inside the aluminum sleeve. This may cause leakage or breaking of the glass.)

All model provided with a switch should be protected from electrical overload. Never exceed the given maximum switch capacity, not even for short periods. The embedded reedswitch is very sensitive for specifically inductive loads, which may occur at closing or opening and which can up to 10 times the given nominal value of the coil. Use protecting relays or other precautions in such cases.

Our reedswitch are gold-rhodium-plated, which allow direct connecting to SPS-systems.

2. Standard wiring diagram for switches, provided with connector:



3. Adjusting the switching points

The switchpoint should be adjusted on the scale of the flowswitch. Please notice that the switch point is always the shutdown point. That means the contact will open when the flow-rate is decreasing to the adjusted switchpoint. So the NO opens in case of an alarm.

To adjust the switching contacts an ohmmeter, continuity tester or similar tool is required. (NO) connection: Pin 1 & 2, (SPDT) connection: Pin 1 & 3

Units without optical indication (N/L-models)
a) Loosen the lock screw of the switch contact.
b) Shift the switch contact until the arrow on the switch contact is in coincidence with the desired flow rate value on the range.
c) Tighten the lock screw of the switch contact.

Units without optical indication (O-models)
1. Adjustment of the removed unit:
a) Shift the switch housing from the centre of the adjustment range to the input side, until the contact closes.
b) Shift the piston with a non-magnetic tool (e. g. a pencil) until the needle shows the desired flow rate (contact closed).
c) Shift the switch housing slowly to the output side until the contact just opens. At this point locate the switch housing with the lock screws.
2. Adjustment of the mounted unit:
a) see 1. a)
b) Open supply until the needle shows the minimal flow rate desired. (contact closed)
c) see 1. c)

4. Maintenance

The flowmeters are free of maintenance because of the few mechanical parts. For security reason we advice to check the flowmeters from time to time.

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5. Technical data:

Operating data	BFS-30-N		BFS-30-L	
Pressure MS / MS with GL	250 bar / 100 bar		300 bar / 100 bar	
Pressure VA	300 bar		350 bar	
Pressure drop	0,02 - 0,4 bar		0,02 - 0,2 bar	
Temperature max.	120 °C		120 °C	
Electrical data*				
Normally open	250 V - 3 A - 100 VA		230 V - 3 A - 60 VA	
Change over**	250 V - 1,5 A - 50 VA		250 V - 1,5 A - 50 VA	
Protection	IP65		IP65	
Materials	brass	stainl. steel	brass	stainl. steel
Housing	brass	1.4571	brass	1.4571
Float	brass	1.4571	brass	1.4571
Spring	1.4571	1.4571	1.4571	1.4571
Seals	Perbunan, Viton or EPDM			
Accuracy	±10% of FS		±10% of FS	
Electrical connection acc. to	DIN 43650 or with 1 m cable			

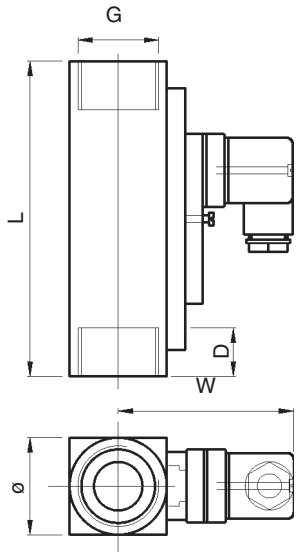
Operating data	BFS-30-O	
Pressure MS	250 bar	
Pressure VA	300 bar	
Pressure drop	0,02 - 0,4 bar	
Temperatuer max.	120 °C	
Electrical data*		
Normally open	250 V - 3 A - 100 VA	
Change over**	250 V - 1,5 A - 50 VA	
Protection	IP65	
Materials	brass	stainl. steel
Housing	brass	1.4571
Float	brass	1.4571
Spring	1.4571	1.4571
Seals	Perbunan, Viton or EPDM	
Accuracy	±10% of FS	
Electrical connection acc. to	DIN 43650 or with 1 m cable	

* Data only for application in non explosive atmosphere

** Minimum load: 3 VA
Contact rating for SPS-applications: 200 V, 1 A, 20 VA (Please request)

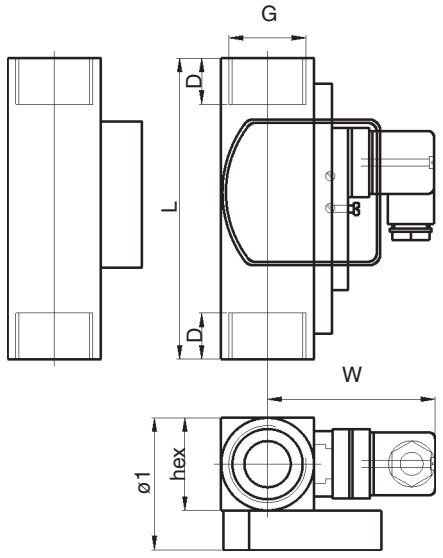
Dimensions (in mm)

BFS-30-N / L



(G)	G 1/4	G 1/2	G 3/4	G 1	1/2“ (BFS-30-L)
(hex)	34	34	34	40	27
(Ø)	40	40	40	40	31
(W)	76	76	76	76	52
(D)	21	21	21	17	14
(L)	152	152	152	130	90
Weight (g)	1500	1425	1340	1160	350

BFS-30-O



(G)	G 1/4	G 1/2	G 3/4	G 1
(hex)	34	34	34	40
(Ø)	40	40	40	40
(W)	76	76	76	76
(D)	21	21	21	17
(L)	152	152	152	130
Weight (g)	1590	1515	1430	1250