

Flow Switch HFS 2500

Float Any installation position Two accuracy classes

For water / water-based media

Description:

The HYDAC flow switches of the HFS 2500 series are based on a variable area float principle.

The measuring medium deflects a spring-loaded float in the direction of flow, depending on the flow rate. A reed contact is fitted outside of the device, therefore separated from the fluid circuit. When the magnet inside the float reaches the pre-set position, the reed contact will switch.

To protect it from external influences, the reed contact is encapsulated in a housing designed to allow steplessly variable adjustment.

The instruments in the HFS 2500 series are available in two versions, with 5 % accuracy and with 10 % accuracy.

Fields of application are to monitor flow rate in fluids (water / water-based) in the following areas, amongst others:

- Cooling systems and circuits
- Hydraulic systems
- Pumps
- Welding machines and laser plants
- Medical technology
- Pharmaceutical industry
- Chemical industry
- Research and development

Technical data:

Input data					
Measuring ranges [l/min]	5 % accuracy		10 % accuracy		
			Size 1	Size 2	Size 3
0.2 .. 4.0	8 .. 90		0.005 .. 0.06	0.02 .. 0.2	10 .. 30
0.6 .. 5.0	5 .. 110		0.04 .. 0.13	0.2 .. 0.6	15 .. 45
0.5 .. 8.0	10 .. 150		0.1 .. 0.6	0.4 .. 1.8	20 .. 60
1 .. 14	35 .. 220		0.2 .. 1.2	0.8 .. 3.2	30 .. 90
1 .. 28	35 .. 250		0.4 .. 2.0	2 .. 7	60 .. 150
2 .. 40			0.5 .. 3.0	3 .. 13	
4 .. 55			1.0 .. 5.0	4 .. 20	
1 .. 70				8 .. 30	
Operating pressure					
Brass version [bar]	200		300	300	250
Stainless steel version [bar]	300		350	350	300
Pressure drop [bar]	0.02 .. 0.8		0.02 .. 0.2	0.02 .. 0.3	0.02 .. 0.4
Mechanical connection	see dimensions				
Parts in contact with fluid	Stainl. steel 1.4571; NBR ¹⁾ ; brass (nickel-pl.); brass; hard ferrite				
Brass version	Stainless steel 1.4571; FKM ¹⁾ ; hard ferrite				
Stainless steel version	Stainless steel 1.4571; FKM ¹⁾ ; hard ferrite				
Housing material	Brass (nickel-plated) or stainless steel 1.4571				
Output data					
Switching outputs ²⁾	1 or 2 reed contacts Normally open or change-over type ²⁾				
Accuracy	≤ ± 5 % or ≤ ± 10 % FS				
Repeatability	2 % FS max.				
Switching capacity					
Change-over contact ³⁾	max.	max.	max.	max.	max.
Male connector EN175301-803	- 250 V - 1.5 A - 50 VA	- 150 V AC/DC - 1 A - 20 VA	- 250 V - 1.5 A - 50 VA	- 250 V - 1.5 A - 50 VA	- 250 V - 1.5 A - 50 VA
Male connector M12x1	max. - 250 V - 1.5 A - 50 VA	max. - 125 V AC/DC - 1 A - 20 VA	max. - 125 V - 1.5 A - 50 VA	max. - 125 V - 1.5 A - 50 VA	max. - 250 V - 1.5 A - 50 VA
N/O contact	max. - 250 V - 3 A - 100 VA	max. - 140 V AC - 0.7 A - 20 VA	max. - 230 V - 3 A - 60 VA	max. - 230 V - 3 A - 60 VA	max. - 250 V - 3 A - 100 VA
Male connector EN175301-803		- 200 V DC - 1 A - 20 VA			
Male connector M12x1	max. - 250 V - 3 A - 100 VA	max. - 125 V AC - 0.7 A - 20 VA	max. - 125 V - 3 A - 60 VA	max. - 125 V - 3 A - 60 VA	max. - 250 V - 3 A - 100 VA
		- 125 V DC - 1 A - 20 VA			
Environmental conditions					
Operating temperature range	-20 .. +70 °C				
Fluid temperature range	-20 .. +100 °C (optional -20 .. +160 °C)				
Male connector EN175301-803	-20 .. +85 °C				
Male connector M12x1	-20 .. +85 °C				
CE mark	Directive 2014/35/EU Directive 2014/30/EU				
Protection class acc. to DIN EN 60529 ⁴⁾	IP 65				

Note: **FS (Full Scale)** = relative to complete measuring range

¹⁾ Other seal materials on request

²⁾ The contact opens / switches when the flow falls below the set switch point.

³⁾ Minimum load 3 VA

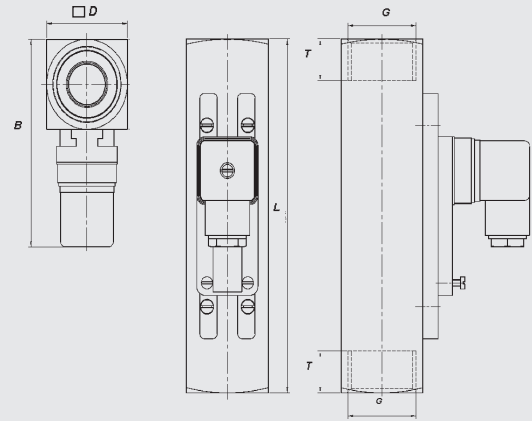
⁴⁾ With mounted mating connector in corresponding protection class

Dimensions without indicator:

Type [l/min]	Installation dimensions [mm]							Weight (approx.) [g]
	SW	D	W	G	DN	T	L	

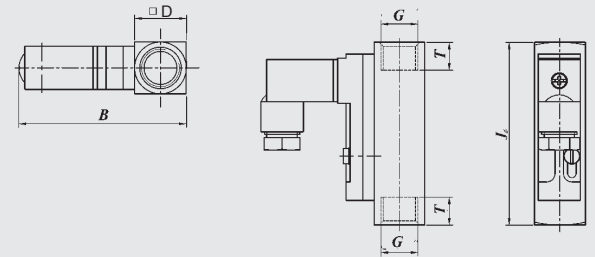
Water 5 % accuracy

0.2 .. 4.0	27	30	88	1/4"	8	10	131	850
0.6 .. 5.0				3/8"	10	15		
0.5 .. 8.0				1/2"	15	14		
1 .. 14								
1 .. 28								
2 .. 40	27	30	88	1/2"	15	14	146	900
4 .. 55	32	30	88	3/4"	20	15	174	
1 .. 70	34	40	98	3/4"	20	15	152	1400
8 .. 90				1"	25	17	156	
5 .. 110	40	40	98					
10 .. 150	50	50	108	1 1/4"	32	20	200	2750
35 .. 220	50	50	108	1 1/4"	32	20	200	3000
35 .. 250	60	60	116	1 1/2"	40	20	200	3800



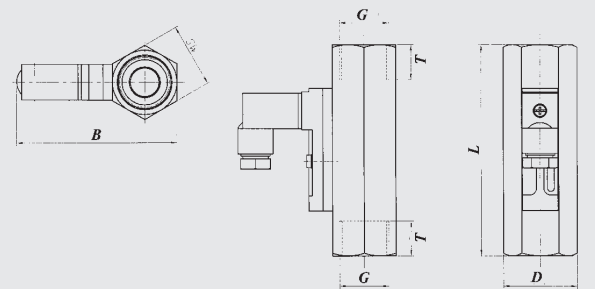
Water 10 % accuracy -size 1-

0.005 .. 0.06	17	17	57	1/4"	8	10	65	140
0.04 .. 0.13								
0.1 .. 0.6								
0.2 .. 1.2								
0.4 .. 2.0								
0.5 .. 3.0								
1.0 .. 5.0								



Water 10 % accuracy -size 2-

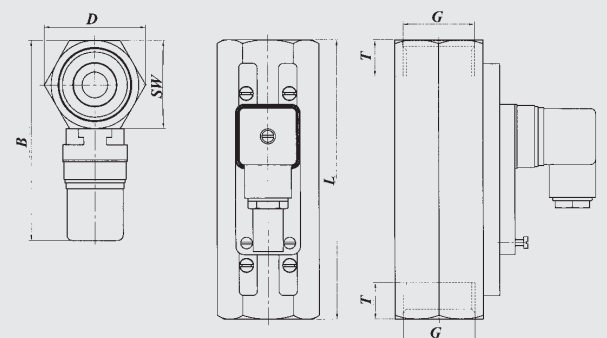
0.02 .. 0.2	27	31	67	1/2"	15	14	90	350
0.2 .. 0.6								
0.4 .. 1.8								
0.8 .. 3.2								
2.0 .. 7.0								
3.0 .. 13.0								
4.0 .. 20.0								
8.0 .. 30.0								



Water 10 % accuracy -size 3-

10 .. 30	34	47	99	3/4"	20	15	152	1240
15 .. 45	41	47	99	1")	25	17	130	1030
20 .. 60								
30 .. 90								
60 .. 150	41	47	99	1"	25	17	130	1030

) Standard

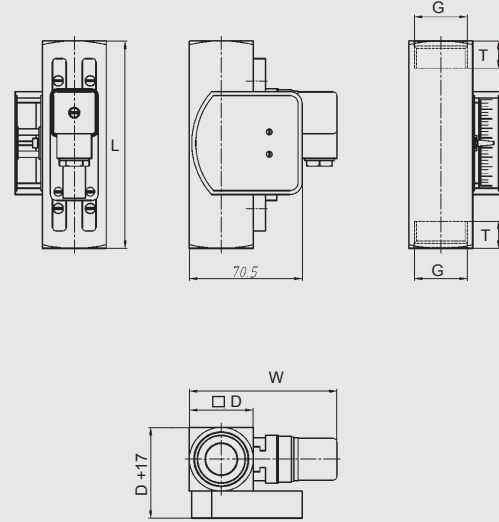


Dimensions with indicator:

Type [l/min]	Installation dimensions [mm]							Weight (approx.) [g]
	SW	D	W	G	DN	T	L	

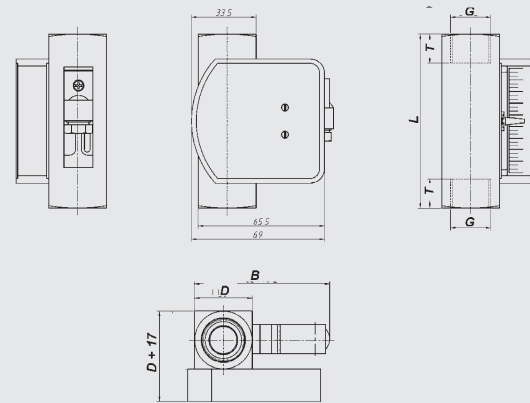
Water 5 % accuracy

0.2 .. 4.0	27	30	88	1/4" 3/8" 1/2"	8 10 15	10 15 14	131	900
0.6 .. 5.0								
0.5 .. 8.0								
1 .. 14								
1 .. 28	27	30	88	1/2" 3/4"	15 20	14 15	146 174	950
2 .. 40								
4 .. 55								
1 .. 70								
8 .. 90	34	40	98	3/4" 1"	20 25	15 17	152 156	1450 1150
5 .. 110								
10 .. 150	50	50	108	1 1/4"	32	20	200	2800
35 .. 220	50	50	108	1 1/4"	32	20	200	3050
35 .. 250	60	60	116	1 1/2"	40	20	200	3850



Water 10 % accuracy -size 2-

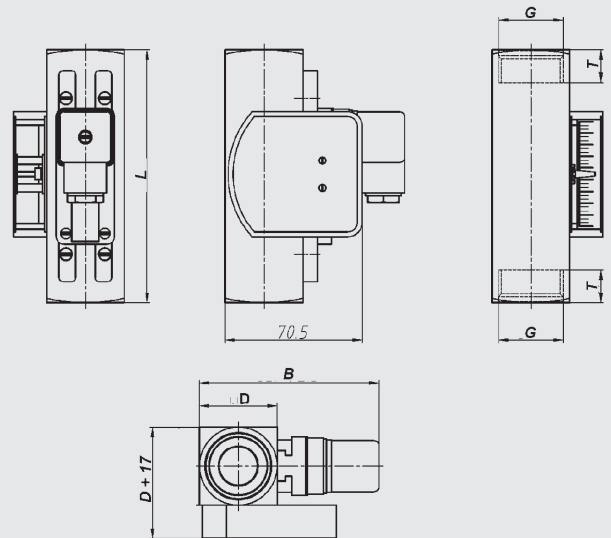
0.02 .. 0.2	30	30	70	1/2"	15	14	90	570
0.2 .. 0.6								
0.4 .. 1.8								
0.8 .. 3.2								
2.0 .. 7.0								
3.0 .. 13.0								
4.0 .. 20.0								
8.0 .. 30.0								



Water 10 % accuracy -size 3-

10 .. 30	34 40	40	98	3/4" 1"	20 25	15 17	152 130	1340 1160
15 .. 45								
20 .. 60								
30 .. 90								
60 .. 150	41	40	98	1"	25	17	130	1160

¹⁾ Standard



Model code:

HFS 2 5 X X - XX - XXXX-XXXX - X - X - X - 000

Measuring principle

2 = variable area float

Measuring medium

5 = water /
water-based

Mechanical connection⁵⁾ 6)

1 = 1/4"
2 = 3/8"
3 = 1/2"
4 = 3/4"
5 = 1"
6 = 1 1/4"
7 = 1 1/2"

Electrical connection

5 = male EN175301-803
3 pole + PE,
(mating connector supplied)
6 = male M12x1, 4 pole
(mating connector not supplied)

Switching contacts⁷⁾

1S = 1 N/O contact
2S = 2 N/O contacts
1W = 1 change-over contact
2W = 2 change-over contacts

Switching ranges in l/min⁶⁾

Water 5 %

00.2-04.0; 00.6-05.0; 00.5-08.0;
01.0-0014; 01.0-0028; 02.0-0040; 04.0-0055;
01.0-0070; 08.0-0090; 0005-0110; 0010-0150;
0035-0220; 0035-0250

Water 10 % -size 1- (only available w/o mech. indicator)

005-0.06; 0.04-0.13; 00.1-00.6; 00.2-01.2;
00.4-02.0; 00.5-03.0; 01.0-05.0

Water 10 % -size 2-

0.02-00.2; 00.2-00.6; 00.4-01.8; 00.8-03.2;
02.0-07.0; 03.0-0013; 04.0-0020; 08.0-0030

Water 10 % -size 3-

0010-0030; 0015-0045; 0020-0060;
0030-0090; 0060-0150

Accuracy

6 = $\leq \pm 5.0\%$ FS
7 = $\leq \pm 10.0\%$ FS

Housing material

B = brass, nickel-plated
S = stainless steel

Mechanical indicator

0 = without indicator
1 = with indicator

Modification number

000 = standard

⁵⁾ Mechanical connection options depend on housing type
(see Dimensions)

⁶⁾ Other types available on request

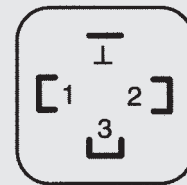
⁷⁾ When the model with 2 switching contacts is selected, the second switching contact is fitted on the side of the instrument as standard.

Accessories:

Appropriate accessories, such as mating connectors, can be found in the Accessories brochure.

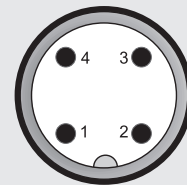
Pin connections:

EN175301-803



Pin	HFS 25X5-XS	HFS 25X5-XW
1	Centre	Centre
2	N/O contact	N/C contact
3	n.c.	N/O contact
⊥	n.c.	n.c.

M12x1



Pin	HFS 25X6-XS	HFS 25X6-XW
1	Centre	Centre
2	n.c.	N/C contact
3	n.c.	n.c.
4	N/O contact	N/O contact

Note:

The information in this brochure relates to the operating conditions and applications described. For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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