

## Flow Switch HFS 2500 Ex applications

Float

Any installation position

30–600 cSt



**ATEX encapsulation**  
For water / water-based media

### Description:

The HYDAC HFS 2500 series flow switch in ATEX version has been specially developed for use in potentially explosive atmospheres. Like the standard version it is based on the variable area float principle.

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

Intended fields of application are, for example, the oil and gas industry, on gas turbines or in locations with high levels of dust contamination, e.g. in mills.

### Protection types and applications:

#### ATEX

II 2G Ex mb II T6 / T5

II 2D Ex tD A21 IP67 T80 °C / T100 °C

### Certificate:

- PTB 03 ATEX 2159 X
- PTB 03 ATEX N056-4

### Technical data:

<b>Input data</b>				
Measuring ranges [l/min]	5 % accuracy		10 % accuracy	
			Size 2	Size 3
	0.2 .. 4.0	8 .. 90	0.02 .. 0.2	10 .. 30
	0.6 .. 5.0	5 .. 110	0.2 .. 0.6	15 .. 45
	0.5 .. 8.0	10 .. 150	0.4 .. 1.8	20 .. 60
	1 .. 14	35 .. 220	0.8 .. 3.2	30 .. 90
	1 .. 28	35 .. 250	2 .. 7	60 .. 150
	2 .. 40		3 .. 13	
	4 .. 55		4 .. 20	
	1 .. 70		8 .. 30	
Operating pressure				
Brass version [bar]	200		300	250
Stainless steel version [bar]	300		350	300
Pressure drop [bar]	0.02 .. 0.8		0.02 .. 0.3	0.02 .. 0.4
Mechanical connection	see dimensions			
Parts in contact with fluid				
Brass version	Stainl. steel 1.4571; NBR <sup>1)</sup> ; brass (nickel-pl.); brass; hard ferrite			
Stainless steel version	Stainless steel 1.4571; FKM <sup>1)</sup> ; hard ferrite			
Housing material	Brass (nickel-plated) or stainless steel 1.4571			
<b>Output data</b>				
Switching outputs <sup>2)</sup>	1 or 2 reed contacts Normally open or change-over type <sup>2)</sup>			
Accuracy	≤ ± 5 % or ≤ ± 10 % FS			
Repeatability	2 % FS max.			
<b>Switching capacity</b>				
Change-over contact	max. 250 V / 1 A / 30 W Back-up fuse 1 A (outside the hazardous area)			
N/O contact	max. 250 V / 2 A / 60 W Back-up fuse 2 A (outside the hazardous area)			
<b>Environmental conditions</b>				
Operating temperature range	T6 / T80 °C:	-20 .. +75 °C		
	T5 / T100 °C:	-20 .. +90 °C		
Fluid temperature range	T6 / T80 °C:	-20 .. +75 °C		
	T5 / T100 °C:	-20 .. +90 °C		
Max. surface temperature	T6 / T80 °C:	+75 °C		
	T5 / T100 °C:	+90 °C		
CE mark	2014/35/EU (not for electr. equipment for use in potentially explosive atmosphere)			
	2014/30/EU 2014/34/EU EN 60079-0: 2014-6; EN 60079-18: 2015-10; EN 60079-31: 2014-12; EN 13463-1: 2009; EN 1127-1: 2011			
Protection class acc. to DIN EN 60529	IP 67			

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

<sup>1)</sup> Other seal materials on request

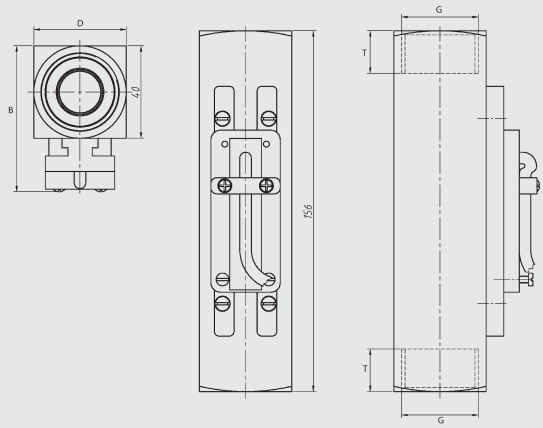
<sup>2)</sup> The contact opens / switches when the flow falls below the set switch point.

## Dimensions without indicator:

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

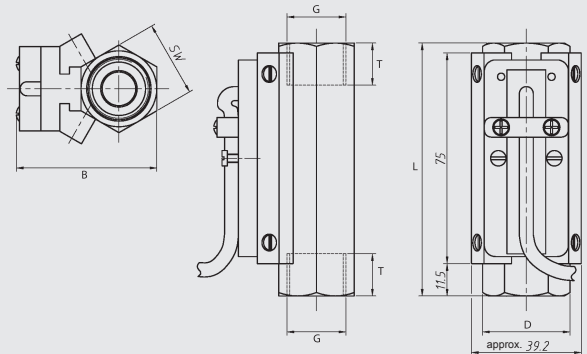
### Water 5 % accuracy

0.2 .. 4.0	27	30	53	1/4" 3/8" 1/2"	8 10 15	10 15 14	131	850
0.6 .. 5.0								
0.5 .. 8.0								
1 .. 14								
1 .. 28	27	30	53	1/2" 3/4"	15 20	14 15	146 174	900
2 .. 40								
4 .. 55								
1 .. 70	34	40	63	3/4" 1"	20 25	15 17	152 156	1400 1100
8 .. 90								
5 .. 110								
10 .. 150								
35 .. 220	50	50	73	1 1/4"	32	20	200	2750
35 .. 250	60	60	81	1 1/2"	40	20	200	3800



### Water 10 % accuracy -size 2-

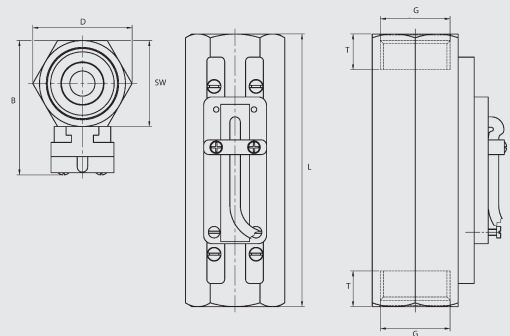
0.02 .. 0.2	27	31	50	1/2"	15	14	90	400
0.2 .. 0.6								
0.4 .. 1.8								
0.8 .. 3.2								
2.0 .. 7.0								
3.0 .. 13.0								
4.0 .. 20.0								
8.0 .. 30.0								



### Water 10 % accuracy -size 3-

10 .. 30	34	47	63	3/4" 1"	20 25	15 17	130	1240 1030
15 .. 45								
20 .. 60								
30 .. 90	41	47	63	1"	25	17	130	1030
60 .. 150								

<sup>1)</sup> Standard

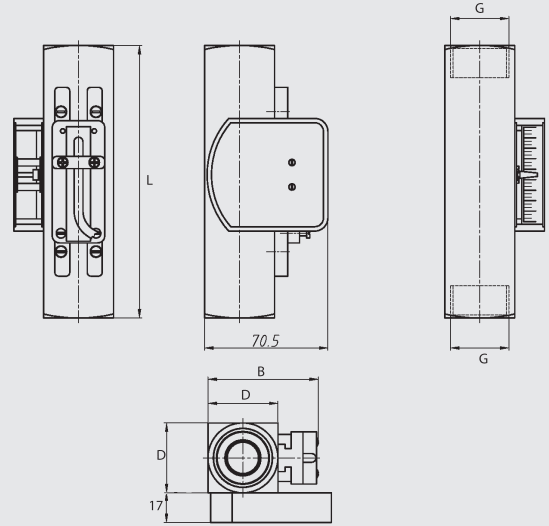


## Dimensions with indicator:

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

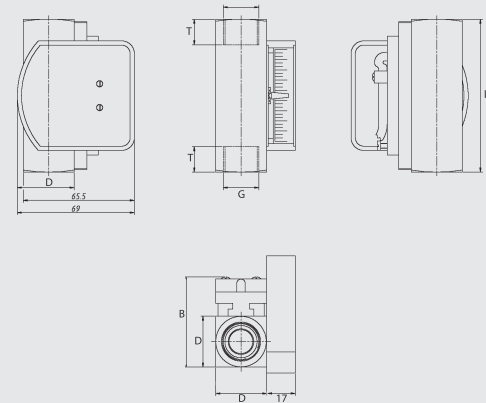
### Water 5 % accuracy

0.2 .. 4.0	27	30	53	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	53	1/2" 3/4"	15 20	14 15	146 174	950
2 .. 40								
4 .. 55								
1 .. 70								
8 .. 90	34	40	63	3/4" 1"	20 25	15 17	152 156	1450 1150
5 .. 110								
10 .. 150	50	50	73	1 1/4"	32	20	200	2800
35 .. 220	50	50	73	1 1/4"	32	20	200	3050
35 .. 250	60	60	81	1 1/2"	40	20	200	3850



### Water 10 % accuracy -size 2-

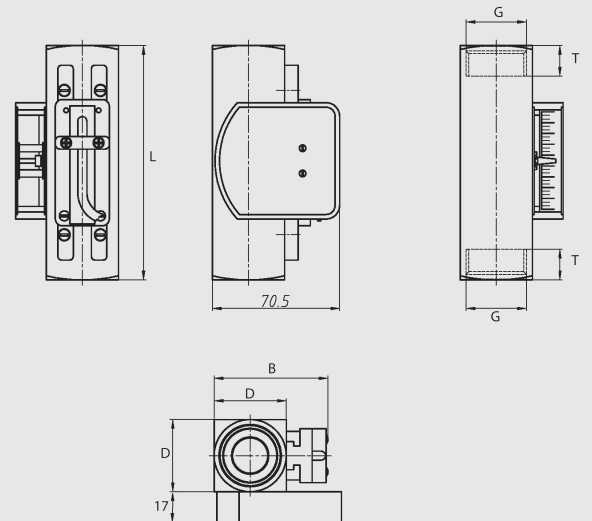
0.02 .. 0.2	30	30	53	1/2"	15	14	90	570
0.2 .. 0.6								
0.4 .. 1.8								
0.8 .. 3.2								
2.0 .. 7.0								
3.0 .. 13.0								
4.0 .. 20.0								
8.0 .. 30.0								



### Water 10 % accuracy -size 3-

10 .. 30	34	40	63	3/4" 1 <sup>(*)</sup>	20 25	15 17	130	1390 1210
15 .. 45								
20 .. 60								
30 .. 90	40	40	63	1"	25	17	130	1210
60 .. 150								

<sup>\*)</sup> Standard



## Model code:

**HFS 2 5 X 1 - XX - XXXX-XXXX - X - X - X - A00**

### Measuring principle

2 = variable area float

### Measuring medium

5 = water /  
water-based

### Mechanical connection <sup>3) 5)</sup>

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

### Electrical connection

1 = jacketed cable (2 m length)

### Switching contacts <sup>4)</sup>

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

### Switching ranges in l/min <sup>5)</sup>

#### 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 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

A00 = ATEX version for potentially explosive atmospheres

<sup>3)</sup> Mechanical connection options depend on housing type  
(see Dimensions)

<sup>4)</sup> When the model with 2 switching contacts is selected, the second switching contact is fitted on the side of the instrument as standard.

<sup>5)</sup> Other types available on request.

### Accessories:

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

## Pin connections:

Jacketed cable

Core	HFS 25X1-XS	HFS 25X1-XW
1	N/O contact	Centre
2		N/C contact
3		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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