

Flow Switch HFS 2100 Ex applications

Float	Any installation position	30–600 cSt
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ATEX encapsulation
For oils / viscous media

Description:

The HYDAC HFS 2100 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:

Input data	Size 1	Size 2
Measuring ranges [l/min]		
	0.5 .. 1.6	0.5 .. 1.5
	0.8 .. 3.0	1 .. 4
	2.0 .. 7.0	2 .. 8
		3 .. 10
		5 .. 15
		8 .. 24
		10 .. 30
		15 .. 45
		20 .. 60
		30 .. 90
		35 .. 110
Operating pressure		
Brass version [bar]	300	250
Stainless steel version [bar]	350	300
Pressure drop [bar]	0.02 .. 0.2	0.02 .. 0.4
Mechanical connection	see dimensions	
Parts in contact with fluid		
Brass version	St. steel 1.4571; FKM ¹⁾ ; brass nickel-pl.; brass; 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	1 or 2 reed contacts Normally open or change-over type ²⁾	
Accuracy	≤ ± 10 % FS	
Repeatability	2 % FS max.	
Switching capacity		
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)	
Environmental conditions		
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	
Viscosity range	30 .. 600 cSt	
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

¹⁾ Other seal materials on request

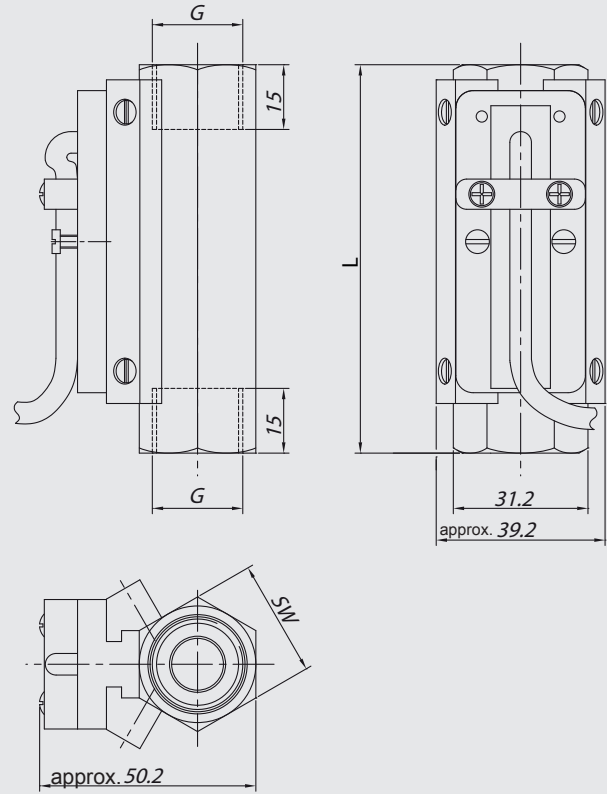
²⁾ The contact opens / switches when the flow falls below the set switch point.

Dimensions without indicator:

OIL -size 1- without indicator

Type [l/min]	Installation dimensions [mm]				Weight (approx.) [g]
	DN	SW	G	L	
0.5 .. 1.6	8	24	1/4"	98	450
	10	24	3/8"	119	500
	15	27	1/2" ^{*)}	90	400
0.8 .. 3.0	15	27	1/2"	90	400
2.0 .. 7.0					

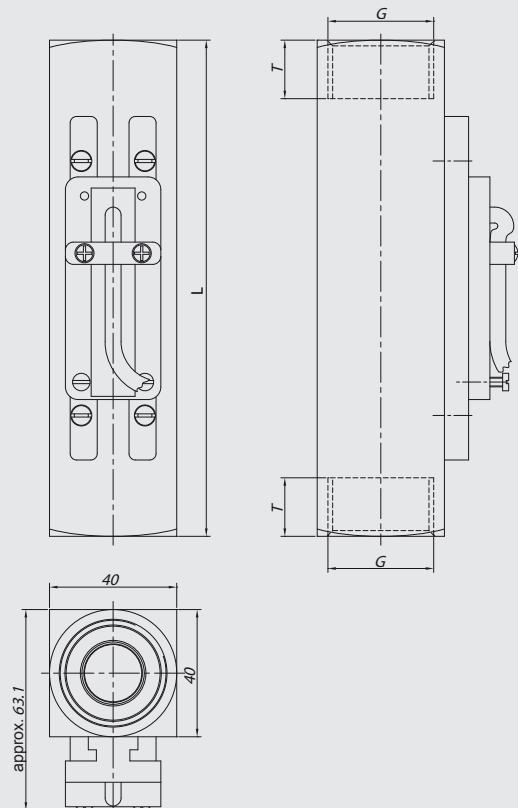
^{*)} Standard



OIL -size 2- without indicator

Type [l/min]	Installation dimensions [mm]					Weight (approx.) [g]
	DN	SW	G	L	T	
0.5 .. 1.5	8	34	1/4"	152	10	1500
	15	34	1/2"	152	14	1425
1 .. 4	20	34	3/4"	152	15	1340
	25	40	1" ^{*)}	130	17	1160
2 .. 8	15	34	1/2"	152	14	1425
3 .. 10						
5 .. 15						
8 .. 24	25	40	3/4"	152	15	1340
10 .. 30						
15 .. 45	25	40	1"	130	17	1160
20 .. 60						
30 .. 90	25	40	1"	130	17	1160
35 .. 110						

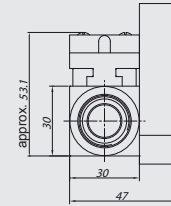
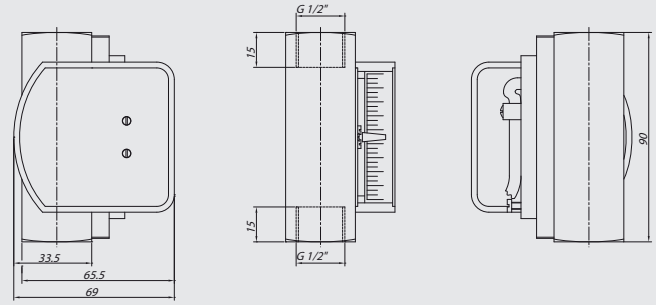
^{*)} Standard



Dimensions with indicator:

OIL -size 1- with indicator

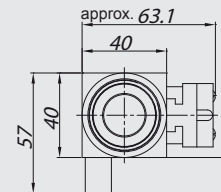
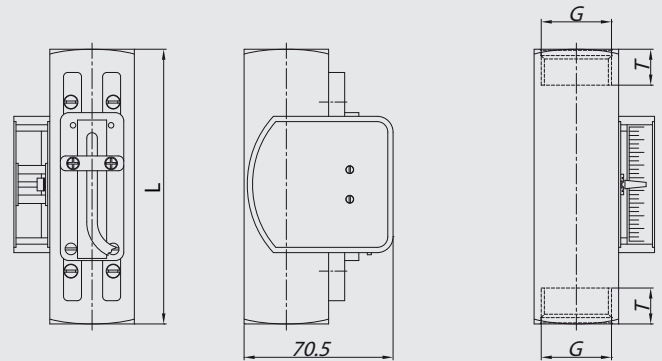
Type [l/min]	Installation dimensions [mm]				Weight (approx.) [g]
	DN	SW	G	L	
0.5 .. 1.6	15	30	1/2"	90	620
0.8 .. 3.0					
2.0 .. 7.0					



OIL -size 2- without indicator

Type [l/min]	Installation dimensions [mm]					Weight (approx.) [g]
	DN	SW	G	L	T	
0.5 .. 1.5	8	34	1/4"	152	10	1550
	15	34	1/2"	152	14	1475
	20	34	3/4"	152	15	1390
	25	40	1" ^{*)}	130	17	1210
2 .. 8	15	34	1/2"	152	14	1475
3 .. 10						
5 .. 15						
8 .. 24						
10 .. 30	20	34	3/4"	152	15	1390
15 .. 45						
20 .. 60						
30 .. 90						
35 .. 110	25	40	1"	130	17	1210

^{*)} Standard



Model code:

HFS 2 1 X 1 - XX - XXXX-XXXX - 7 - X - X - A00

Measuring principle

2 = variable area float

Measuring medium

1 = oils / viscous fluids

Mechanical connection ^{4) 6)}

1 = 1/4"

2 = 3/8"

3 = 1/2"

4 = 3/4"

5 = 1"

Electrical connection

1 = jacketed cables
(2 m length)

Switching contacts ⁵⁾

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 ⁶⁾

Oil 10 % -size 1-

00.5-01.6; 00.8-03.0; 02.0-07.0

Oil 10 % -size 2-

00.5-01.5; 0001-0004; 0002-0008; 0003-0010;
0005-0015; 0008-0024; 0010-0030; 0015-0045;
0020-0060; 0030-0090; 0035-0110

Accuracy

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

⁴⁾ Mechanical connection options depend on housing type
(see Dimensions).

⁵⁾ When the model with 2 switching contacts is selected, the second switching contact is fitted on
the side of the instrument as standard.

⁶⁾ Other types available on request

Accessories:

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

Pin assignment:

Jacketed cable

Core	HFS 21X1-XS	HFS 21X1-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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