

Electro-mechanical flow
switch

HFS 250 / HFS 2500

For water / water-based fluids



7 Technical data

7.1 Technical data HFS 250 (Y design)

Input data	
Switching ranges [l/min]	2.5 .. 25 10 .. 100
Operating pressure [bar]	10
Pressure drop [bar]	approx. 0.3
Mechanical connection	see device dimensions / mounting dimensions
Parts in contact with fluid	Housing: Brass, nickel-plated Spring: Stainless steel 1.4571 Inspection glass: DURAN® 50 Seals: NBR (optional FKM, EPDM) ¹⁾ Magnets: Hard ferrite Float: PEEK (2,5 .. 25 l/min), Variable area float: Brass (10 .. 100 l/min) All other parts: Brass, nickel-plated
Output variables	
Switching output ²⁾	1 Reed Contact Change-over or normally open type ²⁾
Accuracy	≤ ± 10 % FS
Repeatability	2 % FS max.
Switching capacity	
N/O contact	
Male connector M12x1	125 V AC 0.7 A 20 VA
	125 V DC 1 A 20 VA
EN 175301-803	140 V AC 0.7 A 20 VA
	200 V DC 1 A 20 VA
Change-over contact ³⁾	
Male connector M12x1	125 V AC/DC 1 A 20 VA
EN 175301-803	150V AC/DC 1A 20VA
Ambient Conditions	
Operating temperature range	-20 .. +70 °C
Fluid temperature range	-20 .. +85 °C (Male connection M12x1) -20 .. +100 °C (Male connection EN 175301-803)
CE marked	Directive 2014/35/EU (Low voltage directive) Directive 2014/30/EU (EMV) Directive 2011/65/EU (RoHS)
Protection class acc. DIN EN 60529 ⁴⁾	IP 65
Other data	
Weight	see device dimensions / mounting dimensions

Notes: **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 switching point.

³⁾ Minimum load 3 VA

⁴⁾ With mounted mating connector in corresponding protection class

7.2 Technical data HFS 2500

Input data					
Switching 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	200 bar		300 bar	300 bar	250 bar
Stainless steel version	300 bar		350 bar	350 bar	300 bar
Pressure drop [bar]	0.02 .. 0.8		0.02 .. 0.2	0.02 .. 0.3	0.02 .. 0.4
Mechanical connection	see device dimensions				
Wetted components					
Brass version	Stainless steel 1.4571; NBR ¹⁾ ; br. nickel-plated; br.; hard ferrite				
Stainless steel version	Stainless steel 1.4571; FKM ¹⁾ ; hard ferrite				
Housing material	Brass (nickel-plated) or stainless steel 1.4571				
Output variables					
Switching outputs	1 or 2 reed contacts Change-over or normally open type ²⁾				
Accuracy	≤ ± 5 % or ≤ ± 10 % FS				
Repeatability	2 % FS max.				
Switching capacity					
Change-over contact ³⁾	max.	max.	max.	max.	
Male connector EN 175301-803	- 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	
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. - 250 V - 1.5 A - 50 VA	
N/O contact	max.	max.	max.	max.	
Male connector EN 175301-803	- 250 V - 3 A - 100 VA	- 140 AC V - 0.7 A - 20 VA	- 230 V - 3 A - 60 VA	- 250 V - 3 A - 100 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. - 250 V - 3 A - 100 VA	
		- 125 V DC - 1 A - 20 VA			
Ambient Conditions					
Operating temperature range	-20 .. 70 °C				
Fluid temperature range					
Male connector EN 175301-803	-20 .. +100 °C (optional -20 .. +160 °C)				
Male connector M12x1	-20 .. +85° C				
CE marked	Directive 2014 / 35 / EU Directive 2014 / 30 / EU				
Protection class to DIN EN 60529 ⁴⁾	IP 65				
Other data					
Electrical connection	Male connector EN 175301-803 (DIN 43650) Male connection M12x1				
Weight	see device dimensions / mounting dimensions				

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

¹⁾ Other seal materials on request

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

³⁾ Minimum load 3 VA

⁴⁾ With mounted mating connector in corresponding protection class

8 Order details

8.1 Order data HFS 250 (Y design)

HFS 2 5 X - 1X - XXX - 7 - B - 1 - 000

Measurement procedure

2 = Variable area float

Measuring medium

5 = Water or water-based

Electrical connection

5 = EN 175301-803

6 male connector M12x1, 4 pol (mating connector not included)

Switching contacts

1S = 1 N/O contact

1W = 1 change-over contact

Switching ranges in l/min

025 = 2.5 .. 25

100 = 10 .. 100

Accuracy

7 = ≤ 10.0 % FS

Housing material

B = Brass, nickel-plated

Mechanical indicator

1 = inspection glass with measuring scale

Modification number

000 = standard

8.2 Order details HFS 2500

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

Measurement procedure

2 = Variable area float

Measuring medium

5 = Water or water-based

Mechanical connection ⁵⁾

- 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 connector, EN175301-803, 3 pole + PE (incl. female connector)
- 6 = Male M12X1, 4 pole (mating connector not included)

Switching contacts

- 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

Accuracy 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;

Accuracy 10% accuracy - Model size 1-

,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

Accuracy 10% accuracy - Model 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

Accuracy 10% accuracy - Model size 3-

0011-0030; 0015-0045; 0020-0060; 0030-0090; 0060-0150

Accuracy

- 6 = ≤ 5.0 % FS
- 7 = ≤ 10.0 % FS

Housing material

- B = Brass, nickel-plated
- S = Stainless steel

Mechanical indicator

- 0 = without analogue display
- 1 = with analogue display

Modification number

000 = standard

⁵⁾ Mechanical connection options depending on housing type (see device dimensions)

Notes:

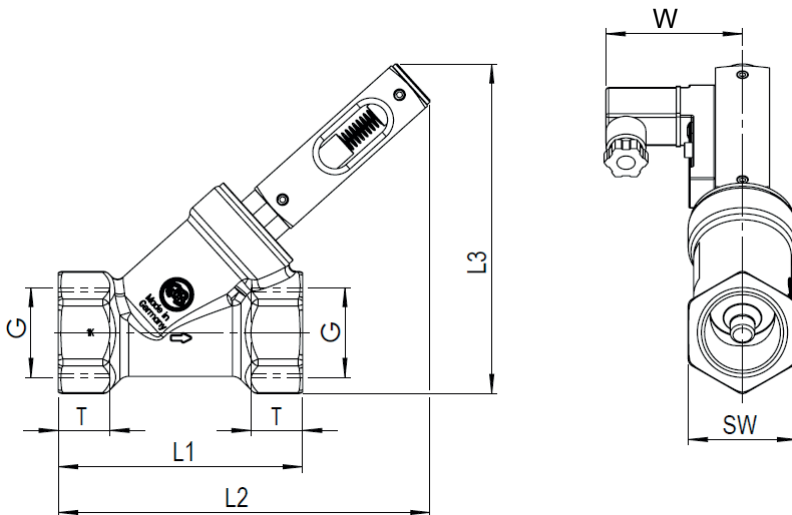
Special models on request.
On units with a different modification number, please read the label or the technical amendment details supplied with the unit.

9 Dimensions

9.1 Device dimensions HFS 250 (Y design)

Installation dimensions [mm]

Q _{max}	G	WS	L1	L2	L3	T	W	Weight (approx.) [g]
25 l/min	1/2"	27	65	117	101	14	50	300
100 l/min	1"	41	90	137	122	19	50	700

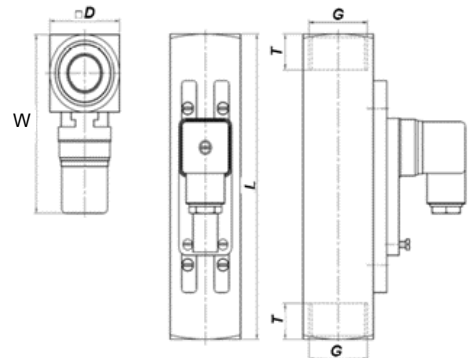


9.2 Device dimensions HFS 2500 without analogue display

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

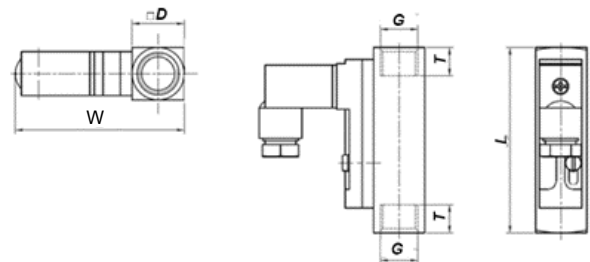
Water 5 % Accuracy

0.2 .. 4.0	27	30	86	1/4"	8	14	130	850
0.6 .. 5.0				3/8"	10			
0.5 .. 8.0				1/2"	15			
1 .. 14								
1 .. 28	27	30	86	1/2"	15	14	148	900
2 .. 40				3/4"	20			
4 .. 55								
1 .. 70	34	40	96	3/4"	20	18	152	1400
8 .. 90				1"	25			
5 .. 110								
10 .. 150	50	50	101	1 1/4"	32	21	200	2750
35 .. 220	50	50	106	1 1/4"	32	21	200	3000
35 .. 250	60	60	107	1 1/2"	40	24	200	3800



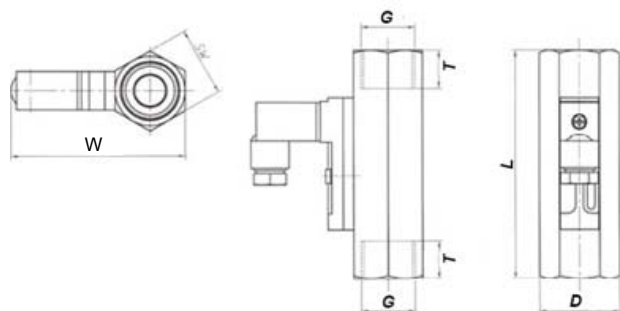
Water 10 % - Size 1 -

0.005..0.06	17	18	56	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 % - Size 2 -

0.02 .. 0.2	27	31	67	1/2"	15	15	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 % - Size 3 -

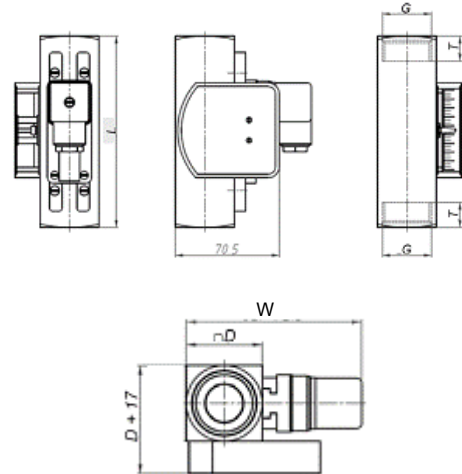
10 .. 30	34	40	98	3/4"	20	15	152	1320
15 .. 45				1" *)	25			
20 .. 60								
30 .. 90								
60 .. 150	40	40	98	1"	25	17	130	1130



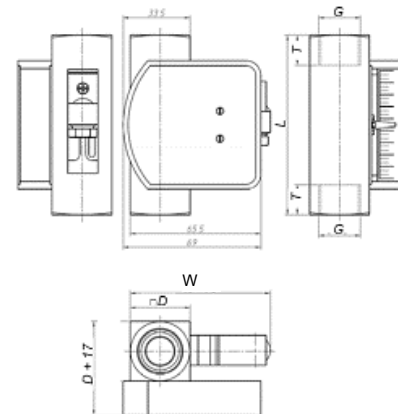
9.3 Device dimensions HFS 2500 with analogue display

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

Water 5 % Accuracy								
0.2 .. 4.0	27	30	88	1/4"	8	10	131	900
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	950
4 .. 55				3/4"	20	15		
1 .. 70	34	40	98	3/4"	20	15	152	1450
8 .. 90				1"	25	17		
5 .. 110	40	40	98	1"	25	17	156	1150
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 % - 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 % - Size 3 -								
10 .. 30	34	40	98	3/4"	20	15	152	1340
15 .. 45				1" *)	25	17	130	1160
20 .. 60								
30 .. 90	41	40	98	1"	25	17	130	1160
60 .. 150								

*) Standard

