Flow switches
Model HR, HRM

Applications

- Lube oil skids
- Furnace

Special features

- Proven design for liquids
- 8 ... 80 mm NB lines
- Brass or 304 SS body
- Oil flow
- Robust construction

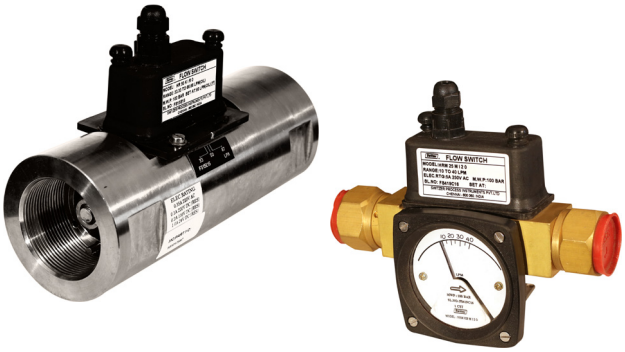


Fig. Left: Flow switch, model HR
for line size 55 ... 80 mm

Fig. Right: Flow switch, model HRM
for line size upto 25 mm

Description

The SWITZER flow switches styles HR and HRM are robust piston operated instruments with very wide application capability. These flow switches are for use with water, oil (only with model HR) or other liquids.

Style HR: Handles pressures upto 200 bar with several flow ranges in different line sizes.

Style HRM: Same as style HR flow switch, but with additional 2½" (65mm) dial gauge added for direct reading of flow.

Indicating gauge is fixed to the flow switch body externally. Magnetic coupling provides total isolation between the piston inside the body and the external switch head & gauge unit.

Pointer travel over a 90 deg scale provides local indication with accuracy of ±3% FSR.

While brass version is used for non-aggressive media, the SS version is for aggressive liquids. HR model have adjustable settings.

Specifications

Basic information	
Switch enclosure	■ HR: Brass with GF-Nylon switch housing, weatherproof ■ HRM: Brass / 304 SS with GF-Nylon switch gauge housing, weatherproof

Wetted parts	
Piston	304 SS and barium ferrite magnet
Body	■ 304 SS ■ Brass

Output signal	
Line size / Ranges	→ See range table 1a & 1b
Differential	≤30% FSR
Repeatability	± 1% of FSR
Maximum line pressure	■ 100 bar for 8 to 50 mm lines ■ 50 bar for 65 and 80 mm lines ■ 200 bar is optional
Switching element	Instrument quality SPDT microswitch or reed switch

Operating condition	
Permissible medium temperature	110°C
Ingress protection	■ HR: IP55 ■ HRM: Gauge case – IP65; Switch head – IP55 Above IP is not applicable with LED indication
Process connection	In-line with corresponding BSP(F) per ISO 288/1 on both sides (refer range table)
Mounting	■ Horizontal ■ Vertical (flow should be from bottom to top only)

Ordering matrix

Sample model number **HR 008 1 □ 0**

Model

Weatherproof GF-Nylon switch housing, with in-line threaded connection; adjustable field setting — **HR**

HR flow switch with local indication, with IP65 gauge case 2½" (65mm) dial, 90 deg scale and ±3% accuracy (available only up to 25 mm line size) — **HRM**

Line size (Nominal line size)

8 mm NB — **008**
10 mm NB — **010**
15 mm NB — **015**
20 mm NB — **020**
25 mm NB — **025**
32 mm NB — **032**
40 mm NB — **040**
50 mm NB — **050**
65 mm NB — **065**
80 mm NB — **080**

Wetted parts

Brass body (upto 25 mm line size only) — **1**
304 SS body — **4**

Switch code and rating: Refer table 2 — □

Options

None — **0**
One LED on cover for indication of one switch — **1L**
Two LED on cover for indication of two switches (not applicable for model HRM) — **2L**

Table 1a: Range table (in-line mounting)

Nominal Pipe size (mm)	Setting range (falling) LPM (water)	HR	HRM	Maximum flow LPM (Note 3)
8, 10, 15, 20	0.5 ... 5	✓	✓	10
10, 15, 20, 25	2 ... 12	✓	✓	20
15, 20, 25	5 ... 25	✓	✓	40
20, 25	10 ... 40	✓	✓	60
25, 32	20 ... 60	✓	×	100
32, 40	30 ... 100	✓	×	135
40, 50	50 ... 150	✓	×	200
50, 65	100 ... 200	✓	×	275
65, 80	180 ... 330	✓	×	450
80	330 ... 500	✓	×	675

Table 1b: Range table (nominal line size and process connection)

Nominal Pipe size (mm)	8	10	15	20	25	32	40	50	65	80
Process connection BSP(F) per ISO 288/1 (inches)	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	3

Table 2: Switch code, rating and availability

Switch code		Applicable range (line)	Contact version	AC rating	DC rating in Ampere					
					Resistive			Inductive		
SPDT (HR/ HRM)	DPDT (HR only)				220V	110V	24V	220V	110V	24V
2	22	8, 10, 15, 20 & 25	General purpose	5A 250, 125V	0.25	0.5	5	0.1	0.25	3.0
R	RR	8 ... 80	Reed switch	0.35A 220V 80VA 25W	0.1	0.2	1	-	-	-

Notes

1. Accuracy & Repeatability are one and the same for all blind switches. Settings will slightly shift with varying temperature.
2. For oil application specify oil viscosity at operating temperature and set value. HR is suitable up to 320 CST as per the below table with applicable multiplication factor on the oil flow rate.

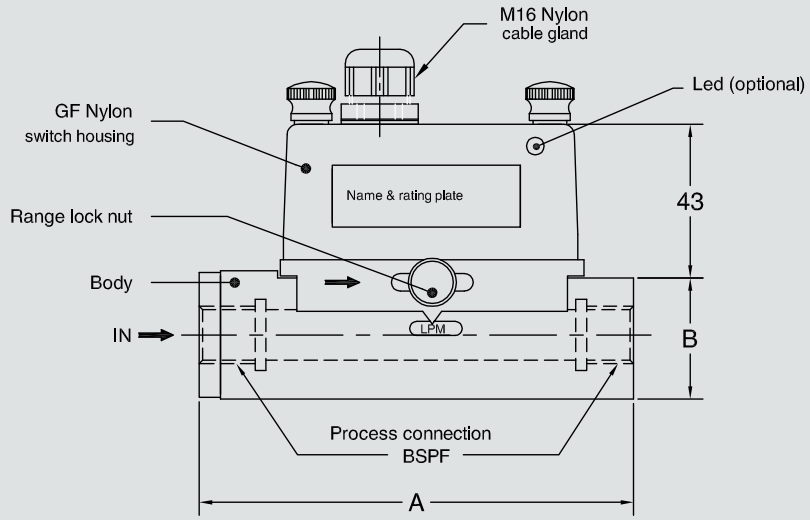
   Example : oil flow range: 0 ... 50 LPM @ 50 CST
   Equivalent water flow rate: 0 ... 250 LPM

Viscosity of oil in CST	Multiplication factor
40 ... 68	2.5
69 ... 100	3.0
101 ... 150	3.5
151 ... 180	4.0
181 ... 220	4.5
221 ... 320	5.0

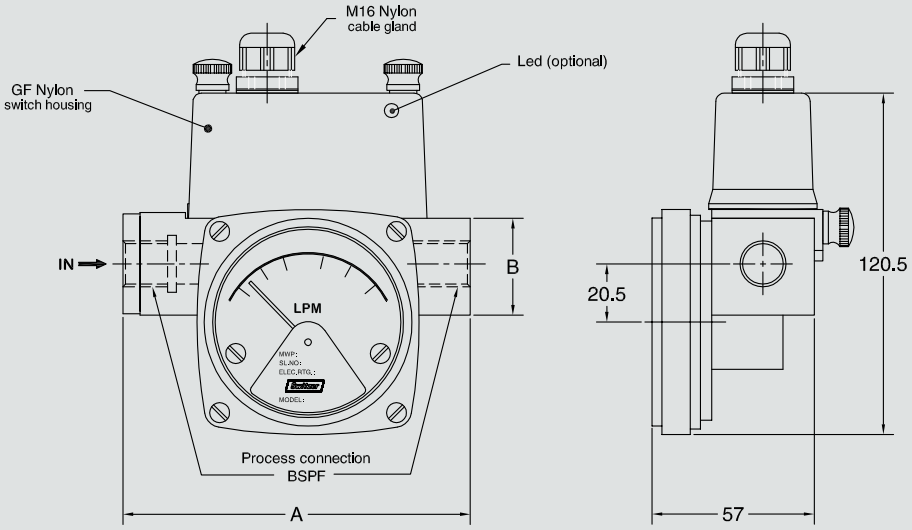
3. Maximum flow setting range is referred to as FSR herein. The maximum flow value mentioned in the range tables are based on a nominal flow velocity of 2 meter/second. The instrument can handle higher flow if the process flow velocity is more than 2 metre/second. Maximum flow corresponds to range and not with reference to line size and it is the value that can pass through the instrument at 2 metre/second. A higher flow can pass through the instrument at higher flow velocities.
4. In model HR, an additional switch head with a SPDT switch can be fixed at the bottom of the flow switch body, to facilitate two independent settings, such as Hi-Lo. DPDT action can be provided through Auxillary relay in a separate weatherproof housing.
5. Model HRM is available from 8 ... 25 mm NB only
6. Model HRM is suitable for water only.

Dimensions in mm

HR



HRM



Line Size	8	10	15	20	25	32	40	50	65	80
DIM A±1	122	122	122	122	172	128	128	220	220	220
DIM B±1	36 SQ	36 SQ	36 SQ	36 SQ	36 SQ	70 SQ	70 SQ	90 dia	90 dia	115 dia
Process connection BSP(F) per ISO 288/1	1/4"	3/8"	1/2"	3/4"	1"	1¼"	1½"	2"	2½"	3"

Ordering information

Model / Line size / Wetted parts / Switch code and rating

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