SIKA Flow Switches

SIKA USA Inc.

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Reliable – Safe – Proven !

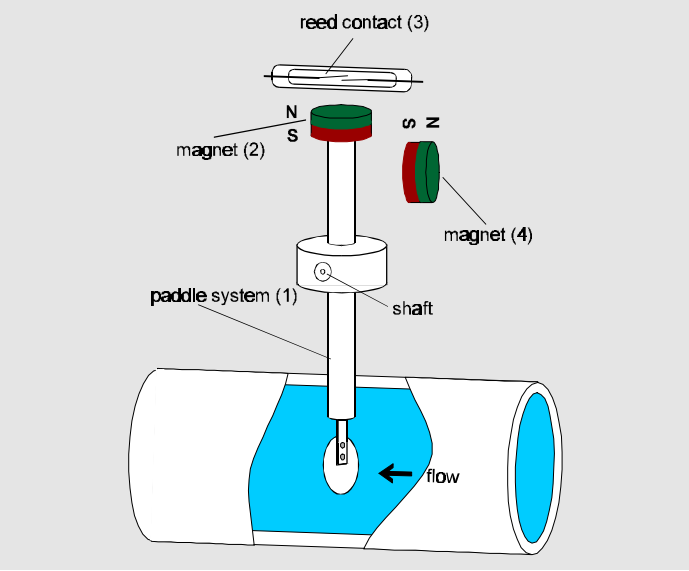
Our tried-and-tested flow monitoring switches are used for two basic purposes:

- To ensure a minimum flow rate,
  e.g. of cooling water or lubricating oil (protects against running dry).

- To start a technical procedure when the flow begins.

Function

The flow monitoring switch comprises a paddle system (1) at these end a permanent magnet is attached (2). Above this magnet is a reed contact (3), located outside the flow of fluid. A second magnet with opposing poles (4) creates the force necessary to reset the switch back to the no flow position.



When the flow being monitored pushes against the paddle system, the paddle swings away. This changes the position of the magnet (2) in relation to the reed contact (3) and thus activates the contact.
As soon as the flow is interrupted, the paddle moves back to its starting position, thus activating the reed contact once again. The force necessary to push the magnet back is provided by the two magnets repelling each other.
Using magnetic force instead of the usual leaf spring means that the switch is considerably more stable in the long term and much less sensitive to pressure peaks.

Superior features

- Adjustable switching point
- Low pressure drop
- Instant response
- High repeatability
- Can be used for liquids and gases
- Switching function dependent on flow rate alone, not on temperature or pressure

The reed contact used as a sensing element consists of two ferro-magnetic contact blades located in a glass bulb filled with inert gas. This practically eliminates wear resulting from contact burning. This construction allows a useful life of up to 100 000 000 switching cycles.

Factory settings are:

- contact closes when liquid is flowing
- contact opens if flow is interrupted

These settings can be changed by the customer if required.
You can also adjust the switch point setting within the specified range.

Options

- Specific set point adjustment, including special set points
- Optical flow indicator: LED in plug
- Reed contact for high switching performance
- Operating pressure up to 3625 psi
- OEM design, proven in numerous series applications

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Two different versions:

- Flow switch with pipe section (inline type) nominal diameter ¼“ to 2"
- Flow switch insertion type for direct installation from top, directly into the pipeline nominal size 2" to 8"

Available materials:

- Flow switch:
  - Brass
  - Stainless steel 316 SS Ti
  - Plastic NORYL PPO GFN3 (30% glass fiber reinforced)
  - Brass with paddle system made of plastic
- Pipe section:
  - Brass
  - Stainless steel
  - Copper solder connection
  - PVC solvent bonded connection

Technical data, series VHS/VKS...

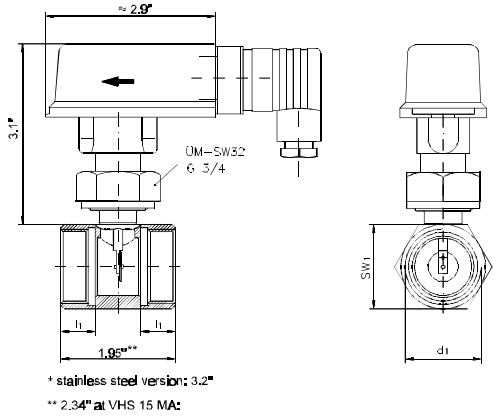
Max. working pressure VHS... VKS...	362.5 psi 145 psi
Max. medium temperature: VHS... VKS... VKS...MKU	 230°F 212°F 68°F (145 psi); 140°F (36 psi)
Ambient temperatur	176°F (VKS...MKU 140°F)
Protection class	IP 65
Max. switching current	1 A
Max. switching voltage	230 V AC, 48 V DC
Max. rating	26 VA, 20 W
Setpoint tolerance	± 15 %

Electrical connection·

- Standard:
  - Plug connector DIN 43650 form A / ISO 4400 incl. cable socket with terminal screws, suitable for cables with outer diameter 0.18" - 0.27".
- Optional:
  - Plug connector DIN 43650 form A / ISO 4400 incl. plug with two LED for optical flow and power indication in plug (for switching voltages 24 V...230 V AC/DC).
  - 4-pin-sensor plug M12x1 acc. IEC 947-5-2, connection cables available as accessories, length 6.6 Ft and 16.5 Ft.

Types for OEM applications upon request.

Flow Switch, Inline Type



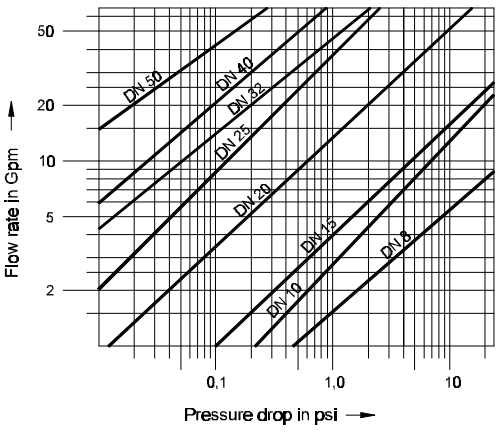
* stainless steel version: 3.2"

** 2.34" at VHS 15 MA:

Type/ order code	Size / process connection d1	Setpoint ranges (H_2O, 68°F)		Max. flow rate [GPM]	Dimensions		
		Increasing flow [GPM]	Decreasing flow [GPM]		l_1 [inch]	Nut size sw_1 [inch]	
						Brass	Stainless steel
VHS 08 M	1/4“ BSP	0.6...0.7	0.5...0.6	11.7	0.43	1.05	1.05
VHS 10 M	3/8“ BSP	0.7...0.8	0.6...0.8	15.6	0.43	0.74	1.05
VHS 15 M	1/2“ BSP	0.9...1.1	0.8...1.0	17.4	0.43	0.74	1.05
VHS 15 MA	1/2“ BSP male	0.7...0.8	0.6...0.8	15.6	0,39	0.74	—
VHS 20 M	3/4“ BSP	1.8...2.4	1.7...2.1	46.8	0.59	1.05	1.25
VHS 25 M	1" BSP	3.5...4.4	3.1...4.0	50.7	0.59	1.25	1.60
VHS 32 M	1 1/4“ BSP	4.0...5.3	3.8...4.9	62.4	0.59	1.79	1.79
VHS 40 M	1 1/2“ BSP	6,9...8.9	6.6...8.5	104	0.59	2.15	2.15
VHS 50 M	2" BSP	10.3...13.3	10.2...13.0	104	0.59	2.73	2.73

Materials and pressure drop diagram

Type	Material		
	Upper section	Paddle system	Pipe section
VHS .. M-MS	Brass	Brass	Brass*
VHS .. M-VA	Stainless steel	Stainless steel	Stainless steel
VHS .. MK	Brass	PPO Noryl GFN3	Brass*
VKS .. M	PPO Noryl GFN3	PPO Noryl GFN3	Brass*



* As an option, a copper “T” piece, for soldered connections, can be supplied. This will alter the specified setpoint ranges.

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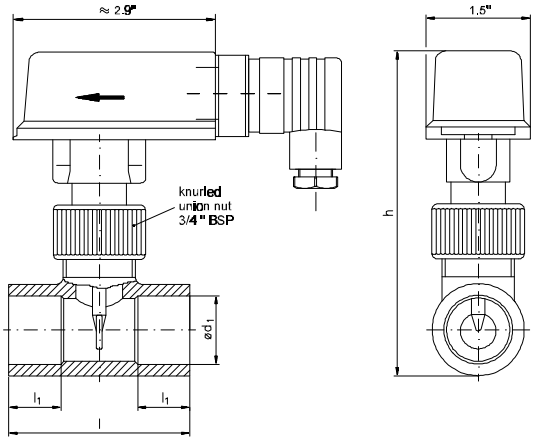
Flow Switch, Inline Type with PVC Pipe Section



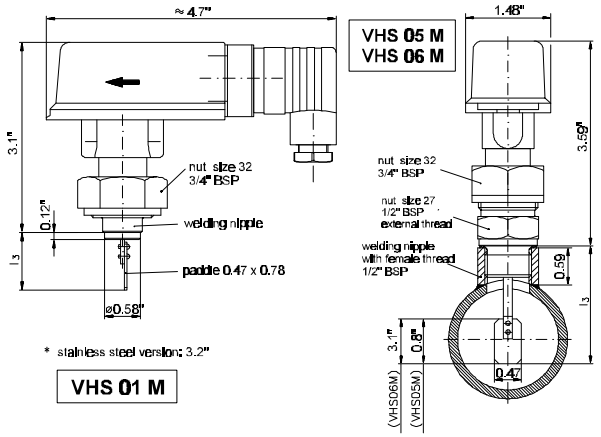
Type/ order code	Size	Inner diameter d1 [inch]	Setpoint ranges (H_2O, 20°C)		Max. flow rate [GPM]	Dimensions [inch]		
			Increasing flow [GPM]	Decreasing flow [GPM]		l_1	l	h ≈
VKS 15 M KU	1/2“	0.78	1.3...1.8	1.3...1.7	13	0.63	2.11	4.41
VKS 20 M KU	3/4“	0.98	2.5...3.2	2.4..3.1	26	0.74	2.57	4.60
VKS 25 M KU	1"	1.25	2.8...3.9	2.7...3.9	26	0.86	3.04	4.95
VKS 32 M KU	1 1/4“	1.56	4.4...5.9	4.4...5.9	39	1.01	3.82	6.05
VKS 40 M KU	1 1/2“	1.95	5.7...7.8 (7.7...10.8)*	5.6...10.6 (7.7...10.6)*	52 (67.6)*	1.21	4.60	6.47
VKS 50 M KU	2"	2.46	7.5...10.4 (9.8...13.0)*	7.4...12.9 (9.7...12.9)*	67.6 (91)*	1.48	5.62	7.02

* The values in brackets are valid for shortened paddle

Materials

Upper section	Paddle system	Pipe section
PPO Noryl GFN3	PPO Noryl GFN3	PVC

Flow Switch, Insertion Type



Type/ order code	Thread connec-tion	Insert in size	Setpoint ranges (H_2O, 20°C)		Max. flow rate [GPM]	Laid length l_3 [inch]
			Increasing flow [GPM]	Decreasing flow [GPM]		
VHS 05 M	½" BSP	2"	8.7...11.9	7.9...11.4	132	2.0
		3"	22...35.2	21.6...7.9	352	
		4"	36.5...55	8.2..12,4	660	
		6"	77...110	17.4...24.9	880	
VHS 06 M	½" BSP	4"	25.1...27.7	5.6...6.2	440	4.33
		6"	48.4...57.2	10.9...12.9	660	
		8"	110...118.8	24.9...26.9	880	
VHS 01 M	Soldering/ welding nipple	2"	16.7...21.6	3.7...4.8	132	0.94
		3"	39.6...62.9	8.9...14.2	440	
		4"	57.2...82.7	12.7...18.4	660	
		6"	145.2...202.4	32.9...45.9	880	

Every flow switch type is suitable for integration in pipes of different sizes. For example the type VHS 05 M can be inserted into pipe size 2" to 6" pipes without modification but setpoint ranges will differ.

Materials

Type	Materials		Max. flow rate
	Upper section	Paddle system	
VHS .. M-MS	Brass	Brass	see above table
VHS .. M-VA	Stainless steel	Stainless steel	see above table
VKS .. MK*	Brass	PPO Noryl GFN3	upon request
VKS .. M*	PPO Noryl GFN3	PPO Noryl GFN3	upon request

* available with connection ½" BSP, not available with soldering/welding nipple.

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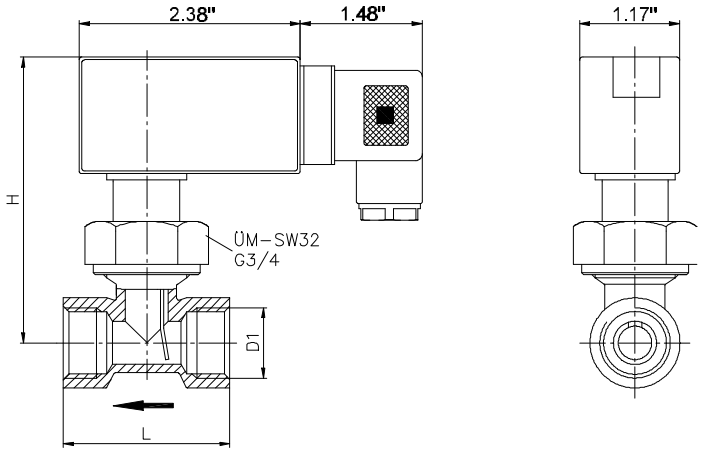
Flow Switch with Micro Switch

A micro switch used as the sensing element allows a higher electrical switching capacity than the reed switch. The resetting force required by the paddle system is produced by a leaf spring.
The following versions are available:

- With pipe section,female thread, $^{3}/_{8}$“ to 2"
- With pipe section,male thread, $^{1}/_{2}$“ only
- Insertion type for direct installation using soldering nipple on request

Standard material is brass.
Stainless steel version as an option.

Technical data	
Max. working pressure	363 psi
Max. medium temperature	212 °F
Protection class	IP 65
Contact	Change-over contact
Max. switching current	5 A
Max. switching voltage	250 V AC
Max. rating	1250 VA
Setpoint tolerance	± 15 %
Setpoint hysteresis	≥ 0,18 GPM
Max. pressure drop at max. flow	approx. 0.15 psi



Type/ order code	Size/ process connection	Setpoint ranges (H_2O, 68 °F) for decreasing flow [GPM]	Max. flow rate H_2O [GPM]	Dimensions [inch]	
				L	H
VH 010 I	$^{3}/_{8}$“ BSP	1.1...1.3	2.6	1.95	3.34
VH 015 I	1/2“ BSP	1.3...1.6	5.2	1.95	3.34
VH 015 A	$^{1}/_{2}$“ BSP (male)	1.1...1.3	5.2	2.34	3.34
VH 020 I	$^{3}/_{4}$“ BSP	2.1...2.6	10.4	1.95	3.43
VH 025 I	1" BSP	4.4...1.4	15.6	1.95	3.61
VH 032 I	1 $^{1}/_{4}$“ BSP	6.3...7.3	26.0	1.95	3.71
VH 040 I	1 $^{1}/_{2}$“ BSP	11.2...13.0	39.0	1.95	3.80
VH 050 I	2" BSP	17.9...21.6	65.0	1.95	4.21