- → With pipe tees (inline)
- → Direct installation (insertion)
- → For HVAC applications
- → With interchangeable paddles
- → For air flow

Including products with:

WRAS

BAUART GEPRÜFT
TÜV Rheinland Produkt Safety
TYPE APPROVED

Intertek
- UL 508
- UL 353
- CSA C22.2#14-10

GL

FLOW SWITCHES →

Flow switches

SIKA has over 45 years of experience in the manufacture of flow switches for liquids. Our expertise in this field, which distinguishes us from other manufacturers, enables us to manufacture highly innovative products based on a modular concept. We offer flow switches to suit many applications and processes. SIKA is not only a market leader in this field, it has also pioneered the springless design concept. Numerous continuous and qualification tests over periods of up to 16 years testify to the quality of our products.

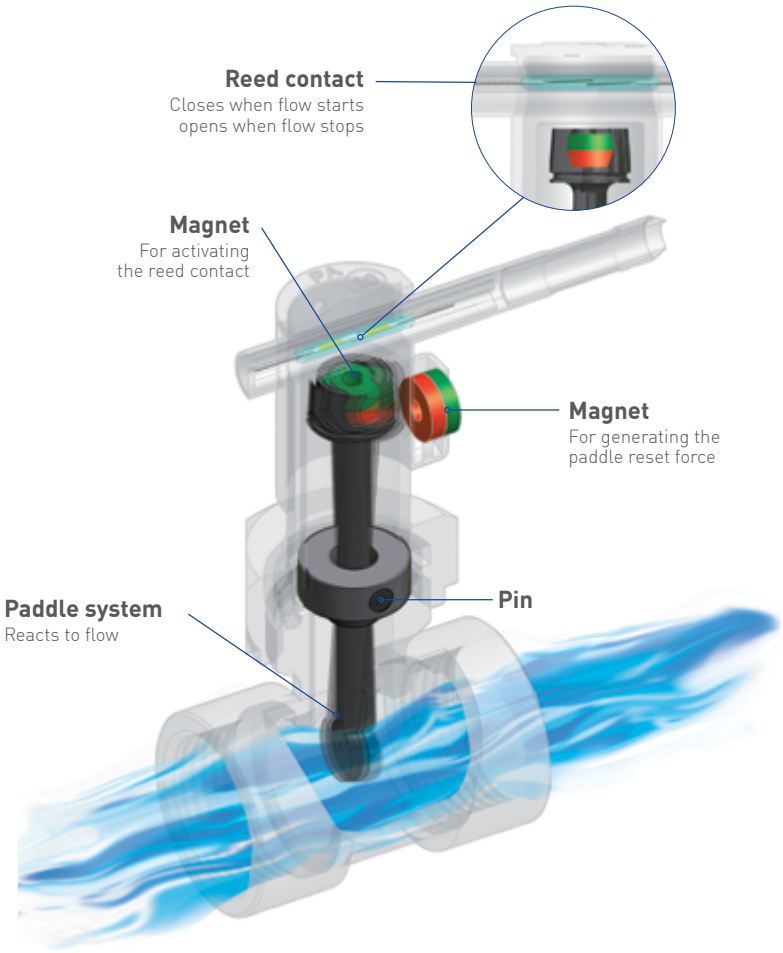
Our range includes six standard series that can be co-engineered and tailored to suit specific customer requirements. Our extensive modular concept also includes a wide range of process connections with diverse pipe tees (inline) or different threads for direct installation (insertion). Our push-in version is the most innovative variant in our range. We modify our switches to suit all requirements regardless of the type of connection required. We also have a wide range of electrical connections – with either non-detachable cable or connector.

Principle of operation

The flow switch comprises of a unique paddle system, the one piece design has a paddle at the flow end which is centrally pivoted and a magnet at the opposing end. Above this magnet is a reed switch contact, isolated outside the flow chamber. A second magnet creates the force necessary to reset the paddle back to the zero flow position.

When the flow being monitored pushes against the paddle system, the paddle swings away. This changes the position of the magnet in relation to the reed contact and actuates the switch.

As soon as the flow is interrupted, the paddle moves back to its starting position, reversing the position of the reed contact. 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.



We offer flow switches in different materials to suit specific applications and demands. Whether highly rugged and sturdy of stainless steel for industrial applications or cost-optimised of glass fibre reinforced plastic for OEM applications – our product specialists will be happy to help in finding a solution that best suits your application, both technically and economically. Customised serial versions can be provided with special factory-adjusted switching points.

Advantages

- Low pressure drop
- Immediate response
- High repeatability
- Setpoint only dependent on flow, not on pressure or temperature
- Long-term stable setpoints as there is no spring fatigue

Approvals

The following approvals are available as options for various series and types

WRAS Water Regulations Advisory Scheme

BAUART GEPRÜFT TÜV Rheinland Product Safety TYPE APPROVED

Intertek

- UL 508
- UL 353
- CSA C22.2#14-10

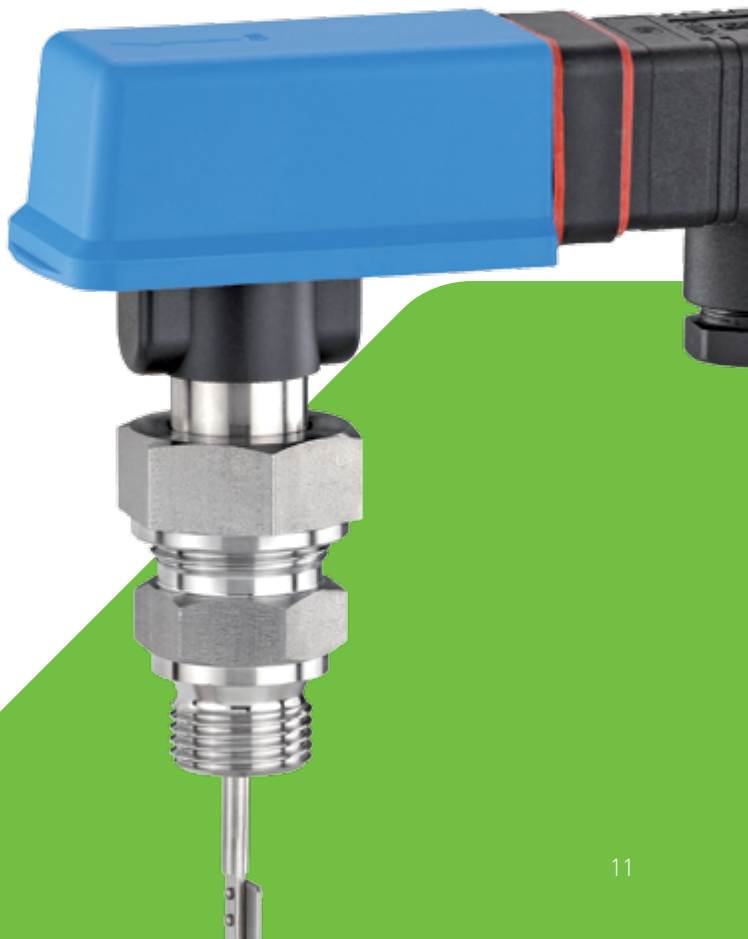
GL

Electrical connections

- Plug connector DIN EN 175301-803-A incl. cable socket (❶)
- Plug connector DIN EN 175301-803-A incl. cable socket, with two LEDs for optical flow and power indication for switching voltages 24 V...230 V AC/DC (❷)
- 4-pin plug connector M12 x 1 acc. IEC 947-5-2 (❸)
- Connection cable 1.5 m (❹)

Versions for use in potentially explosive atmospheres

VH...X flow switches are intended for use in potentially explosive atmospheres with an ignition energy of >60 µJ. These flow switches have been ignition hazard assessed according to DIN EN 60079-11 and have no potential ignition sources. They are therefore not subject to the directive 94/9/EC.



Flow switches made of metal

With threaded pipe tee

Type VHS / VH3

Technical data	
Switching function	Contact → closes at increasing flow → opens at decreasing flow Reversing possible
Pressure rating	PN 25
Temperature ranges	
Medium	-25...110 °C
Ambient	-25...80 °C
Electrical data	
Electrical connection → VHS → VH3	 Plug connector DIN EN 175301-803-A incl. cable socket 1.5 m PVC jacket cable
Switching current	Max. 1 A
Switching voltage	Max. 230 VAC, 48 VDC
Rating	Max. 26 VA, 20 W
Degree of protection EN 60529	IP65
Protection class EN 60730-1	Class II
Approvals	

WRAS Water Regulations Advisory Scheme

TÜV Rheinland Produkt Safety BAUART GEPRÜFT TYPE APPROVED

Advantages

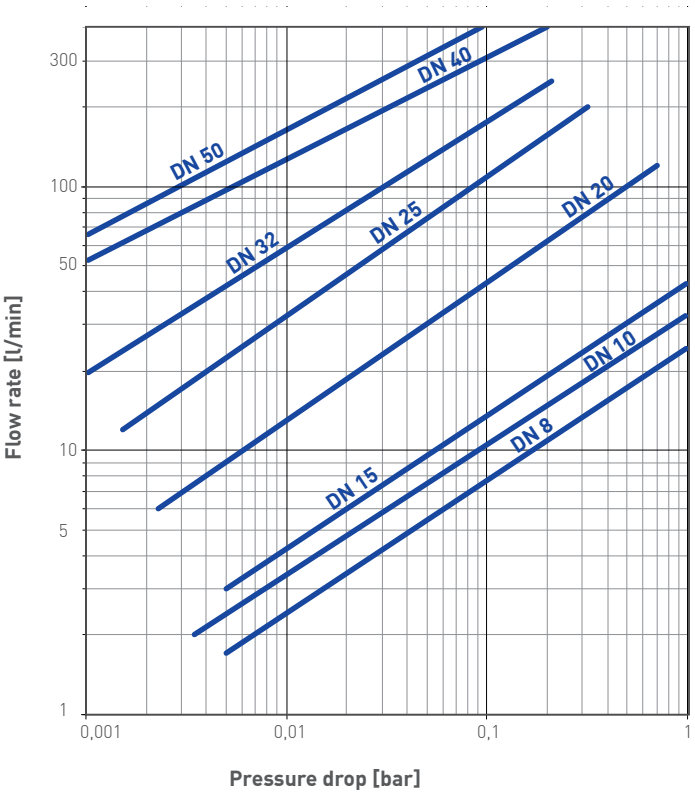
- Flow switches with pipe tees DN 8...50
- Brass or stainless steel
- Various connectors or 1.5 m jacket cable

Options	
For type	**See order code**
VHS	→ Plug connector DIN EN 175301-803-A incl. cable socket with two LED for switching voltages 24 V...230 V AC/DC ±20 %, ambient temperature -20...70 °C → or 4-pin-sensor plug M12 x 1
VHS / VH3	→ For use in potentially explosive atmospheres (Version VH...X)

Nominal diameter	Thread connection D_1	Setpoint ranges [l/min]*				Max. flow rate [l/min]
		VHS		VH3		
		Increasing flow ON	Decreasing flow OFF	Increasing flow ON	Decreasing flow OFF	
DN 8	G¼	2.1...2.7	1.8...2.4	1.9...2.5	1.7...2.3	45
DN 10	G⅜	2.5...3.2	2.2...2.9	2.4...3.0	2.1...2.8	60
DN 15	G½	3.4...4.2	3.0...3.8	3.2...4.0	3.0...3.8	67
DN 15	G½ male**	2.5...3.2	2.2...2.9	2.4...3.0	2.1...2.8	60
DN 15	G¾ male**	2.5...3.2	2.2...2.9	2.4...3.0	2.1...2.8	60
DN 20	G¾	7.0...9.1	6.4...8.2	6.6...8.2	6.3...7.8	120
DN 25	G 1	13.5...17.0	12.0...15.5	13.0...15.5	12.5...15.0	195
DN 32	G 1¼	15.5...20.5	14.5...19.0	14.5...18.0	13.5...17.0	240
DN 40	G 1½	26.5...34.5	25.5...32.5	25.0...31.0	24.0...30.0	400
DN 50	G 2	39.5...51.0	39.0...50.0	37.5...47.5	36.5...46.5	400

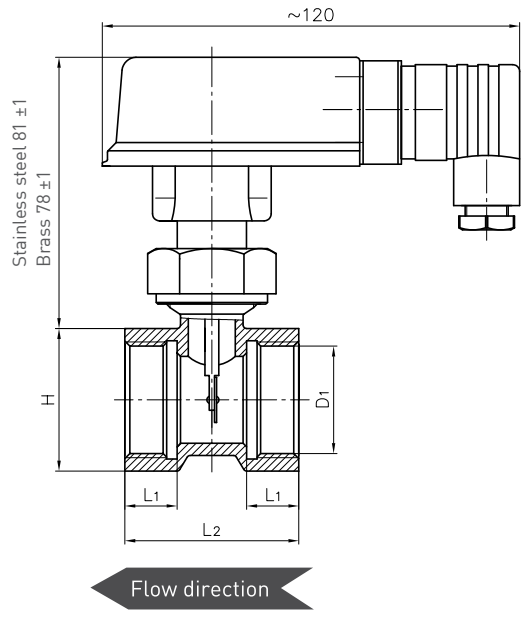
* Water, 20 °C, horizontal pipe, tolerance ±15 %
** Only available as brass version

Typical pressure drop

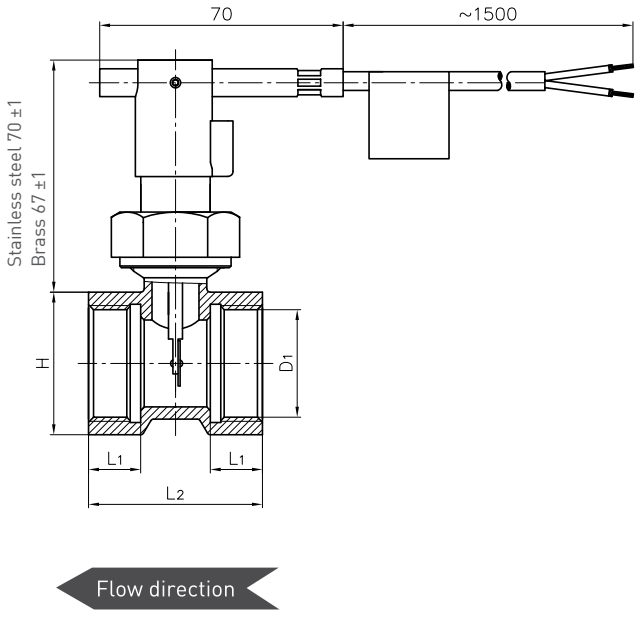


Dimensions [mm]						
Thread connection D_1	**L_1**	**L_2**	**H**	**L_1**	**L_2**	**H**
	Brass version			**Stainless steel version**		
G¼	11	50	27	11	50	27
G⅜	11	50	27	11	50	27
G½	11	50	27	11	50	27
G½ (male)	10	60				
G¾ (male)	11	50				
G¾	15	50	32	15	50	32
G 1	15	50	41	15	50	41
G 1¼	15	50	48	15	50	46
G 1½	15	50	55	15	50	55
G 2	22	64	70	15	50	70

VHS



VH3



Materials in contact with fluid		
	Brass version	**Stainless steel version**
Body, Paddle	Brass CW614N	Stainless steel 1.4571
Pipe tee	Brass CW617N	Stainless steel 1.4571
Bushing	PPO Noryl GFN 3	PVDF
Rivet	Brass CW508L	Stainless steel 1.4303
Pin	Stainless steel 1.4571	
Magnet	Hard ferrite	
O-ring	NBR	

Order code	Example → VHS	08	M011	7	1	I1	1	
Type								
VHS								
Plug connector incl. cable socket (standard)	VHS			7				
Plug connector incl. cable socket with LED (option)	VHS			9				
4-pin-sensor plug M12 x 1 (option)	VHS			8				
VH3								
1.5 m PVC jacket cable	VH3			1				
1.5 m PVC blue jacket cable (only for option „for use in potentially explosive atmospheres“)	VH3			3				
Nominal diameter	**Thread connection**							
DN 8	G¼	08				I1		
DN 10	G⅜	10				I2		
DN 15	G½	15				I3		
DN 15	G½ male (only brass version)	15				A3		
DN 15	G¾ male (only brass version)	15				A4		
DN 20	G¾	20				I4		
DN 25	G 1	25				I5		
DN 32	G 1¼	32				I6		
DN 40	G 1½	40				I7		
DN 50	G 2	50				I8		
Material								
Brass			M011		1		1	
Stainless steel			M031		3		3	
Version								
Standard								( )*
For use in potentially explosive atmospheres (Option)**								X

* No character

** Only available with blue jacket cable or with plug connector incl. cable socket

Flow switches made of plastic

With threaded brass pipe tee

Type VK3

Technical data	
Switching function	Contact → closes at increasing flow → opens at decreasing flow Reversing possible
Pressure rating	PN 10
Temperature ranges	
Medium	-25...100 °C
Ambient	-25...70 °C
Electrical data	
Electrical connection	1.5 m PVC jacket cable
Switching current	Max. 1 A
Switching voltage	Max. 230 VAC, 48 VDC
Rating	Max. 26 VA, 20 W
Degree of protection EN 60529	Max. IP65
Protection class EN 60730-1	Class II
Approvals	

Advantages

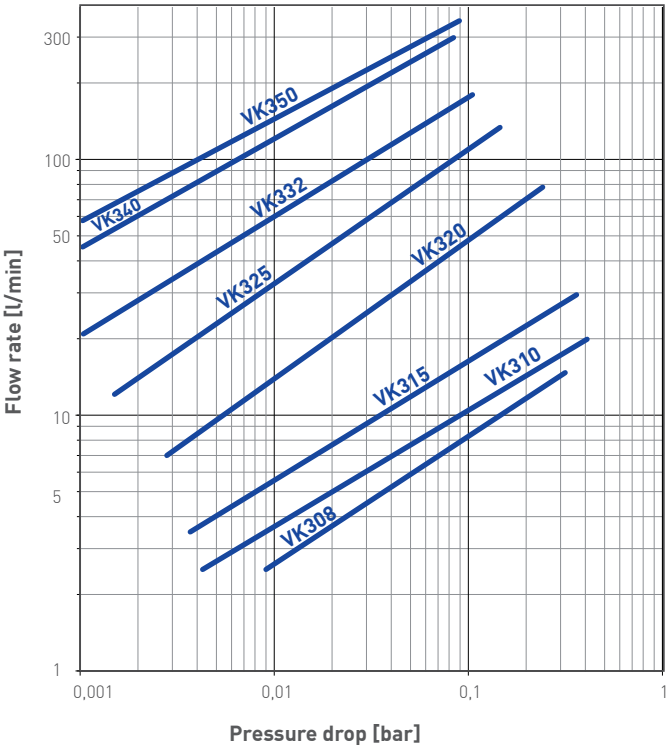
- Flow switches made of glass fibre reinforced plastic
- With threaded brass tee DN 8...50
- Factory set special set points for series applications
- 1.5 m jacket cable or according to customer specification

Optionen	
For type	**On request**
VK3	→ Special setpoints → 4 different colours of the union nut for distinction → Recognized component ETL according to UL & CSA standards

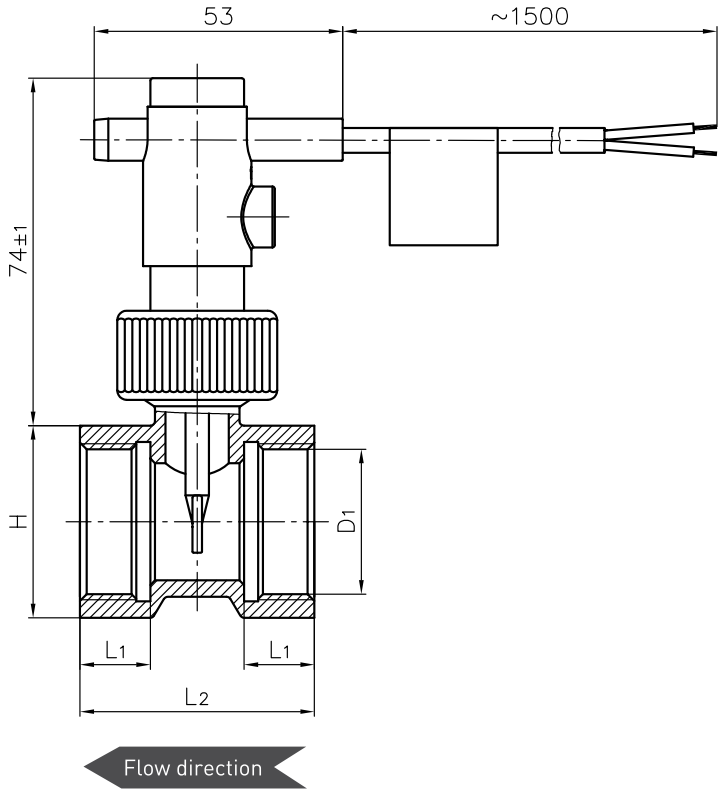
Order code	Nominal diameter	Thread connection D_1	Setpoint ranges [l/min]*		Max. flow rate [l/min]
			Increasing flow ON	Decreasing flow OFF	
VK308M0P10PI11	DN 8	G¼	2.7...3.0	2.6...2.9	15
VK310M0P10PI21	DN 10	G⅜	3.0...3.8	2.8...3.7	20
VK315M0P10PI31	DN 15	G½	3.8...5.1	3.6...4.9	30
VK315M0P10PA31	DN 15	G½ male	3.0...3.8	2.8...3.7	20
VK315M0P10PA41	DN 15	G¾ male	3.0...3.8	2.8...3.7	20
VK320M0P10PI41	DN 20	G¾	7.2...9.0	6.9...8.7	80
VK325M0P10PI51	DN 25	G 1	13.0...16.5	12.3...15.9	130
VK332M0P10PI61	DN 32	G 1¼	16.5...21.0	16.0...20.5	180
VK340M0P10PI71	DN 40	G 1½	27.0...33.5	25.5...32.5	300
VK350M0P10PI81	DN 50	G 2	41.5...53.5	40.6...52.8	350

* Water, 20 °C, horizontal pipe, tolerance ±15 %

Typical pressure drop



Dimensions [mm]			
Thread connection D_1	**L_1**	**L_2**	**H**
G¼	11	50	27
G⅜	11	50	27
G½	11	50	27
G½ male	10	60	
G¾ male	11	50	
G¾	15	50	32
G 1	15	50	41
G 1¼	15	50	48
G 1½	15	50	55
G 2	22	64	70

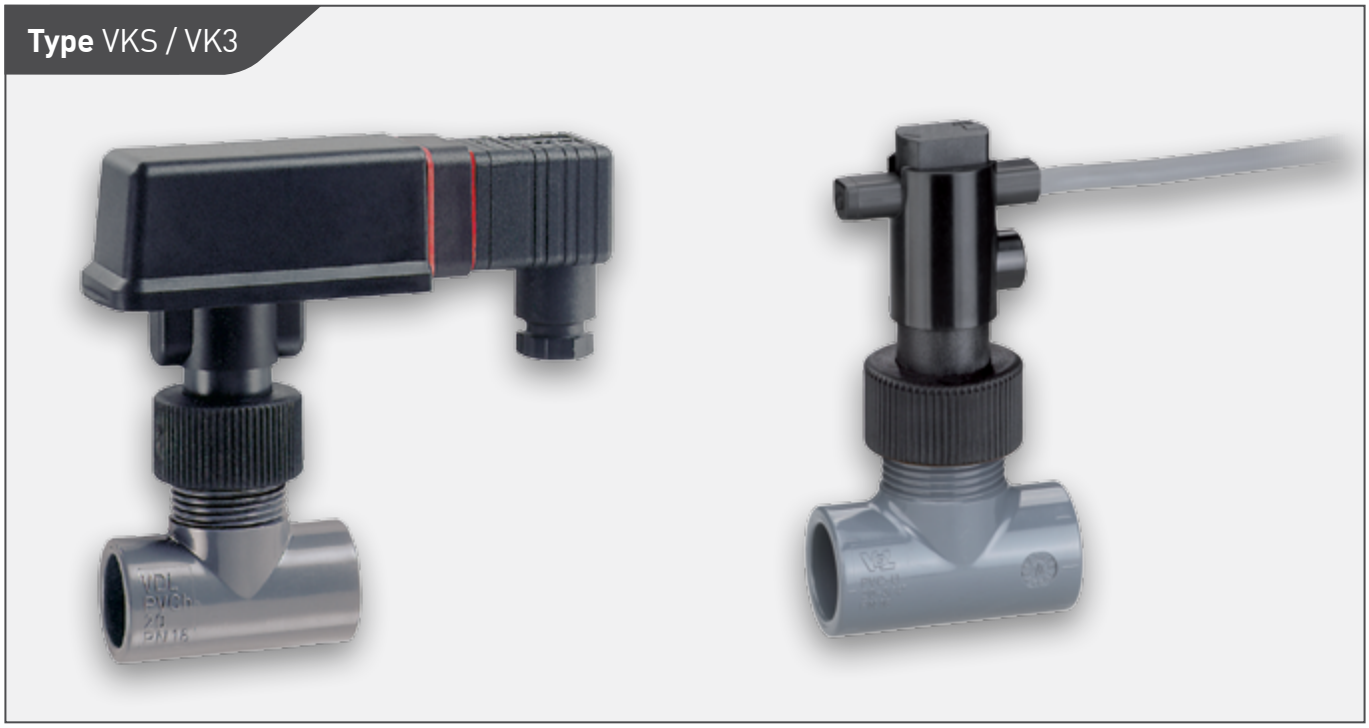


Materials in contact with fluid	
Body, Paddle	PPO Noryl GFN 3
Pipe tee	Brass CW617N
Magnet	Hard ferrite
O-ring	NBR

Flow switches made of plastic

With PVC tee

Type VKS / VK3



Technical data	
Switching function	Contact → closes at increasing flow → opens at decreasing flow Reversing possible
Pressure rating	PN 10
Temperature ranges	
Medium	0...20 °C (PN 10) 0...60 °C (PN 2.5)
Ambient	0...60 °C
Electrical data	
Electrical connection → VKS → VK3	 Plug connector DIN EN 175301-803-A incl. cable socket 1.5 m PVC jacket cable
Switching current	Max. 1 A
Switching voltage	Max. 230 VAC, 48 VDC
Rating	Max. 26 VA, 20 W
Degree of protection EN 60529	IP65
Protection class EN 60730-1	Class II
Approvals	

Advantages

- Flow switches made of glass fibre reinforced plastic
- With PVC tees DN 15...50
- Various connectors or 1.5 m jacket cable

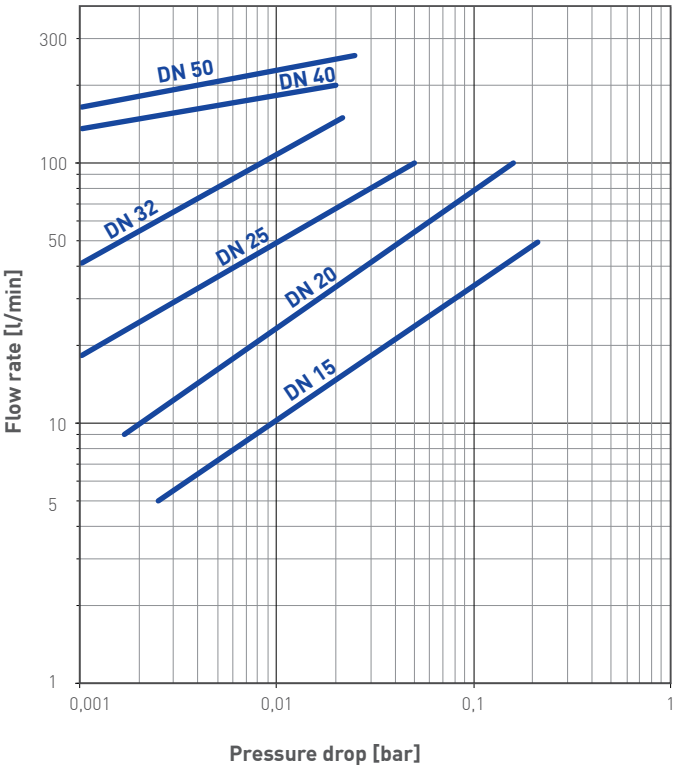
Options	
For type	**See oder code**
VKS	→ Plug connector DIN EN 175301-803-A incl.cable socket with two LED for switching voltages 24 V...230 V AC/DC ±20 %, ambient temperature -20...70 °C → or 4-pin-sensor plug M12 x 1
For type	**On request**
VKS / VK3	→ Special setpoints → 4 different colours of the union nut for distinction
VK3	→ Recognized component ETL according to UL & CSA standards

Nominal diameter	Setpoint ranges [l/min]*		Max. flow rate [l/min]
	Increasing flow ON	Decreasing flow OFF	
DN 15	5.1...6.9	4.9...6.5	50
DN 20	9.4...12.3	9.1...11.9	100
DN 25	10.7...15.2	10.4...14.8	100
DN 32	17.0...22.6	16.8...22.5	150
DN 40	21.8...30.1 (29.6...41.4)**	21.6...29.9 (29.4...40.8)**	200 (260)**
DN 50	29.0...40.0 (37.6...50.0)**	28.6...39.9 (37.4...49.8)**	260 (350)**

* Water, 20 °C, horizontal pipe, tolerance ±15 %

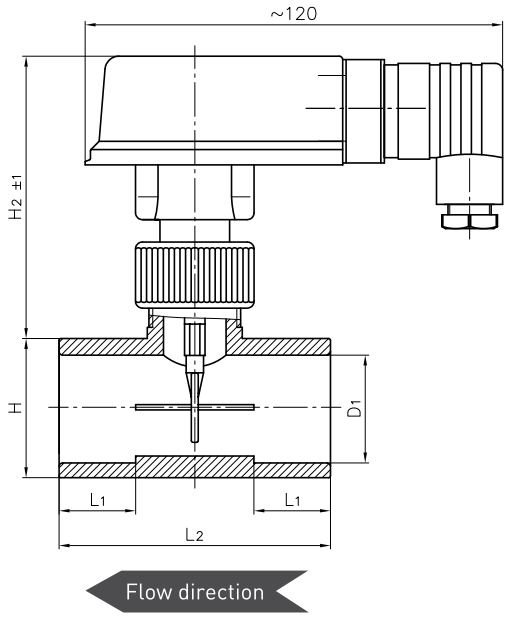
** The values in brackets are valid for shortened paddles

Typical pressure drop

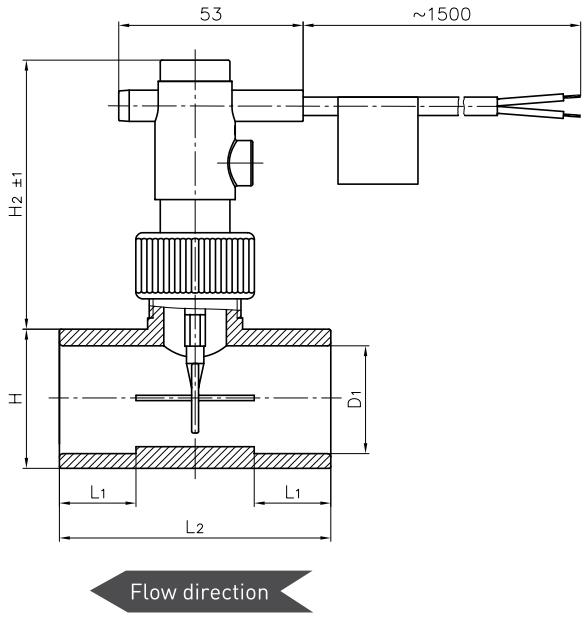


Dimensions [mm]						
Nominal diameter	**D_1**	**L_1**	**L_2**	**H_1**	**H_2 VKS**	**H_2 VK3**
DN 15	20	16	54	28	84	80
DN 20	25	19	66	34	86	82
DN 25	32	22	78	40	86	82
DN 32	40	26	98	50	104	100
DN 40	50	31	118	62	103	99
DN 50	63	38	144	77	101	97

VKS



VK3



Materials in contact with fluid	
Body, Paddle	PPO Noryl GFN 3
Pipe tee	PVC
Magnet	Hard ferrite
Gasket	EPDM

Order code	Example → VKS	15	M0P17	PK3K
Type				
VKS				
Plug connector incl. cable socket (standard)	VKS		M0P17	
Plug connector incl. cable socket with LED (option)	VKS		M0P19	
4-pin-sensor plug M12 x 1 (option)	VKS		M0P18	
VK3				
1.5 m PVC jacket cable	VK3		M0P10	
Nominal Diameter				
DN 15		15		PK3K
DN 20		20		PK4K
DN 25		25		PK5K
DN 32		32		PK6K
DN 40		40		PK7K
DN 50		50		PK8K

Flow switches made of metal

With micro switch

Type VH0

Technical data	
Switching function	Changeover contact
Switching hysteresis	10...30 %
Pressure rating	PN 25
Temperature ranges	
Medium	-20...110 °C
Ambient	-20...70 °C
Electrical data	
Electrical connection	Plug connector DIN EN 175301-803-A incl. cable socket
Switching current	Max. 5 A
Switching voltage	Max. 250 VAC
Rating	Max. 1250 VA
Degree of protection EN 60529	IP65
Protection class EN 60730-1	Class II

Advantages

- Microswitch is used as switching element
- For higher switching currents
- For direct switching of devices, without relay or controller
- With brass pipe section DN 10...50

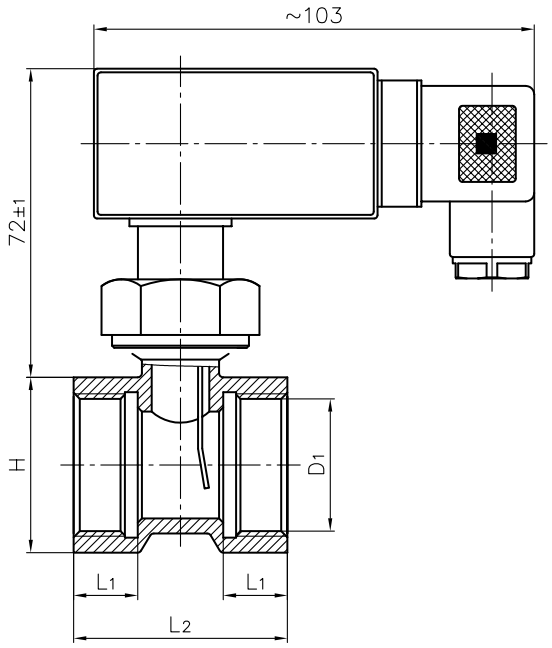
Options	
For type	**On request**
VH0	→ Insertion installation using soldering adapter

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

Order code	Nominal diameter	Thread connection D_1	Setpoint range [l/min]* Decreasing flow OFF	Max. flow rate [l/min]
VH 010I-MS	DN 10	G⅜	4.0...5.0	10
VH 015I-MS	DN 15	G½	5.0...6.0	20
VH 015A-MS	DN 15	G½ male	4.0...5.0	10
VH 015B-MS	DN 15	G¾ male	4.0...5.0	10
VH 020I-MS	DN 20	G¾	8.0...10.0	40
VH 025I-MS	DN 25	G 1	17.0...20.0	60
VH 032I-MS	DN 32	G 1¼	24.0...28.0	80
VH 040I-MS	DN 40	G 1½	43.0...50.0	100
VH 050I-MS	DN 50	G 2	69.0...83.0	150

* Water, 20 °C, horizontal pipe, tolerance ±15 %

Dimensions [mm]			
Thread connection D_1	**L_1**	**L_2**	**H**
G⅜	11	50	27
G½	11	50	27
G½ male	10	60	
G¾ male	11	50	
G¾	15	50	32
G 1	15	50	41
G 1¼	15	50	48
G 1½	15	50	55
G 2	22	64	70



Materials in contact with fluid	
Body	Brass CW614N, nickel-plated
Pipe tee	Brass CW617N
Paddle	Stainless steel 1.4310, 1.4301
Magnet	Hard ferrite
O-ring	NBR