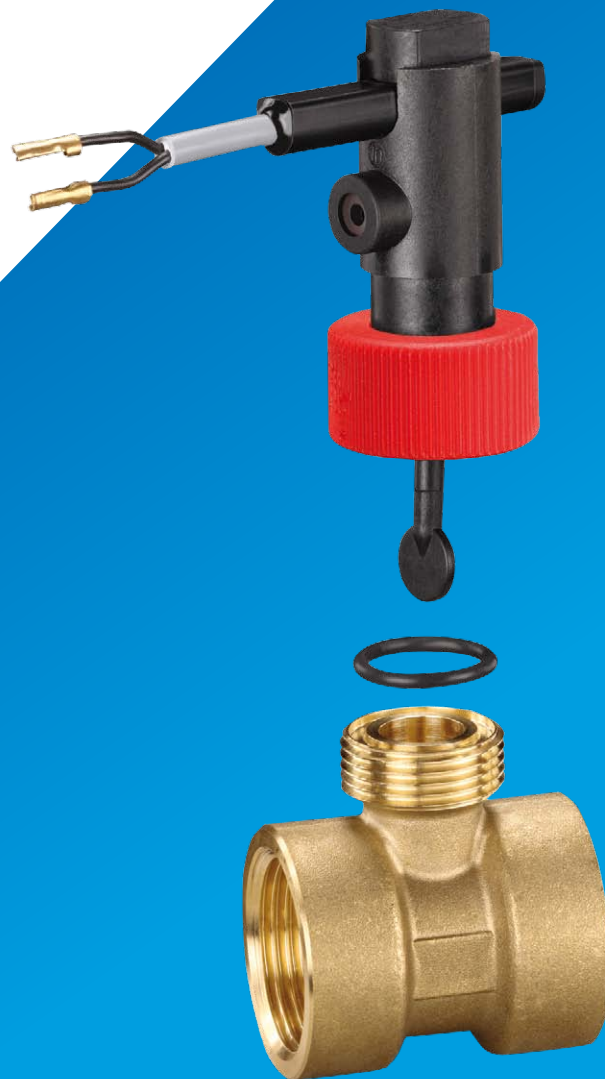


- With pipe tees (inline)
- Direct installation (insertion)
- For HVAC applications
- With interchangeable paddles
- For air flow



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.

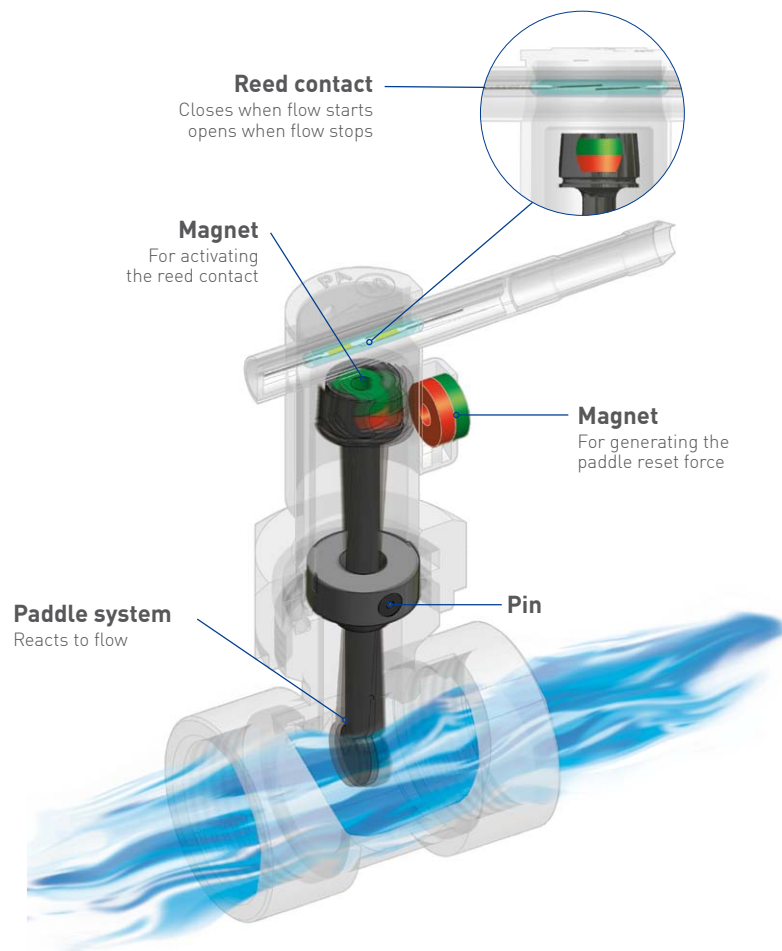


## Principle of operation

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



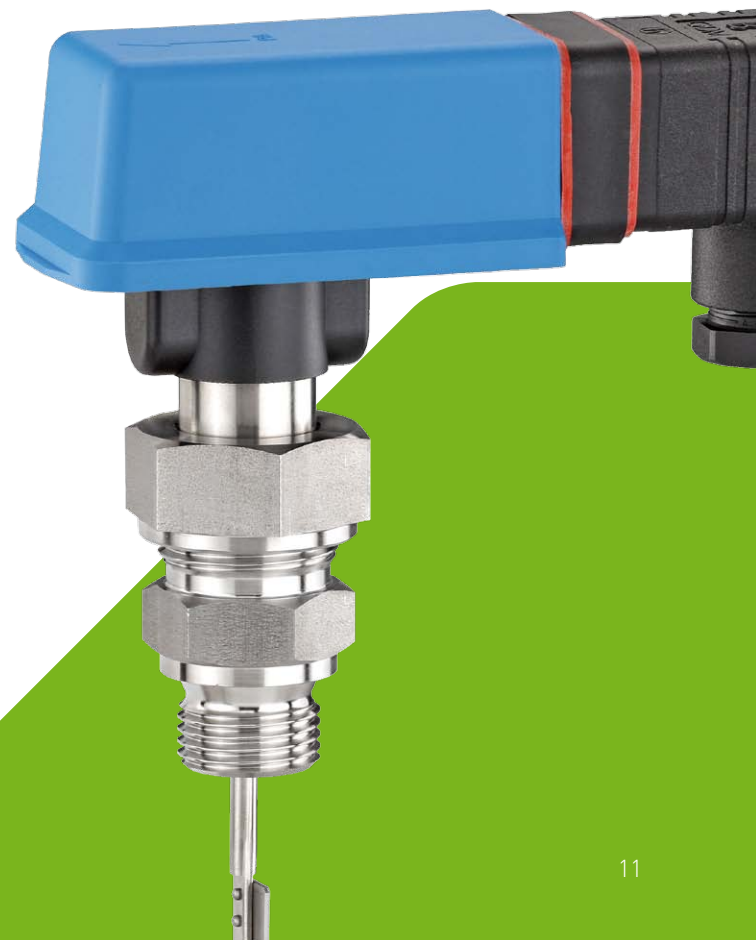
## Electrical connections

- Plug connector DIN EN 175301-803-A incl. cable socket (1)
- 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 (2)
- 4-pin plug connector M12 x 1 acc. IEC 947-5-2 (3)
- Connection cable 1.5 m (4)



## Versions for use in potentially explosive atmospheres

VH...X flow switches are intended for use in potentially explosive atmospheres with an ignition energy of  $>60 \mu\text{J}$ . 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

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

### Approvals



### Advantages

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

### Options

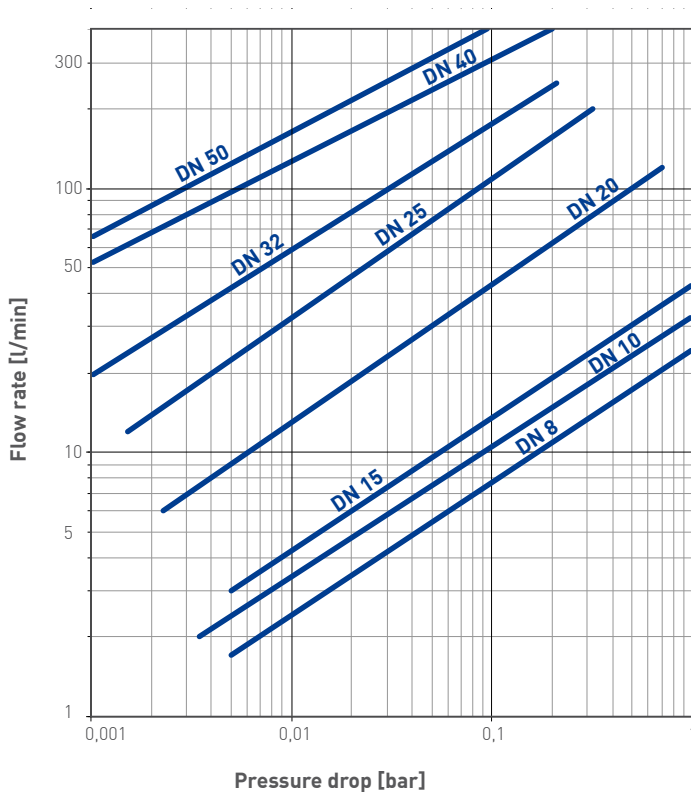
For type	See order code
<b>VHS</b>	→ Plug connector DIN EN 175301-803-A incl. cable socket with two LED for switching voltages 24 V...230 V AC/DC ±20 %, ambient temperature -20...70 °C → or 4-pin-sensor plug M12 x 1
<b>VHS / VH3</b>	→ For use in potentially explosive atmospheres (Version VH...X) max. media temperature 100 °C

Nominal diameter	Thread connection D <sub>1</sub>	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	G <sup>1</sup> / <sub>4</sub>	2.1...2.7	1.8...2.4	1.9...2.5	1.7...2.3	45
DN 10	G <sup>3</sup> / <sub>8</sub>	2.5...3.2	2.2...2.9	2.4...3.0	2.1...2.8	60
DN 15	G <sup>1</sup> / <sub>2</sub>	3.4...4.2	3.0...3.8	3.2...4.0	3.0...3.8	67
DN 15	G <sup>1</sup> / <sub>2</sub> male**	2.5...3.2	2.2...2.9	2.4...3.0	2.1...2.8	60
DN 15	G <sup>3</sup> / <sub>4</sub> male**	2.5...3.2	2.2...2.9	2.4...3.0	2.1...2.8	60
DN 20	G <sup>3</sup> / <sub>4</sub>	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 1 <sup>1</sup> / <sub>4</sub>	15.5...20.5	14.5...19.0	14.5...18.0	13.5...17.0	240
DN 40	G 1 <sup>1</sup> / <sub>2</sub>	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

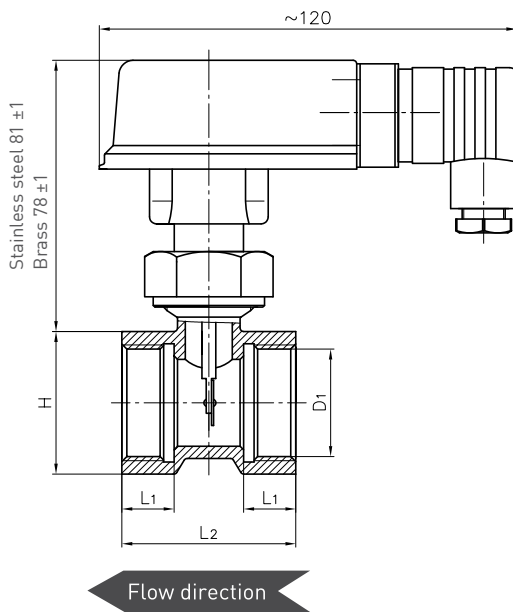
### Typical pressure drop



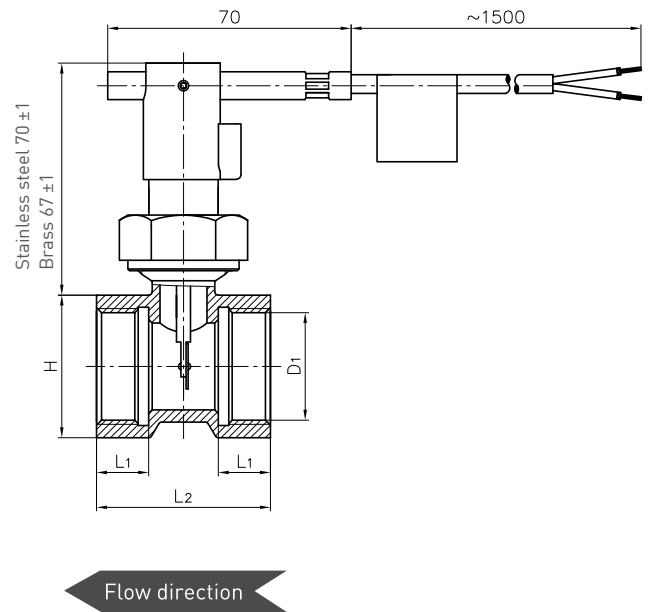
### Dimensions [mm]

Thread connection D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	H	L <sub>1</sub>	L <sub>2</sub>	H
	Brass version			Stainless steel version		
G <sup>1</sup> / <sub>4</sub>	11	50	27	11	50	27
G <sup>3</sup> / <sub>8</sub>	11	50	27	11	50	27
G <sup>1</sup> / <sub>2</sub>	11	50	27	11	50	27
G <sup>1</sup> / <sub>2</sub> (male)	10	60				
G <sup>3</sup> / <sub>4</sub> (male)	11	50				
G <sup>3</sup> / <sub>4</sub>	15	50	32	15	50	32
G 1	15	50	41	15	50	41
G 1 <sup>1</sup> / <sub>4</sub>	15	50	48	15	50	46
G 1 <sup>1</sup> / <sub>2</sub>	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
<b>Body, Paddle</b>	Brass CW614N	Stainless steel 1.4571
<b>Pipe tee</b>	Brass CW617N	Stainless steel 1.4571
<b>Bushing</b>	PPE+PS Noryl™ 30 % glass fibre reinforced	PVDF
<b>Rivet</b>	Brass CW508L	Stainless steel 1.4303
<b>Pin</b>	Stainless steel 1.4571	
<b>Magnet</b>	Hard ferrite	
<b>O-ring</b>	NBR	



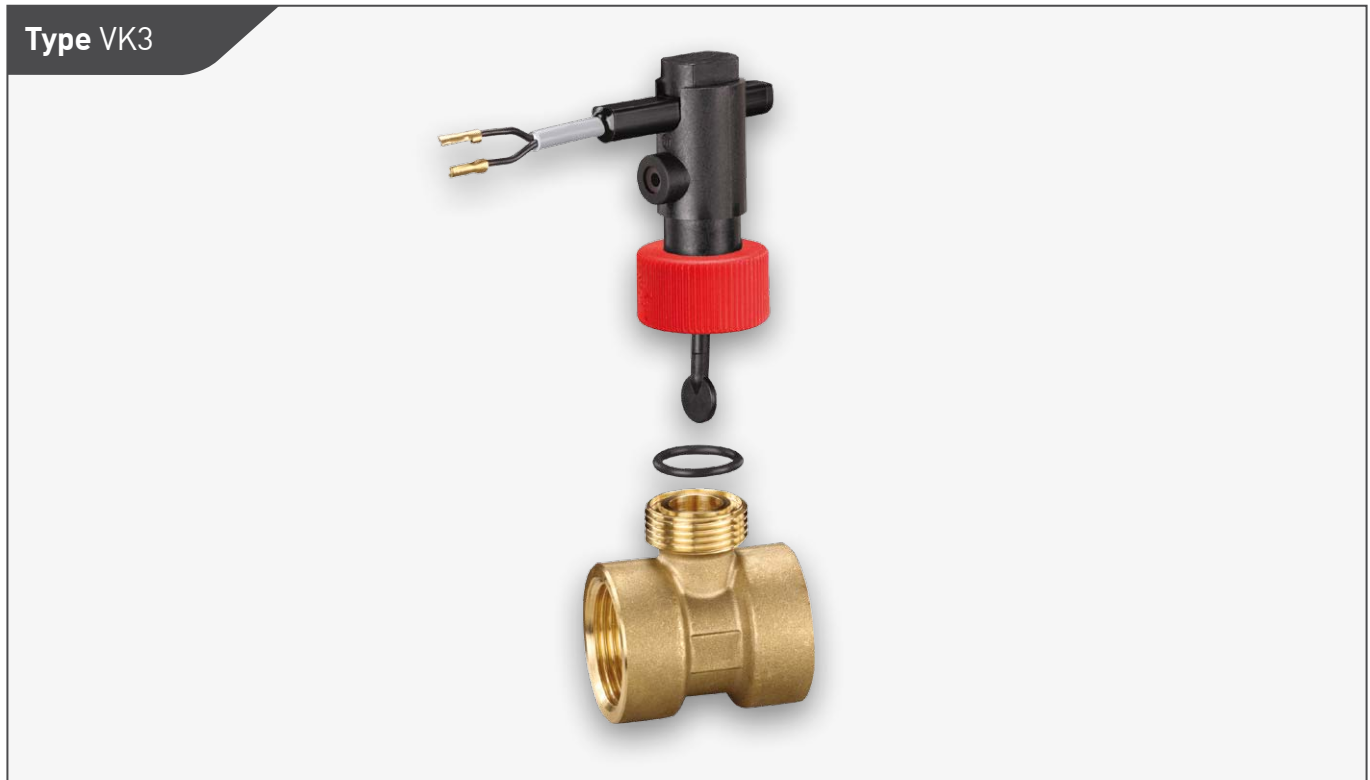
Order code		Example → VHS	08	M011	7	1	I1	1
<b>Type</b>								
<b>VHS</b>								
Plug connector incl. cable socket (standard)		VHS			7			
Plug connector incl. cable socket with LED (option)		VHS			9			
4-pin-sensor plug M12 x 1 (option)		VHS			8			
<b>VH3</b>								
1.5 m PVC jacket cable		VH3			1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

\* No character

\*\* Only available with blue jacket cable or with plug connector incl. cable socket. Max. media temperature 100 °C.

# Flow switches made of plastic

With threaded brass pipe tee



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



## Advantages

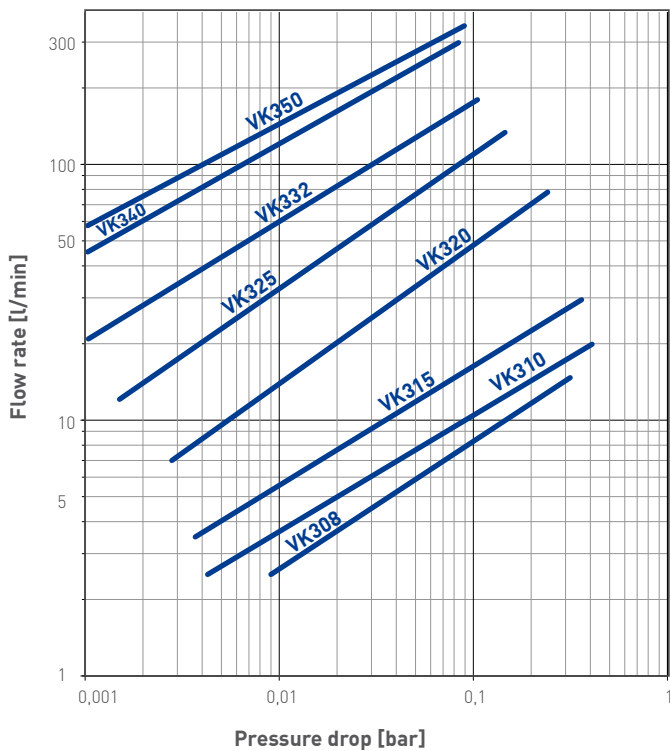
- Flow switches made of glass fibre reinforced plastic
- With threaded brass tee DN 8...50
- Factory set special set points for series applications
- 1.5 m jacket cable or according to customer specification

Options	
For type	On request
<b>VK3</b>	→ 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 <sub>1</sub>	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

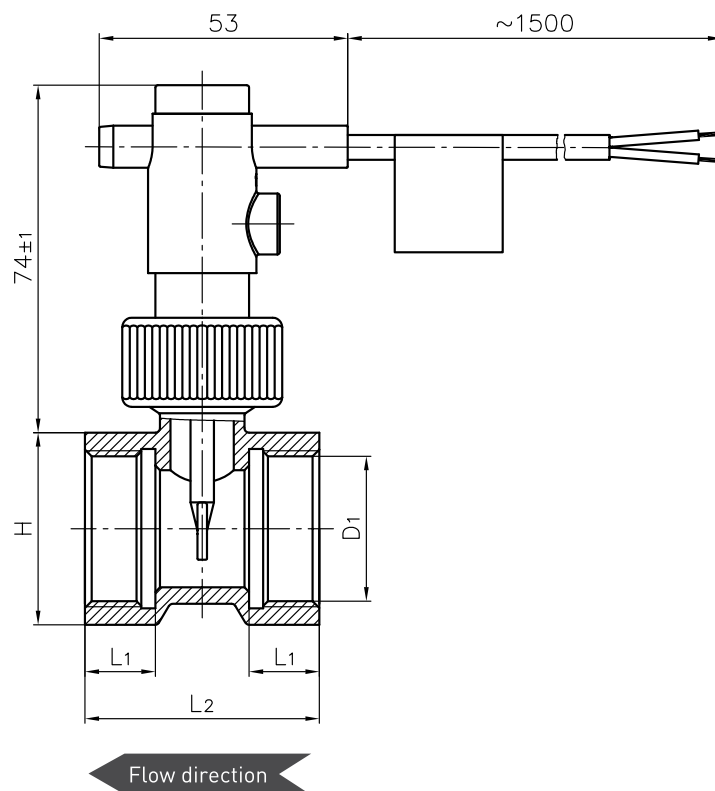
\* Water, 20 °C, horizontal pipe, tolerance ±15 %

### Typical pressure drop



### Dimensions [mm]

Thread connection D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	H
G 1/4	11	50	27
G 3/8	11	50	27
G 1/2	11	50	27
G 1/2 male	10	60	
G 3/4 male	11	50	
G 3/4	15	50	32
G 1	15	50	41
G 1 1/4	15	50	48
G 1 1/2	15	50	55
G 2	22	64	70



### Materials in contact with fluid

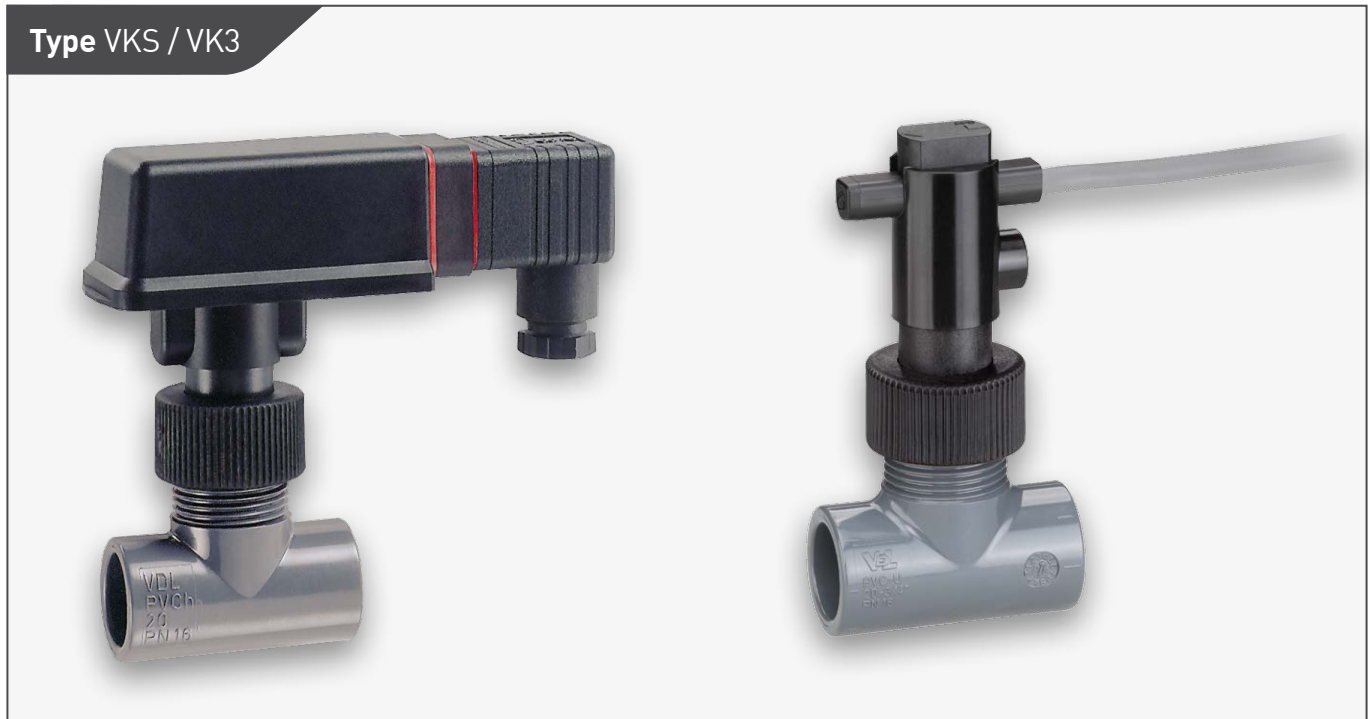
<b>Body, Paddle</b>	PPE+PS Noryl™ 30 % glass fibre reinforced
<b>Pipe tee</b>	Brass CW617N
<b>Pin*</b>	Stainless steel 1.4571
<b>Magnet</b>	Hard ferrite
<b>O-ring</b>	NBR



\* only VK340 and VK350



# Flow switches made of plastic

With PVC tee



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

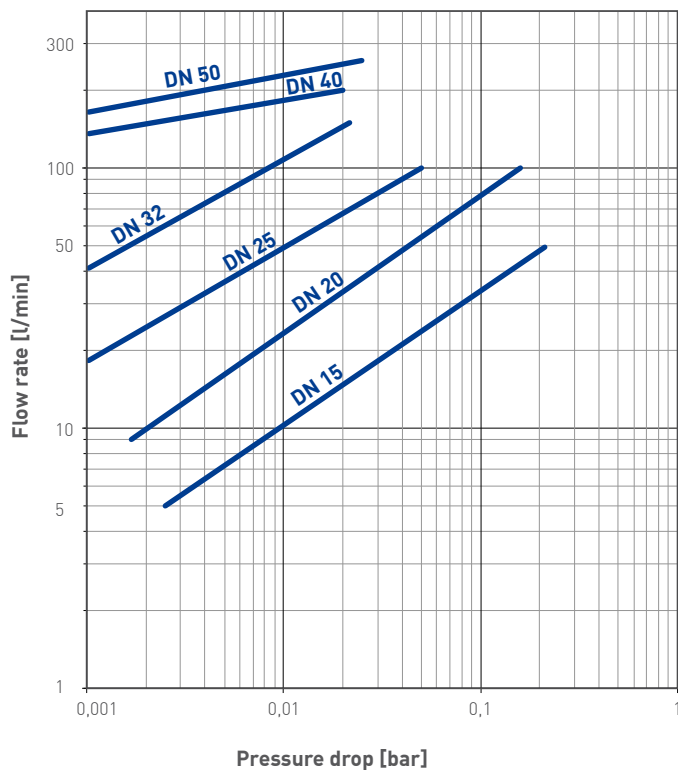
Options	
For type	See oder code
<b>VKS</b>	→ Plug connector DIN EN 175301-803-A incl.cable socket with two LED for switching voltages 24 V...230 V AC/DC ±20 %, → or 4-pin-sensor plug M12 x 1
For type	On request
<b>VKS / VK3</b>	→ Special setpoints → 4 different colours of the union nut for distinction
<b>VK3</b>	→ 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

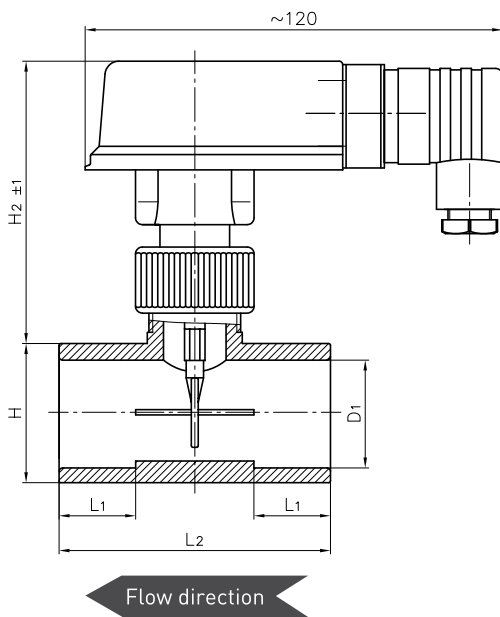
### Typical pressure drop



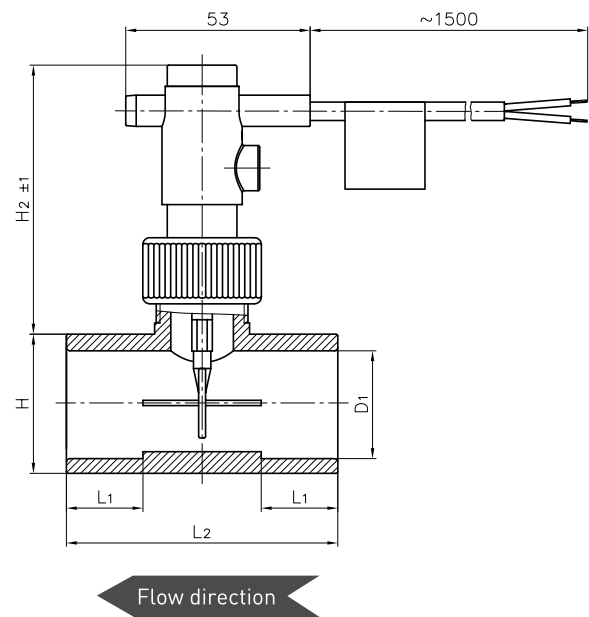
### Dimensions [mm]

Nominal diameter	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	H <sub>1</sub>	H <sub>2</sub> VKS	H <sub>2</sub> 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	PPE+PS Noryl™ 30 % glass fibre reinforced
Pipe tee	PVC
Pin*	Stainless steel 1.4571
Magnet	Hard ferrite
Gasket	EPDM

\* only VKS25, VKS40, VKS50, VK325, VK340 and VKS350



Order code	Example → VKS	15	M0P17	PK3K
<b>Type</b>				
<b>VKS</b>				
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	
<b>VK3</b>				
1.5 m PVC jacket cable	VK3		M0P10	
<b>Nominal Diameter</b>				
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



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
VHO	→ Insertion installation using soldering adapter



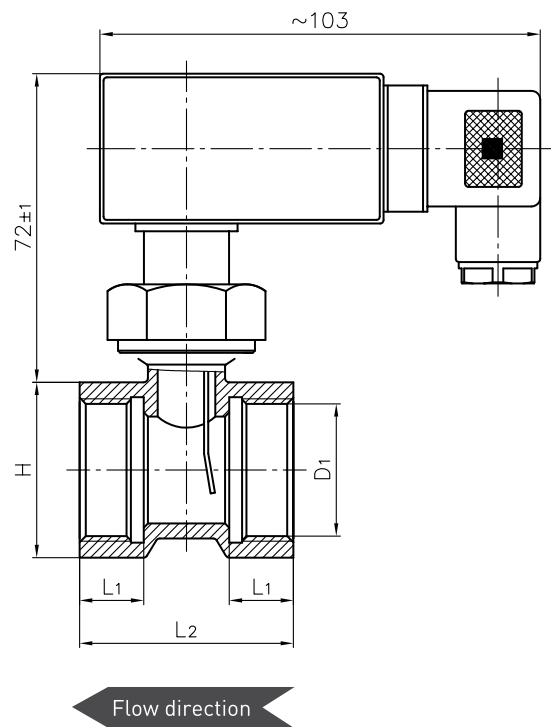
A micro switch used as switching element allows a higher electrical switching capacity than a reed switch. The resetting force required by the paddle system is produced by a leaf spring.

Order code	Nominal diameter	Thread connection D <sub>1</sub>	Setpoint range [l/min]* Decreasing flow OFF	Max. flow rate [l/min]
VH010F0747NI21	DN 10	G <sup>3</sup> / <sub>8</sub>	4.0...5.0	10
VH015F0747NI31	DN 15	G <sup>1</sup> / <sub>2</sub>	5.0...6.0	20
VH015F0747NA31	DN 15	G <sup>1</sup> / <sub>2</sub> male	4.0...5.0	10
VH015F0747NA41	DN 15	G <sup>3</sup> / <sub>4</sub> male	4.0...5.0	10
VH020F0747NI41	DN 20	G <sup>3</sup> / <sub>4</sub>	8.0...10.0	40
VH025F0747NI51	DN 25	G 1	17.0...20.0	60
VH032F0747NI61	DN 32	G 1 <sup>1</sup> / <sub>4</sub>	24.0...28.0	80
VH040F0747NI71	DN 40	G 1 <sup>1</sup> / <sub>2</sub>	43.0...50.0	100
VH050F0747NI81	DN 50	G 2	69.0...83.0	150

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

#### Dimensions [mm]

Thread connection D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	H
G <sup>3</sup> / <sub>8</sub>	11	50	27
G <sup>1</sup> / <sub>2</sub>	11	50	27
G <sup>1</sup> / <sub>2</sub> male	10	60	
G <sup>3</sup> / <sub>4</sub> male	11	50	
G <sup>3</sup> / <sub>4</sub>	15	50	32
G 1	15	50	41
G 1 <sup>1</sup> / <sub>4</sub>	15	50	48
G 1 <sup>1</sup> / <sub>2</sub>	15	50	55
G 2	22	64	70

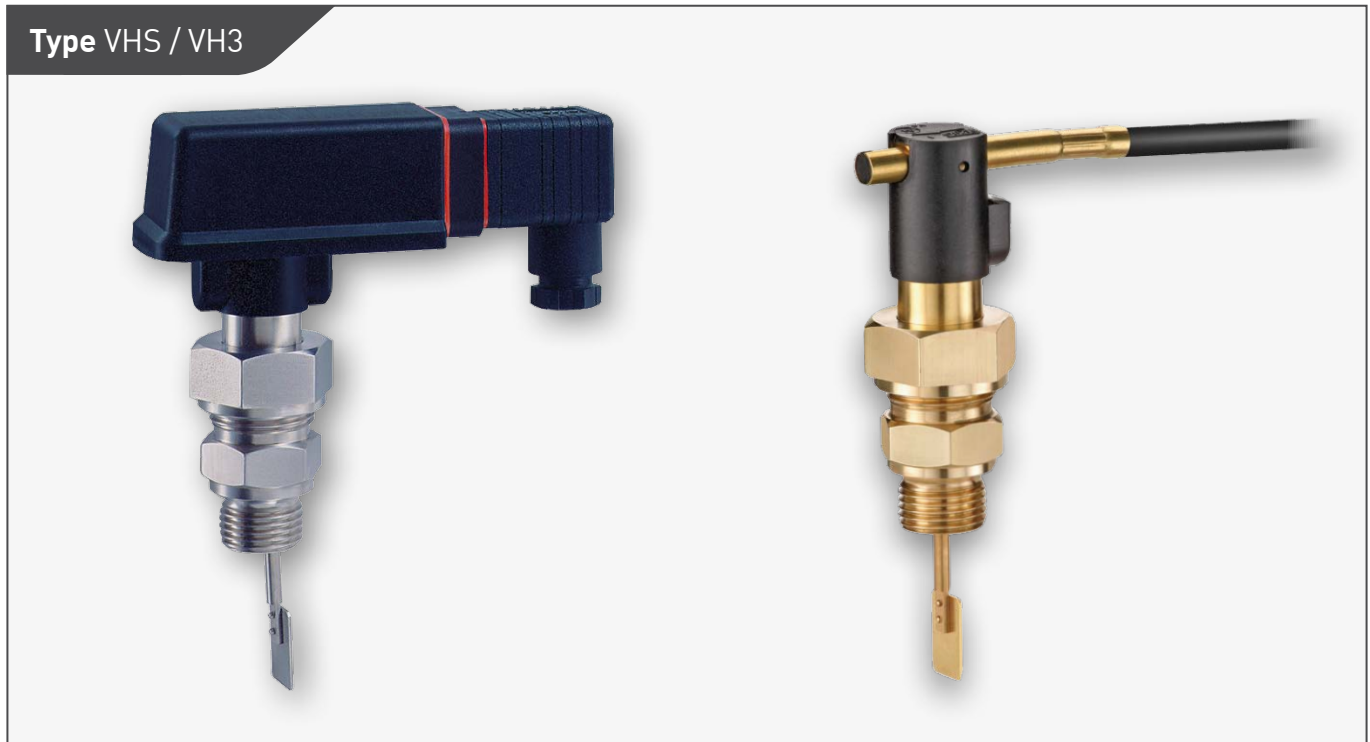


#### Materials in contact with fluid

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

# Flow switches made of metal

For insertion installation



Type VHS / VH3

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



### Advantages

- Direct installation into pipe lines DN 50...150
- Threaded adapters for tees and direct insertion into pipes
- Alternatively soldering adapter or welding adapter
- Easy installation due to union nut
- Various connectors or 1.5 m jacket cable

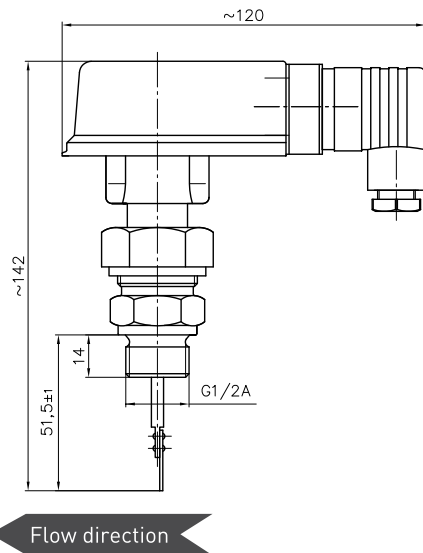
Options	
For type	See oder code
<b>VHS</b>	→ Plug connector DIN EN 175301-803-A incl.cable socket with two LED for switching voltages 24 V...230 V AC/DC ±20 %, ambient temperature -20...70 °C → or 4-pin-sensor plug M12 x 1
<b>VHS / VH3</b>	→ For use in potentially explosive atmospheres (Version VH...X) max. media temperature 100 °C

Type	Process connection	Insert in Nominal diameter	Setpoint ranges [m <sup>3</sup> /h]*		Max. flow rate [m <sup>3</sup> /h]
			Increasing flow ON	Decreasing flow OFF	
VH305 / VHS05	Threaded adapter G½**	DN 50	1.9...2.7	1.8...2.6	30
		DN 80	5.0...8.0	4.9...7.9	80
		DN 100	8.3...12.5	8.2...12.4	150
		DN 150	17.5...25.0	17.4...24.9	200
VHS01	Soldering adapter / welding adapter	DN 50	3.8...4.9	3.7...4.8	30
		DN 80	9.0...14.3	8.9...14.2	100
		DN 100	13.0...18.8	12.7...18.4	150
		DN 150	33.0...46.0	32.9...45.9	200

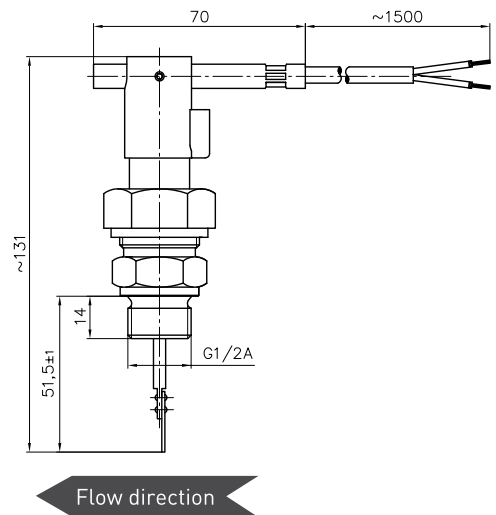
\* Water, 20 °C, horizontal pipe, tolerance ±15 %

\*\* Installation into welded socket according to EN 10241, G½ female, length 15 mm

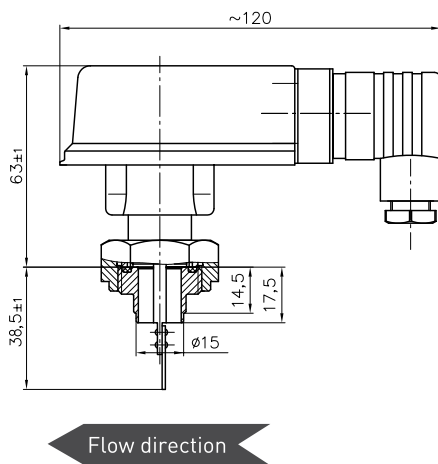
VHS05



VH305



VHS01



**Materials in contact with fluid**

	<b>Brass version</b>	<b>Stainless steel version</b>
<b>Body, Paddle</b>	CW614N	1.4571
<b>Process connection</b>	VHS05: CW614N VH305: CW614N VHS01: CW617N	1.4571
<b>Bushing</b>	PPE+PS Noryl™ 30 % glass fibre reinforced	
<b>Rivet</b>	CW508L	1.4303
<b>Pin</b>	1.4571	
<b>Magnet</b>	Hard ferrite	
<b>O-ring</b>	NBR	

Order code	Example → VHS	05M0	1	17	1	R2	1	
<b>Type</b>								
VHS								
Plug connector incl. cable socket (Standard)	VHS			17				
Plug connector incl. cable socket with LED (option)	VHS			19				
4-pin-sensor plug M12 x 1 (option)	VHS			18				
<b>Process connection</b>								
Threaded Adapter G½		05M0				R2		
Soldering adapter (brass) or welding adapter (stainless steel)		01M0				D1		
<b>Material</b>								
Brass			1		1		1	
Stainless steel			3		3		3	
<b>Version</b>								
Standard								( )*
For use in potentially explosive atmospheres (option)**								X

\* No character

\*\* Only available with plug connector incl. cable socket

Order code	Example → VH305M0	1	11	1	R2	1	
<b>Type</b>							
VH3							
1.5 m PVC jacket cable	VH305M0		11		R2		
1.5 m PVC blue jacket cable (only for option „for use in potentially explosive atmospheres“)	VH305M0		13		R2		
<b>Material</b>							
Brass		1		1		1	
Stainless steel		3		3		3	
<b>Version</b>							
Standard							( )*
For use in potentially explosive atmospheres (option)**							X

\* No character




\*\* Only available with blue jacket cable

Accessories for VHS05 / VH305	Order code	
Welding socket according to EN 10241 G½ female thread, length 15 mm Steel S 235 JR	XVH1470	

# Flow switches for insertion installation

## Threaded adapter with trimmable paddle



Technical data	VHS06	VK306
<b>Switching function</b>	Contact → closes at increasing flow → opens at decreasing flow Reversing possible	Contact → closes at increasing flow → opens at decreasing flow
<b>Pressure rating</b>	PN 25	PN 10
<b>Temperature ranges</b>		
<b>Medium</b>	-25...110 °C	-25...100 °C
<b>Ambient</b>	-25...80 °C	-25...70 °C
<b>Electrical data</b>		
<b>Electrical connection</b>	Plug connector DIN EN 175301-803-A incl. cable socket	1.5 m PVC jacket cable
<b>Switching current</b>	Max. 1 A	
<b>Switching voltage</b>	Max. 230 VAC, 48 VDC	
<b>Rating</b>	Max. 26 VA, 20 W	
<b>Degree of protection EN 60529</b>	IP65	
<b>Protection class EN 60730-1</b>	Class II	
<b>Approvals*</b>		
  		

\* Only for flow switches with plastic paddle



### Advantages

- Universal Flow switches for DN 20...200
- Fully adjustable for pipe size and setpoint by trimming the paddle
- Glass fibre reinforced plastic paddle or stainless steel paddle for higher flow rates
- Threaded adapters for tees or for direct insertion into pipes
- Easy installation due to union nut

Options	
For type	See oder code
<b>VHS06</b>	→ 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
<b>VK306</b>	→ Reversed switching function
<b>VK306 with plastic paddle</b>	→ Recognized component ETL according to UL & CSA standards

**VHS06 / VK306 with plastic paddle, installation into pipe tees according to EN 10242**
**Paddle to be trimmed to**

	Paddle mark	9	15	20	30	40
	Installation length L <sub>1</sub> [mm]	40	46	51	61	71

**Setpoints\* / Max. flow rate [m<sup>3</sup>/h]**

<b>DN 20</b>	Increasing flow ON**	1.1				
	Decreasing flow OFF	0.9				
	Max. flow rate	4				
<b>DN 25</b>	Increasing flow ON**	1.7	1,3			
	Decreasing flow OFF	1.5	1.1			
	Max. flow rate	8.5	5			
<b>DN 32</b>	Increasing flow ON**	2.9	2.2	1.9		
	Decreasing flow OFF	2.6	1.9	1.6		
	Max. flow rate	15	10	8		
<b>DN 40</b>	Increasing flow ON**	4.2	3.2	2.8	2.1	
	Decreasing flow OFF	3.8	2.8	2.4	1.8	
	Max. flow rate	25	18	14	10	
<b>DN 50</b>	Increasing flow ON**	6.5	4.9	4.4	3.3	2.7
	Decreasing flow OFF	6	4.5	4	3	2.4
	Max. flow rate	41	29	24	17	13

**VHS06 / VK306 with plastic paddle, installation by welded socket according to EN 10241, G½ female, length 15 mm**
**Paddle to be trimmed to**

	Paddle mark	15	20	30	40	50	60	70	80
	Installation length L <sub>1</sub> [mm]	46	51	61	71	81	91	101	111

**Setpoints\* / Max. flow rate [m<sup>3</sup>/h]**

<b>DN 65</b>	Increasing flow ON**	8.8	7.4	5.6	4.5				
	Decreasing flow OFF	8.5	7	5.2	4.2				
	Max. flow rate	50	45	34	27				
<b>DN 80</b>	Increasing flow ON**	13.8	11.7	9.2	7.5	6.5	5.1		
	Decreasing flow OFF	11.3	9.6	7.7	6.3	5.3	4.7		
	Max. flow rate	80	65	50	40	33	28		
<b>DN 100</b>	Increasing flow ON**		18.8	14.6	12.3	10.2	8	6.9	6.2
	Decreasing flow OFF		16.3	12	10	8	7.1	6.3	5.9
	Max. flow rate		110	80	65	55	50	40	36
<b>DN 150</b>	Increasing flow ON**				27	22.8	19.5	18	15.7
	Decreasing flow OFF				25	19.8	17.8	16	14.3
	Max. flow rate				150	130	110	100	90
<b>DN 200</b>	Increasing flow ON**					45	38	33.5	30
	Decreasing flow OFF					43.5	36	32	29
	Max. flow rate					230	200	175	160

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

\*\* Typical value

**VHS06 / VK306 with stainless steel paddle, installation into pipe tees according to EN 10242**
**Paddle to be trimmed to**

Paddle mark	15	20	30	40
Installation length L <sub>1</sub> [mm]	46	51	61	71

**Setpoints\* / Max. flow rate [m<sup>3</sup>/h]**

<b>DN 25</b>	Increasing flow ON**	1.2	1		
	Decreasing flow OFF	1	0.9		
	Max. flow rate	10	6		
<b>DN 32</b>	Increasing flow ON**	2	1.7		
	Decreasing flow OFF	1.7	1.5		
	Max. flow rate	20	15		
<b>DN 40</b>	Increasing flow ON**	3.3	2.7	2	
	Decreasing flow OFF	3	2.5	1.8	
	Max. flow rate	34	26	18	
<b>DN 50</b>	Increasing flow ON**	4.8	4	3.2	2.6
	Decreasing flow OFF	4.6	3.8	2.9	2.4
	Max. flow rate	55	45	32	24

**VHS06 / VK306 with stainless steel paddle, installation by welded socket according to EN 10241, G½ female, length 15 mm**
**Paddle to be trimmed to**

Paddle mark	15	20	30	40	50	60	70	80
Installation length L <sub>1</sub> [mm]	46	51	61	71	81	91	101	111

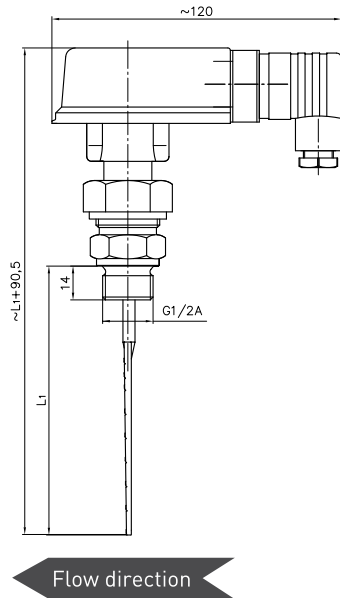
**Setpoints\* / Max. flow rate [m<sup>3</sup>/h]**

<b>DN 65</b>	Increasing flow ON**	7.2	6.0	4.5	3.6				
	Decreasing flow OFF	6.8	5.7	4.2	3.3				
	Max. flow rate	100	80	65	50				
<b>DN 80</b>	Increasing flow ON**	11.7	10	7.7	6.4	5.3	4.6		
	Decreasing flow OFF	11.4	9.6	7.5	6	4.9	4.2		
	Max. flow rate	150	125	95	75	60	50		
<b>DN 100</b>	Increasing flow ON**		16	12.4	10.3	8.7	7.7	6.7	6.1
	Decreasing flow OFF		15.9	11.9	9.8	8.1	7.1	6.3	5.6
	Max. flow rate		200	150	120	105	90	75	70
<b>DN 150</b>	Increasing flow ON**				24	20.3	18	16.3	14.7
	Decreasing flow OFF				22.7	19	17.3	15.3	13.8
	Max. flow rate				290	250	210	190	170
<b>DN 200</b>	Increasing flow ON**					41	35.7	31.7	26.7
	Decreasing flow OFF					38.7	34	29.7	23.3
	Max. flow rate					450	390	350	310

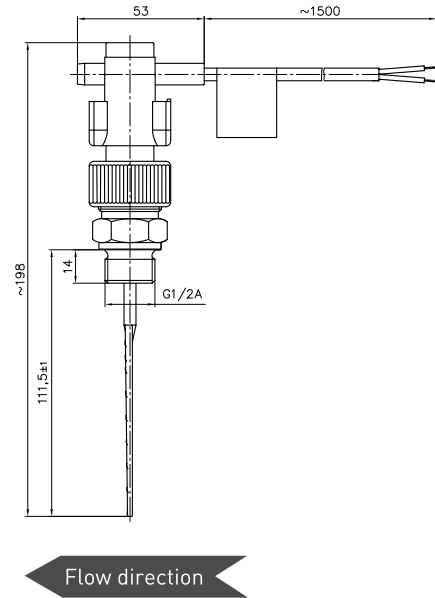
\* Water, 20 °C, horizontal pipe, tolerance ±15 %

\*\* Typical value

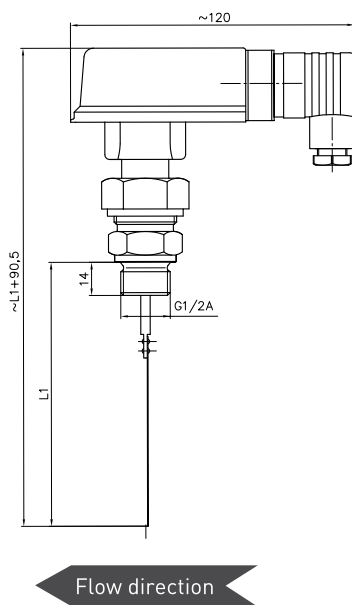
VHS06 with plastic paddle



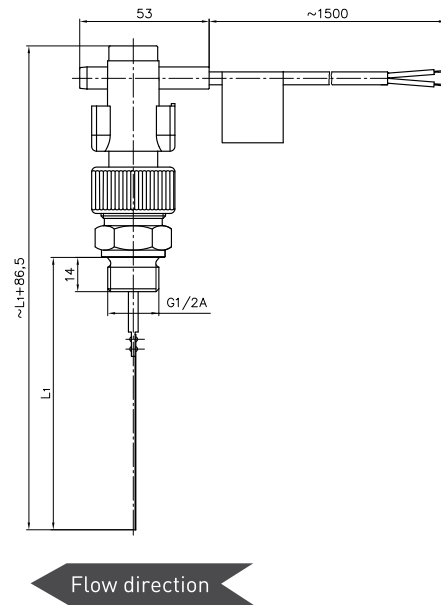
VK306 with plastic paddle



VHS06 with stainless steel paddle



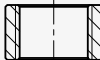
VK306 with stainless steel paddle



**Materials in contact with fluid**

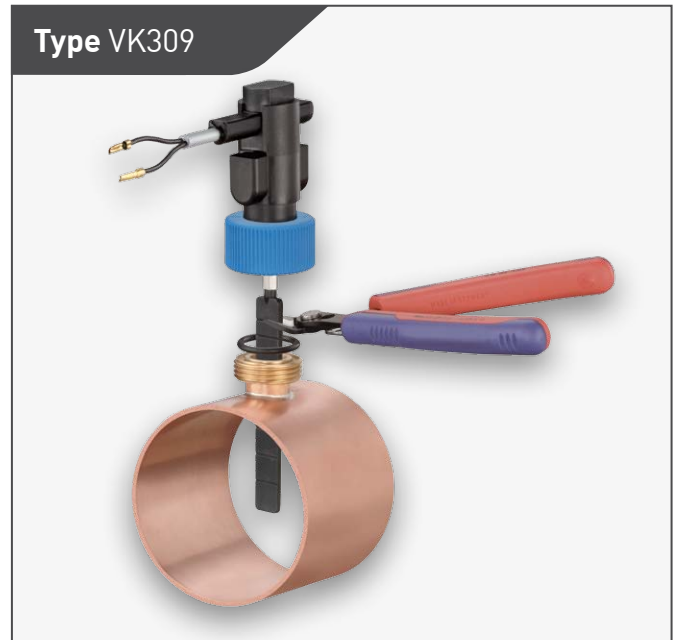
Type	VHS06	VK306
<b>Body</b>	Brass CW614N	PPE+PS Noryl™ 30 % glass fibre reinforced
<b>Paddle</b>	Plastic paddle: PPE+PS Noryl™ 30 % glass fibre reinforced / stainless steel Stainless steel paddle: Stainless steel 1.4310 / brass	
<b>Pin</b>	Stainless steel 1.4571	
<b>Process connection</b>	Brass CW614N	
<b>Magnet</b>	Hard ferrite	
<b>O-ring</b>	NBR	

Order code	Example → VHS06M2	P	171R21
<b>Type</b>			
<b>VHS06</b>			
Plug connector incl. cable socket (standard)	VHS06M2		171R21
Plug connector incl. cable socket with LED (option)	VHS06M2		191R21
4-pin-sensor plug M12 x 1 (option)	VHS06M2		181R21
<b>VK306</b>			
1.5 m PVC jacket cable	VK306M2		10PR21
<b>Paddle</b>			
Plastic		P	
Stainless steel		5	

Accessories for VHS06 / VK306	Order code	
<b>Welding socket according to EN 10241</b> <b>G½ female thread, length 15 mm</b> <b>Steel S 235 JR</b>	XVH1470	

# Flow switches for insertion installation

## Soldering adapter with trimmable paddle



Technical data	VHS09	VK309
<b>Switching function</b>	Contact → closes at increasing flow → opens at decreasing flow Reversing possible	Contact → closes at increasing flow → opens at decreasing flow
<b>Pressure rating</b>	PN 25	PN 10
<b>Temperature ranges</b>		
<b>Medium</b>	-25...110 °C	-25...100 °C
<b>Ambient</b>	-25...80 °C	-25...70 °C
<b>Electrical data</b>		
<b>Electrical connection</b>	Plug connector DIN EN 175301-803-A incl. cable socket	1.5 m PVC jacket cable
<b>Switching current</b>	Max. 1 A	
<b>Switching voltage</b>	Max. 230 VAC, 48 VDC	
<b>Rating</b>	Max. 26 VA, 20 W	
<b>Degree of protection EN 60529</b>	IP65	
<b>Protection class EN 60730-1</b>	Class II	
<b>Approvals</b>		



### Advantages

- Universal Flow switches for copper pipes  $\varnothing$  32...88.9
- Fully adjustable for pipe size and setpoint by trimming the paddle
- Glass fibre reinforced paddle
- Soldering adapter for copper pipes
- Easy installation due to union nut

Options	
For type	See order code
VHS09	→ Plug connector DIN EN 175301-803-A incl.cable socket with two LED for switching voltages 24 V...230 V AC/DC $\pm$ 20 %, ambient temperature -20...70 °C → or 4-pin-sensor plug M12 x 1
For type	On request
VK309	→ Reversed switching function
VK309	→ Recognized component ETL according to UL & CSA standards

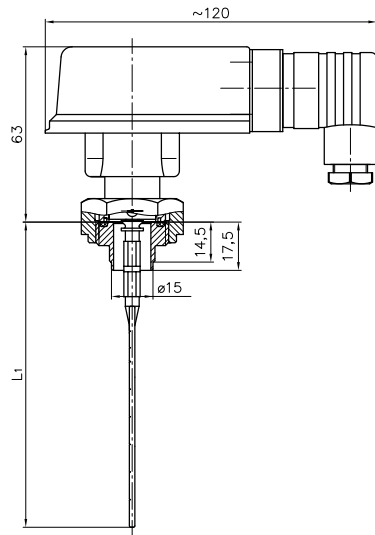
### Set point ranges

#### Paddle to be trimmed to

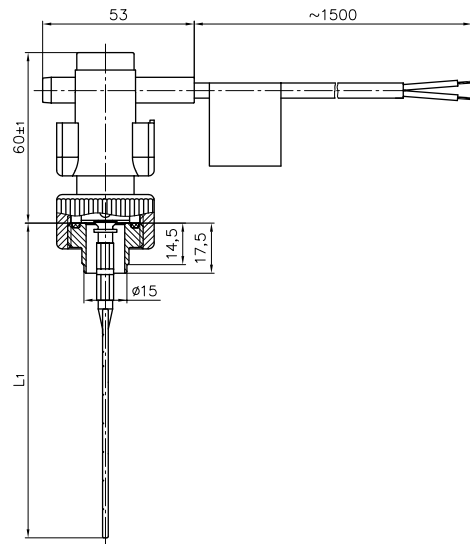
	Paddle mark	9	15	20	30	40	50	60
	Installation length L <sub>1</sub> [mm]	39	45	50	60	70	80	90
Setpoints* / Max. flow rate [m <sup>3</sup> /h]								
<b><math>\varnothing</math> 32 x 1</b>	Increasing flow ON**	2						
	Decreasing flow OFF	1.9						
	Max. flow rate	10						
<b><math>\varnothing</math> 35 x 1</b>	Increasing flow ON**	2.6	1.8					
	Decreasing flow OFF	2.4	1.6					
	Max. flow rate	20	13					
<b><math>\varnothing</math> 35 x 1.5</b>	Increasing flow ON**	2.5	1.7					
	Decreasing flow OFF	2.2	1.6					
	Max. flow rate	18	12					
<b><math>\varnothing</math> 42 x 1.5</b>	Increasing flow ON**	3.9	2.8	2.2				
	Decreasing flow OFF	3.7	2.7	2.1				
	Max. flow rate	30	20	15				
<b><math>\varnothing</math> 54 x 1.5</b>	Increasing flow ON**				3.2			
	Decreasing flow OFF				3			
	Max. flow rate				21			
<b><math>\varnothing</math> 54 x 2</b>	Increasing flow ON**				3			
	Decreasing flow OFF				2.9			
	Max. flow rate				20			
<b><math>\varnothing</math> 64 x 2</b>	Increasing flow ON**		8.6	7.2	5.2	4		
	Decreasing flow OFF		7.9	6.6	4.7	3.7		
	Max. flow rate		53	42	30	24		
<b><math>\varnothing</math> 76,1 x 2</b>	Increasing flow ON**		13.6	10.8	8	6.4	5,2	
	Decreasing flow OFF		12.1	10	7.4	5.8	4.7	
	Max. flow rate		80	65	46	35	31	
<b><math>\varnothing</math> 88,9 x 2</b>	Increasing flow ON**				10.9	9	7.3	6.1
	Decreasing flow OFF				10.7	8.4	6.9	5.9
	Max. flow rate				67	52	42	39

\* Water, 20 °C, horizontal pipe, tolerance  $\pm$ 15 %

\*\* Typical value

**VHS09**

Flow direction

**VK309**

Flow direction

**Materials in contact with fluid**

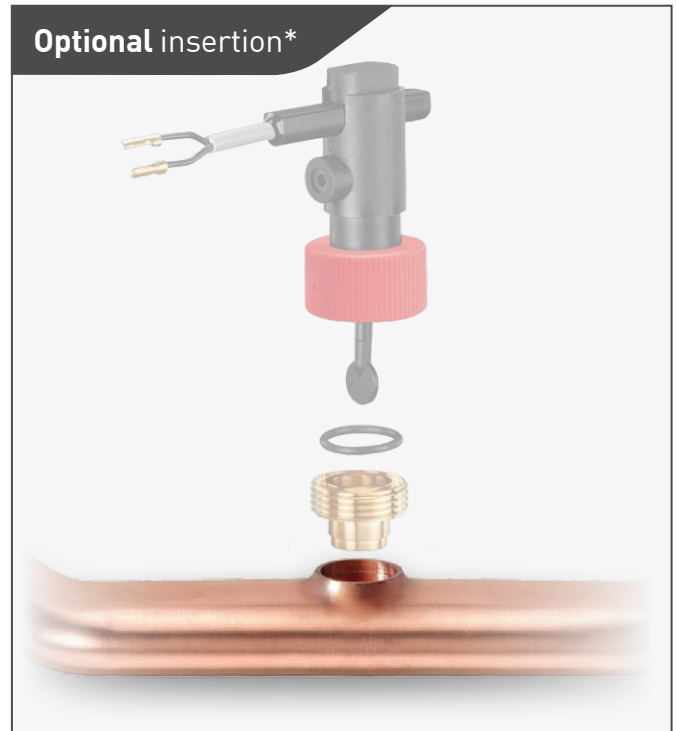
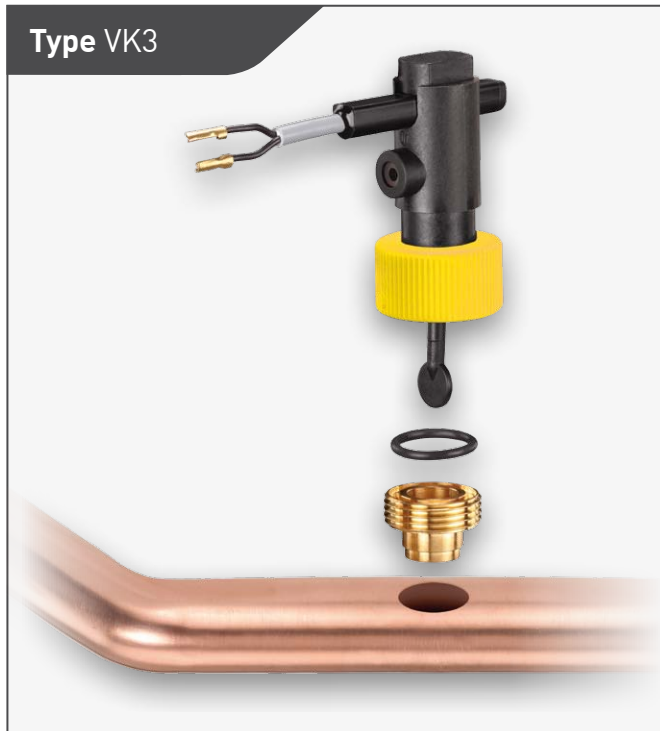
Type	VHS09	VK309
<b>Body</b>	Brass CW614N	PPE+PS Noryl™ 30 % glass fibre reinforced
<b>Paddle / Sleeve</b>	PPE+PS Noryl™ 30 % glass fibre reinforced / Stainless steel	
<b>Process connection</b>	Brass CW614N	
<b>Pin</b>	Stainless steel 1.4571	
<b>Magnet</b>	Hard ferrite	
<b>O-ring</b>	NBR	



Order code	
Type	
<b>VHS09</b>	
Plug connector incl. cable socket (standard)	VHS09M2P171D11
Plug connector incl. cable socket with LED (option)	VHS09M2P191D11
4-pin-sensor plug M12 x 1 (option)	VHS09M2P181D11
<b>VK309</b>	
1.5 m PVC jacket cable	VK309M2P10PD11

# Flow switches for insertion installation

Made of plastic, with soldering adapter for copper pipes



Technical data	
Switching function	Contact → closes at increasing flow → opens at decreasing flow
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	IP65
Protection class EN 60730-1	Class II
Approvals	



\* Insertion into collared copper pipes  
Set points can differ

### Advantages

- Direct installation into copper pipes
- Easy installation:  
→ Solder the adapter  
→ Install the O-ring  
→ Tighten the union nut
- Delivery incl. flow switch, O-ring and soldering adapter
- Paddle lengths for copper pipes Ø 22...54
- Different colours of the union nut for an easy distinction

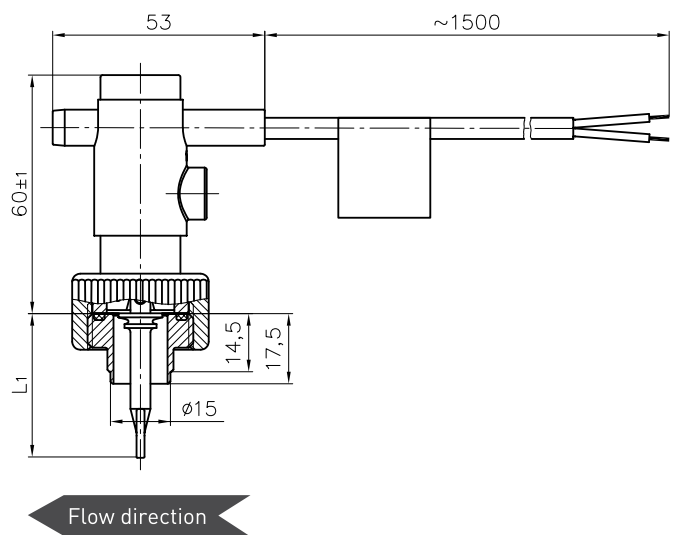
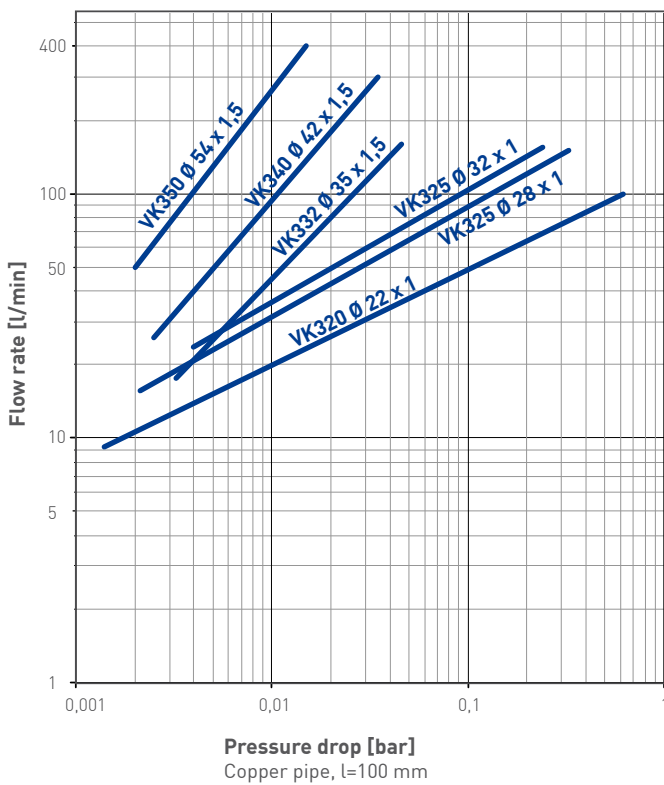
Options	
For type	On request
VK3	→ Special setpoints → Reversed switching function → Insertion into collared copper pipes → Recognized component ETL according to UL & CSA standards

Order code	Color union nut	For copper pipes	Setpoints [l/min]*		Max. flow rate [l/min]
			Increasing flow** ON	Decreasing flow OFF	
VK320M0P10PD11	●	∅ 22x1	10.5	9.2	100
VK325M0P10PD11	●	∅ 28x1	17.6	15.7	150
		∅ 32x1	25.7	23.6	155
VK332M0P10PD11	●	∅ 35x1,5	20.0	17.5	160
VK340M0P10PD11	●	∅ 42x1.5	28.0	25.8	300
VK350M2P10PD11	●	∅ 54x1.5	58.3	50.2	400

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

\*\* Typical value

### Typical pressure drop



### Dimensions [mm]

Order code	Paddle length L <sub>1</sub>
VK320M0P10PD11	33.5
VK325M0P10PD11	36.0
VK332M0P10PD11	44.5
VK340M0P10PD11	47.5
VK350M2P10PD11	56.5

### Materials in contact with fluid

Body	PPE+PS Noryl™ 30 % glass fibre reinforced
Paddle	PPE+PS Noryl™ 30 % glass fibre reinforced
Soldering adapter	Brass CW617N
Magnet	Hard ferrite
O-ring	NBR

# Flow switches for HVAC applications

## For potable water applications



### Advantages

- Flow switches for tap water detection
- Pipe tees with threaded or soldering ends
- Push-in installation into manifolds or armatures
- OEM flow switches, delivery lots from 100 units

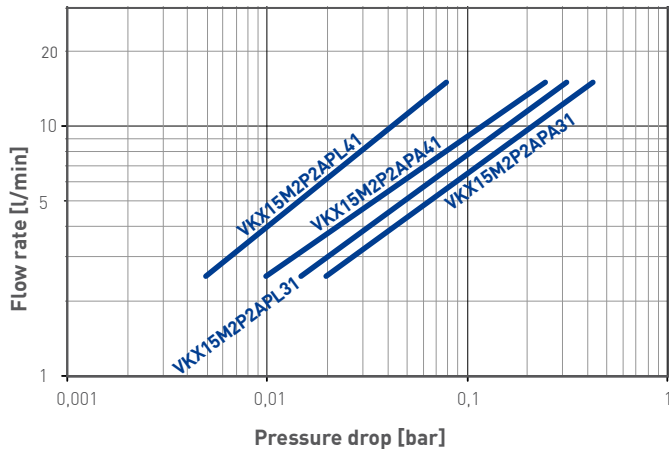
Technical data		
<b>Switching function</b>	Contact closes at increasing flow	
<b>Setpoint (others on request)</b>	2.5 ±0.5 l/min*	
<b>Max. flow rate</b>		
→ Pipe tee G1/2 male	40 l/min	
→ Pipe tee G3/4 male	18 l/min	
→ Pipe tee 15 mm soldering connection	40 l/min	
→ Pipe tee 22 mm soldering connection	34 l/min	
→ Push-In for manifold mounting	15 l/min	
<b>Nominal diameter</b>	DN 15	
<b>Pressure rating</b>	PN 10	
Temperature ranges		
<b>Medium</b>		
→ VKX15	-20...100 °C	
→ VKX15 Push-In	-20...70 °C	
<b>Ambient</b>	-20...70 °C	
Electrical data		
<b>Electrical connection</b>	0.5 m PVC jacket cable	
<b>Degree of protection EN 60529</b>	IP65	
<b>Switching current</b>	Max. 1 A	
<b>Rating</b>	Max. 26 VA, 20 W	
<b>Switching voltage</b>	Max. 230 VAC, 48 VDC	Max. 24 VAC, 42 VDC
<b>Protection class EN 60730-1</b>	Class II	Class III
Approvals **		



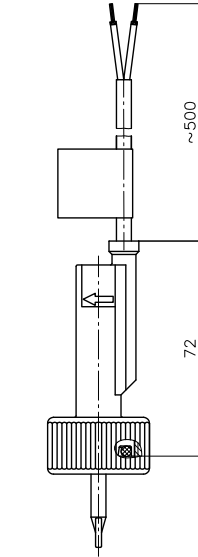
\* Water, 20 °C, horizontal pipe

\*\* Not for VKX15 Push-In

### Typical pressure drop

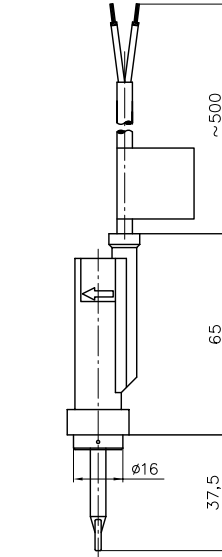


### VKX15



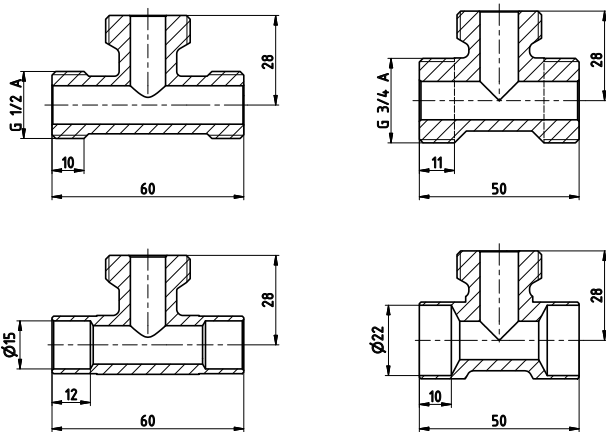
Flow direction

### VKX15 Push-In



Flow direction

Female socket design



### Materials in contact with fluid

Type	VKX15	VKX15 Push-In
Body	PPE+PS Noryl™ 30 % glass fibre reinforced	
Paddle	PPE+PS Noryl™ 30 % glass fibre reinforced	
Pin	Stainless steel 1.4571	
Magnet	Hard ferrite	
O-ring	EPDM	
Pipe tee	Brass CW617N	

Order code	Example → VKX15M2P2	AP	A31
Type	VKX15		
Switching voltage	230 VAC, 48 VDC 24 VAC, 42 VDC	AP BP	
Process connection	Pipe tee G $\frac{1}{2}$ male Pipe tee G $\frac{3}{4}$ male Pipe tee 15 mm soldering connection Pipe tee 22 mm soldering connection Push-In for manifold mounting		A31 A41 L31 L41 H10



# Flow switches for HVAC applications

For pool applications

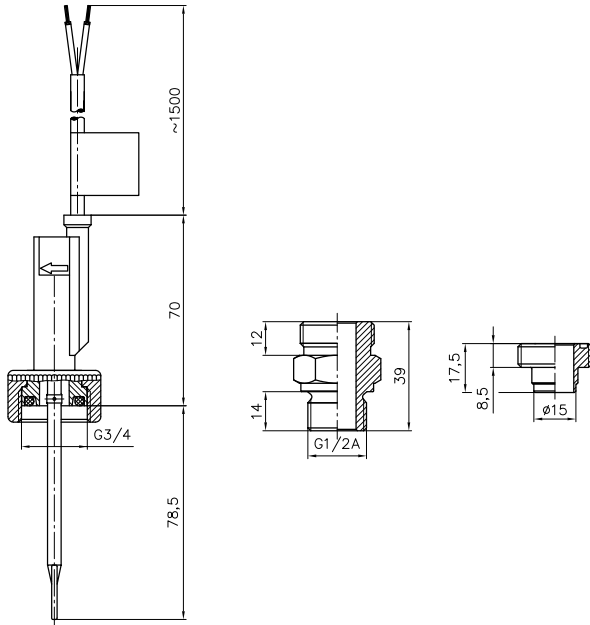


## Advantages

- Flow switches for pool applications
- Insertion installation into pipelines DN 50...150
- Installation with union nut or Push-In
- With integrated O-ring
- VKL - pin made of plastic
- OEM flow switches, delivery lots from 100 units

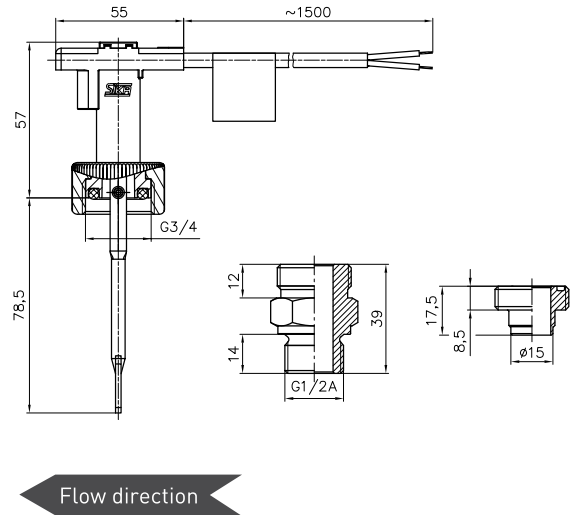
<b>Technical data</b>	<b>VKX05</b>	<b>VKL05 / VKL05 Push-In</b>	
<b>Switching function</b>	Contact closes at increasing flow		
<b>Nominal diameter range</b>	Applicable in DN 50...150		
<b>Pressure rating</b>	PN 10		
<b>Temperature ranges</b>			
<b>Medium</b>	-20...100 °C	-20...70 °C	
<b>Ambient</b>	-20...70 °C		
<b>Electrical data</b>			
<b>Electrical connection</b>	1.5 m PVC jacket cable		
<b>Degree of protection EN 60529</b>	IP65		
<b>Switching current</b>	Max. 1 A		
<b>Rating</b>	Max. 26 VA, 20 W		
<b>Switching voltage</b>	Max. 230 VAC, 48 VDC	Max. 24 VAC, 42 VDC	Max. 230 VAC, 48 VDC
<b>Protection class EN 60730-1</b>	Class II	Class III	Class II
<b>Approvals</b>			
	 		

### VKX05

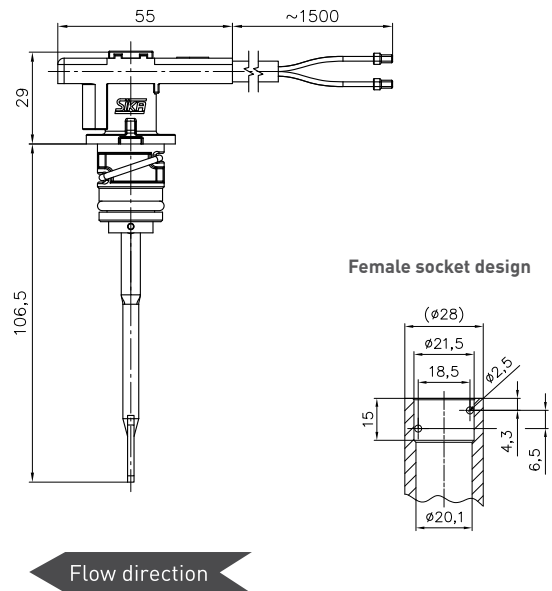


Flow direction

### VKL05



### VKL05 Push-In



#### Materials in contact with fluid

Type	VKX05	VKL05	VKL05 Push-In
<b>Body</b>	PPE+PS Noryl™ 30 % glass fibre reinforced	PPE+PS Noryl™ 30 % glass fibre reinforced	
<b>Paddle</b>	PPE+PS Noryl™ 30 % glass fibre reinforced	PPE+PS Noryl™ 30 % glass fibre reinforced	
<b>Pin</b>	Stainless steel 1.4571	PPE+PS Noryl™ 30 % glass fibre reinforced	
<b>Magnet</b>	Hard ferrite		
<b>O-ring</b>	EPDM		
<b>Soldering adapter</b>	Brass CW614N		
<b>Process connection</b>	Brass CW614N or stainless steel 1.4571		

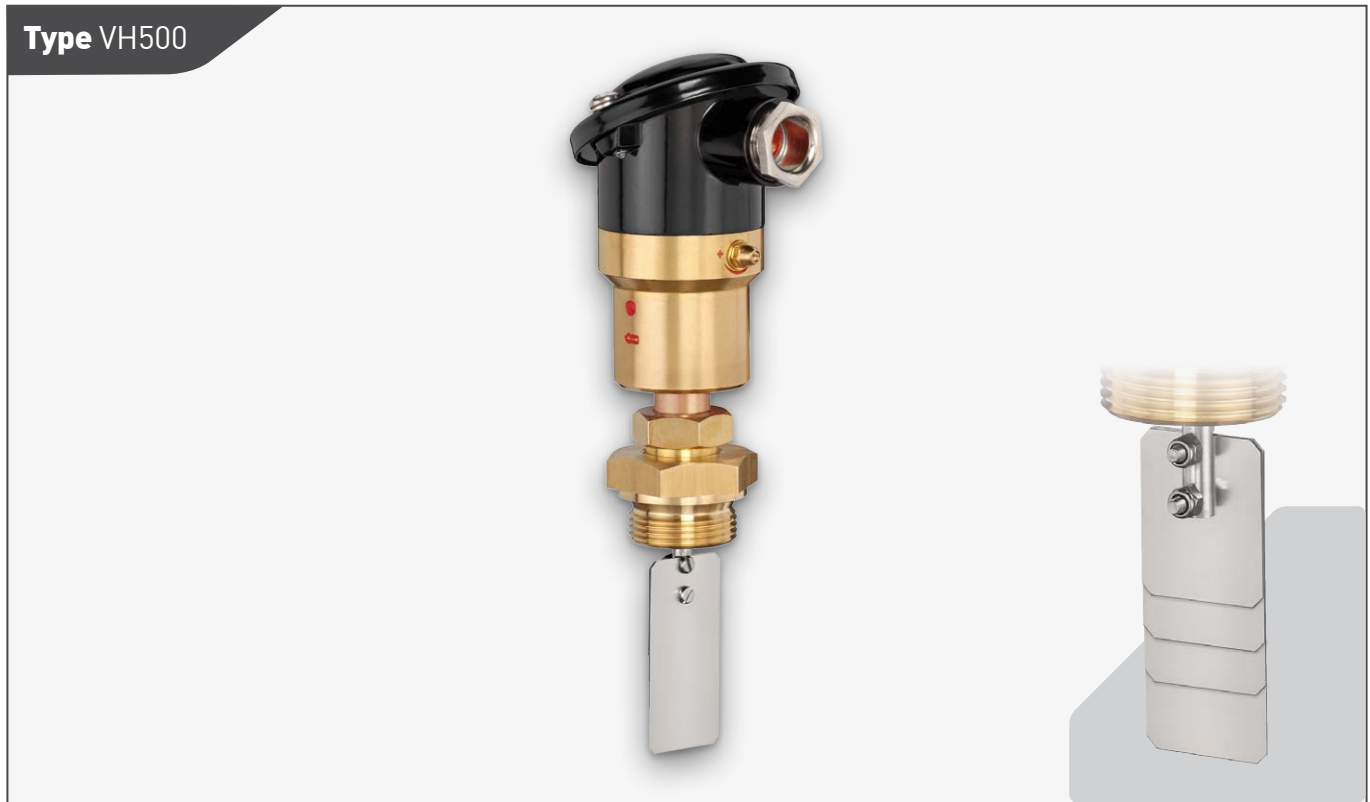


Order code	Example → VKX05M2P2	AP	U10
<b>Type</b>			
VKX05	VKX05M2P2		
<b>Switching voltage</b>			
230 VAC, 48 VDC		AP	
24 VAC, 42 VDC		BP	
<b>Process connection</b>			
Union nut G <sup>3</sup> / <sub>4</sub>			U10
Threaded adapter G <sup>1</sup> / <sub>2</sub> brass			R21
Threaded adapter G <sup>1</sup> / <sub>2</sub> stainless steel			R23
Soldering adapter			D11


Order code	Example → VKL05M1P2BP	U10
<b>Type</b>		
VKL05	VKL05M1P2BP	
<b>Process connection</b>		
Union nut G <sup>3</sup> / <sub>4</sub>		U10
Threaded adapter G <sup>1</sup> / <sub>2</sub> brass		R21
Threaded adapter G <sup>1</sup> / <sub>2</sub> stainless steel		R23
Soldering adapter		D11
Push-In for manifold mounting		H20

# Flow switches for insertion installation

Paddles interchangeable, for marine applications



Type VH500

Technical data	
<b>Switching function</b>	Change over contact
<b>Pressure rating (Test pressure)</b>	Max. 6 bar (10 bar) or max. 10 bar (15 bar)
Temperatures	
<b>Medium</b>	Max. 100 °C
<b>Ambient</b>	Max. 85 °C
Electrical data	
<b>Max. contact rating</b>	24 VDC, 5 A resistive load 4 A inductive load 60 VDC, 1 A resistive load 0.5 A inductive load 250 VAC, 10 A resistive load 10 A inductive load
<b>Degree of protection EN 60529</b>	IP54
<b>Protection class EN 60730-1</b>	Class I
Approvals	
 DNV GL type approval Certificate No. TA000011M and 9497010 HH	

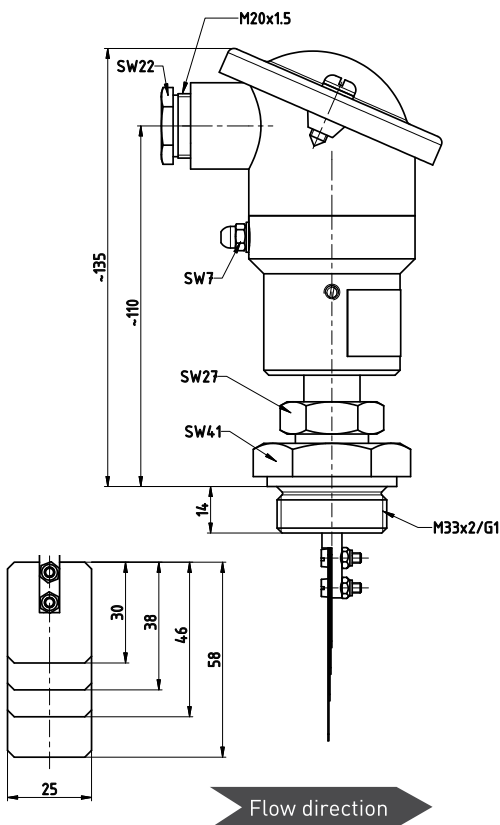
## Advantages

- DNV GL type approval
- Suitable for water, oil, etc.
- Insertion installation into pipes or pipe tees DN 25...DN 50 or bigger
- Easy installation and alignment due to screw in connection
- Four paddles in different sizes included, selection in accordance to the pipe size
- Set point adjustment by paddle size selection and by adjustment screw
- Micro switch with high contact rating
- Robust, vibration-resistant up to 4 g

Size of pipe tee	Paddle to select**	Set point ranges [m³/h]*	
		Increasing flow ON	Decreasing flow OFF
DN 25	25 x 30 mm	1.0...1.25	1.05...1.2
DN 32	25 x 38 mm	1.7...2.05	1.6...1.95
DN 40	25 x 46 mm	2.2...2.55	2.1...2.45
DN 50	25 x 58 mm	3.25...3.85	3.15...3.75

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

\*\* Higher set points selectable by use of smaller paddle sizes  
Set points for bigger pipe sizes on request



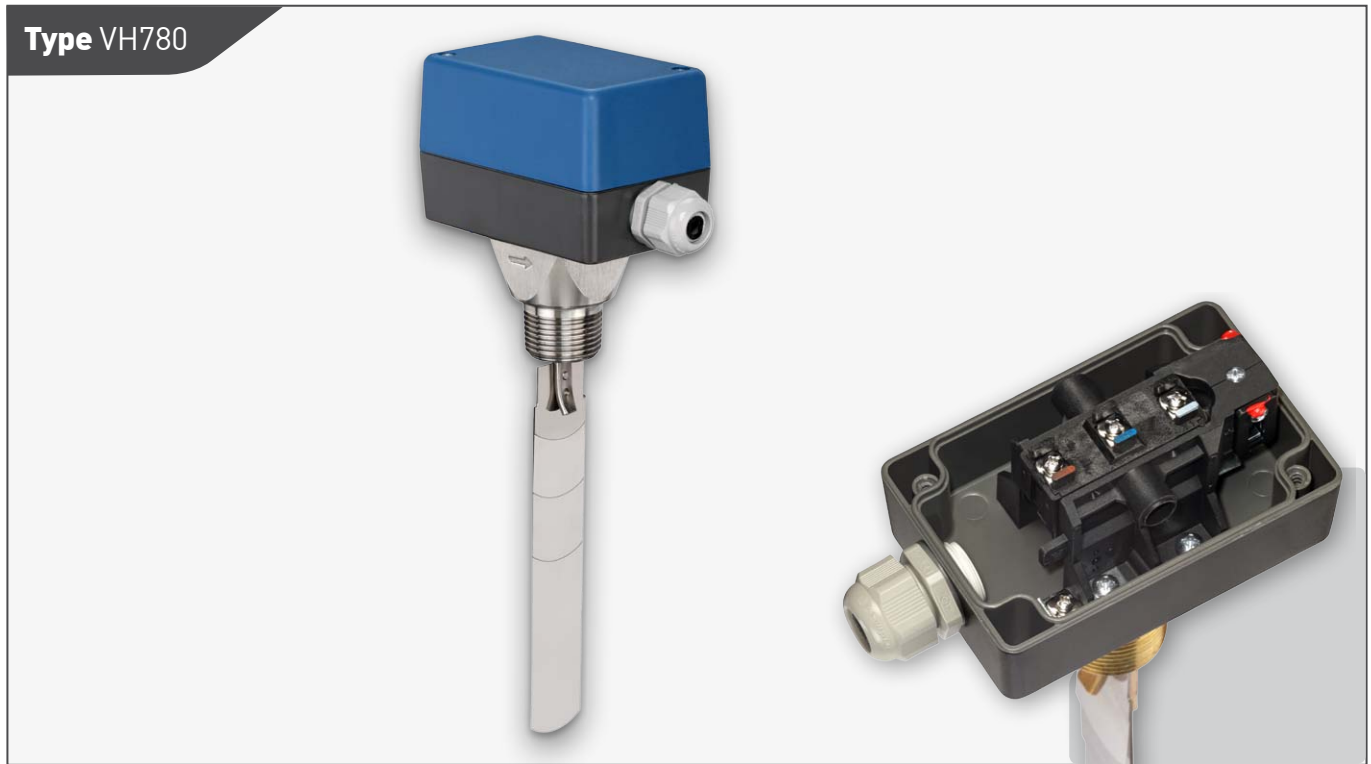
#### Materials in contact with fluid

Body, process connection	Brass 2.0401
Bellow system	Stainless steel 1.4571
Paddles	Stainless steel 1.4310
Flat gasket	HD 300
O-ring	NBR

Order code	Example → VH500	N	I3451R41
<b>Type</b>			
VH500	VH500		
<b>Pressure rating</b>			
6 bar		N	
10 bar		R	
<b>Process connection</b>			
G1			I3451R41
M33 x 2			M3451M41

# Flow switches for insertion installation

Paddles interchangeable



Type VH780

Technical data	
Switching function	Change over contact
Pressure rating	Max. 11 bar (brass) Max. 30 bar (stainless steel)
Temperature ranges	
Medium	-40...120 °C
Ambient	-40...85 °C (10...90 % rH)
Storage and Transportation	-40...85 °C, < 95 % rH
Electrical data	
Change over contact max. contact rating	250 VAC, 15 A, 8 A inductive load
Degree of protection EN 60529	IP65
Protection class EN 60730-1	Class I

### Advantages

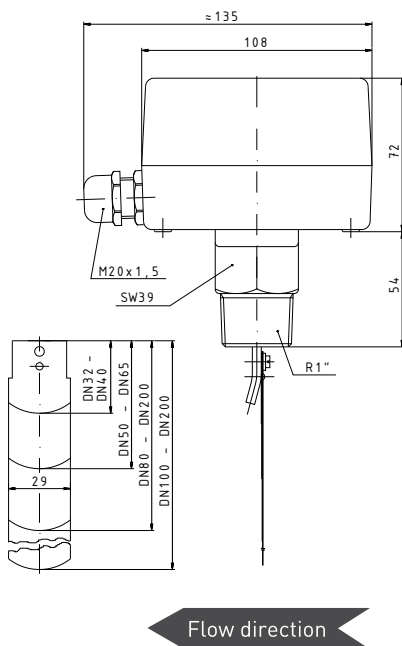
- Insertion installation into existing pipes
- One unit covers a wide range of pipe sizes (DN 32...200)
- Two versions (set point ranges)
- Adjustable setpoint
- Micro switch for high contact rating

Nominal diameter	Paddle to select**	Setpoint ranges [m³/h]*				Max. flow rate [m³/h]
		Standard Setpoint		Low Setpoint		
		Increasing flow ON	Decreasing flow OFF	Increasing flow ON	Decreasing flow OFF	
DN 32	29 x 34 mm	1.3...3.0	0.8...2.8	0.9...1.6	0.25...1.4	3.6
DN 40	29 x 34 mm	1.7...4.0	1.1...3.7	1.2...2.2	0.5...1.6	4.8
DN 50	29 x 60 mm	3.1...6.1	2.2...5.7	2.3...4.1	0.9...3.6	7.3
DN 65	29 x 60 mm	4.0...7.0	2.7...6.5	3.1...5.5	1.2...4.9	8.4
DN 80	29 x 89 mm	6.2...11.4	4.3...10.7	4.9...8.2	2.1...7.4	13.7
DN 100	29 x 167 mm***1	8.0...18.4	6.1...17.3	7.7...13.0	3.3...11.6	22.1
DN 125	29 x 167 mm***2	12.9...26.8	9.3...25.2	11.5...19.6	5.0...17.5	32.2
DN 150	29 x 167 mm***3	16.8...32.7	12.3...30.6	14.1...23.9	6.1...21.4	39.2
DN 200	29 x 167 mm	46.5...94.2	38.6...90.8	36.5...61.8	21.7...55.3	113

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

\*\* Higher setpoints selectable by use of smaller paddle sizes.

\*\*\*1shortened to 29 x 91 mm, \*\*\*2shortened to 29 x 117 mm, \*\*\*3shortened to 29 x 144 mm



#### Materials in contact with fluid

	Brass version	Stainless steel version
<b>Body</b>	Brass CW617N	Stainless steel 1.4404
<b>Paddle</b>	Stainless steel 1.4404	
<b>Lever</b>	Brass CW617N	Stainless steel 1.4404
<b>Teeth lock washer</b>	Stainless steel 1.4301	
<b>Fastening screw</b>	Stainless steel 1.4301	
<b>Bellow</b>	Bronze CW453	Stainless steel 1.4404

Order code	Example → VH780J4	1	1LS10110
<b>Type</b>			
VH780	VH780J4		
<b>Material</b>			
Brass		1	
Stainless steel		3	
<b>Setpoint</b>			
Standard			1LS10110
Low			2LS10110

# Paddle flow switches for insertion installation

## Oil flow monitoring for traction transformers



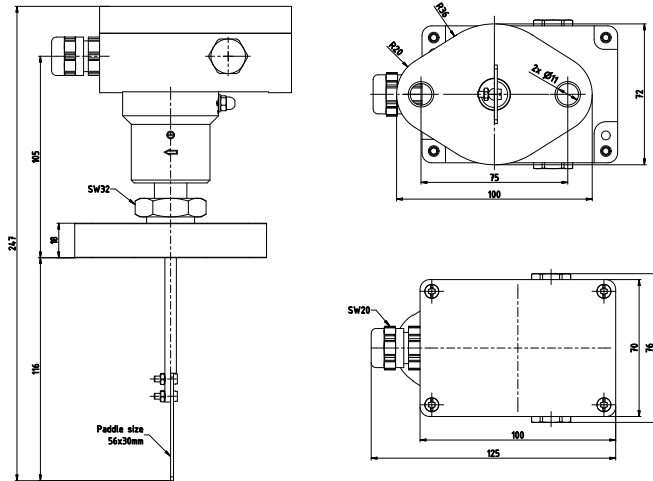
### Benefits

- For oil flow monitoring
- Insertion installation into pipes DN 65...DN 100 (DN 25...DN 50 on request)
- Factory adjusted flow set point
- Micro switch with high contact rating
- Version with two separate micro switches available
- Cable gland selectable on three sides
- All seals silicone
- Flanged or threaded version
- Comply with following technical specifications for railway applications:
  - DIN EN 60077-1:2003
  - DIN EN 50125-1:2014
  - DIN EN 50216-5:2007
  - DIN EN 45545-2:2016

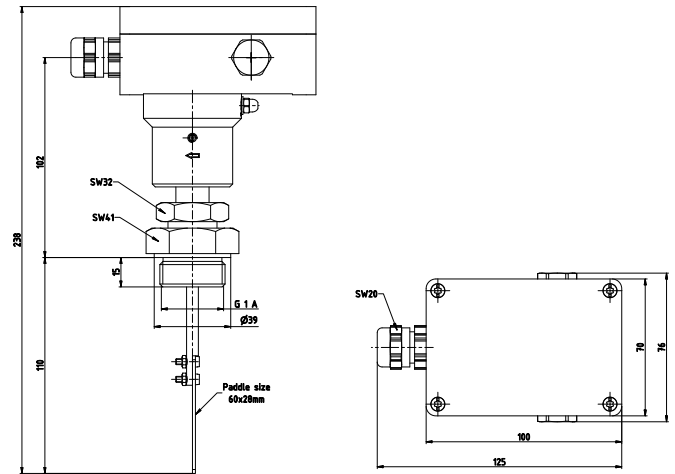
Technical data	
Switching function	Change over contact or two change over contacts
Setpoint*	Flanged version 6 m <sup>3</sup> /h at increasing flow for DN 65 pipes Threaded version 10 m <sup>3</sup> /h at increasing flow for DN 80 pipes
Pressure rating (Test pressure)	Max. 10 bar (14 bar)
Process connection	Flange, oval, 2 holes without O-ring groove Flange, round, 4 holes without O-ring groove Screw in connection G1 male
Vibration proof IEC61373	4g
Temperature ranges	
Medium	-40...120 °C
Ambient	-40...100 °C
Storage	-40...100 °C
Electrical data	
Electrical connection	Direct cabling, QC terminals 2.8 x 0.5 mm
Max. contact rating	48 VDC, 1 A resistive load 110 VDC, 0.5 A resistive load / 0.2 A inductive load 250 VAC, 6 A resistive load
Degree of protection EN 60529	IP68 and IP69K
Terminal box	
Surface finish	Powder coated RAL9006
Impact resistance	IK10 (10 Joule)
Cable gland	M16 x 1.5
Cable diameter range	4...11 mm
Cable gland orientation	Location selectable on three sides

\* Other setpoints on request

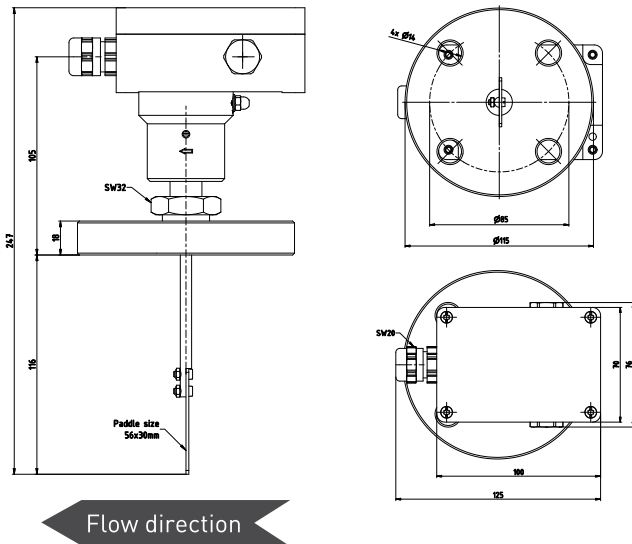
### Flanged version, oval flange



### Threaded version



### Flanged version, round flange



#### Materials in contact with fluid

<b>Body, process connection</b>	Brass 2.0401 and brass 2.041nickel-plated
<b>Bellow system</b>	Stainless steel 1.4571
<b>Paddle</b>	Stainless steel 1.4571
<b>Flange*</b>	Stainless steel 1.4404
<b>O-rings</b>	FVMQ

\* Only flanged version

Order code	Example →	VH501R	F1	1	1N3Q00
<b>Type</b>					
VH501		VH501R			
<b>Process connection</b>					
Flange, oval, 2 holes without O-ring groove			F1		1N3Q00
Flange, round, 4 holes without O-ring groove			A1		1N3Q00
Screw in connection G1 male			I1		1N1Q00
<b>Switching function</b>					
One change over contact				1	
Two change over contacts				2	

# Flow switches for air flow

Type VH780



Technical data	
Switching function	Change over contact
Pressure rating	Atmospheric pressure
Temperature ranges	
Medium	-10...85 °C
Ambient	-35...65 °C
Storage and Transportation	-40...85 °C
Electrical data	
Max. contact rating	250 VAC, 15 A, 8 A inductive load
Degree of protection EN 60529	IP65
Protection class EN 60730-1	Class I

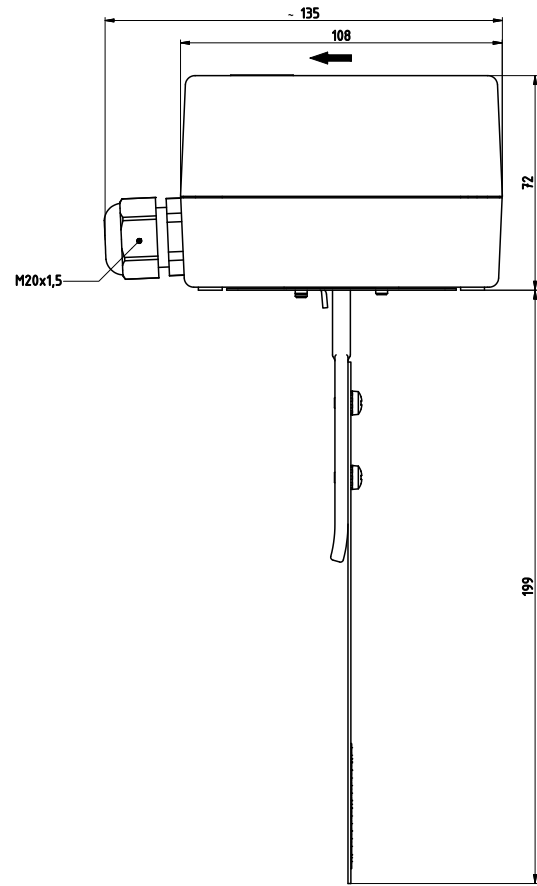
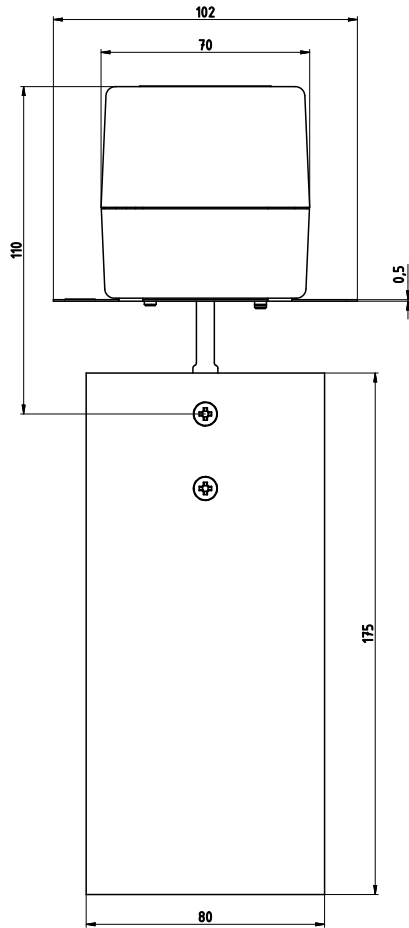
## Advantages

- Flange connection for square air ducts
- Adjustable setpoint
- Micro switch for high contact rating

## Setpoint ranges [m/s]

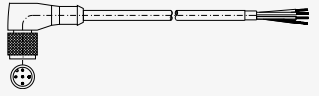

Paddle size	Increasing velocity ON	Decreasing velocity OFF	Max. velocity
175 x 80 mm	2...5	1...4	7
Cut to 175 x 45 mm	2.5...9.2	2...8	10

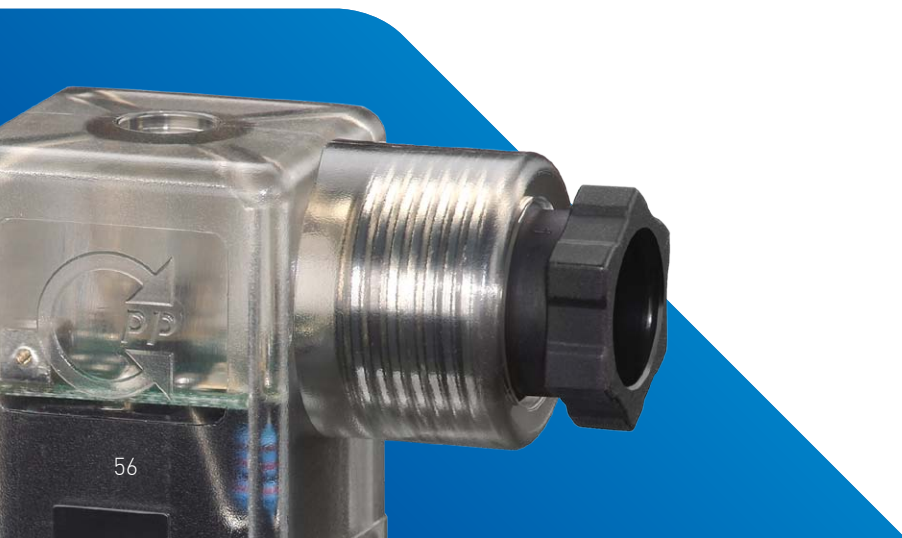




Materials	
<b>Paddle</b>	Stainless steel 1.4404
<b>Lever</b>	Brass CW607N
<b>Flange</b>	Zink coated steel
<b>Case</b>	ABS / PC
<b>Flange gasket</b>	Betaflex® 77

**Order code**  
**VH780V1S1AS13130**

Accessories	Länge	Bestellcode	
Connection cable with 4-pin cable socket M12 x 1, angle type moulded lead, sheathing material PUR, shielded, (T <sub>max</sub> = 80 °C) - UL-approval	3 m	XVT2053	
	5 m	XVT2009	
	10 m	XVT2070	
4-pin cable socket M12 x 1 angle type, unassembled		VT1331	
Cable socket with two LEDs Switching voltage 24...230 V AC/DC ±20 % Ambient temperature -20...70 °C for retrofit / replacement of cable socket without LED		XVH958	



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