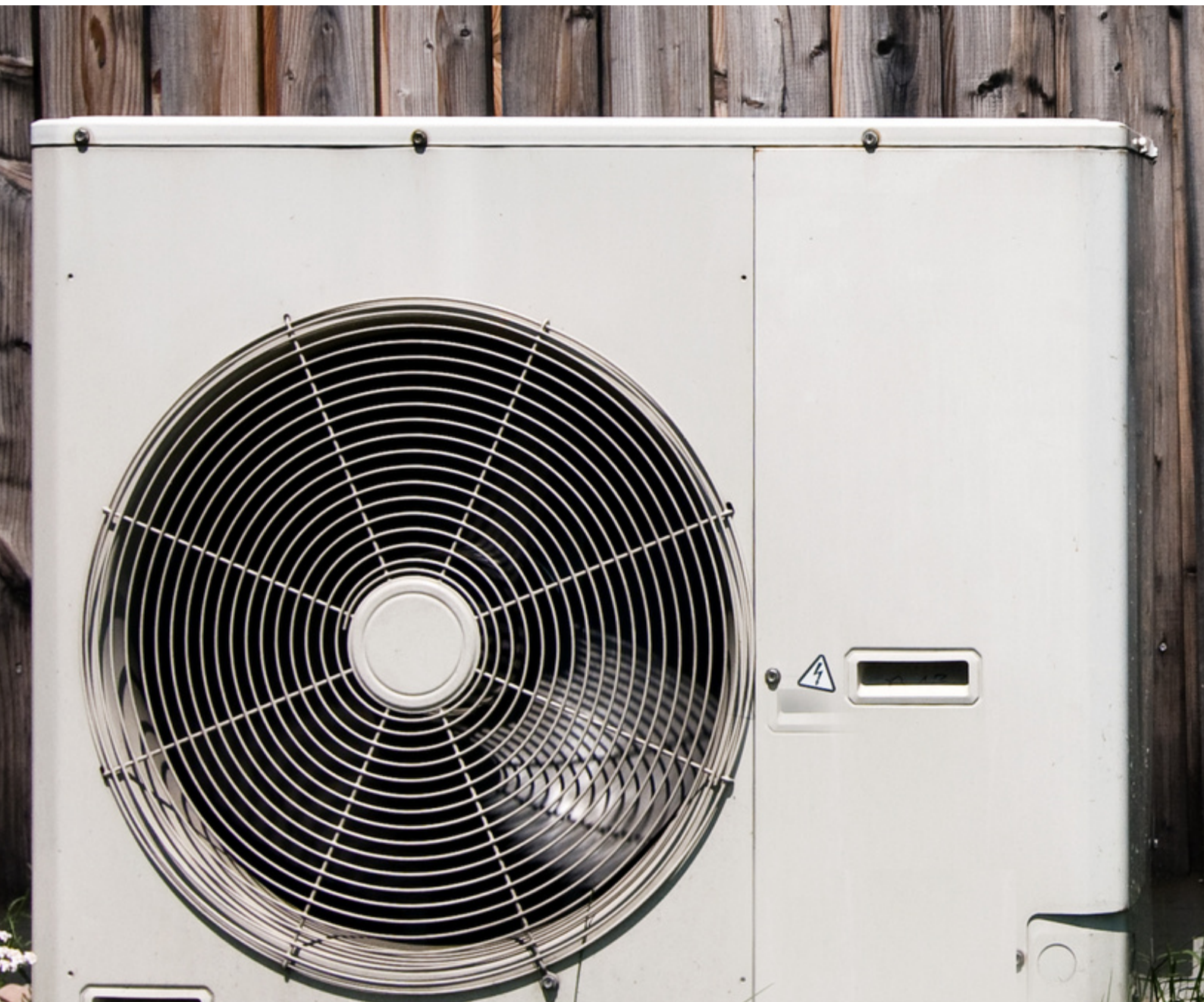




OEM Sensors for HVAC manufacturers

HEATING WATER



Heating water

Typical flow switch application

Product features

- Reliable pump monitoring
- For soldering into existing copper pipes or with a pipe tee
- Special protection against contamination
- Customised set point
- Glass-fibre reinforced plastics
- Used in market-leading heating appliances

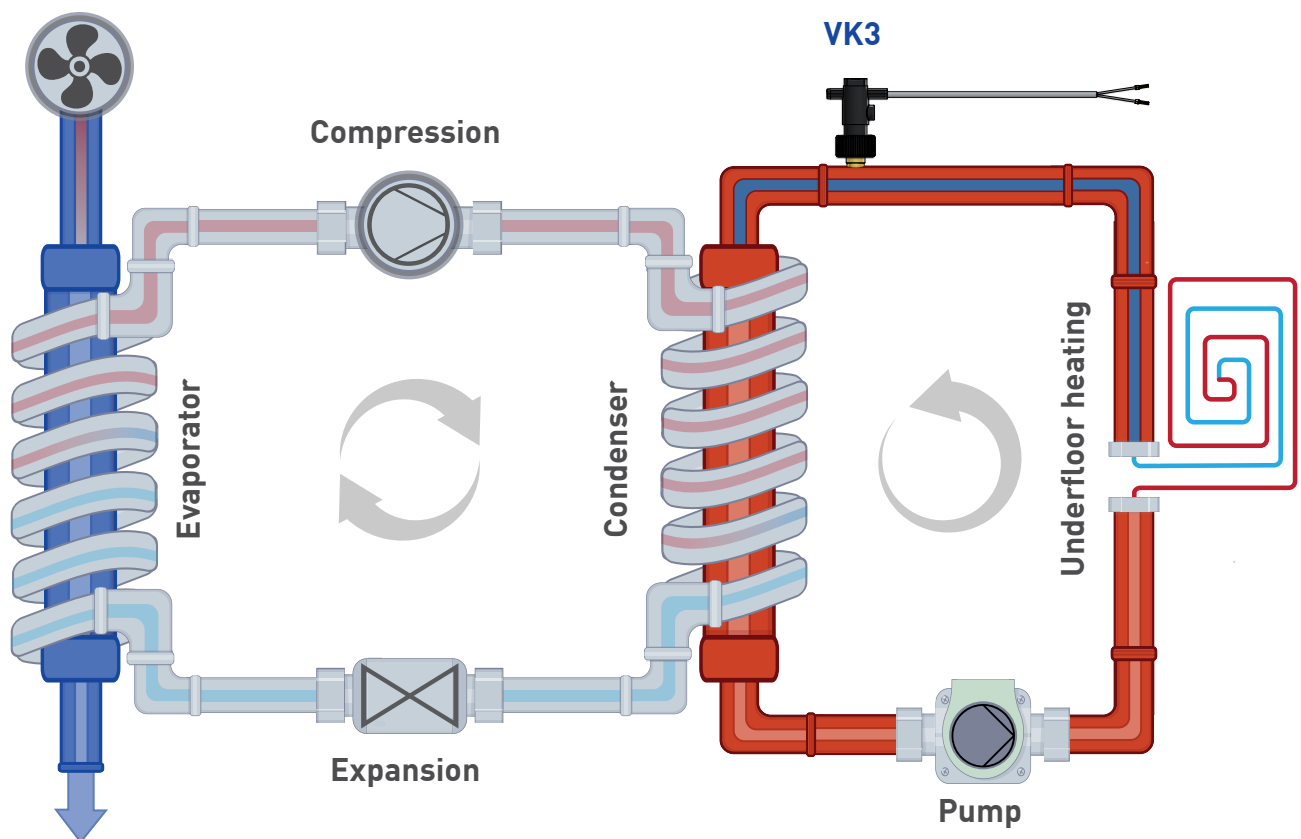


VK3 in heating circuits

SIKA flow switches are typically utilised in heating circuits. The most common application is in air to water heat pumps. A lack of flow in the heating circuit during chilling or defrosting mode might cause partial freezing of the heat exchanger. SIKA can provide customised flow switches to meet your set point requirements adapted to the individual needs of the heat exchanger, therefore detecting these critical flow values. SIKA flow switches help to prevent freezing in heat exchangers. The installation is highly cost effective since they can be inserted into existing copper pipes.

“ A flow switch also gives protection of the electrical back-up heater in the water tank against overheating in case of lack of flow. ”

Outside air



Heating water

Typical vortex flow sensor application

Product features

- For energy balancing and pump control
- Sensor element not in contact with medium, encapsulated entirely in plastic
- Insensitive to pressure peaks during filling
- Integrated temperature sensor
- Threaded connection or QuickFasten
- Brass or stainless steel pipe section for large nominal diameters
- Digital or analogue output signal
- Customised setup by parameters

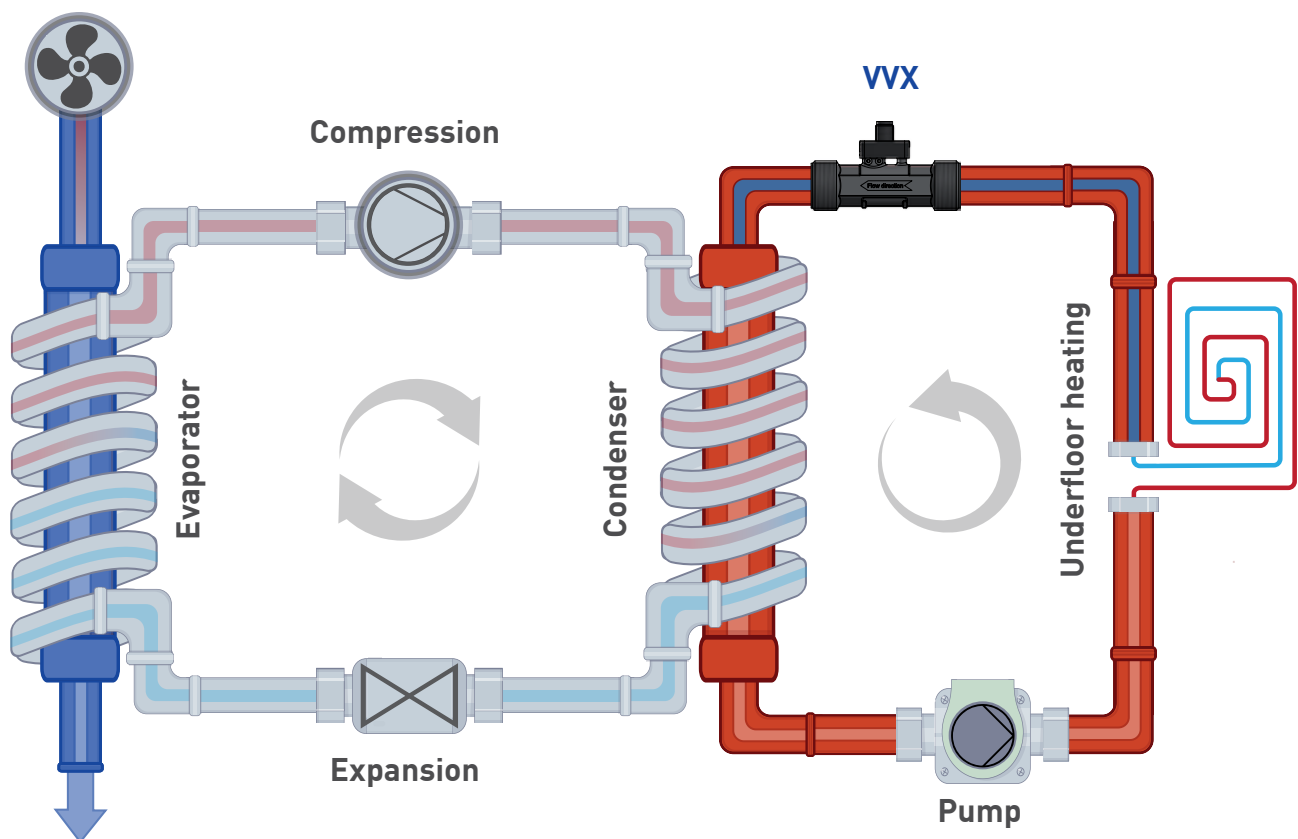


VVX in heating circuits

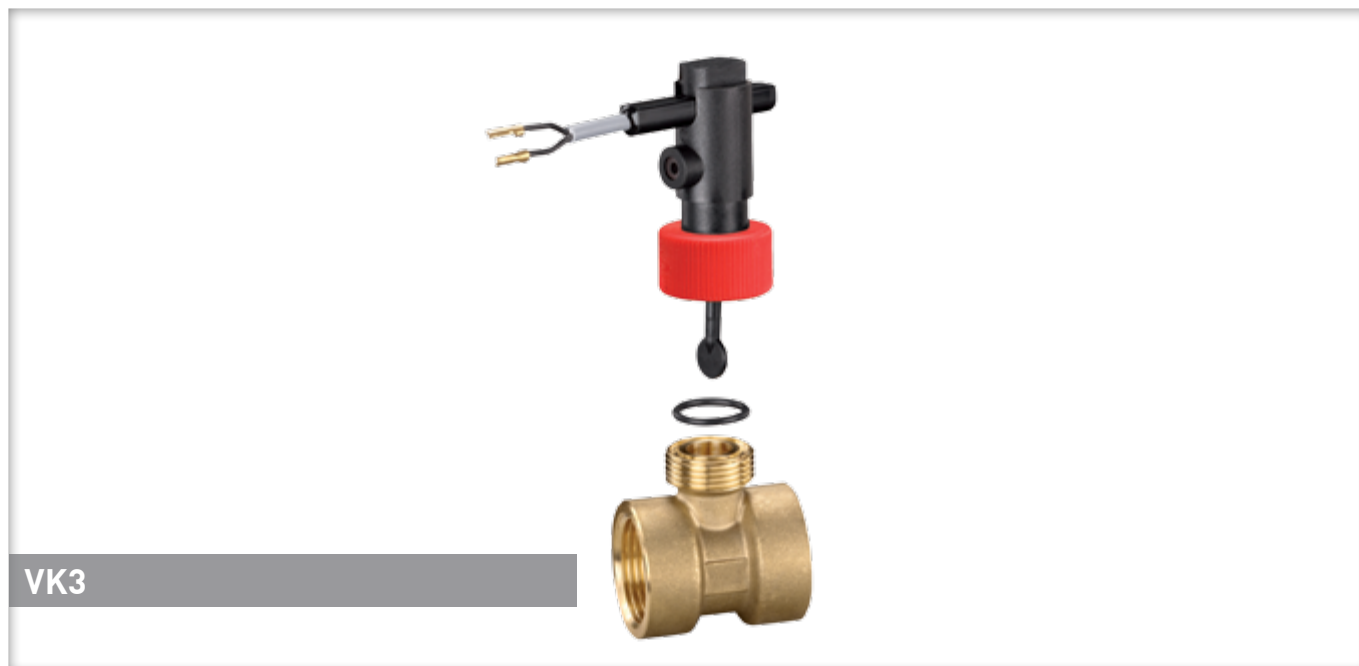
SIKA Vortex flow sensors are the latest technology in heating circuits of "air to water" heat pumps and large heat pumps utilised by the leading global heat pump manufacturers. The flow proportional signal of the flow sensor facilitates a higher efficiency operation of the heat pump, in addition to the prevention of freezing in the heat exchanger

“ 100 % of SIKA Vortex flow sensors get a 3 or 6 point calibration in a water test bench and are traceable via serial number. ”

Outside air



VK3 // with pipe tee



VK3

Your advantages

Series	VK3
	<ul style="list-style-type: none"> • Cost optimized plastic version • Factory set special set points for series applications • Brass tee DN 8...50

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	IP65
Protection class EN 60730-1	Class II
Approvals	



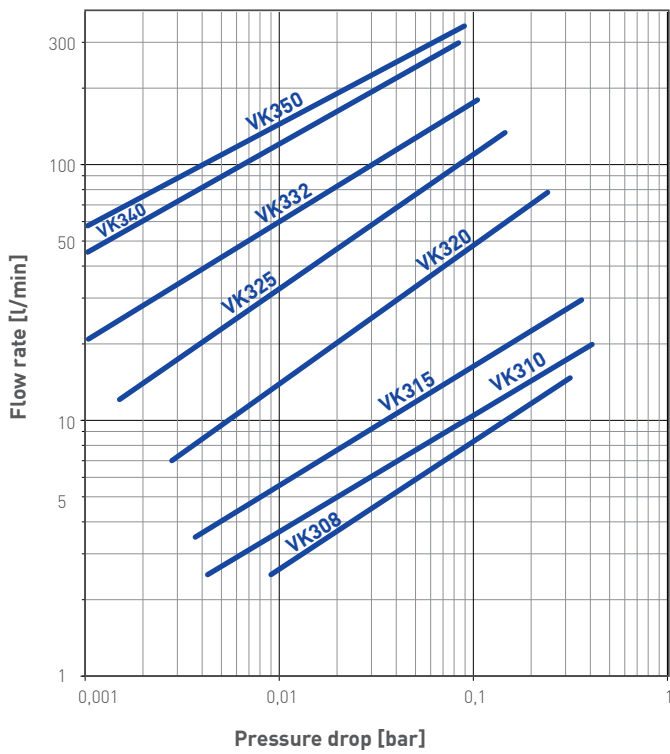
Options

For type	On request
VK3	<ul style="list-style-type: none"> → Special setpoints → 4 different colours of the union nut for distinction → Recognized component ETL according to UL & CSA standards

Nominal diameter	Thread connection D ₁	Setpoint ranges [l/min]*		Max. flow rate [l/min]
		Increasing flow ON	Decreasing flow OFF	
DN 8	G ¹ / ₄	2.7...3.0	2.6...2.9	15
DN 10	G ³ / ₈	3.0...3.8	2.8...3.7	20
DN 15	G ¹ / ₂	3.8...5.1	3.6...4.9	30
DN 15	G ¹ / ₂ male	3.0...3.8	2.8...3.7	20
DN 15	G ³ / ₄ male	3.0...3.8	2.8...3.7	20
DN 20	G ³ / ₄	7.2...9.0	6.9...8.7	80
DN 25	G 1	13.0...16.5	12.3...15.9	130
DN 32	G 1 ¹ / ₄	16.5...21.0	16.0...20.5	180
DN 40	G 1 ¹ / ₂	27.0...33.5	25.5...32.5	300
DN 50	G 2	41.5...53.5	40.6...52.8	350

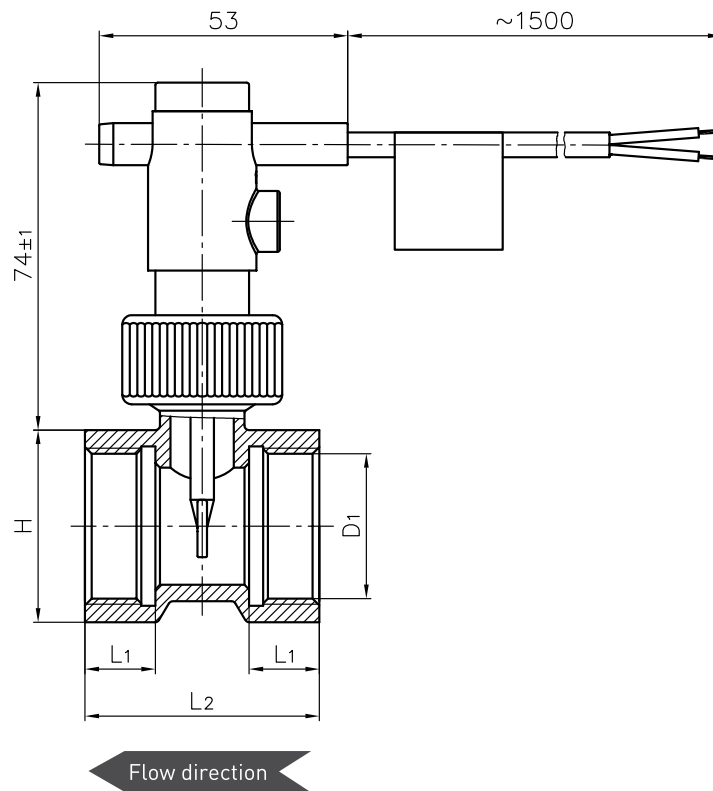
* Water, 20 °C, horizontal pipe, tolerance ±15 %

Typical pressure drop



Dimensions [mm]

Thread connection D ₁	L ₁	L ₂	H
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

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

* only VK340 and VK350

Order code		
Nominal diameter	Thread connection	Order number
DN 8	G ¼	VK308M0P10PI11
DN 10	G ⅜	VK310M0P10PI21
DN 15	G ½	VK315M0P10PI31
DN 15	G ½ male	VK315M0P10PA31
DN 15	G ¾ male	VK315M0P10PA41
DN 20	G ¾	VK320M0P10PI41
DN 25	G 1	VK325M0P10PI51
DN 32	G 1¼	VK332M0P10PI61
DN 40	G 1½	VK340M0P10PI71
DN 50	G 2	VK350M0P10PI81

VK3 // for insertion installation



VK3

Your advantages

Series	VK3
	<ul style="list-style-type: none"> • Cost optimized plastic version • Factory set special set points for series applications • Paddle lengths for copper pipes Ø 22...54 • Different colours of the union nut for an easy distinction • 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



Options

For type	On request
VK3	<ul style="list-style-type: none"> → Special setpoints → Reversed switching function → Insertion into collared copper pipes* → Recognized component ETL according to UL & CSA standards

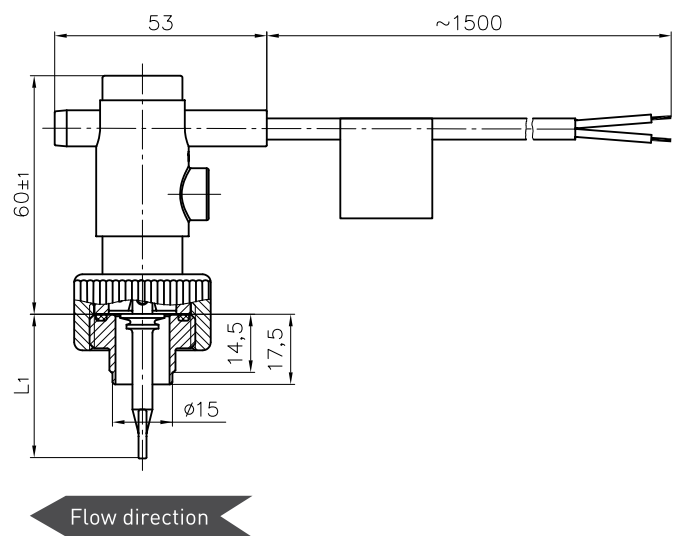
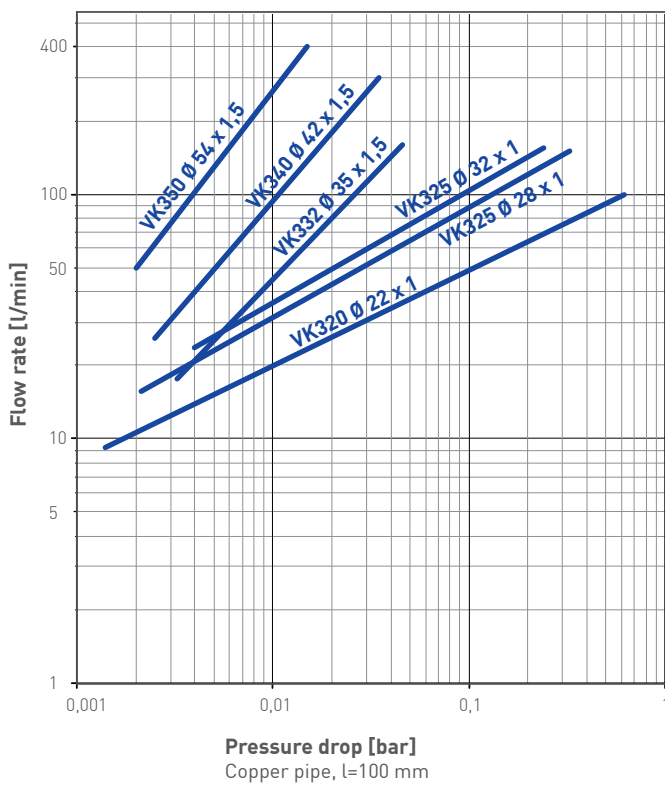
* Set points can differ

Order code						
Type	Color union nut	For copper pipes	Setpoints [l/min]*		Max. flow rate [l/min]	Order number
			Increasing flow ON**	Decreasing flow OFF		
VK320	●	∅ 22x1	10.5	9.2	100	VK320M0P10PD11
VK325	●	∅ 28x1	17.6	15.7	150	VK325M0P10PD11
		∅ 32x1	25.7	23.6	155	
VK332	●	∅ 35x1.5	20.0	17.5	160	VK332M0P10PD11
VK340	●	∅ 42x1.5	28.0	25.8	300	VK340M0P10PD11
VK350	●	∅ 54x1.5	58.3	50.2	400	VK350M2P10PD11

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

** Typical value

Typical pressure drop



Dimensions [mm]	
Type	Paddle length L ₁
VK320	33.5
VK325	36.0
VK332	44.5
VK340	47.5
VK350	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

VVX



VVX20

BEST
SELLER

VVX20 QuickFasten

BEST
SELLER

Your advantages

Series	VVX
	<ul style="list-style-type: none"> • No mechanical wear → Flow sensor for liquids with no moving parts • Highest strength and performance → Rugged glass fibre reinforced plastic • Completely encapsulated piezoceramic sensor to detect the vortices → No direct contact with the medium • Wide measuring span (up to 1:21), integrated temperature sensor, high interference resistance, • wetted parts metal-free, traceability by serial number, thread connection or QuickFasten

Technical data	VVX15	VVX20	VVX25
Nominal diameter	DN 15	DN 20	DN 25
Process connection	G¾-ISO 228 male, incl. O-rings	QuickFasten or G1-ISO 228 male, incl. O-rings	G 1¼-ISO 228 male, incl. O-rings
Inner diameter	Ø 13 mm	Ø 19 mm	Ø 25 mm
Flow range	2...40 l/min	5...80 l/min	7...150 l/min
Accuracy	±2 % of range*, deviations with high viscous media		
Repeatability	±0,5 % or ±1 %, see temperature ranges ambient		
Medium	Water and aqueous solution		
Pressure rating	PN 10		
Degree of protection EN 60529	IP65*** and IP67***		
Temperature ranges			
Medium	5...90 °C, -20...90 °C**		
Ambient	5...70 °C → Repeatability ±0,5 %, -20...5 °C → Repeatability ±1 %		
Electrical data			
Electrical connection	5-pin plug connector M12 x 1		
Power supply	8...30 V DC or 5 V DC (±5 %) or 12...24 VDC****		
Current consumption	< 15 mA		
Approvals			
	WRAS pending		
Option			
	Recognized component ETL according to UL und CSA Standards		

Three different versions available:

- Frequency output (1)
- Analogue 0.5...3.5 V and frequency output (2)
- Analogue 0...10 V or 4...20 mA and frequency output (3)

Frequency output (1)	VVX15	VVX20	VVX25
Output signal flow	Frequency signal, square wave, pulse duty ratio 50:50, signal current max. 20 mA		
Pulse rate	500 1/l (optional 3...1000 1/l)	200 1/l (optional 2...800 1/l)	100 1/l (optional 1...500 1/l)
Output signal temperature	Pt1000 2 wire, class B or NTC 10.74k, B 0/100 3450 or none		

Analogue output (2)	VVX15	VVX20	VVX25
Output signal flow	0.5...3.5 V		
Scaling	2...40 l/min	5...80 l/min	7...150 l/min
Voltage rate → 0.5...3.5 V	0.07895 V / l/min	0.04000 V / l/min	0.02098 V / l/min
Output signal temperature	Voltage signal 0.5...3.5 V corresponds to 0...90 °C or Pt1000 2 wire, class B or NTC 10.74k, B 0/100 3450 or none		

Analogue output (3)	VVX15	VVX20	VVX25
Output signal flow	0...10 V or 4...20 mA		
Scaling	0...40 l/min	0...80 l/min	0...150 l/min
Voltage rate → 0...10 V	0.25000 V / l/min	0.12500 V / l/min	0.06667 V / l/min
Current rate → 4...20 mA	0.40000 mA / l/min	0.20000 mA / l/min	0.10667 mA / l/min

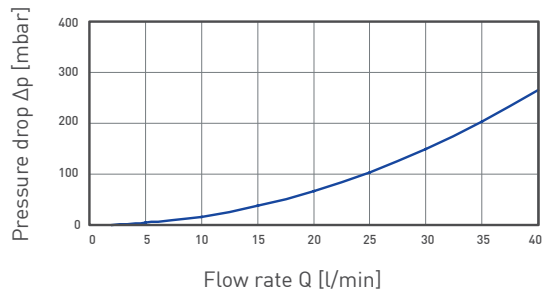
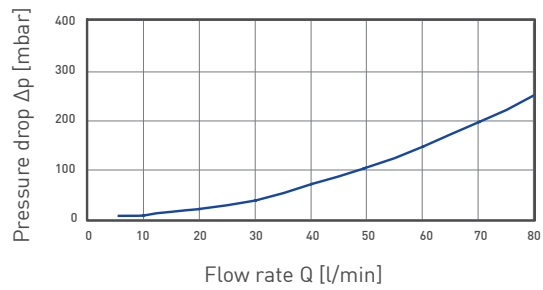
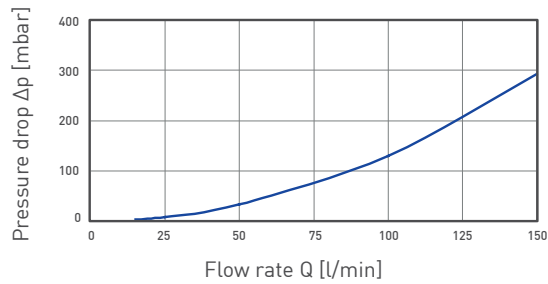
* Test conditions:

- Test medium water
- Media temperature 20...30 °C
- Inlet pressure 7...10 bar
- Defined inlet and outlet pipes (see operating manual)

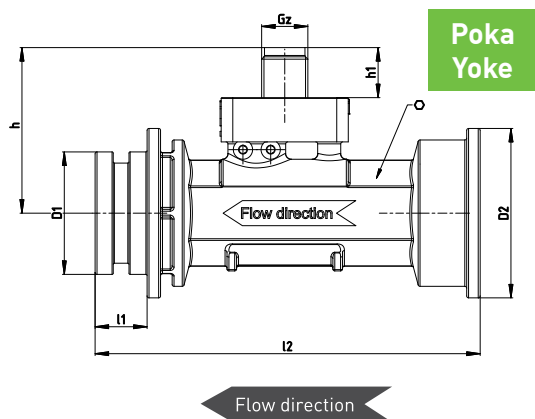
*** With attached cable socket only

**** Only available for output signal flow 4...20 mA and 0...10 V

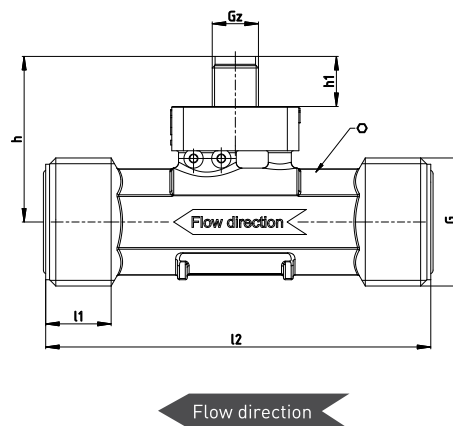
** Temperature cycle test: -20 °C / 70 °C, 0 % rH, cycle time 1.5 h, temperature gradient approx. 2.5 K/min, hold time at -20 °C and 70 °C 10 min each, 90 cycles: no failures

Typical pressure drop VVX15**Typical pressure drop VVX20****Typical pressure drop VVX25**

VVX20 QuickFasten



VVX threaded versions



Dimensions [mm]	h	h1	D1	D2	l1	l2	G	Gz	○ Width across flats
Threaded version									
VVX15	40	13			16,5	80	G ¾	M12 x 1	19
VVX20	43	13			16.5	100	G 1	M12 x 1	24
VVX25	46	13			16.5	95	G 1¼	M12 x 1	30
Quickfasten									
VVX20	43	13	31.8	44	13.5	100		M12 x 1	24

Materials in contact with media	
VVX15, VVX20, VVX25	
Body /tube	PPS Fortron® 40 % glass fibre reinforced
Sensor	ETFE Tefzel®
O-rings	EPDM

Version frequency output

Order code						
Nominal diameter						
DN 15	VXA1S		A			514
DN 20 QuickFasten	WXC9S		B			52P
DN 20 G1	WXC9S		B			527
DN 25	WXB2S		B			516
Power supply						
8...30 V DC		G			1	
5 V DC		P			2	
Output signal temperature						
Pt1000				RRRP		
NTC 10.74K				RRRN		
None				0000		
Example order number						
	VXA1S	G	A	RRRP	1	514

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SELLER

Type	Order number						
VVX15	DN 15, power supply 8...30 VDC, output signal temperature Pt1000	VXA1S	G	A	RRRP	1	514
VVX20	DN 20 G1, power supply 5 VDC, without output signal temperature	WXC9S	P	B	0000	2	527
VVX25	DN 25, power supply 8...30 VDC, output signal temperature Pt1000	WXB2S	G	B	RRRP	1	516

Version analogue output (0.5...3.5 V) and frequency output

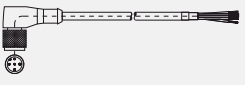













Order code						
Nominal diameter						
DN 15	VXA1SNA	U1				514
DN 20 QuickFasten	WXC9SNB	UC				52P
DN 20 G1	WXC9SNB	UC				527
DN 25	WXB2SNB	U2				516
Output signal temperature						
0.5...3.5 V*				U1		
Pt1000*				RP		
NTC 10.74K*				RN		
none				00		
Power supply						
8...30 V DC					1	
5 V DC					2	
Example order number						
	VXA1SNA	U1	U1		1	514

Version analogue output (0...10 V or 4...20 mA) and frequency output

Order code			
Nominal diameter			
DN 15	VXA1SGA		K003514
DN 20 QuickFasten	VXC9SGB		N00352P
DN 20 G1	VXC9SGB		N003527
DN 25	VXB2SGB		L003516
Output signal flow			
0...10 V		V	
4...20 mA		A	
Example order number	VVXA1SGA	V	K003514

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Type		Order number		
VVX15	DN 15, output signal flow 4...20 mA	VVXA1SGA	A	K003514
VVX20	DN 20 G1, output signal flow 4...20 mA	VVXC9SGB	A	N003527
VVX25	DN 25, output signal flow 4...20 mA	VVXB2SGB	A	L003516

Order code				
Type	Accessories		Length	Order number
V VX15 V VX20 V VX25		Connection cable with 5 pin cable socket M12 x 1, angle type molded lead 5 x 0.34 mm², sheathing material PVC (Tmax = 80 °C)*	1 m	XVWX040
			2 m	XVWX051
			3 m	XVWX039
			5 m	XVWX041
			10 m	XVWX042
		Connection cable with 5 pin cable socket M12 x 1, molded lead 5 x 0.34 mm², sheathing material PVC, 4 pin Molex MicroBlade wire-to-board housing, (Tmax = 80 °C)	1.5 m	XVWX065
Type	Accessories		Order number**	
V VX15		Screw coupling G 1/2, brass	BVWX1007	
		Soldering coupling Ø 15 mm, brass	BVWX1008	
V VX20		O-ring for QuickFasten, EPDM	XVWX061	
		Joint clip QuickFasten, stainless steel	XVWX052	
		Soldering coupling for QuickFasten, inlet side	BVWX1012	
		Soldering coupling for QuickFasten, outlet side	BVWX1011	
		Screw coupling G 1***, brass, compatibility type	BVWX1021	
V VX25		Screw coupling R1, brass	BVWX1003	
		Soldering coupling Ø 28 mm, brass	BVWX1004	
		Bonding coupling Ø 25 mm, PVC	BVWX1005	
		Screw coupling G 1, stainless steel 1.4571	BVWX1006	
		Screw coupling G 1 1/4***, brass, compatibility type	BVWX1022	

* Connection cable with UL approval on request

** Supplied piecewise

*** Two pieces are required for the assembly

VVX



VVX40

Your Advantages

Series	VVX
	<ul style="list-style-type: none"> • No mechanical wear → Flow sensor for liquids with no moving parts • Highest strength and performance → Rugged brass body • Completely encapsulated piezoceramic sensor to detect the vortices → No direct contact with the medium

Technical data	VVX32	VVX40
Nominal diameter	DN 32	DN 40
Process connection	G 1½-ISO 228 male, incl. O-rings	G 2-ISO 228 male, incl. O-rings
Inner diameter	Ø 32 mm	Ø 40 mm
Medium	Water and aqueous solutions	
Pressure rating	PN 16	
Degree of protection EN 60529	IP65***	
Flow measuring		
Measuring range	20...200 l/min	30...400 l/min
Accuracy	±2 % of range*, deviations with high viscous media	
Repeatability	±0.5 % or ±1 %, see temperature ranges ambient	
Temperature measuring		
Measuring range	0...90 °C	
Accuracy	±1 k	
Temperature ranges		
Medium	5...90 °C, -20...90 °C**	
Ambient	5...70 °C → Repeatability ±0,5 %, -20...5 °C → Repeatability ±1 %	
Electrical data		
Electrical connection	5-pin plug connector M12 x 1	
Power supply	8...30 V DC or 5 V DC (±5 %) or 12...24 VDC****	
Current consumption	< 15 mA	

Three different versions available:

- Frequency output (1)
- Analogue 0.5...3.5 V and frequency output (2)
- Analogue 0...10 V or 4...20 mA and frequency output (3)

Frequency output 1	VVX32	VVX40
Output signal flow	Frequency signal, square wave, pulse duty ratio 50:50, signal current max. 20 mA	
Pulse rate	100 1/l	50 1/l
Output signal temperature	Pt1000 2 wire, class B or NTC 10.74k, B 0/100 3450 or none	

Analogue output 2	VVX32	VVX40
Output signal flow	0.5...3.5 V	
Scaling	0...200 l/min	0...400 l/min
Voltage rate → 0.5...3.5 V	0.0150 V / l/min	0.0075 V / l/min
Output signal temperature	Voltage signal 0.5...3.5 V corresponds to -25...100 °C or Pt1000 2 wire, class B or NTC 10.74k, B 0/100 3450 or none	

Analogue output 3	VVX32	VVX40
Output signal flow	0...10 V or 4...20 mA	
Scaling	0...200 l/min	0...400 l/min
Voltage rate → 0...10 V	0.05000 V / l/min	0.02500 V / l/min
Current rate → 4...20 mA	0.08000 mA / l/min	0.04000 mA / l/min

* Test conditions:

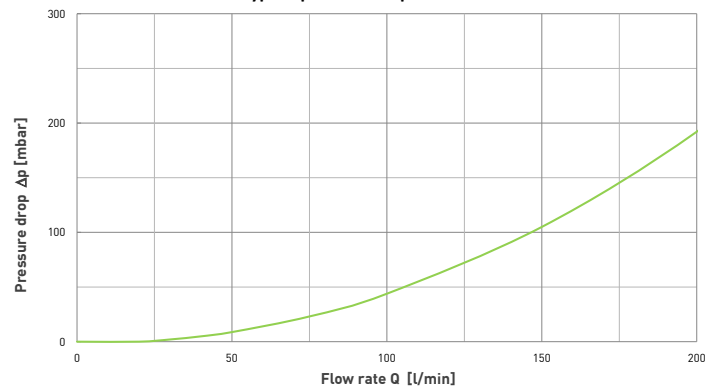
- Test medium water
- Media temperature 20...30 °C
- Inlet pressure 7...10 bar
- Defined inlet and outlet pipes (see operating manual)

*** With attached cable socket only

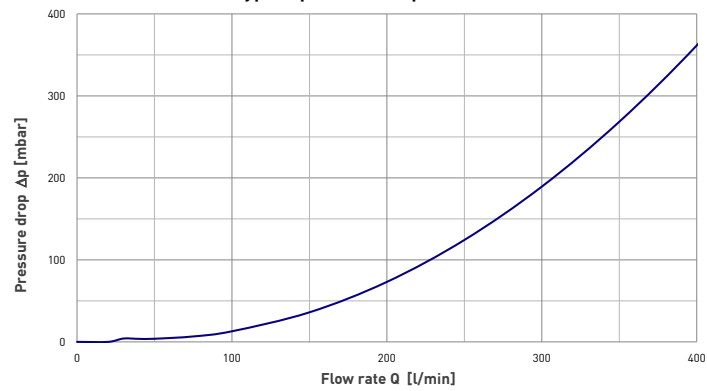
**** Only available for output signal flow 4...20 mA and 0...10 V

** Temperature cycle test: -20 °C / 70 °C, 0 % rH, cycle time 1.5 h, temperature gradient approx. 2.5 K/min, hold time at -20 °C and 70 °C 10 min each, 90 cycles: no failures

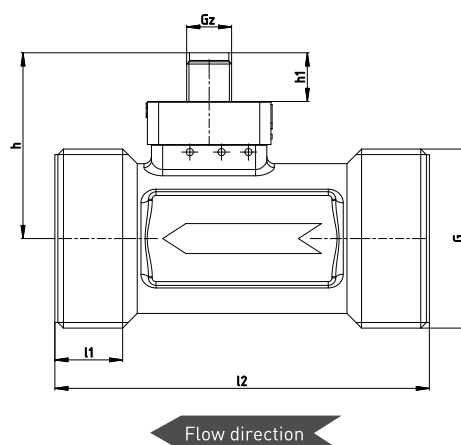
Typical pressure drop VVX32



Typical pressure drop VVX40



V VX threaded versions



Dimensions [mm]	h	h1	l1	l2	G	Gz
V VX32	49.6	13	18	100	G 1½	M12 x 1
V VX40	53.6	13	18.2	110	G 2	M12 x 1

Materials in contact with media

Body /tube	Brass CW617N-DW
Sensor	ETFE Tefzel®
O-rings	EPDM
Immersion sleeve	Brass CW617N-DW
Bluff body	PPS Fortron® 40 % glass fibre reinforced

Version frequency output

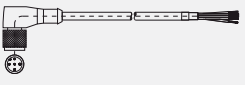

Order code						
Nominal diameter						
DN 32	VXDDS		B			51U
DN 40	VXEES		P			52X
Power supply						
8...30 V DC		G			1	
5 V DC		N			2	
Output signal temperature						
Pt1000				RRRP		
NTC 10.74K				RRRN		
None				0000		
Example order number		VXDDS	G	B	RRRP	1 51U

Version analogue output (0.5...3.5 V) and frequency output

Order code						
Nominal diameter						
DN 32	VXDDSNB	UI				51U
DN 40	VXEESNP	UM				52X
Output signal temperature						
0.5...3.5 V				U1		
Pt1000				RP		
NTC 10.74K				RN		
none				00		
Power supply						
8...30 V DC					1	
5 V DC					2	
Example order number		VXEESNP	UM	RP	1	52X

Version analogue output (0...10 V or 4...20 mA) and frequency output

Order code						
Nominal diameter						
DN 32	VXDDSGB					I00351U
DN 40	VXEESGP					M00352X
Output signal flow						
0...10 V				V		
4...20 mA				A		
Example order number		VXDDSGB	A			I00351U

Order code				
Type	Accessories		Length	Order number
VWX32 VWX40		Connection cable with 5 pin cable socket M12 x 1, angle type molded lead 5 x 0.34 mm ² , sheathing material PVC (Tmax = 80 °C)*	1 m	XWX040
			2 m	XWX051
			3 m	XWX039
			5 m	XWX041
			10 m	XWX042
		Connection cable with 5 pin cable socket M12 x 1, molded lead 5 x 0.34 mm ² , sheathing material PVC, 4 pin Molex MicroBlade wire-to-board housing, (Tmax = 80 °C)	1.5 m	XWX065

* Connection cable with UL approval on request

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