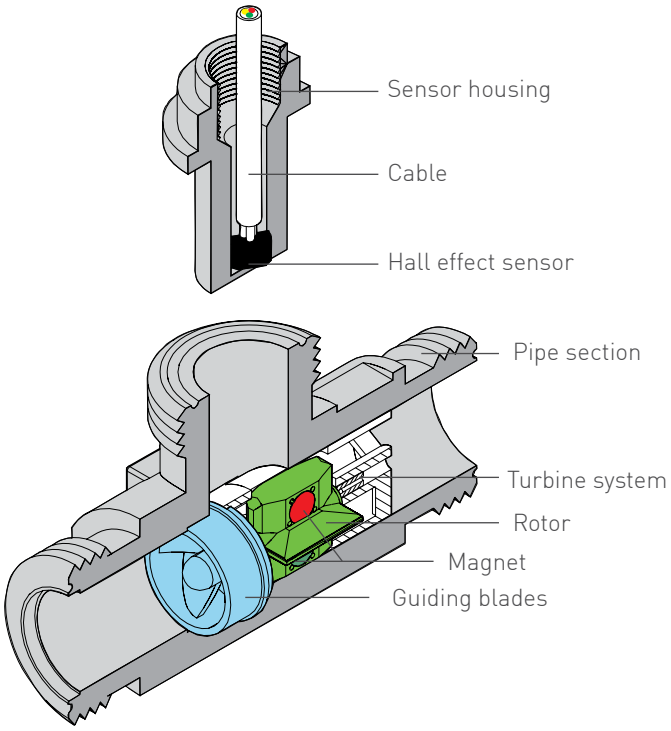
- → Series Turbotron
- → Series VTR
- → Series VTY
- → Push-in flow sensors

TURBINE FLOW SENSORS

Turbine flow sensors



Operating principle

The liquid flowing into the turbine flow sensor is split into individual jets by the guiding blade. These jets hit the rotor evenly from different directions, setting the rotor in motion. The rotation speed of the rotor is then converted to an electrical pulse signal (frequency): The rotors are fitted with magnets and a Hall effect sensor detects the rotation of the rotor. The VTI series has stainless steel pins in the rotor. An inductive proximity switch detects the rotor rotation.

In both cases, a flow-proportional frequency signal (square-wave signal) is made available.

Given the uniform inflow to the bearing, the forces largely cancel themselves out and wear is reduced to a minimum. The extremely hard bearing materials - sapphire and tungsten carbide - also guarantee an exceptionally long endurance.

Series Turbotron VTH, VTM, VTP, VTI

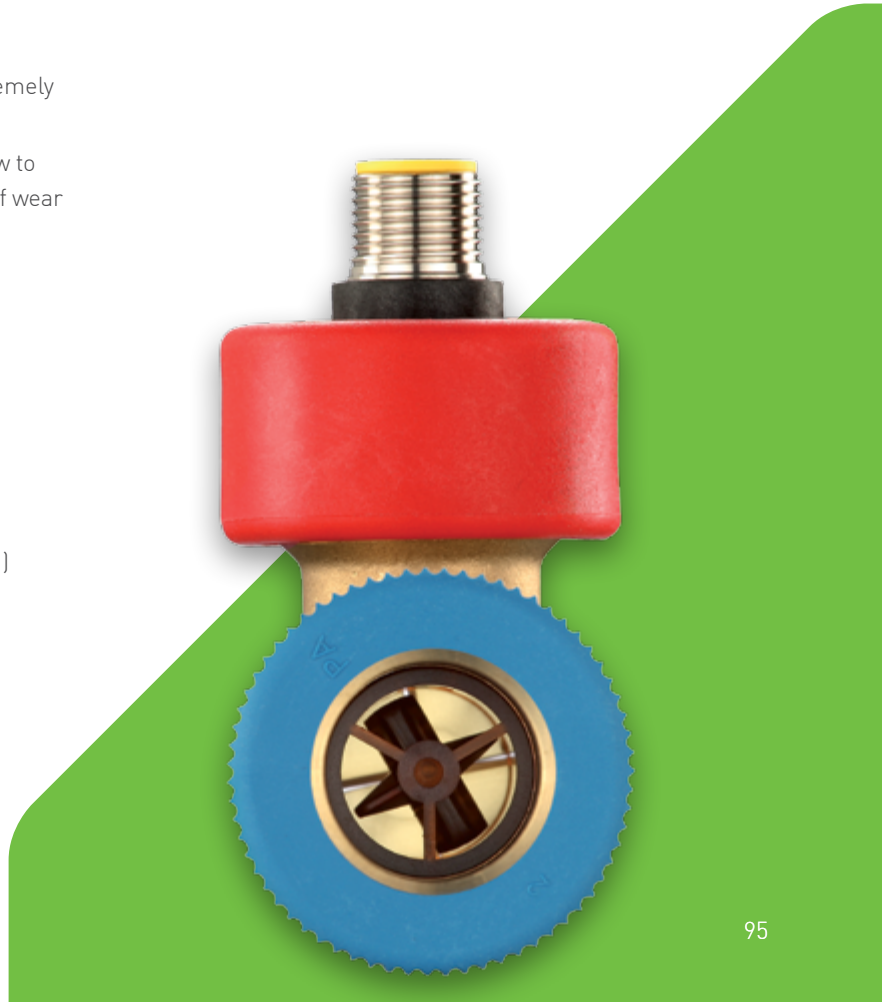
The turbine flow sensors of the series Turbotron are sensors for flow measurement or dosing applications for liquids. Because of the very compact design, the very wide measuring range and the convincing precision of measurements, the Turbotron has almost unlimited applications. Depending on the ordered version, the Turbotron is available with nominal diameters DN 15, DN 20, DN 25 and DN 40.

Advantages

- Fixed pulse rate, thus practically no serial deviation
- Wide measuring range from 1:20 to 1:42 (depends on model), therefore universally applicable
- High degree of accuracy ensures reliable measurement results
- High quality sapphire bearing, low abrasion and extremely long running period
- Specially designed guiding blades ensures uniform flow to the rotor from four sides, thus tremendous reduction of wear (depends on model)
- Any installation position, can be installed differently
- Permanent operating temperatures up to 150 °C (VTP version)
- Compact dimensions
- Proven in numerous OEM-applications
- Service-friendly
- Long endurance
- Temperature measurement can be integrated (option)

Different versions

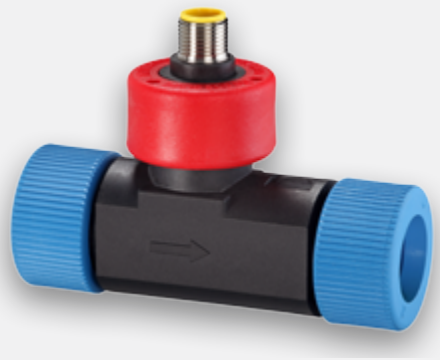
- Plastic, brass and stainless steel types
- Plug connector or fixed connecting cable



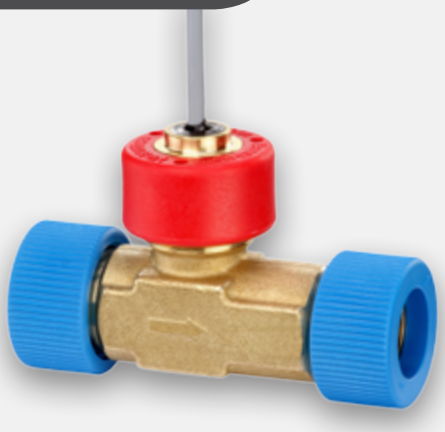
Turbine flow sensors

Series Turbotron VTH15 / VTM15

Type VTH15



Type VTM15



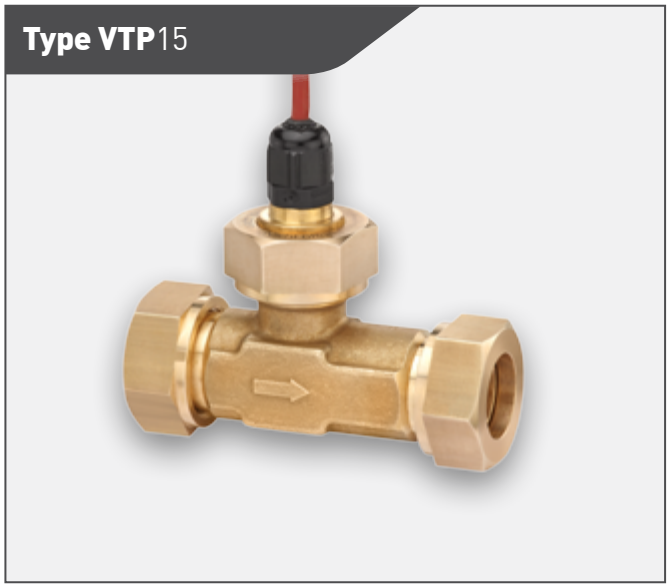
VTH15
Economy-priced type
for standard and serial applications

VTM15
For medium temperature up to 120 °C

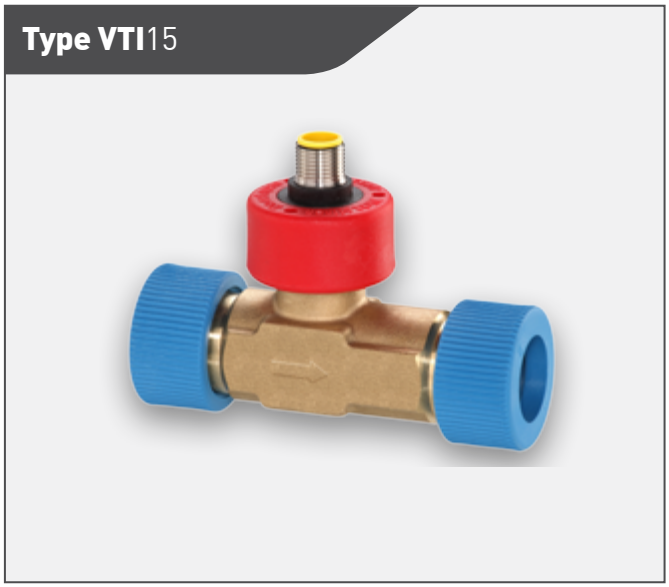
Type	VTH15		VTM15
Material pipe section	Brass	Plastic PPO	Brass
Flow range	2...40 l/min		2...20 l/min
Accuracy	±0.4 l/min		
Repeatability	±0.1 l/min		
Signal output	From 0.3 l/min		
Medium temperature	Max. 85 °C		Max. 120 °C
Pressure rating	PN 10		
Nominal diameter	DN 15		
Process connection	G¾ male thread with union nuts and gaskets		
Sensor	Hall effect sensor		
Output signal → Pulse rate / K-factor → Resolution → Signal shape → Signal current	 855 pulses/l 1.2 ml/pulse Square wave signal NPN open collector Max. 10 mA		 915 pulses/l 1.1 ml/pulse Square wave signal NPN open collector Max. 10 mA
Electrical connection	1.5 m PVC cable, shielded (T_{max} = 70 °C) or 4 pin plug connector M12 x 1		1.5 m PVC cable, shielded (T_{max} = 80 °C)
Power supply	4.5...24 VDC		
Degree of protection EN 60529	IP54		
Max. particle size in the medium	0.5 mm		

Series Turbotron VTP15 / VTI15

Type VTP15



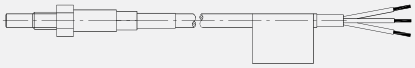
Type VTI15



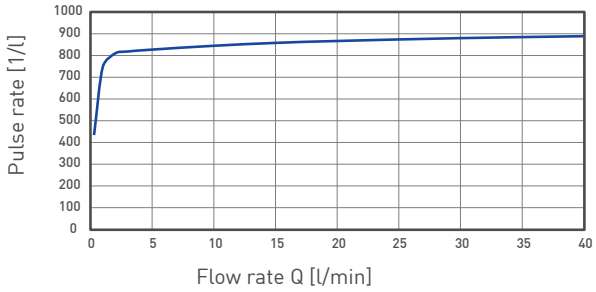
VTP15
For high pressures and high temperatures

VTI15
Magnet-free rotor, for high measurement accuracy and high resolution

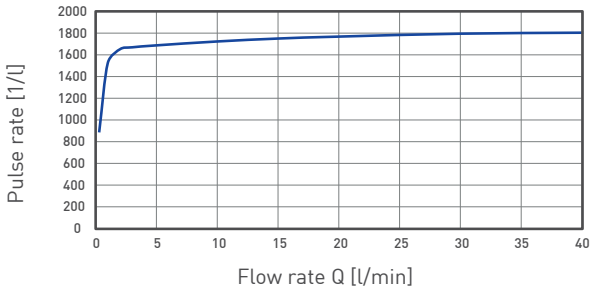
Type	VTP15		VTI15	
Material pipe section	Brass	Stainless steel	Plastic PPO	Brass
Flow range	2...40 l/min			
Accuracy	±0.4 l/min of range at 2...20 l/min		±0.2 l/min	
Repeatability	±0.1 l/min		±0.05 l/min	
Signal output	From 0.3 l/min			
Medium temperature	Max. 150 °C		Max. 85 °C	
Pressure rating	P_{max} = 300 bar		PN 10	
Nominal diameter	DN 15			
Process connection	G¾ male thread incl. union nuts	G¾ male thread or G¾ female thread	G¾ male thread with union nuts and gaskets	
Sensor	Hall effect sensor		Inductive proximity switch	
Output signal → Pulse rate / K-factor → Resolution → Signal shape → Signal current	 915 pulses/l 1.1 ml/pulse Square wave signal NPN open collector Max. 10 mA		 1795 pulses/l 0.6 ml/pulse Square wave signal PNP or NPN open collector Max. 50 mA	
Electrical connection	1.5 m silicone cable, shielded (T_{max} = 150 °C)		2 m PVC cable, shielded (T_{max} = 70 °C) or 4 pin plug connector M12 x 1	
Power supply	4.5...24 VDC		10...30 VDC	
Degree of protection EN 60529	IP54			
Max. particle size in the medium	0.5 mm			

Options		VTH	VTM	VTP	VTI
See order code					
Integrated temperature sensor with plug connection M8 → Pt100, class B, 3-wire → Pt1000, class B, 3-wire **Immersion tube** → Brass → Stainless steel		✓			✓
Integrated temperature sensor with fixed cable (T_{max} = 80 °C) → Pt100, class B, 3-wire → Pt1000, class B, 2-wire **Immersion tube** → Brass → Stainless steel		✓	✓		✓
Screen filter in the inlet, hat shape **mesh size 0.5 mm** **T_{max} = 60 °C (continuous operation)** **T_{max} = 85 °C (max. 1 h)**		✓			✓
Turbine flow transmitter, analogue output 4...20 mA (T_{max} = 80 °C)	see separate chapter	✓			
Turbine flow switch, switching output (contact) (T_{max} = 80 °C)	see separate chapter	✓			
On request					
Optional seal materials → FKM → EPDM		✓			✓
Integrated temperature sensor with fixed cable → NTC → PTC		✓			✓

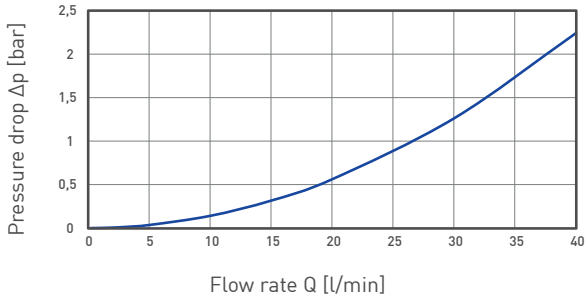
Characteristic curve VTH



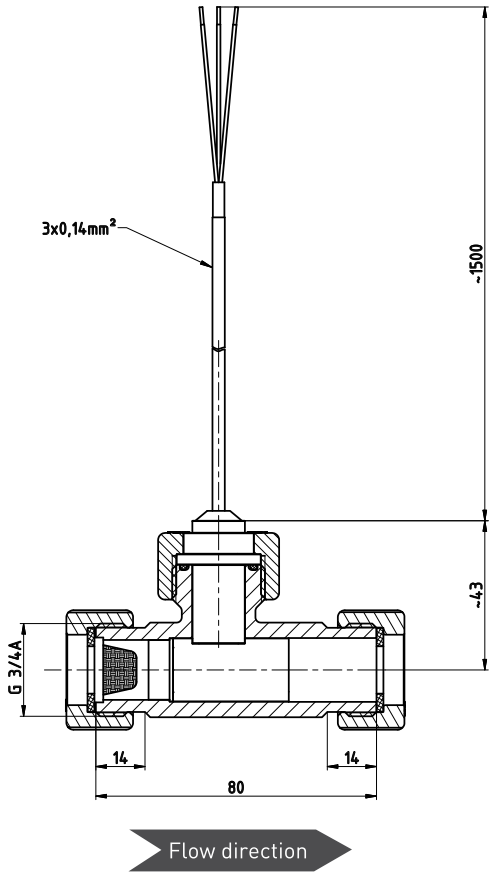
Characteristic curve VTI



Typical pressure drop VTH / VTM / VTP / VTI



VTH15 / VTI15



Materials in contact with fluid							
	VTH15 plastic PPO	**VTH15 brass**	**VTM15 brass**	**VTP15 brass**	**VTP15 stainless steel**	**VTI15 plastic PPO**	**VTI15 brass**
Pipe section	PPE+PS Noryl™ 30 % glass fibre reinforced	Brass			Stainless steel 1.4571	PPE+PS Noryl™ 30 % glass fibre reinforced	Brass
Sensor housing	PPE+PS Noryl™ 30 % glass fibre reinforced		Brass		Stainless steel 1.4571	PPE+PS Noryl™ 30 % glass fibre reinforced	
Turbine system / rotor	PEI ULTEM™		PEEK Victrex™			PEI ULTEM™	
O-ring / gasket	NBR		FKM			NBR	
Bearing system / shaft	Shaft Arcap AP1D with hard metal pins in sapphire bearings						
Bearings support	Arcap AP1D						
Rotor assembly	Hard ferrite magnet					Stainless steel pins	
Temperature sensor (optional)	Brass or stainless steel 1.4571		Brass			Brass or stainless steel 1.4571	
Screen filter	POM / Stainless steel					POM / Stainless steel	

Order code	Example → VT1541			K5	IP	P	0A4	H	A
Type									
VTH15 / VTI15	VT1541								
Material of pipe section									
Noryl PPO				K5					
Brass				MS					
Version, output signal									
VTI15, PNP					IP				
VTI15, NPN					IN				
VTH15, NPN					HN				
Electrical connection									
Cable						P			
4 pin plug connector M12 x 1						S			
Supplementary temperature sensor									
None	None						0A4		
Pt100	3 pin plug connector M8, 3-wire	brass					BA4		
		stainless steel					CA4		
	Fixed cable, 3-wire	brass					2A4		
		stainless steel					9A4		
Pt1000	3 pin plug connector M8, 3-wire	brass					DA4		
		stainless steel					EA4		
	Fixed cable, 2-wire	brass					7A4		
		stainless steel					AA4		
Options*									
Filter									
Screen filter								H	
None								0	
Electronics									
Including transducer 4...20 mA**									
→ Corresponds 0...5 l/min									A
→ Corresponds 0...10 l/min									B
→ Corresponds 0...20 l/min									C
→ Corresponds 0...40 l/min									D
Switching output VE**									6
Switching output VE with pulse output**									7

Order code	Example → VT1531MSMNP	0A4
Type		
VTM15	VT1531MSMNP	
Supplementary temperature sensor		
None		0A4
Pt100		2A4
Pt1000		7A4

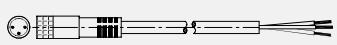
Order code	Example → VT1541	MSDNP0A4
Type		
VTP15	VT1541	
Material of pipe section, process connection		
Brass, G¾ male		MSDNP0A4
Stainless steel, G¾ male		VADNP0A4
Stainless steel, G¾ female		VADNP0I4

* If you do not require any of the options, digits of the order code do not apply.
** Only possible for VTH15

Accessories VT15

Connection adapters*		Oder code	
Hose barb Ø 10 mm, PA 6.6	T_{max} = 20 °C, PN 10 T_{max} = 60 °C, PN 2.5	VT1317	
Hose barb Ø 12 mm, PP		XVT1069	
Hose barb Ø 15 mm, PP		VT1338	
Hose barb Ø 19 mm, HDPE		VT1323	
Hose barb, angleshape Ø 13 mm, HDPE	T_{max} = 60 °C, PN 10	VT1318	
Hose barb, Ø 13 mm, Brass	T_{max} = 80 °C, PN 10	XVT1005	
Bonding socket, Ø 22 mm, PVC, for pipes outer diameter 16 mm	T_{max} = 20 °C, PN 10 T_{max} = 60 °C, PN 2.5	VT1316	
Welding adapter Ø 20 mm, PP	T_{max} = 20 °C, PN 6 T_{max} = 60 °C, PN 2.5	VT1319	
Screw coupling G⅜-ISO 228 male, Brass	T_{max} = 110 °C, PN 16	VT1320	
Screw coupling G½-ISO 228 male, Brass		VT1324	
Screw coupling G⅜-ISO 228 female, brass galvanized		VT1321	
Screw coupling G½-ISO 228 female, Brass		VT1325	
Clamping ring coupling, brass **for copper tube Ø 18 mm** **for copper tube Ø 22 mm**		 VT1326 VT1327	
Soldering coupling, brass **for copper tube Ø 15 mm** **for copper tube Ø 18 mm**	T_{max} = 90 °C, PN 16	 VT1328 VT1329	

* The use of connection adapters may result in deviations in accuracy. Supplied piecewise

Connection cables	Length	Order code	
Connection cable for turbine flow sensor with cable socket M12 x 1 moulded lead, 4-pin, shielded, sheathing material PUR (T_{max} = 70 °C) UL-approval	3 m 5 m 10 m	XVT2053 XVT2009 XVT2070	
4 pin cable socket M12 x 1 angle type unassembled		VT1331	
Connection cable for temperature sensor with cable socket M8 moulded lead, 3 pin, sheathing material PUR (T_{max} = 90 °C) UL-approval	2 m 5 m 10 m	XVT2190 XVT2191 XVT2192	

Turbine flow sensors

Series Turbotron VTH20 / VTL20

Type VTH20

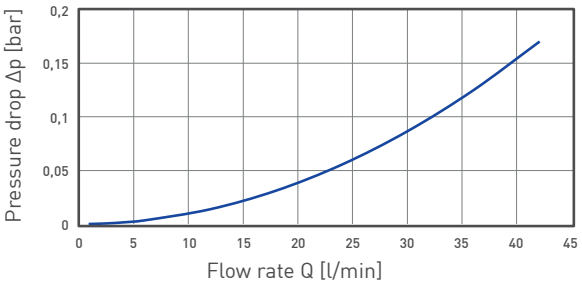
VTH20
With protection circuit

VTL20
OEM version

Type	VTH20	VTL20
Flow range	1...42 l/min	
Accuracy	±1 % of range ±3 % of reading (from 15 l/min)	
Repeatability	±0.2 %	
Signal output	From 0.25 l/min	
Medium temperature	Max. 60 °C	
Pressure rating	PN 10	
Nominal diameter	DN 20	
Process connection	G 1 male thread	
Sensor	Hall effect sensor	
Output signal → Pulse rate / K-factor → Resolution → Signal shape → Signal current	 232 pulses/l 4.3 ml/pulse Square wave signal NPN open collector Max. 19 mA	 116 pulses/l 8.6 ml/pulse Square wave signal NPN open collector Pulse duty ratio 50:50 Max. 10 mA
Electrical connection	2 m PVC cable, shielded (T_{max} = 75 °C)	
Power supply	10...30 VDC optional 4.5...26.5 VDC	4.5...24 VDC
Degree of protection EN 60529	IP54	
Max. particle size in the medium	< 0.63 mm	

Option	
Screen filter in the inlet mesh size 0.4 mm	

Typical pressure drop



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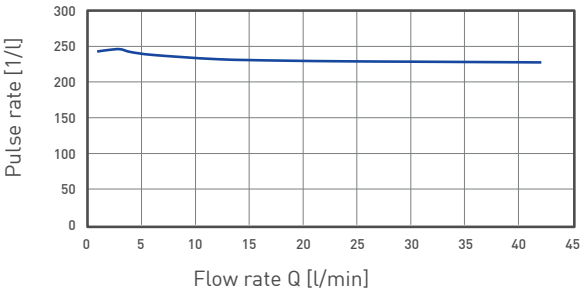
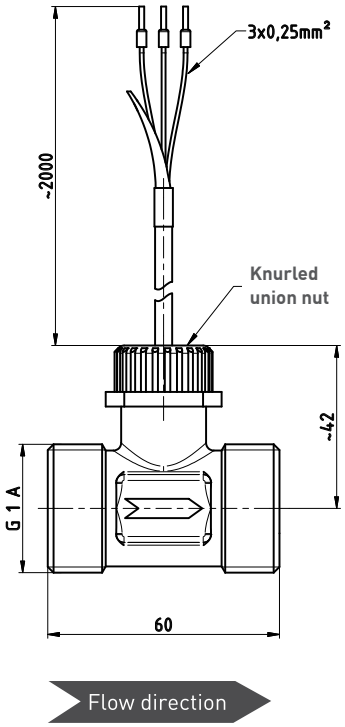




Materials in contact with fluid	
Pipe section	Brass CW724R
Turbine cage	PPE+PS Noryl™ 30 % glass fibre reinforced
Rotor	PC Makrolon®
Rotor assembly	Hard ferrite magnets
Shaft	Stainless steel 1.4539
Bearings	Saphire / PA
Housing for hall sensor	PPO Noryl GFN 1630V
O-ring	EPDM
Screen filter (Option)	Stainless steel, Santoprene®

Plastic parts comply with KTW-guidance of the German Federal Environmental Agency (does not apply for the optional screen filter).

Oder code		Example → VT2042MS	HNP0A5	F*
Type				
VTH20		VT2042MS		
Power supply				
Standard	10...30 VDC		HNP0A5	
Option	4.5...26.5 VDC		HKP0A5	
Option				
Screen filter				F

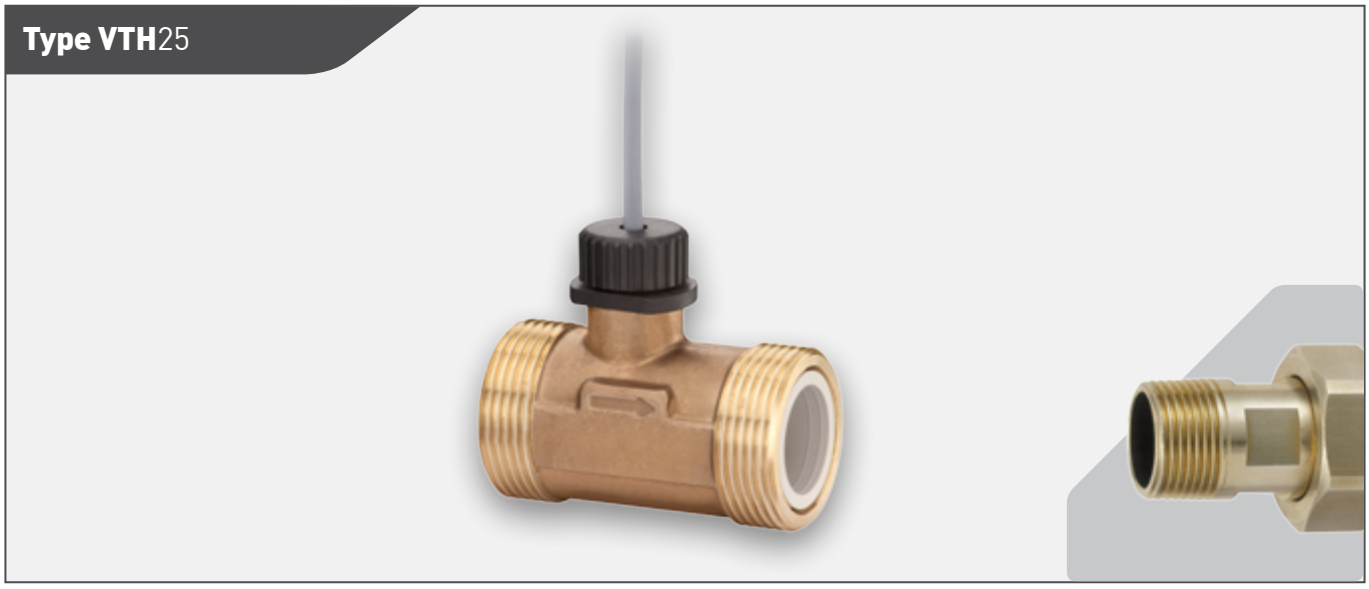
Order code		Example → VT2042MSHLP0A5	F*
Type			
VTL20		VT2042MSHLP0A5	
Option			
Screen filter			F

* If you do not require any of the options, digits of the order code do not apply

Turbine flow sensors

Series Turbotron VTH25 / VTM25

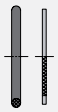
Type VTH25



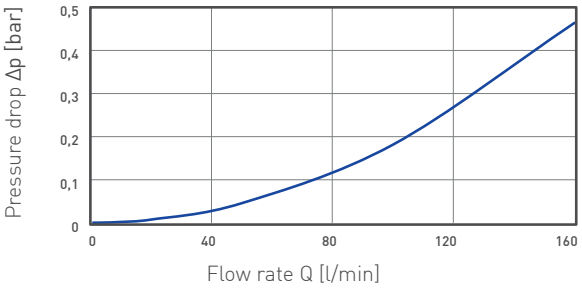
VTH25
Economy-priced type for standard and serial applications, with fixed connection cable

VTM25
For higher pressures with plug connection

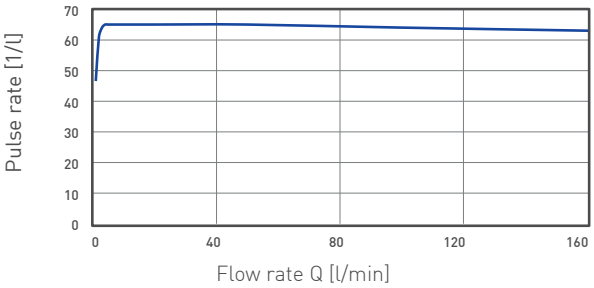
Type	VTH25		VTM25	
Material pipe section	Brass	Plastic PP	Brass	Stainless steel
Flow range	4...160 l/min			
Accuracy	±5 % of of reading (up to 5 l/min 7 % of of reading)			
Repeatability	±0.5 %			
Signal output	< 1 l/min			
Medium temperature	Max. 85 °C	Max. 80 °C / 2 bar Max. 60 °C / 5 bar Max. 30 °C / 10 bar	Max. 85 °C	
Pressure rating	PN 10		PN 50	
Nominal diameter	DN 25			
Process connection	G 1¼ male thread, supplementary screwed connection required, see accessories			
Sensor	Hall effect sensor		Hall effect sensor	
Output signal → Pulse rate / K-factor → Resolution → Signal shape → Signal current	 65 pulses/l 15 ml/pulse Square wave signal NPN open collector Max. 19 mA		 65 pulses/l 15 ml/pulse Square wave signal NPN open collector Max. 19 mA	
Electrical connection	2 m PVC cable, shielded (T_{max} = 75 °C)		4 pin plug connector M12 x 1	
Power supply	10...30 VDC optional 4.5...26.5 VDC		6.5...24 VDC short circuit proof and reverse polarity protected	
Degree of protection EN 60529	IP54			
Max. particle size in the medium	< 0.63 mm			

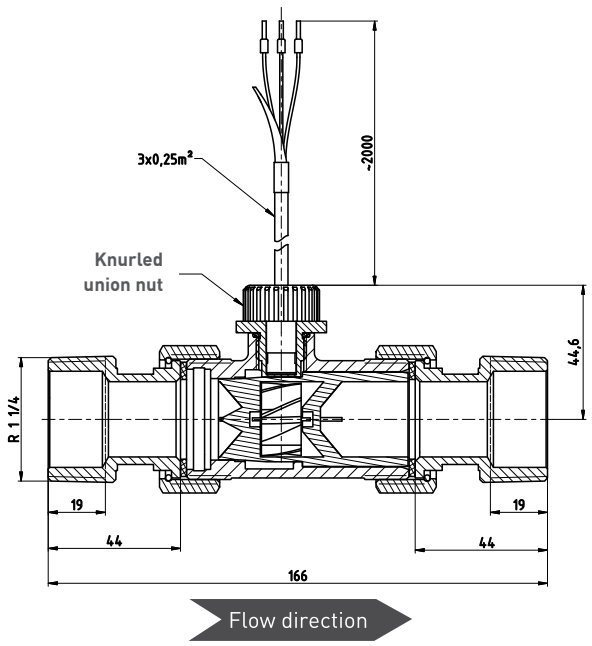
Options	
See order code	
Screen filter in the inlet, with O-ring mesh size 0.63 mm	
Turbine flow transmitter, analogue output 4...20 mA (T_{max} = 80 °C)	see separate chapter
Turbine flow switch, switching output (contact) (T_{max} = 80 °C)	see separate chapter

Typical pressure drop



Characteristic curve





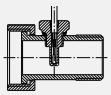
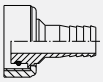
Materials in contact with fluid				
	VTH25 brass	**VTH25 plastic PP**	**VTM25 brass**	**VTM25 stainless steel**
Pipe section	Brass CW724R	PP	Brass CW724R	Stainless steel 1.4571
Turbine cage	PPE+PS Noryl™ 30 % glass fibre reinforced			
Rotor	PPE+PS Noryl™ 20 % glass fibre reinforced			
Rotor assembly	Hard ferrite magnets			
Shaft	Stainless steel 1.4539			
Bearings	Sapphire / PA			
Housing for Hall effect sensor	PPE+PS Noryl™ 30 % glass fibre reinforced		Brass CW602N / CW614N	Stainless steel 1.4571
O-ring	EPDM			
Screen filter (option) **Associated O-ring**	Stainless steel 1.4301 EPDM		Stainless steel 1.4301 EPDM	
Spacer		PP		

The plastic parts of VTH25 brass comply with KTW-guidance of the German Federal Environmental Agency.

Order code	Example → VT2511	MS	HNP000	F*	E*
Type					
VTH25 / VTM25	VT2511				
Material of pipe section					
Brass		MS			
Plastic PP (only VTH)		K6			
Stainless steel (only VTM)		VA			
Version					
VTH25 Standard	10...30 VDC		HNP000		
Option	4.5...26.5 VDC		HKP000		
VTM25			MNS000		
Options*					
Filter					
Screen filter (only brass or stainless steel version)				F	
None				0	
Electronics					
Incl. transducer 4...20 mA					
→ Corresponds with 0...60 l/min					E
→ Corresponds with 0...100 l/min					F
→ Corresponds with 0...160 l/min					G
Switching output VE					6
Switching output VE with pulse output					7

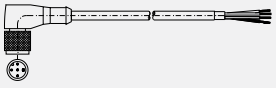
* If you do not require any of the options, digits of the order code do not apply.

Accessories VT25

Connection adapters*		Order code	
Brass version			
Screw coupling G 1-ISO 228 with temperature sensor Pt100 / 3-wire	**Material of gasket Centelen T_{max} = 85 °C**	VT1310	
Screw coupling R ¾-DIN EN 10226-1 2004-10		XVT1143	
Screw coupling R 1-DIN EN 10226-1 2004-10		VT25Z00000005	
Screw coupling R 1¼-DIN EN 10226-1 2004-10		VT25Z00000006	
Soldering coupling for copper pipes Ø 28 mm, PN 16		VT1312	
Plastic version**			
Welding coupling PP for pipes outer diameter 25 mm	**T_{max} = 20 °C, PN 10 T_{max} = 60 °C, PN 2.5**	VT1303	
Bonding coupling PVC for pipes outer diameter 25 mm		VT1304	
Hose barb PP Ø 25 mm Ø 30 mm Ø 32 mm		VT1307 VT1308 VT1309	
Stainless steel version			
Screw coupling R 1	**Material of gasket Centelen T_{max} = 85 °C**	VT1333	

* Supplied piecewise

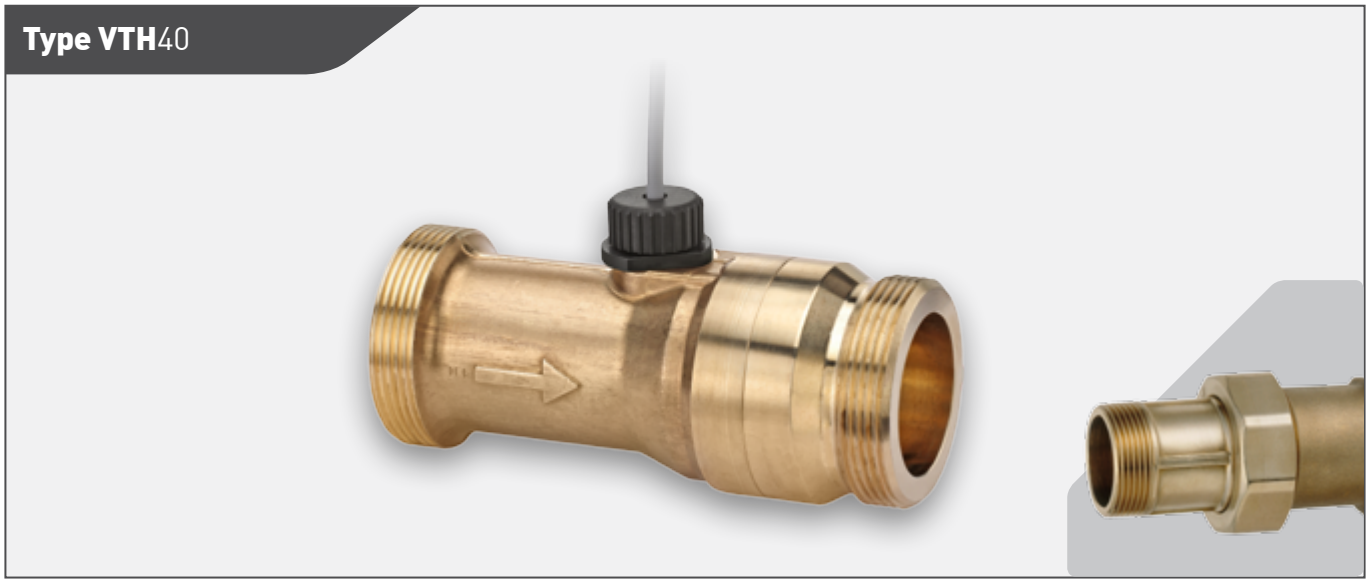
** The use of connection adapters may result in deviations in accuracy.

Connection cables	Length	Order code	
Connection cable for turbine flow sensor with cable socket M12 x 1 moulded lead, 4-pin, shielded, sheathing material PUR (T_{max} = 70 °C) UL-approval	3 m 5 m 10 m	XVT2053 XVT2009 XVT2070	
4-pin cable socket M12 x 1 angle type unassembled		VT1331	

Turbine flow sensors

Series Turbotron VTH40 / VTM40

Type VTH40



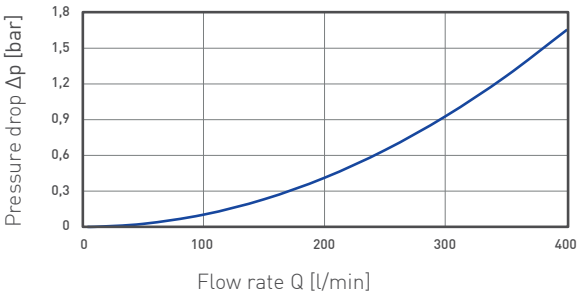
VTH40
Economy-priced type for standard and serial applications, with fixed connection cable

VTM40
For higher pressures with plug connection

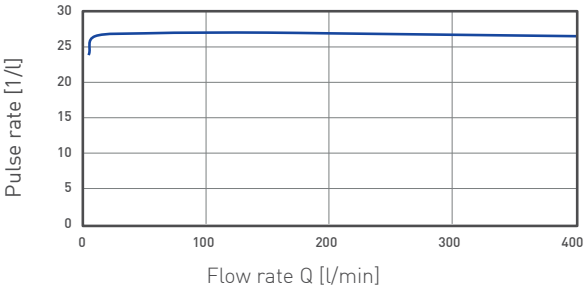
Type	VTH40	VTM40
Material pipe section	Brass	Brass
Flow range	0.4...25 m³/h (6.7...417 l/min)	
Accuracy	±7 % of the measured value between 0.4...3 m³/h ±5 % of the measured value between 3...25 m³/h	
Repeatability	±0.5 %	
Signal output	From 0.28 m³/h	
Medium temperature	Max. 85 °C	
Pressure rating	PN 10	PN 50
Nominal diameter	DN 40	
Process connection	G 2 male thread, supplementary screwed connection recommended	
Sensor	Hall effect sensor	
Output signal → Pulse rate / K-factor → Resolution → Signal shape → Signal current	 26.6 pulses/l 37.6 ml/pulse Square wave signal NPN open collector Max. 19 mA	 26.6 pulses/l 37.6 ml/pulse Square wave signal NPN open collector Max. 19 mA
Electrical connection	2 m PVC cable, shielded (T_{max} = 75 °C)	4 pin plug connector M12 x 1
Power supply	10...30 VDC optional 4.5...26.5 VDC	6.5...24 VDC short circuit proof and reverse polarity protected
Degree of protection	IP54	
Max. particle size in the medium	< 0.63 mm	
Integrated screen filter	Flat filter, mesh size 0.63 mm	

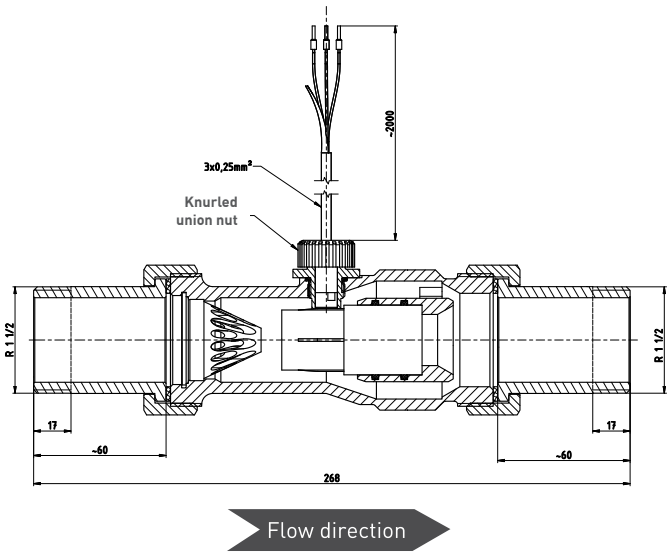
Options	
See order code	
Turbine flow transmitter, analogue output 4...20 mA (T_{max} = 80 °C)	see separate chapter
Turbine flow switch, switching output (contact) (T_{max} = 80 °C)	see separate chapter

Typical pressure drop



Characteristic curve



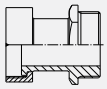


Materials in contact with fluid		
	VTH40	**VTM40**
Pipe section	Brass CW724R	
Turbine cage	PPE+PS Noryl™ 30 % glass fibre reinforced	
Rotor	PPE+PS Noryl™ 20 % glass fibre reinforced	
Rotor assembly	Hard ferrite magnets	
Shaft	Stainless steel 1.4539	
Bearing	Sapphire / PA	
Housing for hall sensor	PPE+PS Noryl™ 30 % glass fibre reinforced	Brass CW602N / CW614N
O-ring	EPDM	
Flow guiding cone	POM	
Screen filter	Stainless steel 1.4301	
Retaining ring	Bronze	

Order code			Example → VT4025MS	HNP000F	E*
Type					
VTH40 / VTM40			VT4025MS		
Version					
VTH40	Standard	10...30 VDC		HNP000F	
	Option	4.5...26.5 VDC		HKP000F	
VTM40				MNS000F	
Options*					
Electronics					
Including transducer 4...20 mA					
→ Corresponds with 0...150 l/min					E
→ Corresponds with 0...250 l/min					F
→ Corresponds with 0...400 l/min					G
Switching output VE					6
Switching output VE with pulse output					7

* If you do not require any of the options, digits of the order code do not apply.

Accessories VT40

Connection adapters*		Order code	
Screw coupling G 1½-ISO 228 with integrated temperature sensor Pt100 / 3-wire	**Brass, gasket Centelen**	VT1311	
Screw coupling R 1½-DIN EN 10226-1 2004-10		VT40Z00000002	
Screw coupling G 2-ISO 228		VT40Z00000001	
Soldering coupling for copper pipe Ø 42 mm PN 16		VT1313	

* Supplied piecewise

Connection cables	Length	Order code	
Connection cable for turbine flow sensor with cable socket M12 x 1 moulded lead, 4 pin, shielded, sheathing material PUR (T_{max} = 70 °C) UL-approval	3 m 5 m 10 m	XVT2053 XVT2009 XVT2070	
4 pin cable socket M12 x 1 angle type unassembled		VT1331	

Options for Turbotron series

Transducers, series AI

Flow transmitter

Instead of the pulse signal, an analogue current signal 4...20 mA is provided by installing an internal transducer onto the flow sensors described before.

Technical data	
Output signal	4...20 mA
Accuracy	±1.25 % of reading*
Current limit	Approx. 26 mA
Scaling	Different flow ranges, see order code flow sensor other scaling possible from 10 pieces and above
Power supply	18...30 VDC
Max. current consumption	30 mA
Max. burden	250 Ω against GND
Residual ripple	0.2 mA (peak to peak) over the entire range
Type	3 wire, galvanically not separated, common GND of power supply and output signal
Electrical connection	4 pin plug connector, M12 x 1
Degree of protection EN 60529	IP54
Max. medium temperature	Dependent on the maximum temperature of the used flow sensor, not exceeding 80 °C
Casing material	Plastic PA
Order code	See order code series VT

* Additionally to respective accuracy of turbine flow sensor

Turbine flow monitors with switching output, series VE

Turbine flow monitors of the series VE are used in different applications. They are used among others for the monitoring of cooling circuits in laser installations or HF generators.

Turbine flow sensors of the series Turbotron serve as a basis. They provide a flow-proportional frequency signal which is introduced to a microprocessor. It monitors the adjusted minimum flow and actuates a dry contact in the case of lack of flow. Even a possible blocking of the turbine system is clearly recognized and reliably signalled. The exact adjustment of the set points can be carried out by means of a 16-position rotary switch (catching).

As an option, a pulse signal is also available in addition to the switching output. In such a case, in addition to safe monitoring, a measurement of the flow rate (e.g. for adjustment jobs) can also be carried out.

Type VT15VE

Advantages

- Wide set point range
- Precise set point adjustment
- Safe monitoring of lowest flow rates
- Fail safe
- Optical signalling by 2 LEDs
  yellow = flow, red = flow lack

Alternatively the switching transmitter series TU7050 is available. The technical data are availabe on the following pages.

Technical data	
Set point range (with decreasing flow) / accuracy	**DN 15** 0.5...29.5 l/min / ±2 % of set point + accuracy of turbine flow sensor **DN 25** 3...100 l/min / ±4 % of set point + accuracy of turbine flow sensor **DN 40** 7...275 l/min / ±6 % of set point + accuracy of turbine flow sensor
Set point adjustment	16 different set points selectable by means of a 16-position rotary switch
Output / max. contact rating	**Only switching output:** Electrically insulated contact, opens in the case of lack of flow Max. contact rating 125 VAC / DC, 100 mA **Switching output and pulse output** Switching output against power supply Max. contact rating 100 mA Pulse output: flow-proportional frequency signal NPN, max. 100 mA
Switching hysteresis	0.5 l/min (DN 15) 2...5 l/min (DN 25) 3...35 l/min (DN 40)
Power supply	12...24 VDC
Current consumption	Max. 25 mA
Degree of protection	IP54 with closed sleve and connected socket
Casing	Plastic PA, transparent
Display, internal	LED yellow = ok LED red = alarm
Max. medium temperature	Dependent on the maximum temperature of the used flow sensor, not exceeding 80 °C
Electrical connection	4 pin plug connector, M12 x 1
Order code	See order code series VT

Set points VT..15..VE (DN 15)																
Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)*	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.5	5.5	7.5	9.5	11.5	15.5	19.5	24.5	29.5
Set point increasing flow (l/min)*	0.5 l/min over the set point decreasing flow															

Set points VT..25..VE (DN 25)																
Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)*	3	5	6	8	10	12	15	18	20	25	30	35	40	50	70	100
Set point increasing flow (l/min)*	5	7	8	10	12	14	17	20	22	27	33	38	44	55	75	105

Set points VT..40..VE (DN 40)																
Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)*	7	10	15	20	25	30	35	40	50	65	80	100	130	160	200	275
Set point increasing flow (l/min)*	10	13	19	24	30	35	40	47	58	75	90	115	150	190	230	310

* The specified values refer to operation with water at 20 °C. Monitoring of fluids with higher viscosities is possible with the effect of deviations from the mentioned values. If you order at least 25 units, individual set point tables can be implemented.

Accessories for Turbotron series

Switching transmitters, series TU7050

From the frequency signal of the turbine flow sensors, the TU7050 generates alarm set points which are made as potential free contacts. You can adjust the switching point easily and accurately by using a rotary switch (16 increments). Since the TU 7050 is a dual channel, two operating modes are available.

Operating mode A

Two measuring points (condition: two identical flow sensors) each with a minimum alarm are monitored.

Operating mode B

One measuring point with two minimum alarms (pre-alarm and main alarm) is monitored.

The monitoring of a flow with our turbine flow sensors and the TU7050 is particularly accurate, long-term stable and secure. A possibly occurring damage to the turbine is immediately detected by the TU7050 and reported as an alarm.

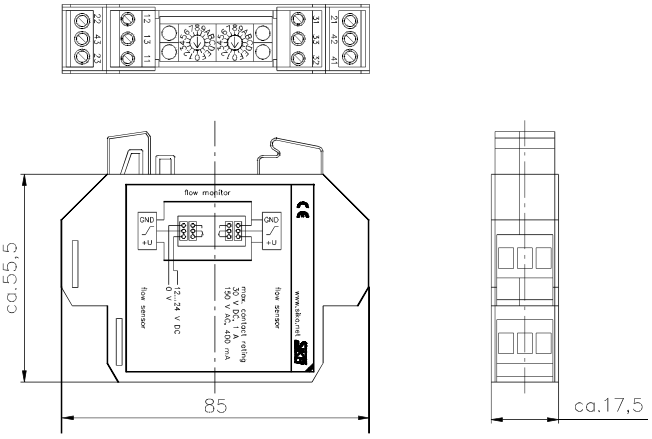
Technical data		
Signal input	Frequency signals of up to two identical flow sensors VT...15 VT...25 VT...40	
Display per channel	LED green = ok	LED red = alarm
Set point adjustment	Using two 16-position rotary switches, 16 different set points can be selected per channel	
Set point range		**Hysteresis**
→ VT...15	0.5...29.5 l/min	0.5 l/min
→ VT...25	3...100 l/min	2...10 l/min
→ VT...40	7...275 l/min	3...35 l/min
Outputs	Two independent, potential free c/o contacts	
Max. contact rating	30 VDC / 1 A	150 VAC / 400 mA
Power supply	12...24 VDC (±10 %)	
Casing	Plastic casings for assembly rail setup approx. 17.5 x 67 x 85 mm (W x D x H)	
Ambient temperature / storage temperature	0...60 °C / -10...80 °C	

For VT..15 (DN 15)																
Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)*	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.5	5.5	7.5	9.5	11.5	15.5	19.5	24.5	29.5
Set point increasing flow (l/min)*	0,5 l/min over the set point decreasing flow															

For VT..25 (DN 25)																
Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)*	3	5	6	8	10	12	15	18	20	25	30	35	40	50	70	100
Set point increasing flow (l/min)*	5	7	8	10	12	14	17	20	22	27	33	38	44	55	80	110

For VT..40 (DN 40)																
Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)*	7	10	15	20	25	30	35	40	50	65	80	100	130	160	200	275
Set point increasing flow (l/min)*	10	13	19	24	30	35	40	47	58	75	90	115	150	190	230	310

* The specified values refer to operation with water at 20 °C. Monitoring of fluids with higher viscosities is possible with the effect of deviations from the mentioned values. If you order at least 25 units, individual set point tables can be implemented.



Order code	Example → EU70500	H152296
Type		
TU7050	EU70500	
For turbine flow sensors		
VTH15		H152296
VTP15		D152296
VTI15, NPN		I152296
VTI15, PNP		P152296
VTH25 / VTM25		H252296
VTH40 / VTM40		H402296

Series VTR

Turbine flow sensors of the series VTR are used to measure different low viscosity media such as water and coolants. They are long-lasting and provide continuously reliable measuring results because they are made of stainless steel and equipped with a tungsten carbide supported turbine wheel.

During the design of these turbine flow sensors, versatile customisation options for special applications were in the focus of attention. Versions with flanged or threaded connection, a wide range of different sizes and application-specific sensors allow the adaption to a variety of applications. Pick-up sensors are available for example as versions with or without auxiliary energy or for high temperatures.

To maintain accurate readings, the characteristic K-factor – the number of measured pulses per litre – is determined for each device in the factory and specified on the type plate. In addition, a five point calibration report for each sensor can be created on request.

Advantages

- Works calibration certificate 5 point calibration
- Wide measuring ranges (1.8...45090 l/min)
- Always reliable measuring results due to high measuring accuracy, regardless of the mounting position
- High quality tungsten carbide bearings with low wear and long durability
- Robust stainless steel body, even for difficult applications
- For variable use thanks to different pick-up sensors as well as a variety of connections and sizes

Turbine flow sensors

Series VTR

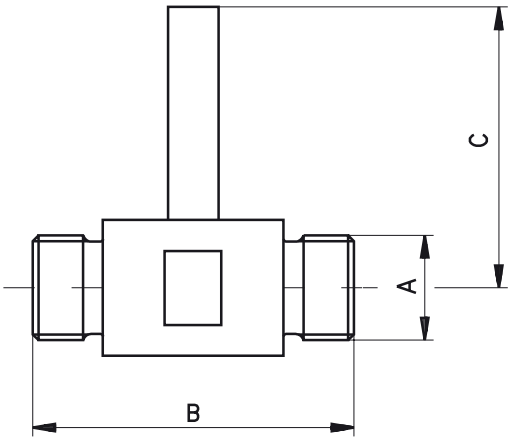
Type VTR1050

Technical data	
Accuracy	±0.5 % of reading
Repeatability	±0.05 % of reading
Response time	< 50 ms up to DN 40 > 50 ms up to DN 300
Process connections	Thread (up to DN 50): BSP ISO 228 Flange: DIN
Pressure drop	280 mbar at 100 % measurement range (density 1, viscosity 1 mm²/s)
Minimum pressure	2 x pressure drop of sensor
Pressure rating	Threaded connection: 250 bar Flanged connection: corresponding to flange specification
Medium temperature	Max. 150 °C
All specified values apply to viscosities up to 5 cSt. Higher viscosities on request.	

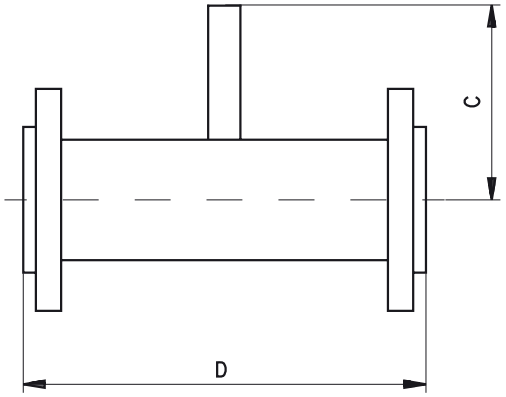
Options	
On request	
Process connections	→ ANSI → NPT thread

Type	Nominal diameter	Flow range		Dimensions			
	DN	[m³/h]	[l/min]	A	B [mm]	C max [mm]	D [mm]
VTR1010	10	0.11...1.1	1.8...18.3	G½	64	150	127
VTR1015-S	15	0.22...2.2	3.7...36.7	G¾	64	150	127
VTR1015	15	0.4...4	6.7...66.7	G¾	64	150	127
VTR1020	20	0.8...8	13.3...133	G¾	83	150	140
VTR1025	25	1.6...16	26.7...267	G 1	88	200	152
VTR1040	40	3.4...34	56.7...567	G 1½	114	200	178
VTR1050	50	6.8...68	113...1133	G 2	132	200	197
VTR1075	80	13.5...135	225...2250			200	254
VTR1100	100	27...270	450...4500			300	356
VTR1150	150	55...550	917...9167			300	360
VTR1200	200	110...1100	1833...18333			350	457
VTR1250	250	190...1900	3173...31730			350	457
VTR1300	300	270...2700	4509...45090			400	457

Thread connection DN 10...DN 50



Flange connection DN 10...DN 300



Materials	
Pipe tee	Stainless steel ANSI 316
Flange	Stainless steel ANSI 316
Rotor	VTR1010 - VTR1020: Stainless steel (18 % Cr, 2 % Mo) VTR1025 - VTR1300: Stainless steel (20 % Cr, 2 % Mo)
Bearing support	Stainless steel ANSI 316
Rotor bearing	Tungsten carbide sleeve bearing

Order code	Example → VS	1071VA	ISP0	A3
Type				
VTR thread connection male	VS			
Nominal size / flow range	**Process connection**			
DN 10 / 0.11...1.1 m³/h	male thread G½	1071VA		A3
DN 15 / 0.22...2.2 m³/h	male thread G¾	1572VA		A4
DN 15 / 0.4...4 m³/h	male thread G¾	1573VA		A4
DN 20 / 0.8...8 m³/h	male thread G¾	2074VA		A4
DN 25 / 1.6...16 m³/h	male thread G 1	2575VA		A5
DN 40 / 3.4...34 m³/h	male thread G 1½	4076VA		A7
DN 50 / 6.8...68 m³/h	male thread G 2	5077VA		A8
Sensor				
Inductive pick-up VISPP (included in the scope of delivery)			ISP0	
Optional pick-up according to table on the following page (separate order)			0000	

Order code	Example → VS	1071VA	ISP0	G	1
Type					
VTR flange connection	VS				
Nominal size / flow range					
DN 10 / 0.11...1.1 m³/h		1071VA			
DN 15 / 0.22...2.2 m³/h		1572VA			
DN 15 / 0.4...4 m³/h		1573VA			
DN 20 / 0.8...8 m³/h		2074VA			
DN 25 / 1.6...16 m³/h		2575VA			
DN 40 / 3.4...34 m³/h		4076VA			
DN 50 / 6.8...68 m³/h		5077VA			
DN 80 / 13.5...135 m³/h		7578VA			
DN 100 / 27...270 m³/h		1H79VA			
DN 150 / 55...550 m³/h		HF81VA			
DN 200 / 110...1100 m³/h		2H82VA			
DN 250 / 190...1900 m³/h		ZF83VA			
DN 300 / 270...2700 m³/h		3H84VA			
Sensor					
Inductive pick-up VISPP (included in the scope of delivery)			ISP0		
Optional pick-up according to table on the following page (separate order)			0000		
Process connection					
DIN flange stainless steel				G	
ANSI flange stainless steel				I	
PN 6 / #150					1
PN 16 / #300					2
PN 25 / #400					3
PN 40 / #600					4

Accessories for series VTR

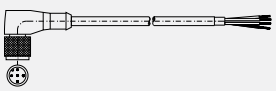
Pick-ups

Pick-ups

Technical data

Type	VISPP Inexpensive, fitted as standard	VISPP-HT For high medium temperatures	VSAPPS* Square wave signal	VSAPPSHT* Square wave signal, for high medium temperatures
Output signal	Sinus wave		Square wave NPN or PNP to choose	
Measuring principle	Inductive		Magnetically biased Hall effect sensor	
Temperature range	-20...120 °C	-20...230 °C**	-20...85 °C	-20...100 °C
Power supply			10...30 VDC	
Degree of protection EN 60529	IP54		IP67	
Electrical connection	Amphenol plug connection Pick-up: MS3101E10SL-4P Plug: MS3106F10SL-4S		4-pin plug connection M12 x 1	
Cable socket	Inclusive		Accessory	
Material housing	Stainless steel ANSI 314	Stainless steel ANSI 316	Brass nickel-plated	

* Adapter VT1140 sold separately ** Notice the max. medium temperature of measuring turbine (150 °C).

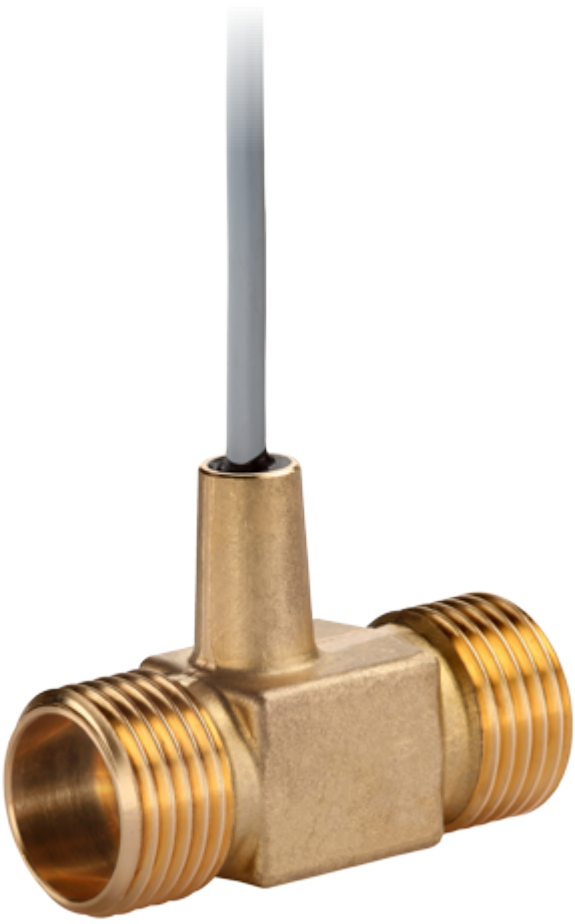
Connection cables	Length	Order code	
Connection cable for turbine flow sensor with cable socket M12 x 1 moulded lead, 4-pin, shielded, sheathing material PUR (T_{max} = 70 °C) UL-approval	3 m 5 m 10 m	XVT2053 XVT2009 XVT2070	
4-pin cable socket M12 x 1 angle type unassembled		VT1331	

Series VTY

Turbine flow sensors of the series VTY were specially developed for the use in potable water mass production applications. Flexible, customer- and application-oriented customisations to existing standards as well as a close cooperation in quality assurance always guarantee optimal results in a wide range of measuring tasks.

Sensors of the series VTY are used among others for the measurement of tap water. They are available in different versions: with turbine body made of brass or glass-fibre reinforced plastic, with threaded ends or QuickFasten process connections.

Due to their integrated flow straighteners, the turbines are practically independent of impacts from the installation situation and resistant to water hammers. In conjunction with the standard equipped sapphire bearing, long-lasting and over the complete service life precise and flexible measuring instruments are created. They all combine the advantages of a cost-effective OEM production with high quality "Made in Germany".



Advantages

- Turbine body made of brass or glass-fibre reinforced plastic, turbine internals made of glass-fibre reinforced plastic
- Sapphire-supported turbine for long durability
- Practically no deviation in mass production due to fixed pulse rate
- Wide measuring span (up to 1:60)
- Insensitive against water hammers
- Threaded connection or QuickFasten
- Reliable measuring results due to high measuring accuracy
- Mostly independent of fitting position due to integrated flow straightener
- Proven in numerous mass production applications

Turbine flow sensors

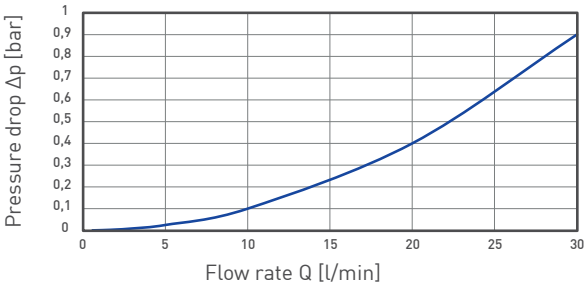
For potable water applications, series VTY10

Type VTY10, brass

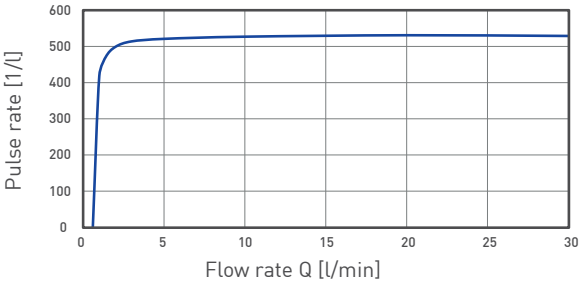
Type VTY10, plastic

Technical data			
	Brass threaded	**Plastic threaded**	**Plastic QuickFasten**
Flow range	1...30 l/min		
Accuracy	±1 % of range		
Repeatability	±1 %		
Signal output	From 0.7 l/min	From 0.6 l/min	
Medium temperature	0...90 °C (non-freezing)	0...85 °C (non-freezing), temporary 95 °C	0...70 °C (non-freezing), temporary 95 °C
Ambient temperature	0...70 °C		
Pressure rating	PN 16	PN 10	
Nominal diameter	DN 10		
Process connection	G½ male	G¾ male	QuickFasten
Sensor	Hall effect sensor		
Output signal	Square wave frequency signal, NPN open collector		
Pulse duty ratio	50:50		
Pulse rate / K-factor	495 pulses/l	530 pulses/l	
Electrical connection	80 mm (QuickFasten 90 mm) single wire with Molex Mini-Fit® Jr. plug connector (part number 39-01-4036)		
	Optional: PVC-cable (1 m), optional single wires		Optional: Single wires (145 mm)
Power supply	4.5...24 VDC		
Approval			
	WRAS APPROVED PRODUCT		

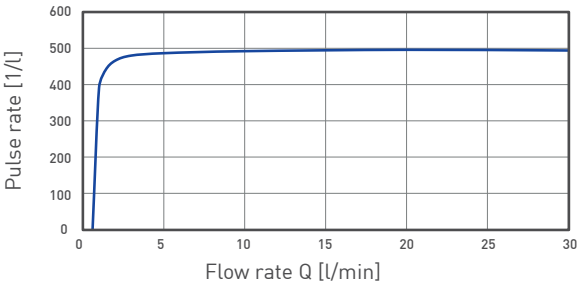
Typical pressure drop



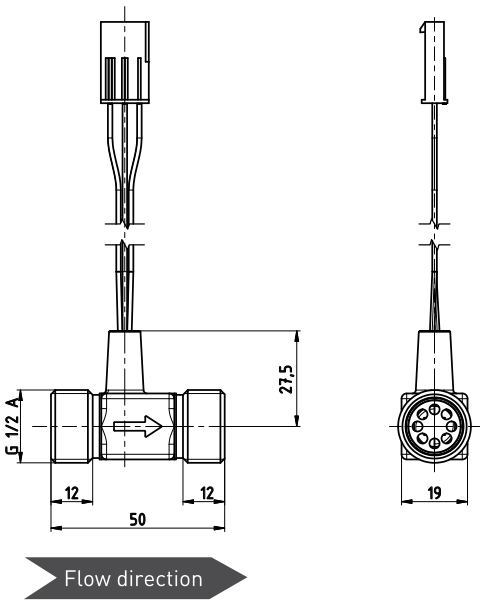
Characteristic curve, Kunststoff



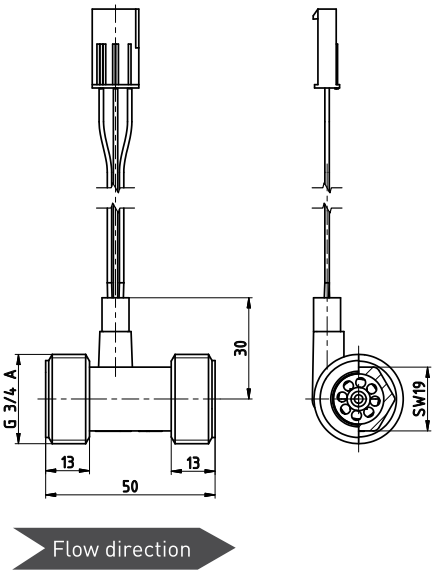
Characteristic curve, Messing



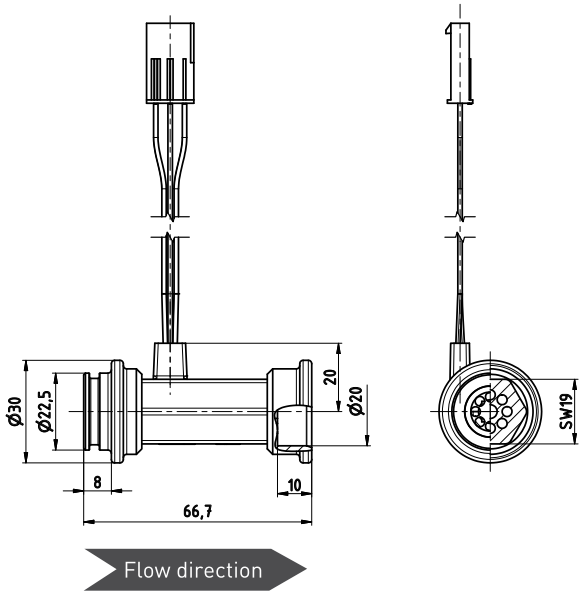
Threaded version, brass



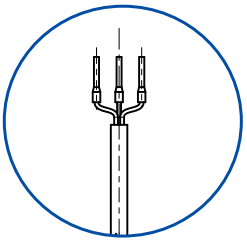
Threaded version, plastic



QuickFasten, plastic



Alternative electrical connection



Materials in contact with fluid		
Type	**VTY10, brass**	**VTY10, plastic**
Pipe section	Brass CW617N	PPE+PS Noryl™ 30 % glass fibre reinforced
Rotor	PPE+PS Noryl™ 30 % glass fibre reinforced	
Magnet	Hard ferrite	
Shaft	Stainless steel / Hard metal	
Axial bearing	Saphir	
Radial bearing	PEEK Victrex™	

Order code	Example → VY1030MAHN	X1A3
Type		
VTY10, brass	VY1030MAHN	
Electrical connection		
80 mm single wire with Molex Mini-Fit® Jr. plug connector		X1A3
1 m PVC-cable		10A3

Order code	Example → VY1030K5HN	10A4
Type		
VTY10, plastic	VY1030K5HN	
Electrical connection		
1 m PVC-cable, threaded		10A4
80 mm single wire with Molex Mini-Fit® Jr. plug connector, threaded		X1A4
145 mm single wires, QuickFasten		P0Q1
90 mm single wires mit with Molex Mini-Fit® Jr. plug connector, QuickFasten		X2Q1

Minimum lot size 100 pieces

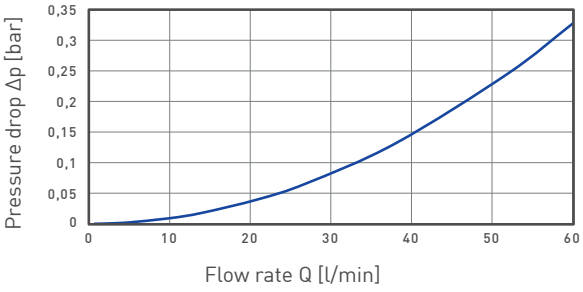
Turbine flow sensors

For potable water applications, series VTY20

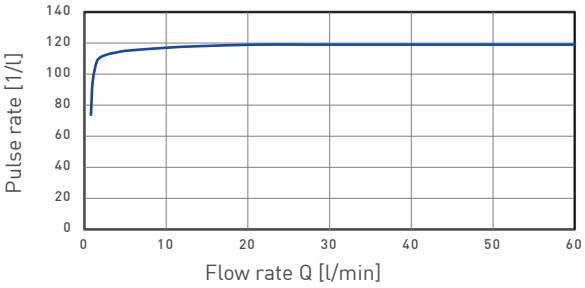
Type VTY20

Technical data	
Flow range	1...60 l/min
Accuracy	±1 % of range ±1 % of reading
Repeatability	±1 %
Signal output	From 0.8 l/min
Medium temperature	0...90 °C
Ambient temperature	0...70 °C
Pressure rating	PN 16
Nominal diameter	DN 20
Process connection	G 1 male thread
Sensor	Hall effect sensor
Output signal	Square wave - frequency signal, NPN open collector
Pulse duty ratio	50:50
Pulse rate / K-factor	119 pulses/l
Electrical connection	80 mm single wire with Molex Mini-Fit® Jr. plug connector (part number 39-01-4036) optional: 0.5 m PVC cable
Power supply	4.5...24 VDC
Pressure drop	0.33 bar (at Q = 60 l/min)
Approvals	
	Plastic parts and O-ring comply with the KTW-Guideline of the German Federal Environment Agency WRAS APPROVED PRODUCT

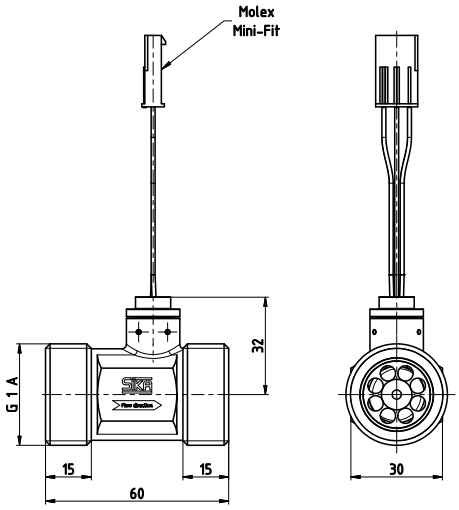
Typical pressure drop



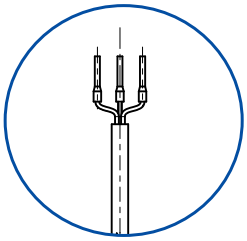
Characteristic curve



VTY20



Alternative electrical connection



Materials in contact with fluid	
Pipe section	Brass CW617N
Turbine cage	PPE+PS Noryl™ 30 % glass fibre reinforced
Rotor	PPE+PS Noryl™ 30 % glass fibre reinforced
Magnet	Hard ferrite
Shaft	Stainless steel 1.4305 / Tungsten carbide
Axial bearing	Sapphire
Radial bearing	PEEK Victrex™

Order code	Example → VY2060MAHN	X1A5
Type		
VTY20	VY2060MAHN	
Electrical connection		
80 mm single wire with Molex Mini-Fit® Jr. plug connector		X1A5
0.5 m PVC-cable		05A5

Minimum lot size 60 pieces

Push-in flow sensors

Push-in flow sensors of the type VTY10, VTH15/20/25 were specially developed for the installation in fittings and feature an easy and space-saving system integration. Typical applications for these flow sensors are:

- Tap water detection
- Water treatment
- Leak detection

In general, push-in flow sensors consist of three components: push-in turbine, Hall effect-sensor and adapter sleeve for Hall effect sensor. This three-part construction is the key for the space-saving installation in e.g. filter heads and allows the separate installation of hydraulic and electrical components. A high quality sapphire bearing guarantees a long durability of the measuring system and allows the measurement of low flow rates from one litre per minute due to low start-up velocities.

Advantages

- Low deviation in mass production, fixed pulse rate
- Wide measuring ranges (1...160 l/min)
- Reliable measuring results due to high measuring accuracy
- Low wear and extremely long durability due to high quality sapphire bearing
- Compact dimensions
- Proven in numerous mass production applications
- Service-friendly

Push-in flow sensors

Series VTY10

Type VTY10

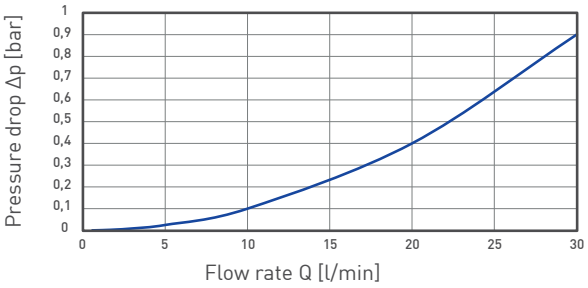
❶ Push in turbine	
Flow range	1...30 l/min
Accuracy	±1 % of range
Repeatability	±1 %
Signal output	From 0.7 l/min
Medium temperature	Max. 85 °C, temporary 95 °C
Nominal diameter	DN 10
Approvals	
Applied for WRAS approval	

❷ Hall effect sensor*	
Nominal pulse rate	495 pulses / l
Frequency output	NPN open collector
Power supply	4.5...24 VDC
Electrical connection	2 m PVC cable, shielded (T_{max} = 75 °C)
Pressure rating	See sleeve for Hall effect sensor
Process connection	See sleeve for Hall effect sensor

❸ Adapter sleeve for hall effect sensor**	
Pressure rating	PN 10
Process connection	G⅜ A
Approvals	
Plastic part and O-ring comply with the KTW-Guideline of the German Federal Environment Agency	

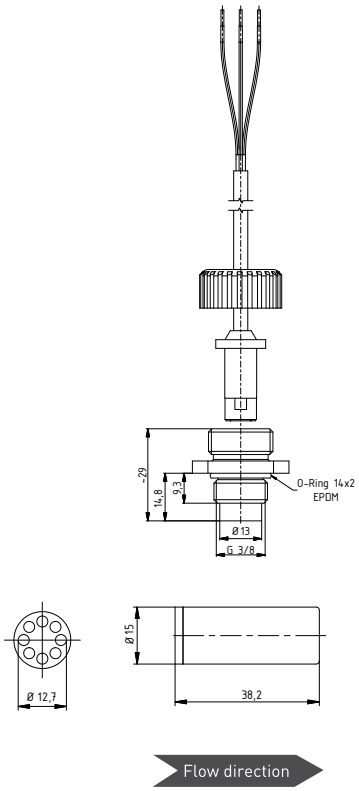
Stated values may vary depending on geometry of fittings.
* Union nut included
** O-ring included

Typical pressure drop*



* determined in SIKA pipe tee

VTY10



Materials in contact with fluid	
Push in turbine	
Turbine body	PPE+PS Noryl™ 30 % glass fibre reinforced
Rotor	PPE+PS Noryl™ 30 % glass fibre reinforced
Magnet	Hard ferrite
Shaft	Stainless steel / Hard metal
Axial bearing	Sapphire
Radial bearing	PEEK
Adapter sleeve for Hall effect sensor	
Adapter sleeve	PPE+PS Noryl™ 30 % glass fibre reinforced
O-ring	EPDM

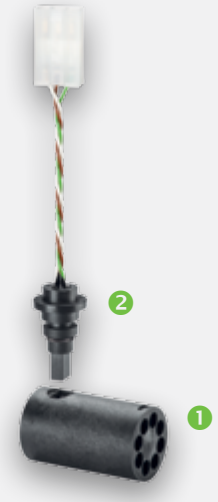
Order code	
Push in turbine	VY1030K50000YY
Hall effect sensor	VT2282
Adapter sleeve for Hall effect sensor	VT25Z000000002

Minimum lot size 50 pieces

Push-in flow sensors

Series VTY20

Type VTY20

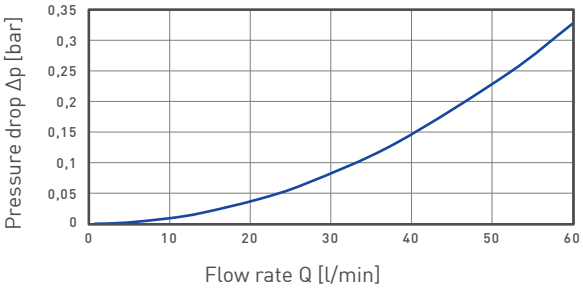


❶ Push in turbine	
Flow range	1...60 l/min
Accuracy	±1 % of range ±1 % of reading
Repeatability	±1 %
Signal output	From 0.8 l/min
Medium temperature	0...90 °C
Nominal diameter	DN 20
Approvals	
Applied for WRAS approval Plastic parts comply with the KTW-Guideline of the German Federal Environment Agency	

❷ Hall effect sensor*	
Nominal pulse rate **Frequency output**	119 Pulse/l NPN open collector
Power supply	4.5...24 VDC
Electrical connection	80 mm single wire with Molex Mini-Fit® Jr. plug connector (part number 39-01-4036) optional: 0.5 m PVC cable
Pressure rating	PN 16
Approvals	
Plastic part and O-ring comply with the KTW-Guideline of the German Federal Environment Agency	

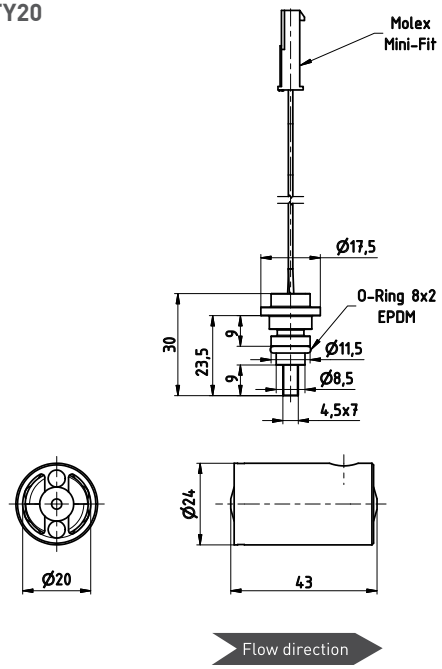
Stated values may vary depending on geometry of fittings.
* O-ring included

Typical pressure drop*



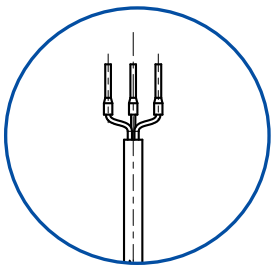
* determined in SIKA pipe tee

VTY20



Materials in contact with fluid	
Push in turbine	
Turbine body	PPE+PS Noryl™ 30 % glass fibre reinforced
Rotor	PPE+PS Noryl™ 30 % glass fibre reinforced
Magnet	Hard ferrite
Shaft	Stainless steel 1.4305 / Hard metal
Axial bearing	Sapphire
Radial bearing	PEEK Victrex™
Adapter sleeve for Hall effect sensor	
Adapter sleeve	PPE+PS Noryl™ 30 % glass fibre reinforced
O-ring	EPDM

Alternative electrical connection



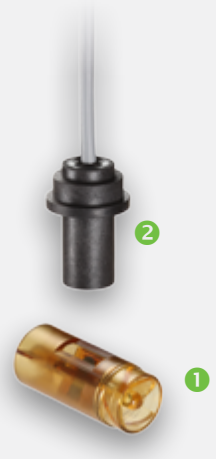
Order code	
Push in turbine	VY2060K50000YY
Hall effect sensor	
→ 80 mm single wire with Molex Mini-Fit® Jr. plug connector	VY2005
→ 0.5 m PVC-cable	VY2004

Minimum lot size 50 pieces

Push-in flow sensors

Series VTH15

Type VTH15

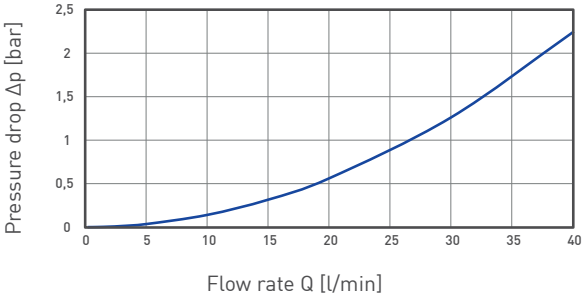


❶ Push in turbine	
Flow range	2...40 l/min with continous operation 20 l/m
Accuracy	±1 % of range
Repeatability	±0.2 %
Signal output	From 0.3 l/min
Medium temperature	Max. 85 °C
Nominal diameter	DN 15

❷ Hall effect sensor*	
Nominal pulse rate	855 Pulse/l
Frequency output	NPN open collector
Power supply	4.5...24 VDC
Electrical connection	1.5 m PVC cable, shielded (T_{max} = 70 °C)
Pressure rating	PN 10
Process connection	Push-in sleeve Ø 15 mm

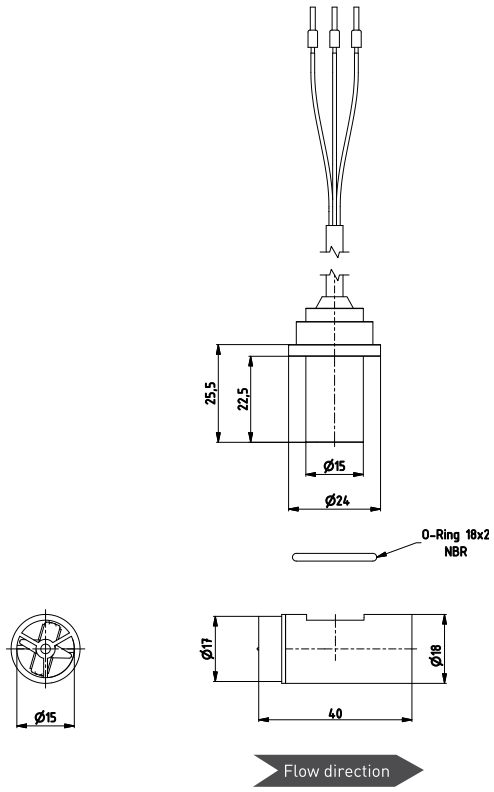
Stated values may vary depending on geometry of fittings.
* O-ring included

Typical pressure drop*



* determined in SIKA pipe tee

VTH15



Materials in contact with fluid	
Push in turbine	
Turbine body	PEI ULTEM™
Rotor	PEI ULTEM™
Magnet	Hard ferrite
Shaft	Arcap / Hard metal
Axial bearing	Sapphire
Radial bearing	Sapphire
Hall effect sensor	
Adapter sleeve	PPE+PS Noryl™ 30 % glass fibre reinforced
O-ring	NBR

Order code	
Push in turbine	AD3004
Hall effect sensor	VT2000

Minimum lot size 50 pieces

Push-in flow sensors

Series VTH20

Type VTH20

❶ Push in turbine	
Flow range	1...42 l/min with continous operation max. 25 l/m
Accuracy	±1 % of range, ±3 % of reading (from 15 l/min)
Repeatability	±0.2 %
Signal output	From 0.33 l/min
Medium temperature	Max. 60 °C
Nominal diameter	DN 20
Approvals	
Plastic part and O-ring comply with the KTW-Guideline of the German Federal Environment Agency	

❷ Hall effect sensor*	
Nominal pulse rate	232 Pulse/l
Frequency output	NPN open collector
Power supply	10...30 VDC (optional 4.5...26.5 VDC)
Electrical connection	2 m PVC-cable, shielded (T_{max} = 75 °C)

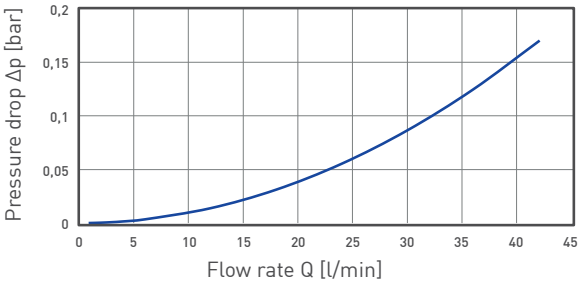
❸ Adapter sleeve for hall effect sensor**	
Pressure rating	PN 10
Process connection	G⅜ A
Approvals	
Plastic part and O-ring comply with the KTW-Guideline of the German Federal Environment Agency	

Stated values may vary depending on geometry of fittings.

* Union nut included

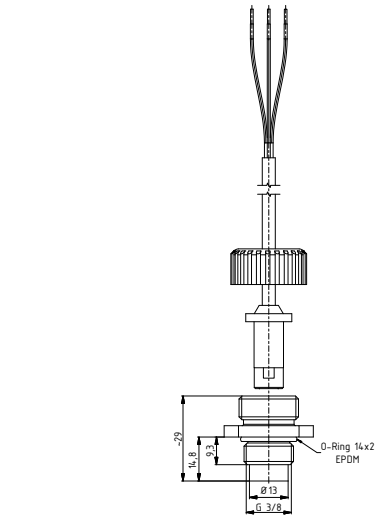
** O-ring included

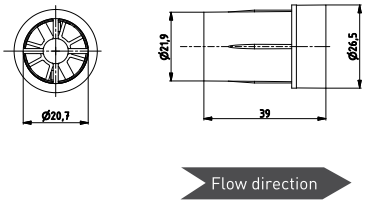
Typical pressure drop*



* determined in SIKA pipe tee

VTH20





Flow direction

Materials in contact with fluid	
Push in turbine	
Turbine body	PPE+PS Noryl™ 30 % glass fibre reinforced
Rotor	PC Makrolon®
Magnet	Hard ferrite
Shaft	Stainless steel 1.4539
Axial bearing	Sapphire
Radial bearing	PA
Adapter sleeve for Hall effect sensor	
Adapter sleeve	PPE+PS Noryl™ 30 % glass fibre reinforced
O-ring	EPDM

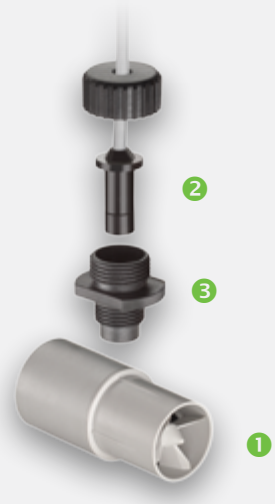
Order code	
Push in turbine	VT20Z000000001
Hall effect sensor	VT2228
Adapter sleeve for Hall effect sensor	VT25Z000000002

Minimum lot size 50 pieces

Push-in flow sensors

Series VTH25

Type VTH25



❶ Push in turbine	
Flow range	4...160 l/min with continous operation max. 80 l/m
Accuracy	±5 % of range (up to 5 l/min ±7 % of reading)
Repeatability	±0.5 %
Signal output	From 1 l/min
Medium temperature	Max. 85 °C
Nominal diameter	DN 25
Approvals	
Plastic part and O-ring comply with the KTW-Guideline of the German Federal Environment Agency	

❷ Hall effect sensor*	
Nominal pulse rate	65 Pulse/l
Frequency output	NPN open collector
Power supply	10...30 VDC (optional 4.5...26.5 VDC)
Electrical connection	2 m PVC-cable, shielded (T_{max} = 75 °C)

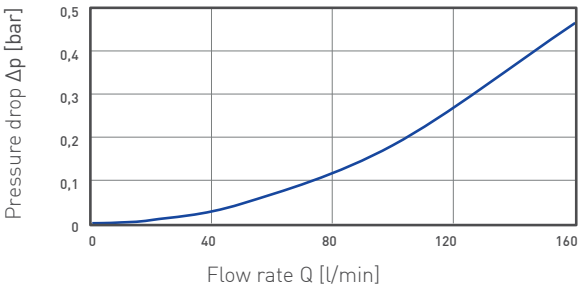
❸ Adapter sleeve for hall effect sensor**	
Pressure rating	PN 10
Process connection	G⅜ A
Approvals	
Plastic part and O-ring comply with the KTW-Guideline of the German Federal Environment Agency	

Stated values may vary depending on geometry of fittings.

* Union nut included

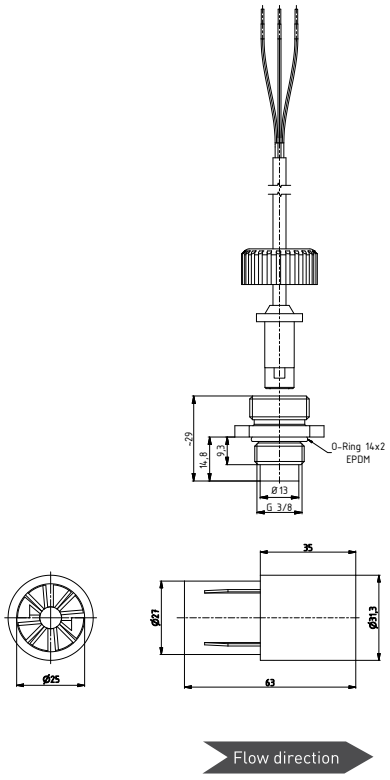
** O-ring included

Typical pressure drop



* determined in SIKA pipe tee

VTH25



Materials in contact with fluid	
Push in turbine	
Turbine body	PPE+PS Noryl™ 30 % glass fibre reinforced
Rotor	PPE+PS Noryl™ 20 % glass fibre reinforced
Magnet	Hard ferrite
Shaft	Edelstahl 1.4539
Axial bearing	Sapphire
Radial bearing	PA
Adapter sleeve for Hall effect sensor	
Adapter sleeve	PPE+PS Noryl™ 30 % glass fibre reinforced
O-ring	EPDM

Order code	
Push in turbine	VT25Z000000001
Hall effect sensor	VT2228
Adapter sleeve for Hall effect sensor	VT25Z000000002

Minimum lot size 50 pieces