

# Turbine flow sensors // VTR



## Highlights

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

## Technical data

<b>Accuracy</b>	±0.5 % of reading*
<b>Repeatability</b>	±0.05 % of reading
<b>Response time</b>	< 50 ms up to DN 40 > 50 ms up to DN 300
<b>Process connections</b>	Thread (up to DN 50): BSP ISO 228 Flange: DIN
<b>Pressure drop</b>	280 mbar at 100 % measurement range (density 1, viscosity 1 mm <sup>2</sup> /s)
<b>Minimum pressure</b>	2 x pressure drop of sensor
<b>Pressure rating</b>	Threaded connection: 250 bar Flanged connection: corresponding to flange specification
<b>Medium temperature</b>	See technical data of the pick-up (page 4); max. 250 °C

All specified values apply to viscosities up to 5 cSt. Higher viscosities on request.

## Options

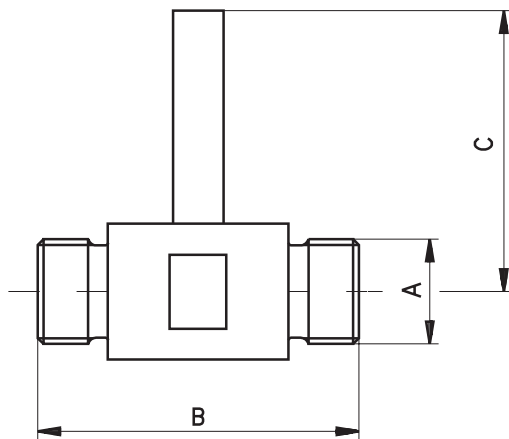
For type	On request
VTR	Process connections → ANSI → NPT thread

\* Test conditions: Ex works, water 23 °C

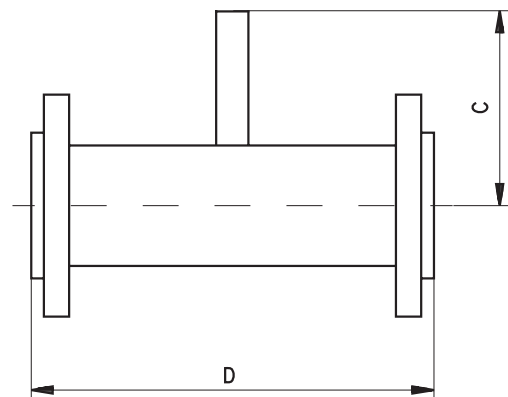
# Technical drawings // Dimensions

Type	Nominal diameter	Flow range		Dimensions			
	DN	[m³/h]	[l/min]	A	B [mm]	C <sub>max</sub> [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	75	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

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

# Article numbers

Order code					
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			ISPO		
Inductive pick-up for high temperatures VISPP-HT			ISHO		
Magnetically biased Hall effect sensor VSAPPS incl. adapter VT1140			SAP0		
Magnetically biased Hall effect sensor VSAPPSHT for high temperatures incl. adapter VT1140			SAH0		
Without pick-up			0000		
Example order number		VS	1071VA	ISPO	A3

Order code					
Type					
VTR flange connection		VS			
Nominal size / flow range		Process connection			
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 75 / 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			ISPO		
Inductive pick-up for high temperatures VISPP-HT			ISHO		
Magnetically biased Hall effect sensor VSAPPS incl. adapter VT1140			SAP0		
Magnetically biased Hall effect sensor VSAPPSHT for high temperatures incl. adapter VT1140			SAH0		
Without pick-up			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	
Example order number		VS	1071VA	ISPO	G 1

# Turbine flow sensors // VTR // Accessories



Pick-up

Highlights – VISPP	Highlights – VISPP-HT	Highlights – VSAPPS	Highlights – VSAPPSHT
<ul style="list-style-type: none"> <li>• Cost optimized version</li> </ul>	<ul style="list-style-type: none"> <li>• For high medium temperatures</li> </ul>	<ul style="list-style-type: none"> <li>• Square wave signal</li> </ul>	<ul style="list-style-type: none"> <li>• Square wave signal</li> <li>• For high medium temperatures</li> </ul>

Technical data				
Type	VISPP	VISPP-HT	VSAPPS*	VSAPPSHT*
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	

\* Separate adapter VT1140 necessary

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