

## Turbine flow sensors for fluids, series Turbotron

### DN 40 ...robust and versatile!

#### Turbotron VT 40 with pulse output

The turbine flow sensors of the product line Turbotron are sensors for flow rate measurement or dosing applications for liquids. Through its especially compact type, its very wide measuring range and its convincing precision of measurement, it has an almost unlimited application.

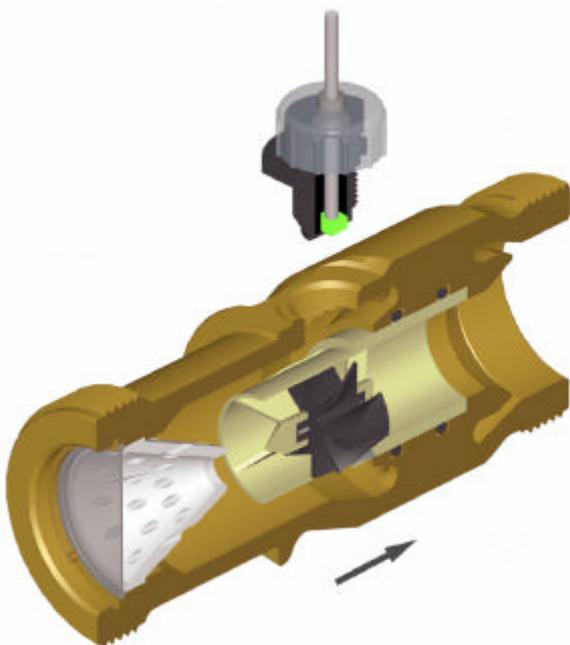
#### Convincing advantages

Especially suitable and proven in numerous serial applications through

- fixed pulse rate, thus practically no serial deviation
- wide measurement range, universally usable
- high-quality sapphire/PA bearing, low abrasion and extremely long running period
- any position, can be versatile installed
- plug adapter or fixed connecting cable



#### Design and function



Schematic representation

In the center of the brass turbine body there is the plastic turbine system. For design reasons, there is a ring gap around the turbine system. A part of the liquid flow makes the turbine rotate while the other part flows through the ring gap without obstruction. This special construction does not influence the measurement result, the output signal of the sensor is equal to the complete volume flow rate.

The high-quality sapphire-bearings and the low rotation rate provide the turbine with an exceptional life time. The rotation of the rotor is now converted into an electrical pulsed signal (frequency):

- VTH and VTM have rotors which are equipped with magnets. A Hall-sensor recognizes the rotation of the rotor.
- The rotor of VT1 is equipped with stainless steel pins. An inductive proximity switch detects the rotation of the rotor.

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

## Technical data

	VTH economy-priced type for standard and serial applications, fixed connection cable	VTM higher pressure, plug connection	VTI magnet-free rotor, plug connection
<b>Material of pipe section</b>	<b>brass</b>	<b>brass</b>	<b>brass</b>
Diameter	DN 40		
Measurement range	0,4...25 m <sup>3</sup> /h (6,7...417 l/min)		
Accuracy	±5 % of the measured value between 0,4...3 m <sup>3</sup> /h ±3 % of the measured value between 3...25 m <sup>3</sup> /h		
Reproducibility	±0,5 %		
Signal output starting from	0,1 m <sup>3</sup> /h		
max. particle size in the medium	< 0,63 mm		
Output signal - pulse rate / K-factor - resolution	26,6 pulses/liter 37,6 ml/pulse		
Signal shape	NPN open collector		PNP open collector
Signal current	max. 20 mA		max. 10 mA
Sensor type	Hall effect sensor	Hall effect sensor	inductive proximity switch
Max. medium temperature	85°C	85°C	60°C
Nominal pressure	PN10	PN50	PN10
Process connection	2" BSP male thread, supplementary screwed connection recommended		
Electrical connection	2 m PVC cable, screened (T <sub>max</sub> = 75°C)	4 pin plug connector M12x1	
Power supply	4,5...24 VDC		10...30 VDC
Type of protection	IP 54		
Integrated screen filter	Flat filter, mesh size 0.63 mm		

## Materials

Type	VTH 40 MS-410	VTM 40 MS-410	VTI 40 MS-410
Pipe section	Brass CuZn36Pb2As CW602N		
Turbine cage	PPO Noryl GFN 3V 960		
Rotor	PPO Noryl GFN 2V 73701		
Rotor assembly	Magnets, Recona 28 nickel-plated		Stainless steel 1.4305
Shaft	Stainless steel 1.4436		
Bearing	Sapphire / PA		
Housing for Hall sensor	PPO Noryl GFN 1630 V	Brass CuZn36Pb2As CW602N	POM Delrin 100 P
O-ring	72 NBR 872		
Flow guiding cone	POM Celcom		
Screen filter	Stainless steel 1.4301		
Retaining ring	Bronze 2.1030.34		

## Options

Please specify in the order code:

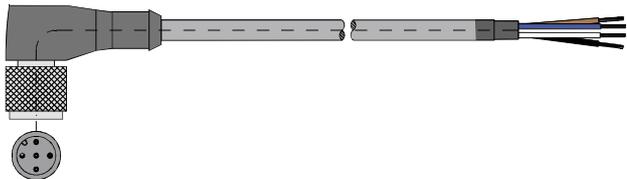
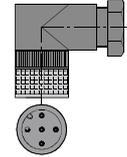
- turbine flow transmitter, analog output, 4...20 mA, description see page 20
- turbine flow switch (contact), description see page 22 and 23

## Order code

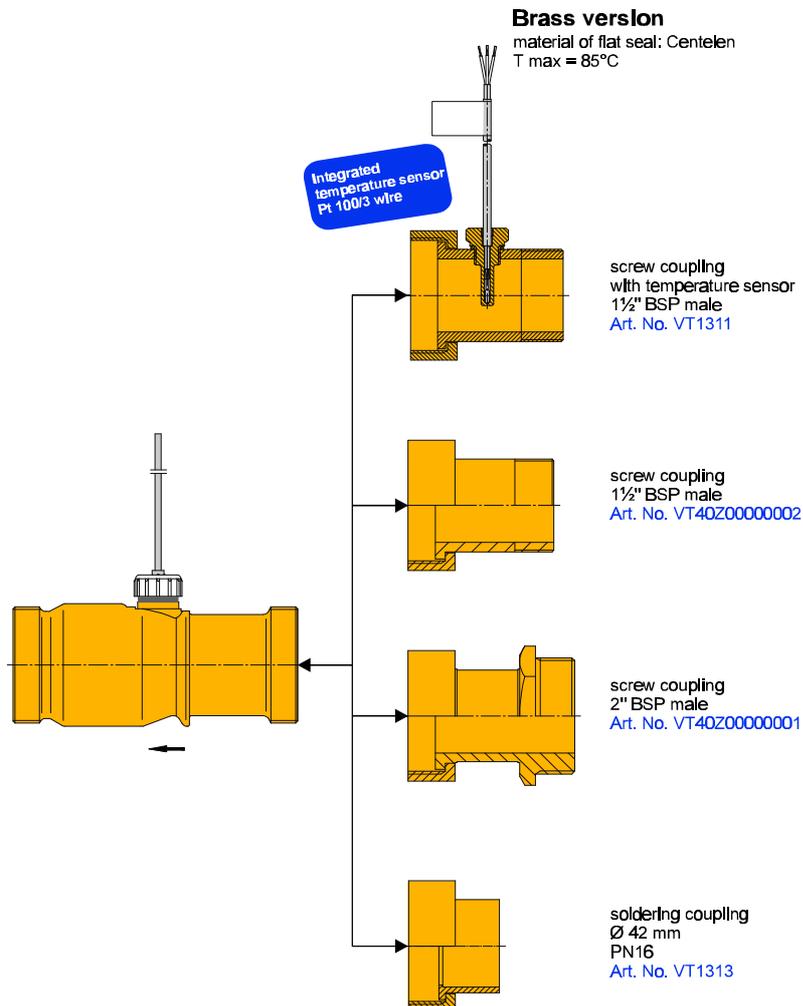
Order number	VT4025MS	XX	X	000	F	X*
Type	VTH	HN				
	VTM	MN				
	VTI	IP				
Electr. connection	Cable (only VTH)		P			
	4 pin connector M12x1 (only VTI, VTM)		S			
<b>Options</b>						
Electronics	including transducer 4...20 mA corresponds with 0...150 l/min corresponds with 0...250 l/min corresponds with 0...400 l/min					E F G
	Switching output VE					6
	Switching output VE with pulse output					7
	Version for local display TD 32500 (display must be ordered separately)					4

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

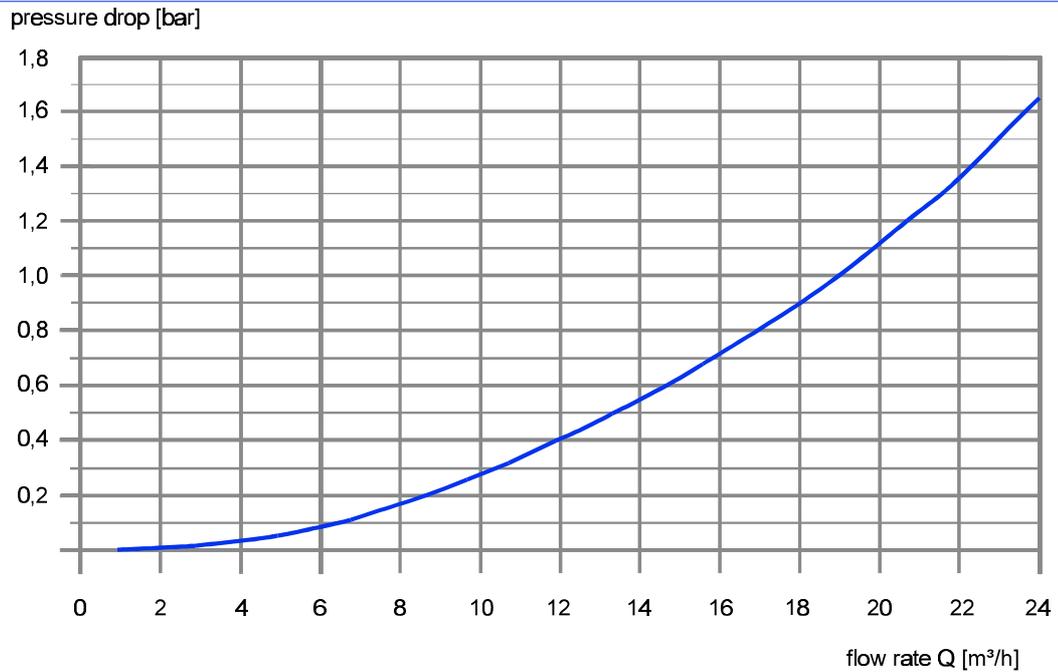
## Accessory

Accessory part	Order code	
Connection cable with 4-pin cable socked M12x1, angle type, molded lead, sheathing material PUR, screened, length 3 m ( $T_{max} = 80^{\circ}C$ )	XVT 2053	
Connection cable on the top, but length 5 m Connection cable on the top, but length 10 m	XVT 2009 XVT 2070	
4-Pin cable socket M12x1 angle type unassembled	VT 1331	

Connecting adapter, delivery piecemeal see following drawing.



## Pressure drop



## Dimensions

