

## Turbotron // VTH15, VTM15, VTP15, VTI15



### Your advantages

| Series | VTH15  | VTM15   |
|--------|--|---|
|        | <ul style="list-style-type: none"> <li>Cost optimized version</li> </ul> | <ul style="list-style-type: none"> <li>For medium temperature up to 120 °C</li> </ul> |


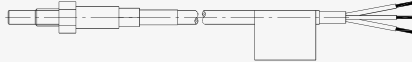

| Type                                    | VTH15  |       |                 | VTM15  |
|---|--|-------|-----------------|--|
| <b>Material pipe section</b>            | Plastic PPO  | Brass | Stainless steel | Brass  |
| <b>Flow range</b>                       | 2...40 l/min   |       |                 | 2...20 l/min   |
| <b>Accuracy</b>                         | ±0.4 l/min   |       |                 | ±0,8 l/min   |
| <b>Repeatability</b>                    | ±0.1 l/min   |       |                 |  |
| <b>Signal output</b>                    | From 0.3 l/min   |       |                 |  |
| <b>Medium temperature</b>               | 0...85 °C (non-freezing)   |       |                 | 0...120 °C (non-freezing)                            |
| <b>Pressure rating</b>                  | PN 10  |       |                 |  |
| <b>Nominal diameter</b>                 | DN 15  |       |                 |  |
| <b>Process connection</b>               | G $\frac{3}{4}$ male thread with union nuts and gaskets                              |       |                 |  |
| <b>Sensor</b>                           | Hall effect sensor   |       |                 |  |
| <b>Output signal</b>                    |  |       |                 |  |
| → Pulse rate / K-factor                 | 855 pulses/l   |       |                 | 915 pulses/l   |
| → Resolution                            | 1.2 ml/pulse   |       |                 | 1.1 ml/pulse   |
| → Signal shape                          | Square wave signal NPN open collector  |       |                 | Square wave signal NPN open collector                |
| → Signal current                        | Max. 10 mA   |       |                 | Max. 10 mA   |
| <b>Electrical connection</b>            | 1.5 m PVC cable, shielded (T <sub>max</sub> = 70 °C) or 4 pin plug connector M12 x 1 |       |                 | 1.5 m PVC cable, shielded (T <sub>max</sub> = 80 °C) |
| <b>Power supply</b>                     | 4.5...24 VDC   |       |                 |  |
| <b>Degree of protection EN 60529</b>    | IP54   |       |                 |  |
| <b>Max. particle size in the medium</b> | 0.5 mm   |       |                 |  |



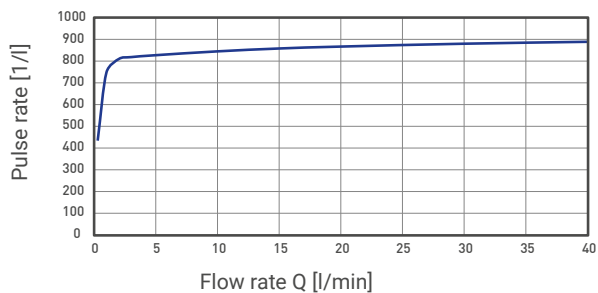
**Your advantages**

| Series | VTP15  | VTI15  |
|--------|--|--|
|        | <ul style="list-style-type: none"> <li>• Pressure rating up to 300 bar</li> <li>• For medium temperature up to 150 °C</li> </ul> | <ul style="list-style-type: none"> <li>• Magnet-free rotor, for high measurement accuracy and high resolution</li> </ul> |

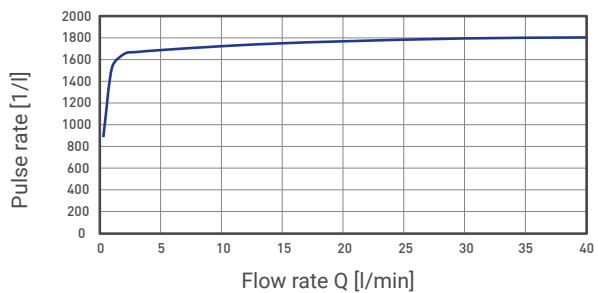
| Type  | VTP15   |  | VTI15   |       |
|---|---|--|---|-------|
| <b>Material pipe section</b>  | Brass   | Stainless steel  | Plastic PPO   | Brass |
| <b>Flow range</b>   | 2...40 l/min  |  |   |       |
| <b>Accuracy</b>   | ±0.8 l/min of range at 2...20 l/min   |  | ±0.2 l/min  |       |
| <b>Repeatability</b>  | ±0.1 l/min  |  | ±0.05 l/min   |       |
| <b>Signal output</b>  | From 0.3 l/min  |  |   |       |
| <b>Medium temperature</b>   | 0...150 °C (non-freezing)   |  | 0...85 °C (non-freezing)  |       |
| <b>Pressure rating</b>  | P <sub>max</sub> = 300 bar  |  | PN 10   |       |
| <b>Nominal diameter</b>   | DN 15   |  |   |       |
| <b>Process connection</b>   | G <sup>3/4</sup> male thread incl. union nuts                                       | G <sup>3/4</sup> male thread or G <sup>3/4</sup> female thread | G <sup>3/4</sup> male thread with union nuts and gaskets                                    |       |
| <b>Sensor</b>   | Hall effect sensor  |  | Inductive proximity switch  |       |
| <b>Output signal</b><br>→ Pulse rate / K-factor<br>→ Resolution<br>→ Signal shape<br>→ Signal current | 915 pulses/l<br>1.1 ml/pulse<br>Square wave signal NPN open collector<br>Max. 10 mA |  | 1795 pulses/l<br>0.6 ml/pulse<br>Square wave signal PNP or NPN open collector<br>Max. 50 mA |       |
| <b>Electrical connection</b>  | 1.5 m silicone cable, shielded (T <sub>max</sub> = 150 °C)                          |  | 2 m PVC cable, shielded (T <sub>max</sub> = 70 °C) or 4 pin plug connector M12 x 1          |       |
| <b>Power supply</b>   | 4.5...24 VDC  |  | 10...30 VDC   |       |
| <b>Degree of protection EN 60529</b>  | IP54  |  |   |       |
| <b>Max. particle size in the medium</b>   | 0.5 mm  |  |   |       |

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

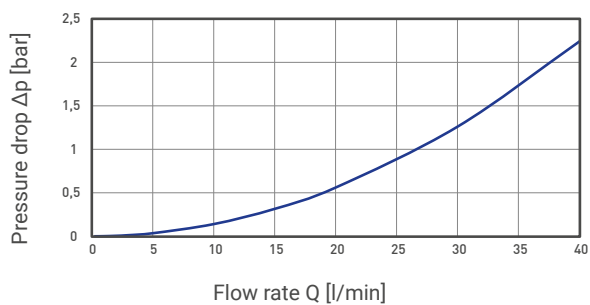
**Characteristic curve VTH**



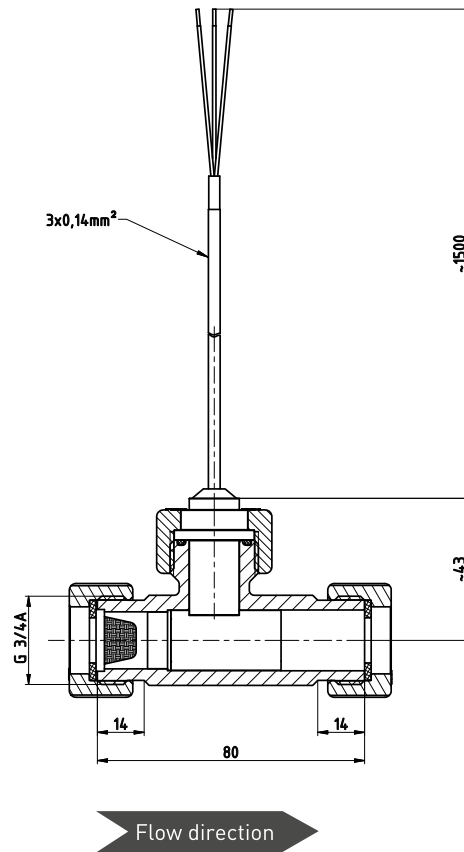
**Characteristic curve VTI**



**Typical pressure drop VTH / VTM / VTP / VTI**



## VTH15 / VT115



## Materials in contact with fluid

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

| Order code  |                                 |                 |           |           |          |            |          |          |
|---|---------------------------------|-----------------|-----------|-----------|----------|------------|----------|----------|
| <b>Type</b>   |                                 | VT1541          |           |           |          |            |          |          |
| <b>Material of pipe section</b>                                       |                                 |                 |           |           |          |            |          |          |
| Noryl PPO   |                                 | K5              |           |           |          |            |          |          |
| Brass   |                                 | MS              |           |           |          |            |          |          |
| Stainless steel (only VTH15)  |                                 | VA              |           |           |          |            |          |          |
| <b>Version, output signal</b>   |                                 |                 |           |           |          |            |          |          |
| VT15, PNP   |                                 |                 |           | IP        |          |            |          |          |
| VT15, NPN   |                                 |                 |           | IN        |          |            |          |          |
| VTH15, NPN  |                                 |                 |           | HN        |          |            |          |          |
| <b>Electrical connection</b>  |                                 |                 |           |           |          |            |          |          |
| Cable   |                                 |                 |           |           | P        |            |          |          |
| 4 pin plug connector M12 x 1  |                                 |                 |           |           | S        |            |          |          |
| <b>Supplementary temperature sensor</b>                               |                                 |                 |           |           |          |            |          |          |
| 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        |          |          |
| <b>Options*</b>   |                                 |                 |           |           |          |            |          |          |
| <b>Filter</b>   |                                 |                 |           |           |          |            |          |          |
| Screen filter   |                                 |                 |           |           |          | H          |          |          |
| None  |                                 |                 |           |           |          | 0          |          |          |
| <b>Electronics (only for VTH15 with 4 pin plug connector M12 x 1)</b> |                                 |                 |           |           |          |            |          |          |
| <b>Including transducer 4...20 mA</b>                                 |                                 |                 |           |           |          |            |          |          |
| → 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        |          |
| <b>Example order number</b>   |                                 | <b>VT1541</b>   | <b>K5</b> | <b>HN</b> | <b>S</b> | <b>CA4</b> | <b>H</b> | <b>A</b> |















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

**BEST SELLER**



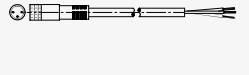
| Type   | Order number  |
|--|---|
| <b>VTH15</b><br>Material of pipe section: PPO Noryl<br>Output signal: NPN<br>Electrical connection: Cable, without supplementary temperature sensor<br>Screen filter, transducer 4...20 mA corresponds 0...5 l/min | <b>VT1541</b> <b>K5</b> <b>HN</b> <b>P</b> <b>0A4</b> |

| Order code                              |                    |            |
|---|--------------------|------------|
| <b>Type</b>                             |                    |            |
| VTM15                                   | VT1531MSMNP        |            |
| <b>Supplementary temperature sensor</b> |                    |            |
| None                                    |                    | 0A4        |
| Pt100                                   |                    | 2A4        |
| Pt1000                                  |                    | 7A4        |
| <b>Example order number</b>             | <b>VT1531MSMNP</b> | <b>0A4</b> |

| Order code  |               |                 |
|---|---------------|-----------------|
| <b>Type</b>   |               |                 |
| VTP15   | VT1541        |                 |
| <b>Material of pipe section, process connection</b> |               |                 |
| Brass, G $\frac{3}{4}$ male                         |               | MSDNP0A4        |
| Stainless steel, G $\frac{3}{4}$ male               |               | VADNP0A4        |
| Stainless steel, G $\frac{3}{4}$ female             |               | VADNP014        |
| <b>Example order number</b>                         | <b>VT1541</b> | <b>MSDNP04A</b> |

| Order code |   |   |   |                                 |
|------------|---|---|---|---------------------------------|
| Series     | Connection adapters*  |   |   | Order number                    |
| VT15       |    | Hose barb Ø 10 mm,<br>PA 6.6  | T <sub>max</sub> = 20 °C, PN 10<br>T <sub>max</sub> = 60 °C, PN 2.5 | VT1317                          |
|            |    | Hose barb Ø 12 mm,<br>PP  |   | XVT1069                         |
|            |    | Hose barb Ø 15 mm,<br>PP  |   | VT1338                          |
|            |    | Hose barb Ø 19 mm,<br>HDPE  |   | VT1323                          |
|            |    | Hose barb, angleshape Ø 13 mm,<br>HDPE  | T <sub>max</sub> = 60 °C, PN 10                                     | VT1318                          |
|            |    | Hose barb, Ø 13 mm,<br>Brass  | T <sub>max</sub> = 80 °C, PN 10                                     | XVT1005                         |
|            |    | Bonding socket, Ø 22 mm,<br>PVC, for pipes outer diameter 16 mm                     | T <sub>max</sub> = 20 °C, PN 10<br>T <sub>max</sub> = 60 °C, PN 2,5 | VT1316                          |
|            |    | Welding adapter Ø 20 mm,<br>PP  | T <sub>max</sub> = 20 °C, PN 6<br>T <sub>max</sub> = 60 °C, PN 2,5  | VT1319                          |
|            |    | Screw coupling G <sup>3</sup> / <sub>8</sub> -ISO 228 male,<br>Brass                | T <sub>max</sub> = 110 °C, PN 16                                    | VT1320                          |
|            |   | Screw coupling G <sup>1</sup> / <sub>2</sub> -ISO 228 male,<br>Brass                |   | VT1324                          |
|            |  | Screw coupling G <sup>3</sup> / <sub>8</sub> -ISO 228 female,<br>brass galvanized   |   | VT1321                          |
|            |  | Screw coupling G <sup>1</sup> / <sub>2</sub> -ISO 228 female,<br>Brass              |   | VT1325                          |
|            |  | Clamping ring coupling, brass<br>for copper tube Ø 18 mm<br>for copper tube Ø 22 mm |   | VT1326<br>VT1327                |
|            |  | Soldering coupling, brass<br>for copper tube Ø 15 mm<br>for copper tube Ø 18 mm     |   | T <sub>max</sub> = 90 °C, PN 16 |

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

| Order code |   |  |        |              |
|------------|---|--|--------|--------------|
| Series     | Connection cables   |  | Length | Order number |
| VT15       |  | Connection cable for turbine flow sensor with cable socket M12 x 1 moulded lead, 4-pin, shielded, sheathing material PUR (T <sub>max</sub> = 70 °C)<br>UL-approval | 3 m    | XVT2053      |
|            |   |  | 5 m    | XVT2009      |
|            |   |  | 10 m   | 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 <sub>max</sub> = 90 °C)<br>UL-approval                 | 2 m    | XVT2190      |
|            |   |  | 5 m    | XVT2191      |
|            |   |  | 10 m   | XVT2192      |