

**Flow switch with nozzle  
type 776 for DN 15  
type 778 for DN 15 – 32**

These units are mostly suitable for applications where vibration is likely to occur and where contaminated media have to be controlled in either horizontal or vertical pipes. The internal nozzle installed enables to control low flow velocities. The flexible sealing bellows protects the unit from metal parts which may be found in the medium when controlling lubricating oil in large gear boxes. The units can be supplied with either flanged connection or threaded process.

**Operation**

When the medium enters in the direction of flow indicated by the arrow it produces a pressure head inside the chamber situated in front of the nozzle. This moves the diaphragm system into the direction of flow. A bellows sealed lever transfers the movement to operate the switch contact. The flow switch type 776 is available with a fixed set point and the flow switch type 778 is available with either a fixed or an adjustable set point.

**Advantages**

- Units operate in any position.
- Vibration proof construction.
- Units suitable for contaminated media.
- Suitable for set points from 0.5 l/min.
- Simple installation and connection.
- Units virtually maintenance free.

**Special models of type 778**

*Type 778RBW ind.* Sturdy construction with inductive proximity sensor.

*Type 778KHD* Vibrationproof to be used for large compressors, inlet connection G 1, outlet connection flange DN 25 PN 16.

*Type 778S* Compatible with oil flow switch 496.20 of former VEB MERTIK for the installation in TAKRAF excavators.

**Type 776**

With threaded process G ½ factory set fixed set point, alteration of set point by changing the nozzle.

### Technical data

|  |   |       |             |
|--|---|-------|-------------|
| <i>Media</i>                                 | All liquids, including viscous and contaminated.  |       |             |
| <i>Pipe sizes</i>                            | DN 15 to DN 32  |       |             |
| <i>Set points</i>                            | min.  |       | 0.5 l/min   |
|  | max.  | DN 15 | 30.0 l/min  |
|  |   | DN 20 | 50.0 l/min  |
|  |   | DN 25 | 80.0 l/min  |
|  |   | DN 32 | 100.0 l/min |
| <i>Adjusting range of set point type 778</i> | in l/min (H <sub>2</sub> O)<br>0.5 - 1; 1 - 2.5; 2 - 5; 4 - 10; 8 - 20; 15 - 40; 30 - 80.<br>Other ranges on request. |       |             |
| <i>Set point variation type 776</i>          | by changing the nozzle or boring the nozzle. Note: A special key is needed.   |       |             |

### Inner nozzle-Ø for water

### Set point with falling flow

|     |     |     |     |     |     |     |     |     |      |       |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-------|
| 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | l/min |
| 2.7 | 3.6 | 4.4 | 5.1 | 5.7 | 6.3 | 6.8 | 7.2 | 7.6 | 7.9  | Ømm   |

|      |      |      |      |      |  |  |  |  |  |       |
|------|------|------|------|------|--|--|--|--|--|-------|
| 12.0 | 14.0 | 16.0 | 18.0 | 20.0 |  |  |  |  |  | l/min |
| 8.4  | 8.7  | 8.9  | 9.0  | 9.1  |  |  |  |  |  | Ømm   |

|   |   |
|---|---|
| <i>Admissible deviation of actual set point</i> | +/- 5 % of required set point.  |
| <i>Repeatability of adjusted set point</i>      | +/- 2 % of switch value.  |
| <i>Hysteresis</i>                               | between on and off 10 - 20 % of the max. flow rate.   |
| <i>Pressure range</i>                           | PN 10, higher values on request.  |
| <i>Operating temperature</i>                    | Standard model up to 80 °C medium temperature.<br>Special model ht up to 150 °C medium temperature,   |
| <i>Ambient air temperature</i>                  | -20 to + 80 °C:   |
| <i>Pressure loss</i>                            | ≤ 0.2 bar, if set point ≥ 25 % of the max. flow rate.   |
| <i>Materials type 776</i>                       | The housing is made of sea-water resistant gun metal Rg10, the nozzle is made of brass; the lever and the bellows are made of stainless steel, material no. 1.4571 (similar to AISI 316 Ti); the diaphragm is a fabric with a Viton-coating; the switch housing is made of aluminium. |
| <i>Materials standard type 778</i>              | The housing is made of grey cast iron, the nozzle is made of brass; the bellows and the lever are made of stainless steel, material no. 1.4571 (similar to AISI 316 Ti); the switch housing is made of aluminium.   |

**Alternative materials**

The housing is made of sea-water resistant gun metal Rg10 or stainless steel, material no. 1.4408 (similar to AISI CF-8M), the other wetted parts are made of material no. 1.4571, the diaphragm is a fabric with Viton coating; the switch housing is made of 1.4408

**Protection class of switch housing**

according to DIN 40 050: IP 54 special model IP 65.

**Cable entry**

to suit customers requirements.

**Switch contacts**

Either one or two S.P.D.T. micro switches (with same set point).

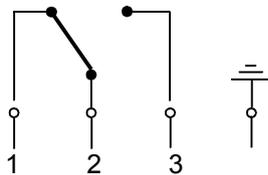
*Capacity up to 100 °C:* max. 250 V, 50/60 Hz and max. 10 A.

*Capacity over 100 °C:* max. 250 V, 50/60 Hz and max. 1 A.

One inductive proximity sensor (type 778 only).

**Note**

If the units are for use with media containing impurities, they can be equipped with two drain-screws on the flow housing, one in front of the diaphragm and the other behind it.

**Wiring diagram**

Further special models on request.