

Flow switch
Type 172 for pipes \geq DN 80
Type 173 for pipes \geq DN 40



Tough and unaffected by non-adhesive impurities in the medium the **flow switch type 172** controls the flow of gases in pipes \geq DN 80 regardless of high operating pressures. For units to control the flow of liquids see type 107.

The **flow switch type 173** controls the flow of liquids and gases in pipes DN 40 to DN 100.

The units are mounted by a flanged boss (provided by the installer) either to horizontal pipes or sideways to vertical pipes with direction of flow upwards only. A special model with balance weight for direction of flow downwards is available (type 172 only).

The specification required for the flow switch depends upon the nominal bore of the pipe on which it is mounted and not upon the connecting flange, e. g. flow switch type 172 DN 100 with connecting flange DN 80 PN 16.

Advantages

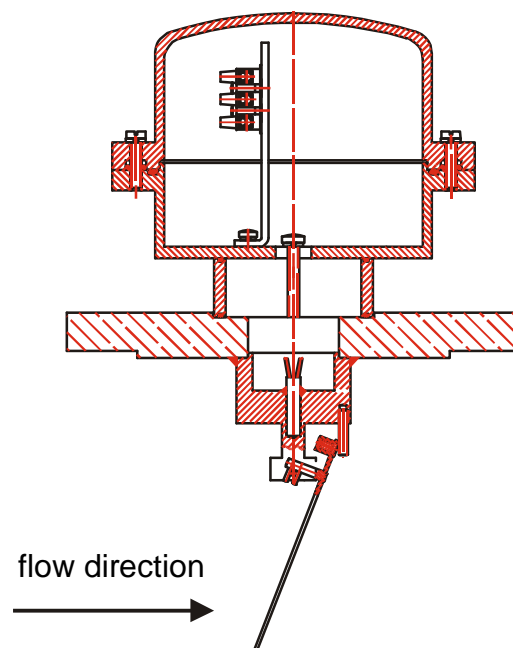
- The bearing used make the units suitable for use with media containing dust particles.
- Sensitive control for set points from 0.6 m/s.
- Cavity-free construction
- Suitable for high pressures up to PN 160.
- Explosionproof models available to several standards.
- For high flow velocities or larger line sizes the units are equipped with a stop for the vane.
- Special models available for temperatures up to 250 °C.
- Models available for use in maritime and humid tropical climates.
- Simple installation and connection.
- Long-term continuity of spares availability.

Suitability

- Flow control in chemical processes.
- Control of exhaust gas in conventional and nuclear power stations.
- Control of undesired back-flow in compressed air installations.
- Flow control in gas supply networks.
- Control of feed and exhaust air in mines.
- Ventilation control in machines or enclosed electrical installations.
- Control of scavenging-air in hazardous areas by means of pressurized apparatus (Ex)p.
- Exhaust gas control in heating installations.
- Suction-sided control of ventilators and compressors.
- Control of two-phase flows.

Operation

When the medium enters in the direction of flow indicated by the arrow it moves the vane in the direction of flow. A permanent magnet is situated at the vane and operates the switch contact. The set point is not adjustable.



Models available

- *Type 172K* solid plastic construction for aggressive media.
- *Type 172S* with special vane, which turns automatically into the direction of flow when higher flow velocities arise thus keeping the pressure loss low.
- *Type 172(Ex)* explosionproof model EEx de II CT6 according to ATEX
- *Type 173* hygienic flow switch for fittings according to DIN 11852....
- *Type 173FI (Ex)i* suitable for intrinsically safe circuits with connecting flange DN...PN..., switch housing, terminals and cable entry.
- *Tropical model (humid tropical with termites)*
The model for use in tropical climates consists of:
Switch housing and flange of sea-water resistant gun metal Rg10; porcelain-insulated electrical terminals and silicone insulated litz wire with woven glass coating

Technical data

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| <i>Media</i> | Gases or liquids with low flow velocities. | |
| <i>Pipe sizes</i> | Type 172 | ≥ DN 80 or 3". |
| | Type 173 | ≥ DN 40 up to DN 100. |
| <i>Control range</i> | Type 172 standard model | ≥ 2.5 m/s. |
| | Type 172 special model | ≥ 0.6 m/s. |
| | Type 173 | 0.6 to 3 m/s. |
| <i>Admissible deviation of actual set point</i> | +/- 5 % of required set point. | |
| <i>Repeatability of adjusted set point</i> | +/- 2 % of switching value. | |
| <i>Hysteresis</i> | between on and off +/- 20 % to 50 % of required value, for lower set points the higher value is valid. | |
| <i>Operating pressure</i> | PN 10 to PN 160. | |
| <i>Operating temperature</i> | Standard model up to 100 °C temperature of the medium. EExd.-model up to 80 ° temperature of the medium type 172(Ex). Special model Ht up to 250° temperature of the medium type 172 Ht. | |
| <i>Ambient air temperature</i> | - 25 to + 70°C. - 20 to + 40°C (explosionproof model). | |
| <i>Required steadying distance</i> | according to DIN 1952. (measurement via orifice) | |
| <i>Size „x“</i> | Centre line pipe to upper edge connecting flange Type 172 50 + DN/2 Type 173FI 70 + DN/2 | |
| <i>Standard model</i> | Flange and wetted parts are made of corrosion and acid resistant stainless steel, material no. 1.4571 (similar to AISI 316Ti); the permanent magnet is made of cobalt-samarium; the switch housing is made of aluminium. | |
| <i>Alternative materials</i> | Hastelloy C4; SMO; PVC; PVDF; PTFE. | |
| <i>Protection class switch housing</i> | according to DIN 40050 IP 65. | |
| <i>Cable entry</i> | Pg 11 or to customers requirements. | |
| <i>Explosionproof</i> | (Ex) II 2 G EEx de II CT6; EG design approve certificate: TÜV 03 ATEX 2163 | |

Contacts type 172

- Metal encapsulated S.P.C.O. snap action reed contacts.
- Inductive proximity sensor.

Switching capacity reed contacts

- *Type GW* with silver-palladium contacts.
250 V AC/1A, p = max. 250 VA, or 250 V DC/ 1A, p = max. 100 W.
- *Type GWW* with AgSnO contacts.
250 V AC/3A, p = max. 750 VA, or 250 V DC/ 3A, p = max. 300 W.
- *Type GWG* with gold contacts.
42 V AC/0.3A, p = max. 13 VA, or 42 V DC/ 0.3A, p = max. 13 W.
- *Type 177(Ex) GWW* with AgSnO-contacts,
250 V AC/2 A, p = max. 300 VA, or 250 V DC/2 A, P = max. 200 W.
- *Type 177Ex) GWG* with gold contacts
42 V AC/0.3 A, p = max. 13 VA, or 42 V DC/0.3 A, p = max. 13 W.
- *Inductive proximity sensor.*

Contacts Type 173

Metal encapsulated N.O. snap action reed contact. (contacts opens when decreasing set point).

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| <i>Switching capacity</i> | max. 300 V, 50 Hz max. 0,5 A, max 10 W |
| <i>Contact resistance</i> | max. 0,2 Ω |

Wiring diagram for S.P.C.O. reed contact