# Insertion magnetic inductive flowmeter

8045

- Sensor without moving parts
- Indicates both flow rate and volume
- Simulation of all output signals
- Clean in place (CIP), FDA-compliant materials

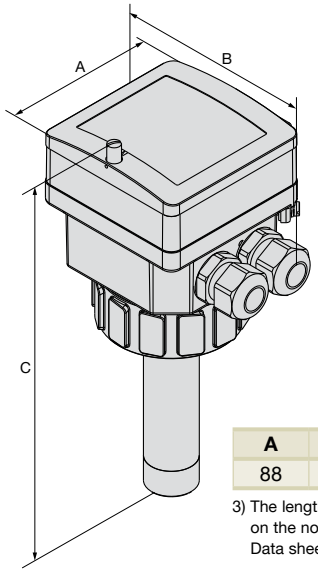
Suitable fitting:
see Type S020 ▸

The electromagnetic flowmeter 8045 is made up of an electronic module including a backlit display, operating keys for configurations and a sensor consisting of PVDF or stainless steel material. It has been designed to measure a flow rate of neutral and slightly aggressive fluids with a conductivity of more than 20 µS/cm in DN06... DN400 pipes.
It is equipped with a 4…20 mA output, a digital output (pulse output by default). Some versions are equipped with two relay outputs and one digital input. Two independent totalizers allow counting the flow rate.
The available process connections are:
– G 2 connection for the version with a PVDF sensor
– G 2 or clamp connection for the version with a stainless steel sensor.
The version with a stainless steel sensor can be used in applications with higher pressures (PN16) and higher temperatures (110 °C).
The version with Alloy C22 electrodes has been designed for applications with aggressive fluids (chemicals) and especially sea water applications.

## Technical data

| | |
|---|---|
| **General data** | |
| **Compatibility** | With fittings S020 (Data sheet; siehe **Type S020** ▸) |
| **Materials** | |
| Housing, cover, nut / seal | |
| PVDF sensor version | PC (glass fibre reinforced for housing) / NBR |
| Stainless steel sensor version | Black PPA (glass fibre reinforced) / NBR |
| Front panel foil | Polyester |
| Protection lid / seal | |
| PVDF sensor version | PC / Silicone |
| Stainless steel sensor version | PSU / Silicone |
| Screws / Seal | Stainless steel / NBR |
| Cable glands | PA with neoprene seal |
| Wetted parts material | |
| Sensor holder | PVDF or Stainless steel 1.4404/316L |
| Electrodes | Stainless steel 1.4404/316L or Alloy C22 |
| Seals | G 2 connection: FKM or EPDM (conform to FDA)<br>Clamp connection: EPDM or FEP (to be ordered separately) |
| Earth ring (PVDF sensor version) | Stainless steel 1.4404/316L or Alloy C22 |
| Electrode holder (St. Steel sensor version) | PEEK (conform to FDA) |
| **Surface finishing quality** | Ra < 0.8 µm (clamp connection) |
| **Electrical connections** | 2 cable glands M20 x 1.5 |

## Dimensions [mm]




| A | B | C[3] |
|---|---|---|
| 88 | 116 | 181 or 218 |

3) The length of the sensor armature depends on the nominal size of the fitting used.
Data sheet: see **Type S020** ▸

| | |
|---|---|
| **Recommended cable** | 0.5…1.5 mm² cross-section, shielded cable, 6…12 mm diameter (if only one cable is used per cable gland) or 4 mm diameter (if two cables are used per cable gland with using the supplied multi-way seal) |
| **Complete device data (fitting S020 + flowmeter)** | |
| **Pipe diameter** | |
| G 2 connection | DN06…DN400 |
| Clamp connection | DN32…DN100 |
| **Measuring range** | 0.2…10 m/s |
| **Sensor element** | Electrodes |
| **Fluid temperature** | |
| PVDF sensor version | 0…+80 °C (depends on fitting) |
| Stainless steel sensor version | -15…+110 °C (depends on fitting) |
| **Fluid pressure max.** | See pressure/temperature diagram |
| PVDF sensor version | PN10 |
| Stainless steel sensor version | PN10 (with plastic fitting); PN16 (with metal fitting) |
| **Conductivity** | Min. 20 mS/cm |
| **Viscosity** | <1000 mPa.s |
| **Measurement deviation** | |
| Teach-In | ±0.5 % of Reading[1] (at the teach flow rate value) |
| Standard K-factor | ±3.5 % of Reading[1] |

## Technical data continued

| | |
|---|---|
| **Linearity** | ±0.5 % of F.S.[1)2)] |
| **Repeatability** | ±0.25 % of Reading[1)] |
| **Electrical data** | |
| **Operating voltage** | 18…36 V DC filtered and regulated (3 wires)<br>Tolerance: ±0.5 % |
| **Reversed polarity of DC** | Protected |
| **Current consumption** | ≤300 mA (at 18 V DC) |
| **Digital input DI1** | Supply voltage: 18…36 V DC,<br>Input impedance 15 kΩ<br>Min. pulse duration: 200 ms<br>Galvanic insulation, protected against polarity reversals of DC and voltage spikes |
| **Digital outputs** | |
| Transistor (DO1) | Type: NPN or PNP (wiring dependent), open collector; Function: pulse output (by default), user configurable; 0…250 Hz, 5…36 V DC,<br>100 mA max.;<br>Duty cycle if frequency >2 Hz: ½;<br>Min. pulse duration if frequency <2 Hz: 250 ms<br>Galvanic insulation, protected against polarity reversals of DC and short-circuits |
| Relay (DO2 and DO3) | 2 normally open relays, freely adjustable (hysteresis by default), 250 V AC/3 A or 40 V DC/3 A (resistive load), max. cutting power of 750 VA (resistive load); life span of min. 100000 cycles |
| **Analogue output** | |
| Current (AO1) | 4…20 mA, sink or source (wiring dependent), 22 mA to indicate a fault<br>Max. loop impedance: 1300 Ω at 36 V DC, 1000 Ω at 30 V DC, 700 Ω at 24 V DC, 450 Ω at 18 V DC |
| **4…20 mA output accuracy** | ±1 % of range |

**Note:** If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

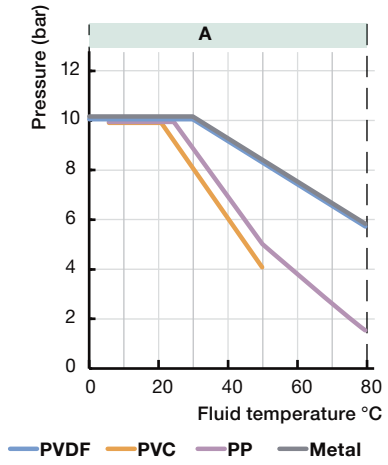
| | |
|---|---|
| **Environment** | |
| **Ambient temperature** | -10…+60 °C (operating)<br>-20…+60 °C (storage) |
| **Relative humidity** | <85 %, without condensation |
| **Height above sea level** | Max. 2000 m |
| **Standards, directives and certifications** | |
| **Protection class** | IP65, device wired and cable glands tightened and lid screwed tight |
| **Standard and directives**<br>CE | The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) |
| Pressure | Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU[3)] |
| **Certificates** | FDA declaration of conformity (for stainless steel or PVDF sensor with FKM or EPDM seal)<br>ECR1935/2004 declaration (only for stainless steel sensor with EPDM seal) |

1) Under reference conditions i.e. measuring fluid=water, ambient and water temperature =20 °C (68 °F), applying the minimum inlet and outlet straight pipe lengths, matched inside pipe dimensions.
2) F.S.= of Full scale (10 m/s)
3) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

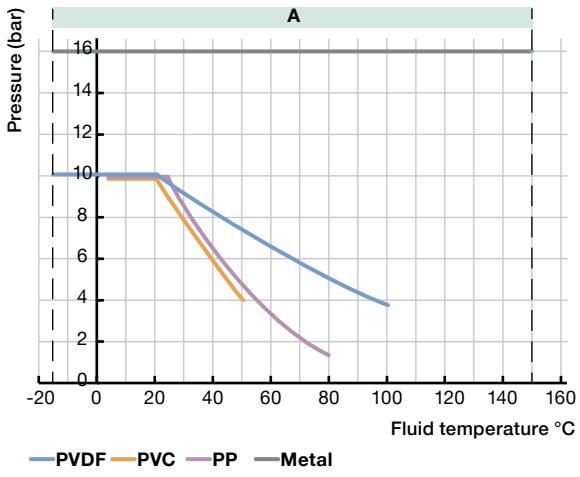
| Type of fluid | Conditions |
|---|---|
| **Fluid group 1, article 4, §1.c.i** | DN ≤25 |
| **Fluid group 2, article 4, §1.c.i** | DN ≤32, or PS*DN ≤1000 |
| **Fluid group 1, article 4, §1.c.ii** | DN ≤25 or PS*DN ≤2000 |
| **Fluid group 2, article 4, §1.c.ii** | DN ≤200 or PS ≤10 or PS*DN ≤5000 |

## Pressure/Temperature diagrams

**8045 with a PVDF sensor**
(depending on the fitting material)




**8045 with a stainless steel sensor**
(depending on the fitting material)

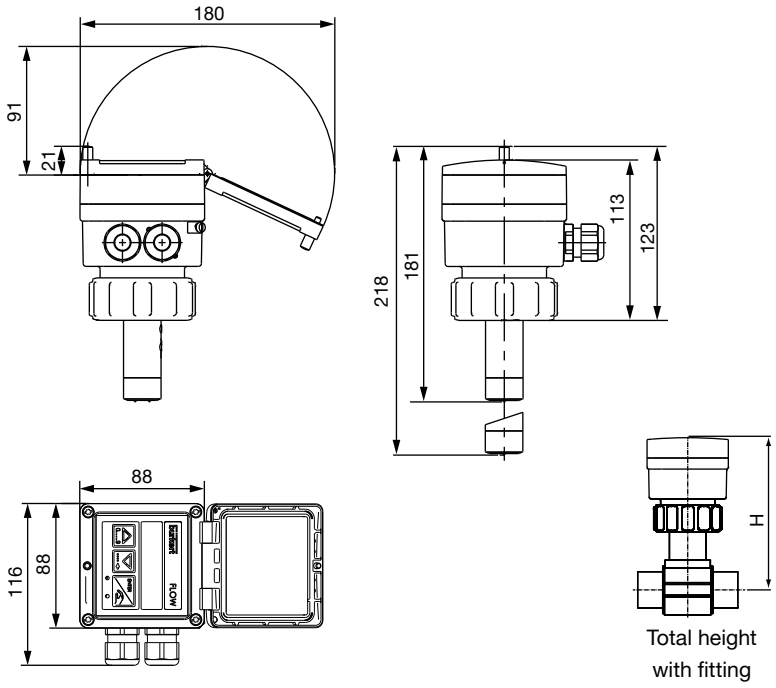



A : Application range for complete device
(fitting + flowmeter)

## Sofware main features

- Choice of the display language
- International measuring units
- Teach-In for a better accuracy, or K-factor setting
- 4…20 mA current output (AO1)
- Transistor output (DO1)
- 2 relays (DO2 and DO3 - if equipped)
- Detection of flow direction possible
- ON/OFF digital input (DI1 - if equipped)
- Filter function
- Reset both totalizers (main and daily)
- Low flow “Cut-Off”
- Brightness of the display
- Password for parameter settings
- Warning and fault messages generating
- Simulation mode to adjust Zero and Span and simulate flow in dry-run condition

## Dimensions [mm]




| DN | H with S020 fitting | | | |
|---|---|---|---|---|
| | T-Fitting | Saddle | Plastic spigot | Metal spigot |
| 06 | 182 | – | – | – |
| 08 | 182 | – | – | – |
| 15 | 187 | – | – | – |
| 20 | 185 | – | – | – |
| 25 | 185 | – | – | – |
| 32 | 188 | – | – | – |
| 40 | 192 | – | – | 188 |
| 50 | 198 | 223 | – | 193 |
| 65 | 198 | 222 | 206 | 199 |
| 80 | – | 226 | 212 | 204 |
| 100 | – | 231 | 219 | 214 |
| 110 | – | 227 | – | – |
| 125 | – | 234 | 254 | 225 |
| 150 | – | 244 | 261 | 236 |
| 180 | – | 268 | – | – |
| 200 | – | 280 | 282 | 257 |
| 250 | – | – | 300 | 317 |
| 300 | – | – | 312 | 336 |
| 350 | – | – | 325 | 348 |
| 400 | – | – | 340 | – |

**Note:** The Type 8041 can easily be installed into any Bürkert Insertion fitting system (S020) by just fixing the main nut. The length of the sensor armature depends on the nominal size of the fitting used.
Data sheet; see **Type S020** ▸

## Ordering chart

| Operating voltage | Digital input | Relay output | Housing material | Seal | Sensor version | Electrode material | Certificates FDA | Certificates ECR1935/2004[1)] | Electrical connection | Article no. |
|---|---|---|---|---|---|---|---|---|---|---|
| **G 2 connection to use with S020 Fitting for flowmeter with G 2 connection** | | | | | | | | | | |
| 18…36 V DC | No | No | PC | FKM | Short, PVDF | Stainless steel | ✓ | × | 2 cable glands M20x1.5 | 426498 |
| | | | | | Long, PVDF | Stainless steel | ✓ | × | 2 cable glands M20x1.5 | 426499 |
| | 1 (DI1) | 2 (DO2, DO3) | PC | FKM | Short, PVDF | Stainless steel | ✓ | × | 2 cable glands M20x1.5 | 426506 |
| | | | | | Long, PVDF | Stainless steel | ✓ | × | 2 cable glands M20x1.5 | 426507 |
| | No | No | PPA | FKM | Short, st. steel | Stainless steel | ✓ | ✓ | 2 cable glands M20x1.5 | 449670 |
| | | | | | Long, st. steel | Stainless steel | ✓ | ✓ | 2 cable glands M20x1.5 | 449672 |
| | 1 (DI1) | 2 (DO2, DO3) | PPA | FKM | Short, st. steel | Stainless steel | ✓ | ✓ | 2 cable glands M20x1.5 | 449671 |
| | | | | | Long, st. steel | Stainless steel | ✓ | ✓ | 2 cable glands M20x1.5 | 449673 |

## Ordering chart continued

| Operating voltage | Digital input | Relay output | Housing material | Seal | Sensor version | Electrode material | Certificates | | Electrical connection | Article no. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | FDA | ECR1935/ 2004[1)] | | |
| **G 2 connection to use with S020 Fitting for flowmeter with G 2 connection** | | | | | | | | | | |
| 18…36 V DC | No | No | PC | FKM | Short, PVDF | Alloy C22 | × | × | 2 cable glands M20 x 1.5 | 558675 |
| | | | | | Long, PVDF | Alloy C22 | × | × | 2 cable glands M20 x 1.5 | 558676 |

1) if FKM seal mounted as standard at factory is replaced with the EPDM seal included in the delivery.

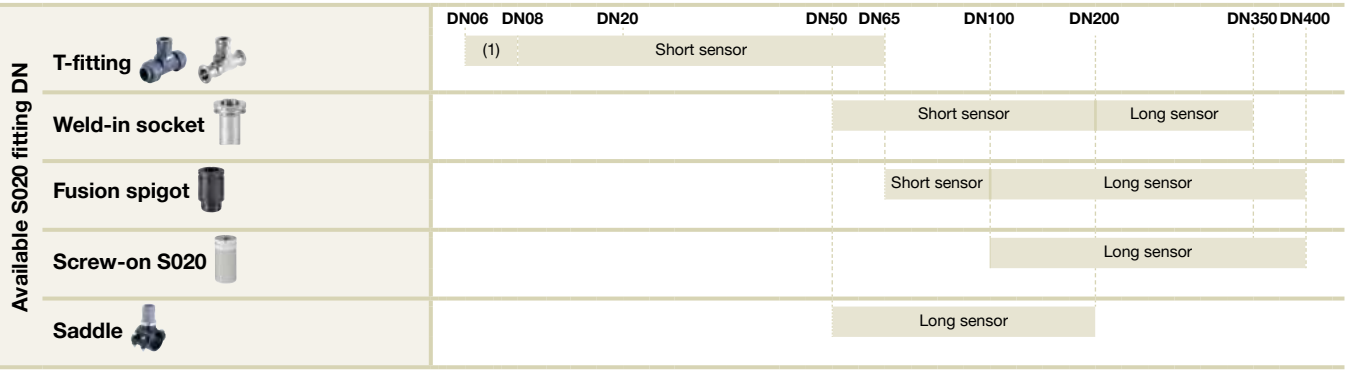
**Note regarding the ordering of a complete flowmeter:**

The complete 8045 flowmeter consists of the Type S020 Insertion fitting and the Type 8045 flowmeter.

FKM seal in standard; 1 EPDM seal contained in the kit 551775 is supplied with each flowmeter.

Please enter the appropriate flowmeter according to the table “Compatible and recommended combinations with Bürkert Insertion Fitting” and order the respective Insertion Fitting and the selected flowmeter separately.

## Compatible and recommended combinations with Bürkert Insertion Fitting




(1) DN06 and DN08 in stainless steel S020 only, 8045 with stainless steel sensor recommended

## Accessories

| Specifications | Article no. |
|---|---|
| Set with 2 cable glands M20 x 1.5 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5 + 2 multiway seals 2 x 6 mm | 449755 |
| Set with 2 reductions M20 x 1.5 /NPT ½ + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5 | 551782 |
| 3 points calibration certificate (device combined with a S020 fitting, only for DN ≤ 200) | 550676 |
| FDA declaration of conformity (for stainless steel or PVDF sensor with FKM or EPDM seal) | 803724 |
| **For G 2 connection version** | |
| Set with 1 stopper for unused cable gland M20 x 1.5 + 1 multiway seal 2 x 6 mm for cable gland + 1 green FKM seal for the sensor + 1 mounting instruction sheet | 558102 |
| Snap ring | 619205 |
| PC union nut | 619204 |
| PPA union nut | 440229 |
| Set with 1 green FKM and 1 black EPDM seal | 552111 |