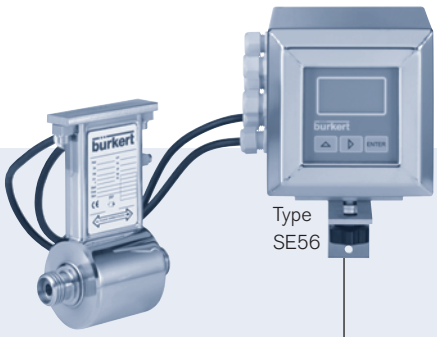
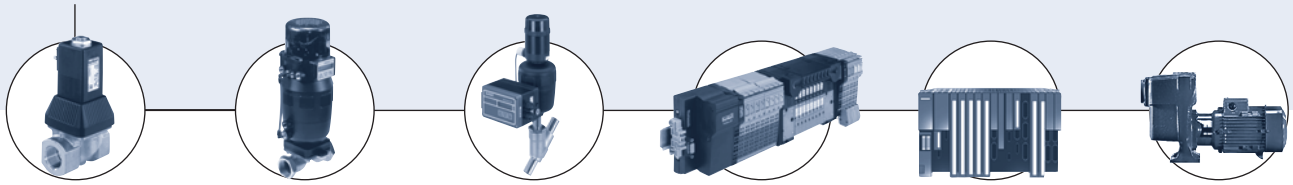
bürkert
FLUID CONTROL SYSTEMS

# Full Bore Magflowmeter for Low-flow measurement




- Combination of magflowsensor body S051 and transmitter / batch controller SE56
- Continuous measurement or Batch Control
- Clean in place (CIP)
- Low-flow measurements down to 3 l/h

Type 8051 can be combined with...



**Type 6223**
Solenoid control valve

**Type 2731 (8630)**
TopControl system

**Type 2702 (1067)**
SideControl system

**Type 8644**
Valve islands

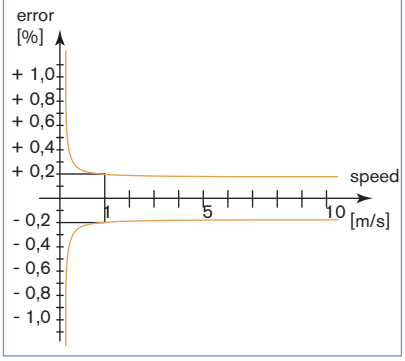
**PLC**

**Pumps**

The complete full bore magflowmeter Type 8051, which consists of a magnetic sensor body Type S051 connected to a flow transmitter / batch controller Type SE56 (blind in compact version or with display in compact or separate version), is designed for applications with conductivities as low as 5 µS/cm.

Combined with a valve as the actuating element, the complete full bore magflowmeter Type 8051 can control high-precision dosing and filling operations.

**Accuracy diagram**

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| Technical data | |
|---|---|
| **General data - S051 sensor body** | |
| **Compatibility** | SE56 electronics (see corresponding datasheet) |
| **Materials** | |
| Body | Stainless steel 304 (1.4301) |
| Wetted parts (connection) | Stainless steel 316L (1.4404) or 304 (1.4301) for full lining |
| Electrode | Stainless steel 316L [Hastelloy C, Titanium, Tantalum, Platinum-rhodium on request]* |
| Lining / Gasket | PTFE / FKM, EPDM or FFKM |
| **Electrical connection** | 2 cable glands (PG9) |
| **Complete system data 8051 (S051 sensor + SE56 electronics)** | |
| **Pipe diameter** | DN 03 up to DN 20 |
| **Measuring range** | 0 ... 10 l/h up to 0 ... 12 500 l/h |
| **Process connection** | Thread ISO 228-1, NPT (DIN 11851, SMS 1145, Tri-Clamp® ISO 2852 or BS 4825, Flanges DIN 2501, ANSI on request) |
| **Medium temperature** | |
| Compact version | -20 up to 100°C (with display version)<br>-20 up to 100°C (with blind version) [up to 130°C for max. 1 hour] |
| Separate version | -20 up to 150°C |
| **Medium pressure max.** | PN 16 (PN40, on request) |
| **Vacuum resistance** | 200 mbar absolute at 100°C |
| **Accuracy** [1] | ± 0.2% of reading (see diagram, opposite) |
| **Repeatability** | < 0.1% |
| **Minimum conductivity** | 5 µS/cm (or 20 µS/cm with demineralized water) |
| **Environment - S051 sensor body** | |
| **Ambient temperature** | -20 up to: 60°C (with display version) or 40°C (with blind version) |
| **Standard - S051 sensor body** | |
| **Protection class** | IP67 (Compact version); IP68 (Separate version) |
| **Standard** | EN55011 (Group 1, Class B) |
| EMI / Safety | IEC1000-4-2/3/4/5/6/11 / EN61010 |

[1] under reference conditions: water temperature = 20°C, ambient temperature = 25°C, test time > 60 s., converter warm-up > 60', constant flow rate during the test, pressure = 500 mbar, liquid speed > 1m/s
* on request

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## Ordering information for complete full bore magflowmeter Type 8051

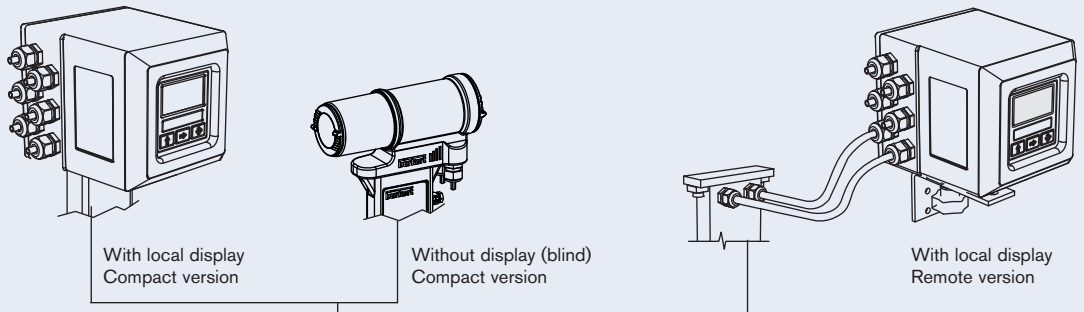
A complete full bore magflowmeter Type 8051 consists of a sensor body S051 and an electronic transmitter / batch controller SE56. The transmitter / batch controller is only delivered in combination with the sensor body as a part of a complete magflowmeter.
The following information is necessary for the selection of a complete full bore magflowmeter:

- **item no** of the sensor body **Type S051** (see Ordering Chart)
- **item no** of the transmitter / batch controller **Type SE56** (see separate datasheet or Ordering chart on page 5)

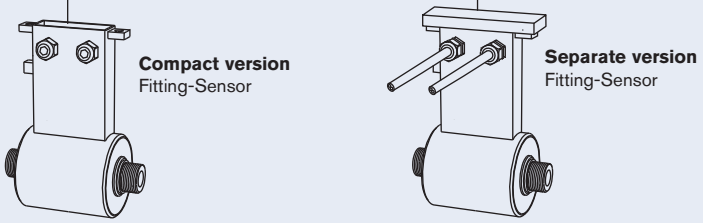
**More info.**
For more technical information about this product, click on this box... you will come to our website for this product where you can download the datasheet.

### Examples for variations of complete full bore magflowmeter

**Transmitter / batch controller Type SE56**




**Magnetic sensor body Type S051**




## Design and operating principle

The sensor body Type S051 consists of a stainless steel pipe section internally lined with insulating material. Two electrodes mounted opposite to each other on the internal surface of the tube generate an electrical signal. The coils generating the magnetic field are placed outside the pipe.
The signal generated by the sensor body S051 must be amplified and processed by an electronic transmitter / batch controller (SE56) which outputs an electrical signal proportional to the fluid flow rate, and powers the coils generating the magnetic field.
Faraday's induction law is the basis for this magnetic flow measurement.

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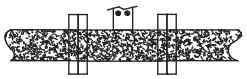
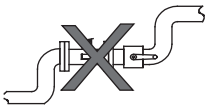
## Installation

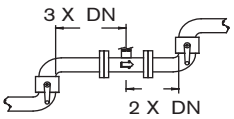
Avoid the functioning with the pipe partially empty.



During the functioning the pipe must be completely full.

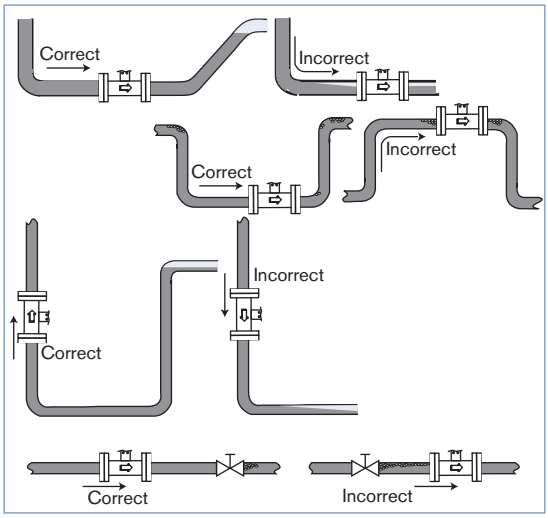


Avoid the installation near curves or hydraulic accessories.




Observe the upstream and downstream distances.

The flow rate sensor body can be installed into either horizontal or vertical pipes. Mount the S051 sensor body in these correct ways to obtain an accurate flow measurement.

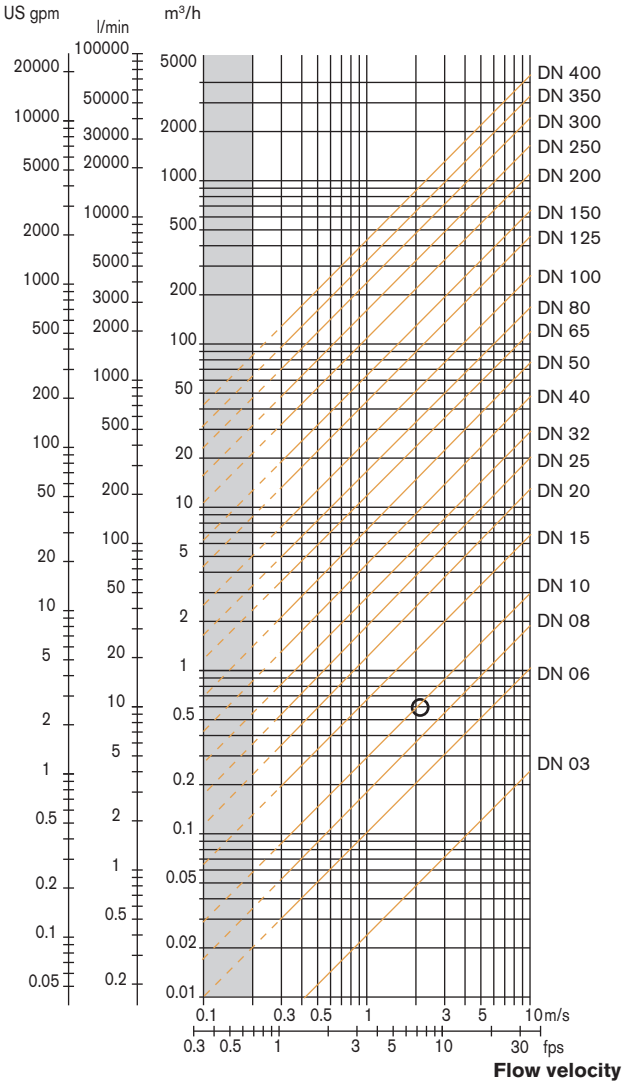



## Selection of fitting / pipe size

**Example:**

- Specification of nominal flow: 10 l/min
- Ideal flow velocity: 2...3 m/s
- For these specifications, the diagram indicates a pipe size of DN10

**Flow rate**




The suitable pipe size is selected using the diagram Flow / Velocity / DN, upside.
The flow sensor body is not designed for gas flow measurement.

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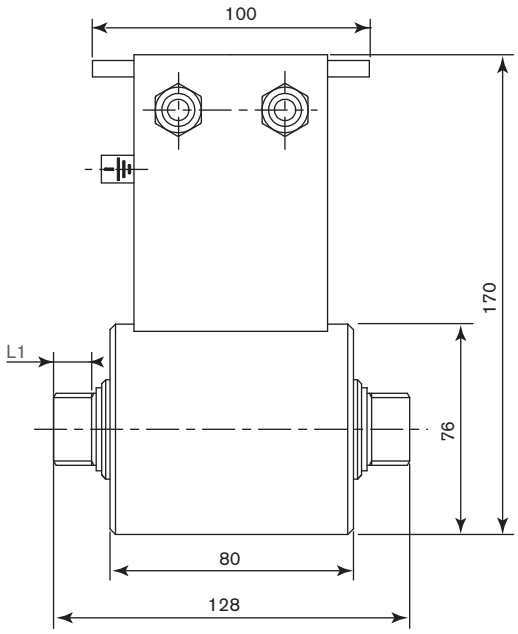
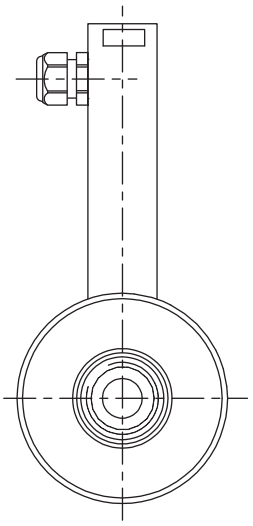
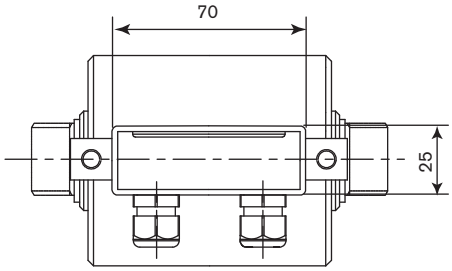
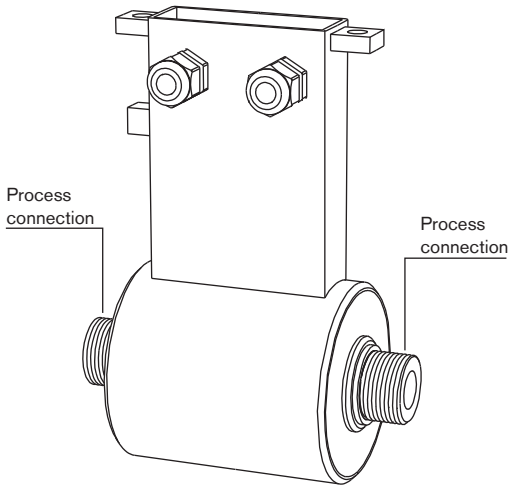
## Dimensions [mm] of Type S051 standard sensor body (without full lining)

**NOTE: Dimensions of SE56 flowtransmitter, see corresponding datasheet.**






| DN [mm] | Thread [inch] | L1 [mm] |
|---|---|---|
| 03 | G or NPT 1/4” | 16.4 |
| 06 | G or NPT 3/8” | 16.4 |
| 10 | G or NPT 1/2” | 17.4 |
| 15 | G or NPT 3/4” | 20.0 |
| 20 | G or NPT 1” | 20.0 |

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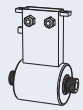
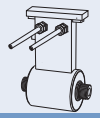
## Ordering charts for Low-flow magflowmeter 8051

**A complete magflowmeter Type 8051** consists of:
- a full bore sensor body Type S051
- a flow transmitter / batch controller Type SE56

Please order the relevant sensor body and the flow transmitter / batch controller separately!

**Full bore Sensor body Type S051**

| Description | Orifice [mm] | Process connection | Flow rate range [l/h] min. 0...0.4 m/s | Flow rate range [l/h] max. 0...10 m/s | Body material | Wetted parts material | Lining material | Item no. |
|---|---|---|---|---|---|---|---|---|
| Compact version  | 03 | G1/4" (ISO 228-1) | 0 ... 10 | 0 ... 250 | SS 304 | SS 316L | PTFE | 554 321 |
| | | NPT1/4" | 0 ... 10 | 0 ... 250 | SS 304 | SS 316L | PTFE | 554 213 |
| | 06 | G3/8" (ISO 228-1) | 0 ... 40 | 0 ... 1000 | SS 304 | SS 316L | PTFE | 553 065 |
| | | NPT3/8" | 0 ... 40 | 0 ... 1000 | SS 304 | SS 316L | PTFE | 555 892 |
| | 10 | G1/2" (ISO 228-1) | 0 ... 120 | 0 ... 3000 | SS 304 | SS 316L | PTFE | 553 374 |
| | | NPT1/2" | 0 ... 120 | 0 ... 3000 | SS 304 | SS 316L | PTFE | 555 111 |
| | 15 | G3/4" (ISO 228-1) | 0 ... 240 | 0 ... 6000 | SS 304 | SS 316L | PTFE | 553 481 |
| | | NPT3/4" | 0 ... 240 | 0 ... 6000 | SS 304 | SS 316L | PTFE | 557 659 |
| | 20 | G1" (ISO 228-1) | 0 ... 500 | 0 ... 12500 | SS 304 | SS 316L | PTFE | 553 539 |
| | | NPT1" | 0 ... 500 | 0 ... 12500 | SS 304 | SS 316L | PTFE | 553 663 |
| Separate version - with 10 m cable (included)  | 03 | G1/4" (ISO 228-1) | 0 ... 10 | 0 ... 250 | SS 304 | SS 316L | PTFE | 448 487 |
| | 06 | G3/8" (ISO 228-1) | 0 ... 40 | 0 ... 1000 | SS 304 | SS 316L | PTFE | 448 488 |
| | 10 | G1/2" (ISO 228-1) | 0 ... 120 | 0 ... 3000 | SS 304 | SS 316L | PTFE | 448 489 |
| | 15 | G3/4" (ISO 228-1) | 0 ... 240 | 0 ... 6000 | SS 304 | SS 316L | PTFE | 448 490 |
| | 20 | G1" (ISO 228-1) | 0 ... 500 | 0 ... 12500 | SS 304 | SS 316L | PTFE | 448 491 |

**Flow transmitter Type SE56 (for more data, refer to datasheet Type SE56)**

| Description | Power supply | Outputs | Body material | Electrical connection | Item no. |
|---|---|---|---|---|---|
| With local display compact version | 90 - 265 V AC | 2 transistors | Aluminium | 6 cable glands | 558 745 |
| | | | Stainless steel | 6 cable glands | 559 780 |
| | | 2 transistors + 4...20 mA | Aluminium | 6 cable glands | 558 747 |
| | | | Stainless steel | 6 cable glands | 558 306 |
| With local display remote version | 90 - 265 V AC | 2 transistors | Aluminium | 6 cable glands | 559 781 |
| | | | Stainless steel | 6 cable glands | 558 310 |
| | | 2 transistors + 4...20 mA | Aluminium | 6 cable glands | 558 750 |
| | | | Stainless steel | 6 cable glands | 558 308 |
| Blind compact version | 20 - 30 V DC | Transistor | Stainless steel | 2 cable glands | 559 132 |
| | | Transistor + 4...20 mA | Stainless steel | 2 cable glands | 559 133 |
| | | Transistor + Profibus DP | Stainless steel | 2 cable glands | 559 134 |

**i Further versions on request**

Please also use the "request for quotation" form on page 6 for ordering a customized Low-flow sensor body. go to page

## Ordering chart for spare parts/accessories for sensor body Type S051

| Description | Item no. |
|---|---|
| Electrodes cable for connection between Low-flow sensor body and electronics Type SE56*, Poliolefina insulation, 10 m long | 448 518 |
| Coils cable for connection between Low-flow sensor body and electronics Type SE56*, 10 m long | 448 519 |

* see corresponding datasheet

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## Low-flow sensor body Type S051 - request for quotation

**Note**
You can fill out the fields directly in the PDF file before printing out the form.

**Please fill out and send to your nearest Bürkert facility* with your inquiry or order.**

**NOTE : Please take into account that the sensor body Type S051 must be associated with the electronic Type SE56.**

| | |
|---|---|
| Company: | Contact person: |
| Customer No.: | Department: |
| Address: | Tel. / Fax.: |
| Postcode / Town: | E-mail: |

**Full Bore Magflow sensor body S051**

**Quantity:** _____ **Desired delivery date:** _____

- **Pipe diameter:** ☐ DN 03 ☐ DN 06 ☐ DN 10 ☐ DN 15 ☐ DN 20
- **Process fitting connection:**
  - **External thread** ☐ ISO 228-1 ☐ DIN 11851 ☐ NPT ☐ SMS 1145
  - **Tri-Clamp®** ☐ ISO 2852 ☐ BS 4825
  - **Flange** ☐ DIN 2501 ☐ ANSI
- **Pressure:** ☐ PN16 ☐ PN40
- **Materials:**
  - **Seal** ☐ FKM ☐ EPDM ☐ FFKM
  - **Wetted parts** ☐ 316L ☐ 304 and PTFE full lining
  - **Electrodes** [1] ☐ 316L (2 M.E.)* ☐ Hastelloy (2 M.E. + 2 G.E.)* ☐ Tantalum (2 M.E. + 2 G.E.)* ☐ Titanium (2 M.E. + 2 G.E.)* ☐ Platinum (2 M.E. + 2 G.E.)*

  * M.E. = measuring electrode and G.E. = ground electrode
- **Sensor body version:** ☐ Compact ☐ Separate

reset form

[1] **If the pipe is in plastic then it is advised to choose 3 electrodes, if it is in metal then 2 electrodes are enough.**

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In case of special application conditions, please consult for advice.



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