

Type S051

Type SE56

## Full bore magmeter for low flow volumes

- Combination of magflowsensor fitting S051 and electronics SE56
- Continuous measurement or Batch Control
- Clean in place (CIP)
- Low-flow measurements on from 3 l/h

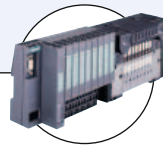
Type 8051 can be combined with...

**Type 6223**

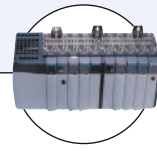
Solenoid control valve

**Type 8693**

Digital process controller

**Type 8644**

Valve islands

**PLC**

The complete full bore magflowmeter Type 8051, which consists of a magnetic sensor fitting Type S051 connected to an electronics Type SE56 (blind in compact version or with display in compact or remote version) is designed for applications with liquids with a minimum conductivity of 5  $\mu\text{S}/\text{cm}$ .

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

### General data - S051 sensor fitting

<b>Compatibility</b>	SE56 electronics (see corresponding data sheet)
<b>Materials</b>	
Body	Stainless steel 304 (1.4301)
Wetted part (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	PTFE
Seal	FKM, EPDM or FFKM
<b>Electrical connection</b>	2 cable glands PG9

### Data complete flowmeter 8051 - (S051 sensor fitting + SE56 electronics)

<b>Pipe diameter</b>	DN03...DN20
<b>Measuring range</b>	0...10 l/h to 0...12500 l/h
<b>Process connection</b>	Thread ISO 228-1, NPT (DIN 11851, SMS 1145, Clamp ISO 2852 or BS 4825, Flanges DIN 2501, ANSI on request)
<b>Medium temperature</b>	see medium temperature chart on page 3
<b>Medium pressure max.</b>	PN16 (232 PSI) (PN40 (580 PSI), on request)
<b>Vacuum resistance</b>	200 mbar (2.9 PSI) absolute at 100°C (212°F)
<b>Measurement deviation<sup>1) 2)</sup></b>	± 0.2% of reading (SE56 standard; SE56 blind) ± 0.8% of reading (SE56 basic)
<b>Repeatability</b>	± 0.1% (SE56 standard; SE56 blind) ± 0.2% (SE56 basic)
<b>Minimum conductivity</b>	5 $\mu\text{S}/\text{cm}$ (or 20 $\mu\text{S}/\text{cm}$ with demineralized water)

<sup>1)</sup> under reference conditions: water temperature = 20°C, ambient temperature = 25°C, constant flow rate during the test, liquid speed > 1 m/s

<sup>2)</sup> = "measurement bias" as defined in the standard JCGM 200:2012

Environment	
<b>Ambient temperature with</b>	
SE56 standard	-20...+60°C (-4 ...+140°F) (operating and storage)
SE56 basic	-10...+50°C (+14...+122°F) (operating), -20...+50°C (-4...+122°F) (storage)
SE56 blind	-20...+40°C (-4...+104°F) (operating and storage)
Standards, directives and certifications	
<b>Protection class</b>	IP65 and IP67 (compact version, SE56 standard or SE56 blind); IP65 (remote version, SE56 standard), IP68 (remote version and junction box filled with resin, SE56 standard); IP65 (compact version, SE56 basic)
<b>Standards and directives CE</b>	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)

## Ordering information for complete flowmeter Type 8051

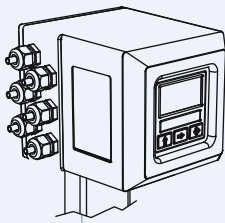
A complete flowmeter Type 8051 consists of a sensor fitting S051 and an electronics SE56.

The following information is necessary for the selection of a complete flowmeter:

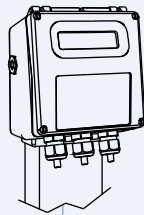
- **item no.** of the sensor fitting **Type S051** (see Ordering Chart on page 5)
- **item no.** of the electronics **Type SE56** (see corresponding data sheet or Ordering chart on page 5)

### Examples for variations of complete flowmeter (electronics + sensor fitting)

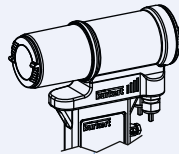
#### Electronics Type SE56



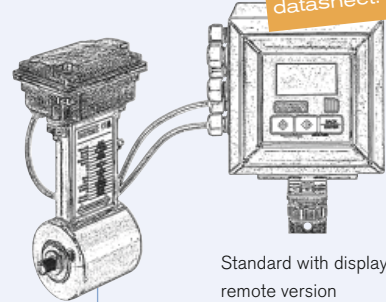
Standard with display  
compact version



Basic (with or without display)  
compact version

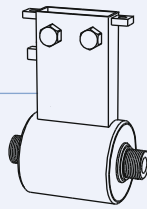


Without display (blind)  
compact version

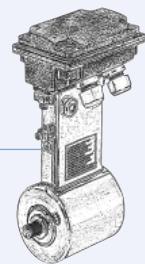


Standard with display  
remote version

#### Sensor fitting Type S051



**Compact version**  
sensor fitting



**Remote version**  
sensor fitting

#### 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.

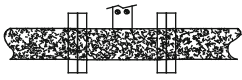
## Design and operating principle

The sensor fitting 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 fitting S051 must be amplified and processed by an electronics (SE56) which outputs an electrical signal proportional to the fluid flow velocity respectively to the flow rate. Faraday's induction law is the basis for this magnetic flow measurement.

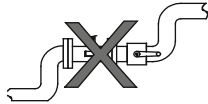
Installation



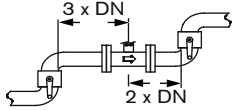
Avoid the functioning with the pipe partially filled.



During flowmeter operation the pipe must be completely full.

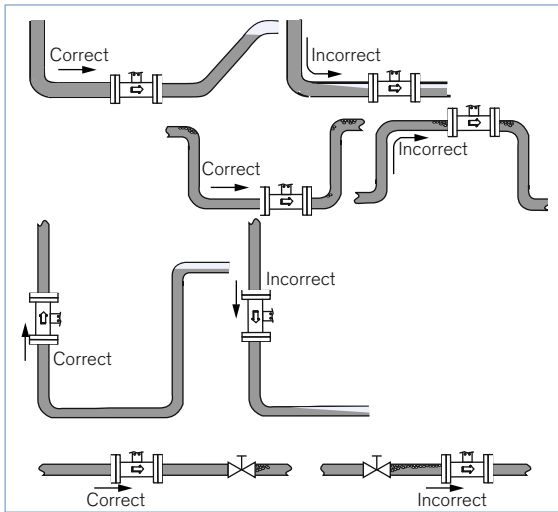


Avoid the installation near curves or hydraulic accessories.



Observe the upstream and downstream distances.

The sensor fitting can be installed into either horizontal or vertical pipes. Mount the sensor fitting in the below as correct indicated ways to obtain an accurate flow measurement.



The suitable pipe size is selected using the diagram Flow/Velocity/DN (see diagram to the right).

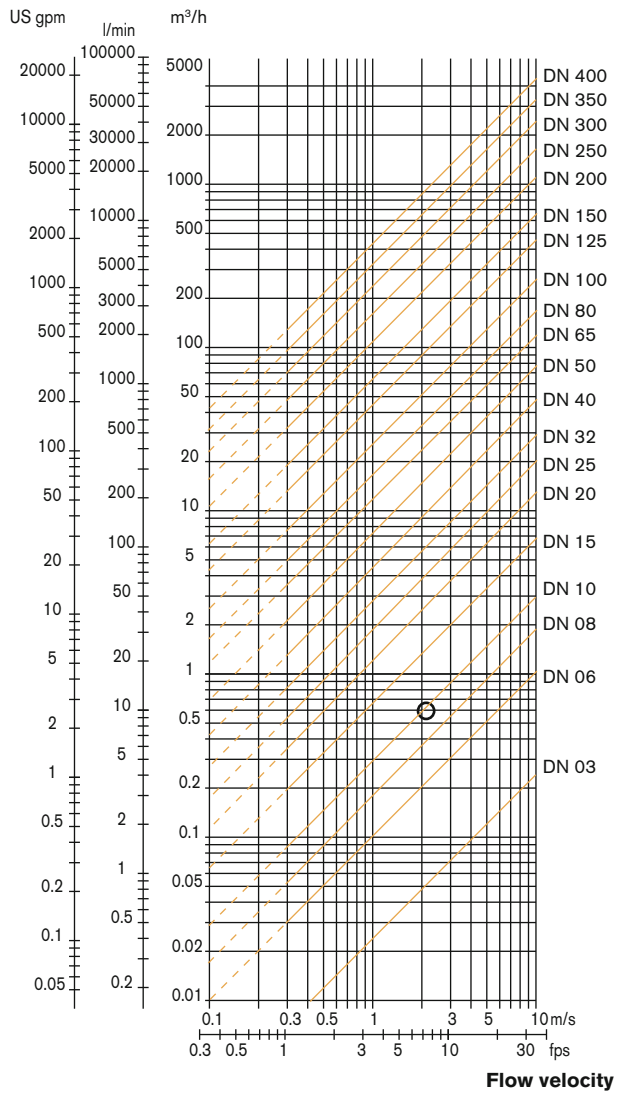
The flow sensor fitting is not designed for gas flow measurement.

Flow/Velocity/DN diagram

Example:




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

Flow rate



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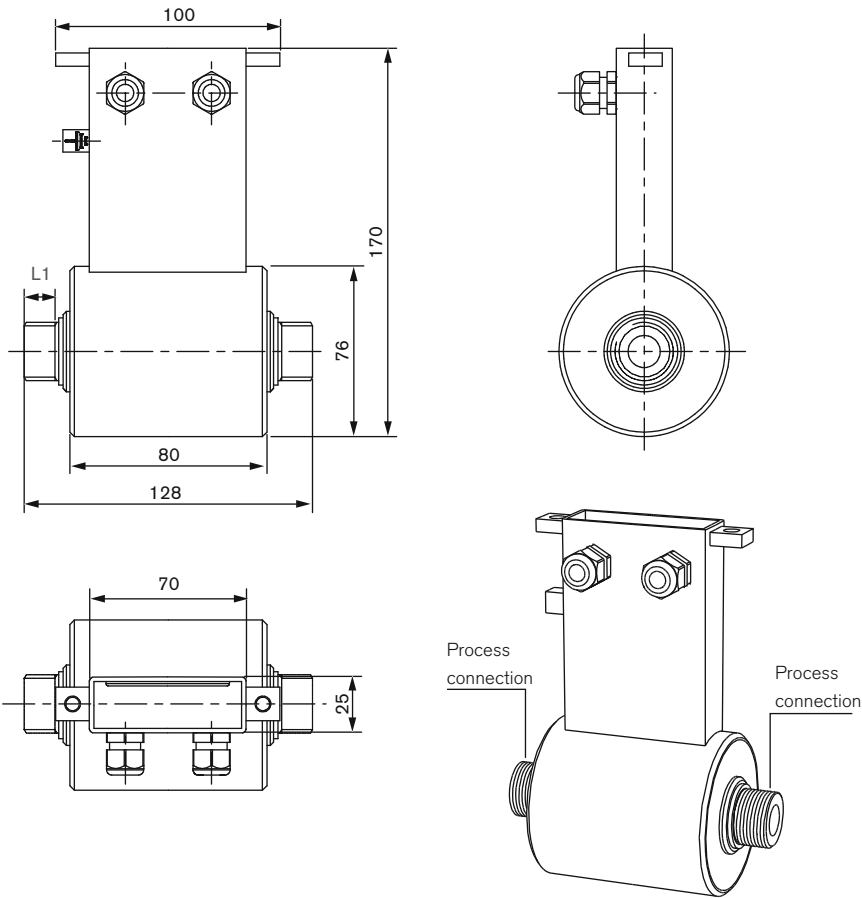
Medium temperature chart

	SE56 standard compact 	SE56 standard remote 	SE56 basic compact 	SE56 blind compact 
 S051 Sensor fitting (compact or remote version)	-20...+100°C (-4...+212°F)	-20...+130°C (-4...+266°F)	-10...+100°C (14...+212°F)	-20...+100°C (-4...+212°F) [up to 130°C (up to 266°F) for max. 1 hour]

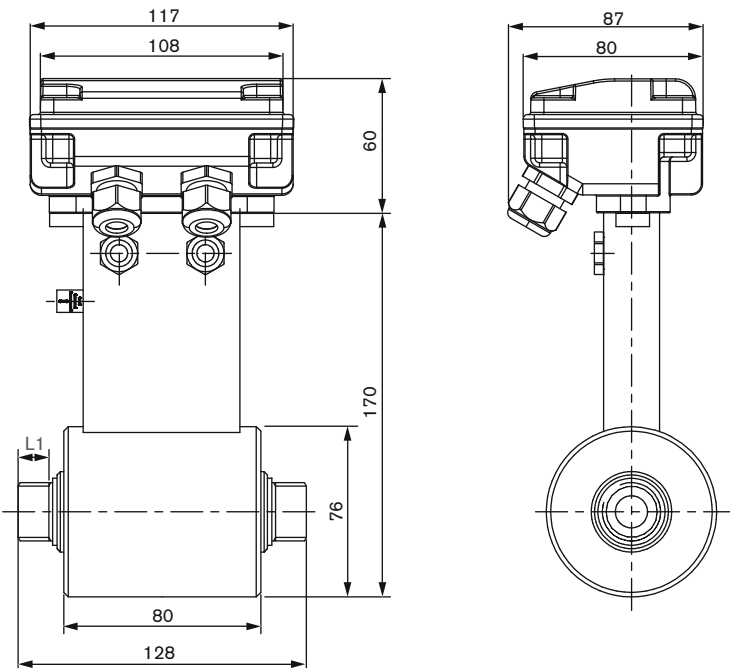
Dimensions [mm] of Type S051 sensor fitting (without full lining)

NOTE: Dimensions of SE56 electronics, see corresponding data sheet.

Compact version



Remote version, with junction box



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

## Ordering chart for flowmeter 8051

A complete flowmeter Type 8051 consists of:

- a sensor fitting Type S051
- an electronics Type SE56

Please order the relevant sensor fitting and the electronics separately!

### Sensor fitting Type S051

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

### **i** Further versions on request

Please also use the "request for quotation" form on page 7 for ordering a customized sensor fitting.

### Electronics Type SE56 (for more data, refer to data sheet Type SE56)

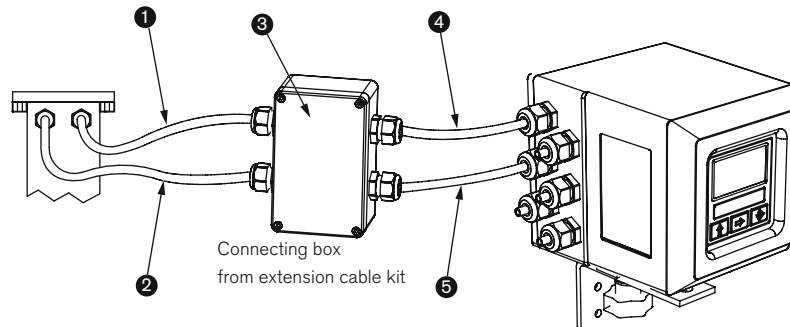
Description	Power supply	Outputs	Body material	Electrical connection	Item no.
Standard compact version with display	90...265 V AC	2 transistors	Aluminium	6 cable glands	558 745
			Stainless steel	6 cable glands	559 780
		2 transistors + 4...20 mA	Aluminium	6 cable glands	558 747
			Stainless steel	6 cable glands	558 306
Standard wall-mounting version with display	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
Basic compact version with display	90...265 V AC	2 transistors	Nylon	3 cable glands	562 439
		2 transistors + 4...20 mA	Nylon	3 cable glands	562 440
	18...63 V DC	2 transistors	Nylon	3 cable glands	562 443
		2 transistors + 4...20 mA	Nylon	3 cable glands	562 444
Basic compact version without display	90...265 V AC	2 transistors	Nylon	3 cable glands	562 441
		2 transistors + 4...20 mA	Nylon	3 cable glands	562 442
	18...63 V DC	2 transistors	Nylon	3 cable glands	562 445
		2 transistors + 4...20 mA	Nylon	3 cable glands	562 446
Blind compact version	20...30 V DC	up to 4 transistors	Stainless steel	2 cable glands	559 132
		up to 4 transistors + 4...20 mA	Stainless steel	2 cable glands	559 133
		up to 4 transistors + PROFIBUS DP	Stainless steel	2 cable glands	559 134

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

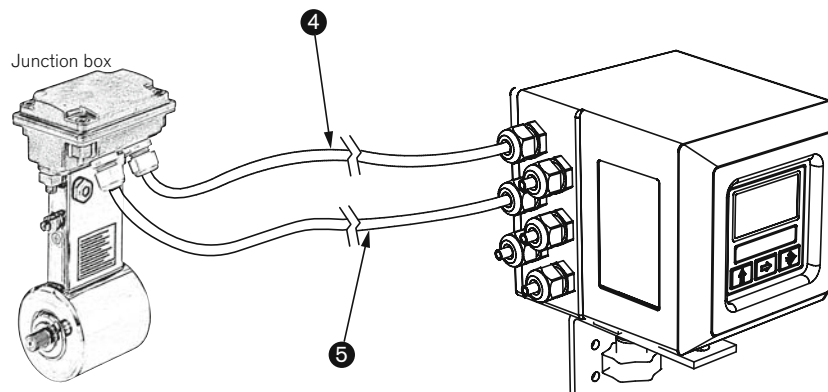
Description	Purpose	No. on drawing	Item no.
Electrode cable, 10 m long	for connection between sensor fitting <b>without junction box</b> Type S054/S055, S051 or S056 and electronics Type SE56*	1	448 518
	for connection between sensor fitting <b>with junction box</b> Type S054/S055, S051 or S056 and electronics Type SE56* or for connection between extension cable kit and electronics Type SE56*	4	562 851
Coil cable, 10 m long	for connection between sensor fitting <b>without junction box</b> Type S054/S055, S051 or S056 and electronics Type SE56*	2	448 519
	for connection between sensor fitting <b>with junction box</b> Type S054/S055, S051 or S056 and electronics Type SE56* or for connection between extension cable kit and electronics Type SE56*	5	562 852
Extension cable kit	including a connecting box and resin	3	562 853


\* (see corresponding data sheet)

## Sensor fitting Type S051 without junction box



## Sensor fitting Type S051 with junction box


 Further versions on request

 Electrical connection  
Electrode and coil cables length

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

## Sanitary sensor fitting Type S051 - request for quotation

Please fill out this form and send to your local Bürkert Sales Centre\* with your inquiry or order.



**NOTE:**

Please take into account that the sensor fitting Type S051 must be associated with one of the electronics Type SE56. If only the sensor fitting is ordered, please indicate on your order the version (standard, blind or basic) or better the item no. of the electronics Type SE56 with which it will be associated

Company:	Contact person:
Customer no.:	Dept.:
Address:	Tel./Fax:
Town / Postcode:	E-mail:

■ **Full Bore Magflow sensor fitting S051**

Quantity:       Desired delivery date:

■ **Pipe diameter**       DN03       DN06       DN10       DN15       DN20

■ **Process fitting connection:**

**External thread**       ISO 228       DIN 11851  
                                   NPT       SMS 1145

**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<sup>1)</sup>**       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

■ **Flowmeter version:**       Compact       Remote (10 m cable included)

■ **Cable length:**       meter (for cable length > 20 m a preamplifier is included. **Caution! Price increase**)

<sup>1)</sup> If the pipe is in plastic then it is advised to choose 3 electrodes, if it is in metal then 2 electrodes are enough.

**Electronics SE56**



When you click on the orange box "More info.", you will come to our website for the resp. product where you can download the data sheet, and then you can fill out the SE56 request for quotation form.

To find your nearest Bürkert facility, click on the orange box →

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