bürkert
FLUID CONTROL SYSTEMS

Magnetic inductive sensor with hygienic process connections

- For connection to a transmitter Type SE58 (with or without display, in compact or remote version) for flow measurement)
- Hygienic version, 3A certificate
- For food and beverage or pharmaceutical applications
- Flow rate measurements 0.2…approx 4,500 l/min for DN 03… DN 100

Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with

Type SE58 ▸
L version of the transmitter for electromagnetic-inductive flow sensors

Type SE58 ▸
M version of the transmitter for electromagnetic-inductive flow sensors

Type SE58 ▸
S version of the transmitter for electromagnetic-inductive flow sensors

Description du Type

The Type S056 magnetically inductive flow sensor (compact or separate version) is suitable for low-flow applications and liquids with minimum conductivity.

The combination with the dedicated SE58 S transmitter (minimum required conductivity: 20 µS/cm) or with the SE58 M or SE58 L transmitters (minimum conductivity required: 5 µS/cm) results in a flowmeter with different performance, functions, materials and approvals, with the corresponding suitability for the respective applications depending on the respective requirements.

With the SE58 S you get a compact device, with the SE58 M and SE58 L compact devices or remote versions are created for which the transmitter and sensor are connected by 2 cables up to a maximum length.
Standard process connections available for the S056 are clamp or thread (dairy thread) connections.

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Visit product website ▸

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1. General technical data

Note:
Empty pipe functionality is not available if sensors are selected in the range of DN03 to DN20.

The S056 electromagnetic flow sensor in a compact or remote version is intended for use with transmitter Type SE58, which is available in three versions L, M or S.

SE58 L or SE58 M	SE58 S
	

Detailed information can be found in the data sheet of the transmitter, see **data sheet Type SE58** ▸.

Product properties	
Material	
Non wetted parts	
Sensor housing	Stainless steel 304/1.4301
Junction box	Only for remote sensor: stainless steel 304 (1.4301) polished
Wetted parts	
Lining	PTFE (conform to FDA)
Electrode	Stainless steel 316L (conform to FDA)
Seal	FKM (conform to FDA), EPDM (on request, conform to FDA)
Pipe diameter	DN 03…DN 100
Dimensions	Detailed information can be found in chapter **"2. Dimensions" on page 5**.
Measuring principle	Electromagnetic induction Detailed information can be found in chapter **"4.1. Measuring principle" on page 10**.
Measuring range	0…10 l/h to 0…280 m^3/h Detailed information can be found in chapter **"5.4. Ordering chart sensor Type S056" on page 12**.
Performance data	
At reference conditions and according to internal test procedures: • At room temperature • Constant flow rate during the test, liquid speed > 1 m/s • Pressure: > 30 Kpa • Flow condition: observed inlet and outlet conditions • Zero point stability: ± 0.005 %	
Measurement deviation	If used with SE58 transmitter: • in compact or remote L version: ≤ ± 0.2 % of the measured value for flow velocity > 0.5 m/s • in compact or remote M version: ≤ ± 0.8 % of the measured value for flow velocity > 0.5 m/s • in compact S version: ≤ ± 0.5 % of the measured value for flow velocity > 0.5 m/s See **data sheet Type SE58** ▸
Repeatability	If used with SE58 transmitter: • in compact or remote L version: ≤ ± 0.1 % of the measured value for flow velocity > 0.5 m/s • in compact or remote M version: ≤ ± 0.4 % of the measured value for flow velocity > 0.5 m/s • in compact S version: ≤ ± 0.25 % of the measured value for flow velocity > 0.5 m/s See **data sheet Type SE58** ▸
Vacuum resistance	200 mbar (2.9 PSI) absolute at 100 °C (212 °F)

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Medium data	
Fluid temperature	• Compact version: -20…+110 °C (-4…+230 °F) (130°C (+266 °F) allowed for 60 min for steam/hot water cleaning) • Remote version: -20…+130 °C (-4…+266 °F)
Fluid pressure	PN 16
Minimum conductivity	5 µS/cm (or 20 µS/cm with demineralised water)
Process/Port connection & communication	
Process connection	DIN 11851, clamp ISO 2852 or clamp BS 4825 (SMS 1146 (from DN 10) on request)
Electrical connection	2 cable glands PG9 (for remote version of the sensor)
Approvals and certificates	
Directives	
CE directive	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 equipment directive	The device is subject to the requirements of the Pressure Equipment Directive 2014/68/EU. Category II device for group 1 and 2 fluids under the following conditions: • maximum allowable pressure (PS) ≤ 40 bar • minimum/maximum temperature (TS): -10/+130 °C • within the following limits for liquids of group 2: – PN 40 for DN 40…DN 250 • within the following limits for liquids of group 1 with a vapour pressure at the maximum allowable temperature not exceeding 0.5 bar (g): for diameters above DN 25 and PS x DN > 2000
Environment and installation	
Ambient temperature	According to the used version of SE58 transmitter and its material Detailed information can be found in the data sheet of the transmitter, see **data sheet Type SE58** ▶.
Relative air humidity	≤ 90 %, without condensation
Height above sea level	Max. 2000 m
Operating condition	Continuous
Equipment mobility	Fixed device
Application range	Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and against the effects of climatic conditions)
Degree of protection according to IEC/EN 60529	If use with SE58 transmitter: • in compact L and M version: IP67 (IP68 optional) • in compact S version: IP67 (IP68 optional) • in remote L and M version: IP68 See **data sheet Type SE58** ▶
Installation category	Category II according to UL/EN 61010-1
Pollution degree	Degree 2 according to UL/EN 61010-1

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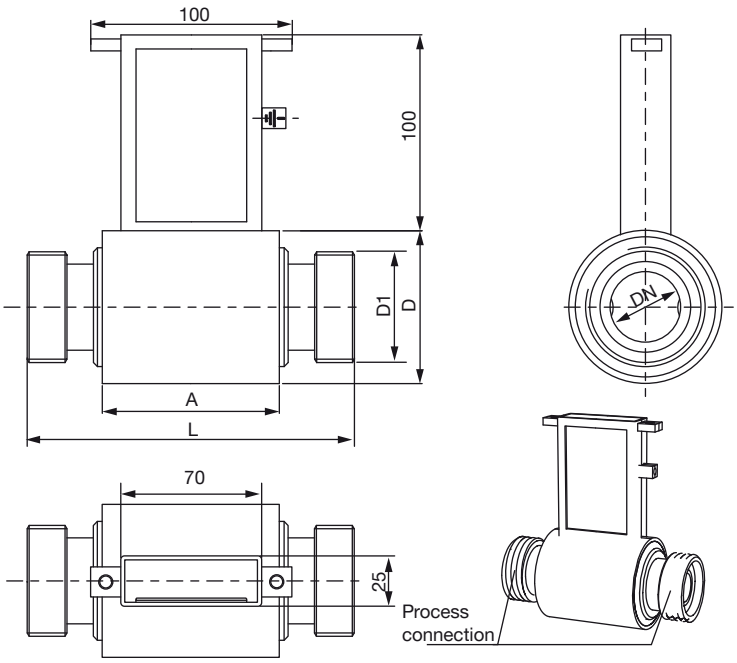
2. Dimensions

2.1. Compact sanitary version according to DIN 11851

Note:

- Detailed information on the dimensions of the SE58 transmitter can be found in **data sheet Type SE58 ▶**.
- Dimensions in mm (unless specified differently)



DN	A	L	Process connection	D1	D
03	77	128	DN 10	RD28 x 1/8	76
06				RD28 x 1/8	
10				RD28 x 1/8	
15			DN 15	RD34 x 1/8	
20			DN 20	RD44 x 1/6	
25	100	180	DN 25	RD52 x 1/6	
32			DN 32	RD58 x 1/6	89
40			DN 40	RD65 x 1/6	
50			DN 50	RD78 x 1/6	114
65			DN 65	RD95 x 1/6	140
80		200	DN 80	RD110 x 1/4	
100			DN 100	RD130 x 1/4	168

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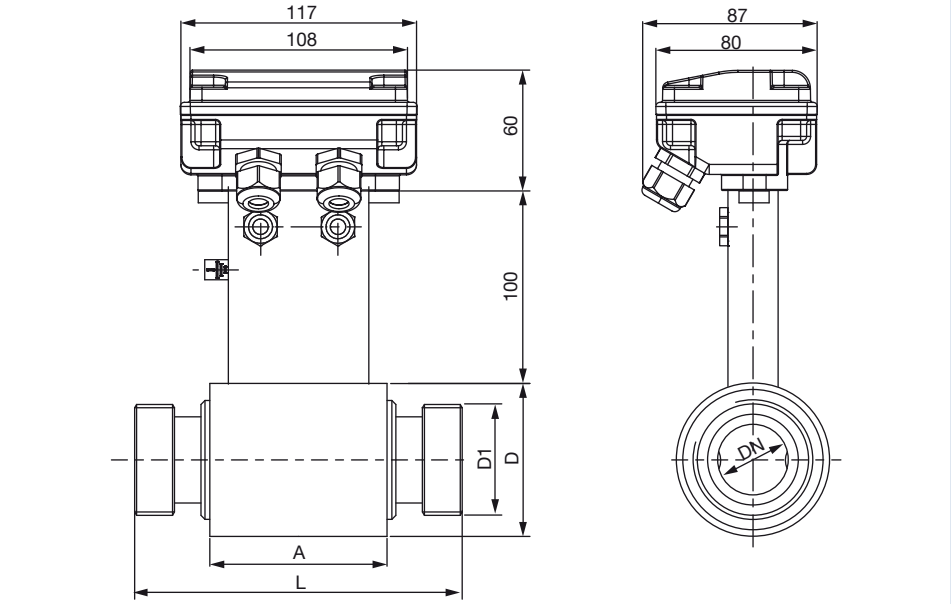
2.2. Remote sanitary version according to DIN 11851, with junction box

Note:

- Detailed information on the dimensions of the SE58 transmitter can be found in **data sheet Type SE58 ▸**.
- Dimensions in mm (unless specified differently)



DN	A	L	Process connection	D1	D
03	77	128	DN 10	RD28 x 1/8	76
06				RD28 x 1/8	
10				RD28 x 1/8	
15			DN 15	RD34 x 1/8	
20			DN 20	RD44 x 1/6	
25	100	180	DN 25	RD52 x 1/6	
32			DN 32	RD58 x 1/6	89
40			DN 40	RD65 x 1/6	
50			DN 50	RD78 x 1/6	114
65			DN 65	RD95 x 1/6	140
80		200	DN 80	RD110 x 1/4	
100			DN 100	RD130 x 1/4	168

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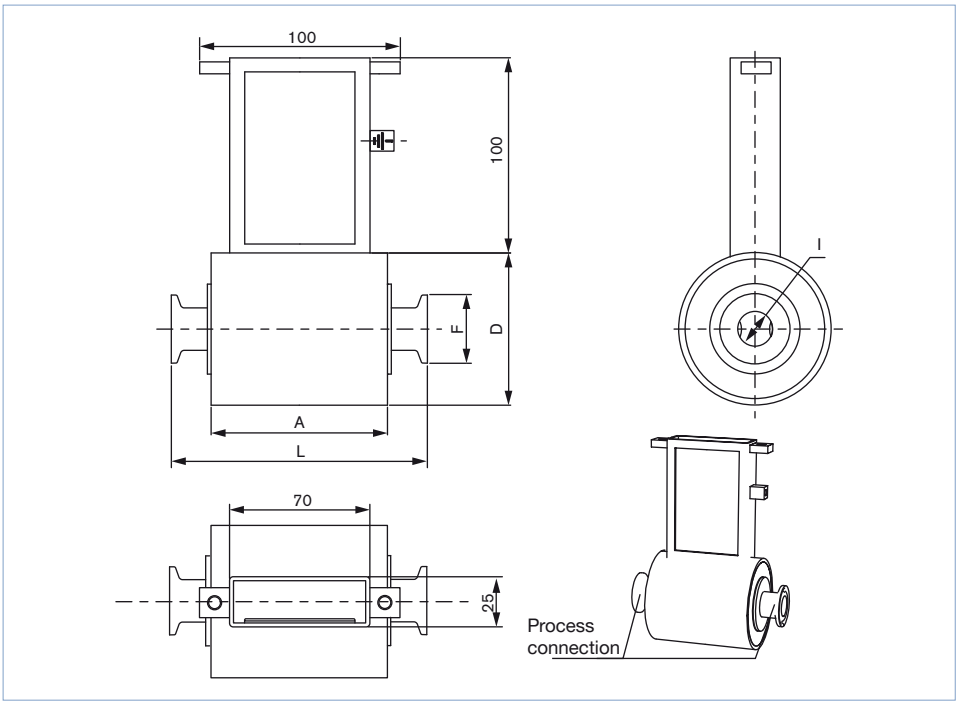
2.3. Compact sanitary version according to clamp ISO 2852 or BS 4825

Note:

- Detailed information on the dimensions of the SE58 transmitter can be found in **data sheet Type SE58 ▸**.
- Dimensions in mm (unless specified differently)



DN	A	L	Standard	F	D	I
03	77	128	Clamp ISO 2852	34	76	12.7
			Clamp BS 4825	25.4		9.5
06			Clamp ISO 2852	34		12.7
			Clamp BS 4825	25.4		9.5
10			Clamp ISO 2852	34		12.7
			Clamp BS 4825	25.4		9.5
15			Clamp ISO 2852	34		17.2
			Clamp BS 4825	25.4		15.85
20			Clamp ISO 2852	34		21.3
			Clamp BS 4825	50.5		22.2
25	100	180	Clamp ISO 2852	50.5		22.6
			Clamp BS 4825	50.5		22.2
40			Clamp ISO 2852	50.5	89	35.6
			Clamp BS 4825	50.5		34.9
50			Clamp ISO 2852	64	114	48.6
			Clamp BS 4825	64		47.6
65			Clamp ISO 2852	77.5	140	60.3
			Clamp BS 4825	77.5		60.3
80		200	Clamp ISO 2852	91		72.9
			Clamp BS 4825	91		72.9
100			Clamp ISO 2852	119	180	97.6
			Clamp BS 4825	119		97.6

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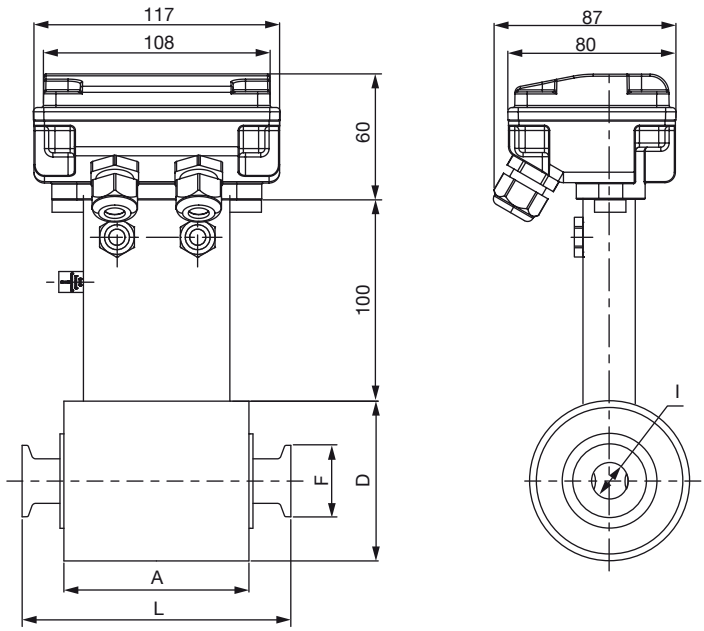
2.4. Remote sanitary version according to clamp ISO 2852 or BS 4825, with junction box

Note:

- Detailed information on the dimensions of the SE58 transmitter can be found in **data sheet Type SE58 ▶**.
- Dimensions in mm (unless specified differently)



DN	A	L	Standard	F	D	I
03	77	128	Clamp ISO 2852	34	76	12.7
			Clamp BS 4825	25.4		9.5
06			Clamp ISO 2852	34		12.7
			Clamp BS 4825	25.4		9.5
10			Clamp ISO 2852	34		12.7
			Clamp BS 4825	25.4		9.5
15			Clamp ISO 2852	34		17.2
			Clamp BS 4825	25.4		15.85
20			Clamp ISO 2852	34		21.3
			Clamp BS 4825	50.5		22.2
25	100	180	Clamp ISO 2852	50.5		22.6
			Clamp BS 4825	50.5		22.2
40			Clamp ISO 2852	50.5	89	35.6
			Clamp BS 4825	50.5		34.9
50			Clamp ISO 2852	64	114	48.6
			Clamp BS 4825	64		47.6
65			Clamp ISO 2852	77.5	140	60.3
			Clamp BS 4825	77.5		60.3
80		200	Clamp ISO 2852	91		72.9
			Clamp BS 4825	91		72.9
100			Clamp ISO 2852	119	180	97.6
			Clamp BS 4825	119		97.6

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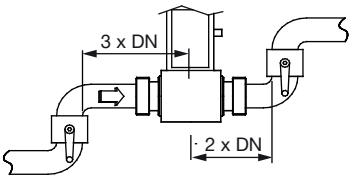
3. Product installation

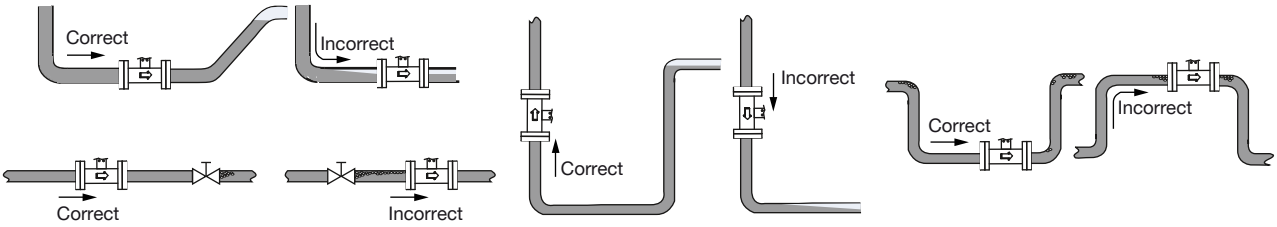
3.1. Installation notes

Note:
The flow meter is not designed for gas and steam flow measurement.

- During flowmeter operation the pipe must be completely full.
- Observe the upstream and downstream distances.



The sensor can be installed into either horizontal or vertical pipes. Mount the sensor in the indicated positions shown below to obtain an accurate flow measurement.



The suitable pipe size can be selected using the nominal pipe size selection chart. See chapter "3.2. Selection of the nominal diameter" on page 10.

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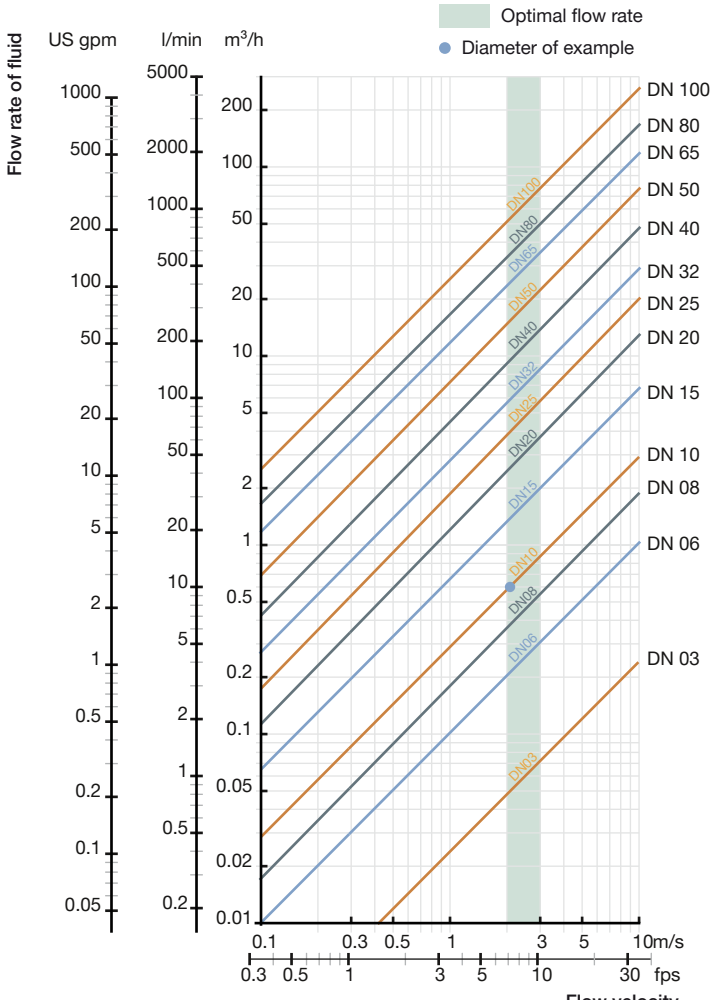
3.2. Selection of the nominal diameter

The graph is used to determine the DN of the pipe appropriate to the application, according to the fluid velocity and the flow rate. On the chart, the intersection of flow rate and flow velocity gives the appropriate diameter.

Example:

- Flow: 10 l/min
- Optimal flow rate: 2…3 m/s

Result: Select a pipe size of DN 10



4. Product operation

4.1. Measuring principle

Faraday's law serves as the physical basis for magnetic flow measurement.
Magnetic coils are arranged around the pipeline to generate a magnetic field. Conductive liquids flowing through the magnetic field induce a voltage at two opposite metallic electrodes in contact with the medium. These electrodes are used to measure the induced electrical alternating voltage.
The signal of sensor S056 must be amplified and processed by transmitter SE58.

Detailed information on the dimensions of the SE58 transmitter can be found in **data sheet Type SE58 ▸**.

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5. Ordering information

5.1. Bürkert eShop – Easy ordering and quick delivery

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5.2. Recommendation regarding product selection

A complete flowmeter consists of a S056 (compact or remote version) and a SE58 transmitter (compact or remote version).

See **data sheet Type SE58** ▶ for more information.

Two different components must be ordered in order to select a complete device. The following information is required:

- **Article no.** of the sensor **Type S056** (Detailed information can be found in chapter **"5.4. Ordering chart sensor Type S056" on page 12**)
- **Article no.** of the transmitter **Type SE58** (see **data sheet Type SE58** ▶ for more information)

5.3. Bürkert product filter

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5.4. Ordering chart sensor Type S056

DN [mm]	Process connection	Flow rate range Min. 0…0.4 m/s	Flow rate range Max. 0…10 m/s	Housing material	Wetted parts materials Electrode[1.]	Wetted parts materials Seal	Wetted parts materials Lining	Article no.
Sensor Type S056, compact version								
03	DIN 11851	0…0,01 m³/h	0…0,25 m³/h	Stainless steel 304	Stainless steel 316L	FKM	PTFE	555732
	Clamp ISO 2852							554004
	Clamp BS 4825							559786
06	DIN 11851	0…0,04 m³/h	0…1 m³/h					559430
	Clamp ISO 2852							559431
	Clamp BS 4825							553325
10	DIN 11851	0…0,12 m³/h	0…3 m³/h					559432
	Clamp ISO 2852							554904
	Clamp BS 4825							554350
15	DIN 11851	0…0,24 m³/h	0…6 m³/h					553527
	Clamp ISO 2852							553555
	Clamp BS 4825							553533
20	DIN 11851	0…0,50 m³/h	0…12,5 m³/h					553528
	Clamp ISO 2852							559433
	Clamp BS 4825							553534
25	DIN 11851	0…0.72 m³/h	0…18 m³/h					553486
	Clamp ISO 2852							554151
	Clamp BS 4825							553535
32	DIN 11851	0…1.16 m³/h	0…29 m³/h					553529
40	DIN 11851	0…1.80 m³/h	0…45 m³/h					553530
	Clamp ISO 2852							553741
	Clamp BS 4825							553536
50	DIN 11851	0…2.88 m³/h	0…72 m³/h					553531
	Clamp ISO 2852							555120
	Clamp BS 4825							553537
65	DIN 11851	0…4.80 m³/h	0…120 m³/h					553532
	Clamp ISO 2852							554116
	Clamp BS 4825							553538
80	DIN 11851	0…7.20 m³/h	0…180 m³/h					555089
	Clamp ISO 2852							559434
	Clamp BS 4825							559791
100	DIN 11851	0…11.20 m³/h	0…280 m³/h					On request
	Clamp ISO 2852							On request
	Clamp BS 4825							On request

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DN [mm]	Process connection	Flow rate range Min. 0…0.4 m/s	Flow rate range Max. 0…10 m/s	Housing material	Wetted parts materials Electrode[1.)]	Wetted parts materials Seal	Wetted parts materials Lining	Article no.
Sensor Type S056, remote version with junction box in stainless steel 304 (1.4301) polished and 10 m electrodes and coils cables (included)								
03	DIN 11851	0…0,01 m³/h	0…0,25 m³/h	Stainless steel 304	Stainless steel 316L	FKM	PTFE	551506
	Clamp ISO 2852							551501
	Clamp BS 4825							559787
06	DIN 11851	0…0,04 m³/h	0…1 m³/h					551507
	Clamp ISO 2852							551502
	Clamp BS 4825							559788
10	DIN 11851	0…0,12 m³/h	0…3 m³/h					551508
	Clamp ISO 2852							551503
	Clamp BS 4825							559759
15	DIN 11851	0…0,24 m³/h	0…6 m³/h					551509
	Clamp ISO 2852							551504
	Clamp BS 4825							554082
20	DIN 11851	0…0,50 m³/h	0…12,5 m³/h					551510
	Clamp ISO 2852							551505
	Clamp BS 4825							553925
25	DIN 11851	0…0.72 m³/h	0…18 m³/h					448480
	Clamp ISO 2852							448499
	Clamp BS 4825							559789
32	DIN 11851	0…1.16 m³/h	0…29 m³/h					448481
40	DIN 11851	0…1.80 m³/h	0…45 m³/h					448482
	Clamp ISO 2852							448501
	Clamp BS 4825							554147
50	DIN 11851	0…2.88 m³/h	0…72 m³/h					448483
	Clamp ISO 2852							448502
	Clamp BS 4825							554138
65	DIN 11851	0…4.80 m³/h	0…120 m³/h					448484
	Clamp ISO 2852							448503
	Clamp BS 4825							559790
80	DIN 11851	0…7.20 m³/h	0…180 m³/h					448485
	Clamp ISO 2852							448504
	Clamp BS 4825							558854
100	DIN 11851	0…11.20 m³/h	0…280 m³/h					448486
	Clamp ISO 2852							448505
	Clamp BS 4825							On request

1.) Two measuring electrodes

Further versions on request

Process connection SMS 1146 (from DN 10)	**Material** Seal: EPDM

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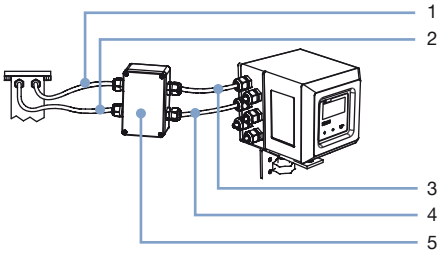
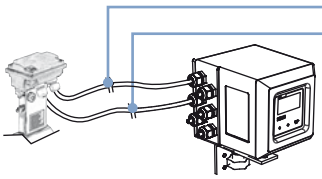
5.5. Ordering chart accessories

Accessories for remote sensor	No.	Description	Article no.
Without junction box  With junction box  	**1**	10 m cable for electrodes[1.)] For connecting the sensor (**version without junction box**) Type S051, S054, S055 or S056 to the connecting box of the cable extension kit.	448518
	2	10 m cable for coils[1.)] For connecting the sensor (**version without junction box**) Type S051, S054, S055 or S056 to the connecting box of the cable extension kit.	448519
	3	10 m cable for electrodes[1.)] For connecting • the connecting box of the cable extension kit to the transmitter Type SE58 • the sensor (**version with junction box**) Type S051, S054, S055 or S056 to the transmitter Type SE58	562851
	4	10 m cable for coils[1.)] For connecting • the connecting box of the cable extension kit to the transmitter Type SE58 • the sensor (**version with junction box**) Type S051, S054, S055 or S056 to the transmitter Type SE58	562852
	5	Connecting box of the cable extension kit including No. 1+2+3+4 and resin	562853

1.) Other cables length than 10 m on request (for cables length > 20 m a preamplifier could be needed. **Caution, this will result in a price increase!**)

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