

Electromagnetic flow sensor with hygienic process connections

- For connection to a Type SE58 transmitter (with or without display, in compact or remote variant) for flow measurement
- Hygienic variant, 3A certification
- For food, beverage or pharmaceutical applications
- Flow measurement 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 variant of the transmitter for electromagnetic-inductive flow sensors	▶
	Type SE58 M variant of the transmitter for electromagnetic-inductive flow sensors	▶
	Type SE58 S variant of the transmitter for electromagnetic-inductive flow sensors	▶

Type description

The electromagnetic flow sensor Type S056 (compact or remote variant) is suitable for applications with low flow rates and liquids with minimum conductivity.

Combining it with the corresponding transmitter Type SE58 S (required minimum conductivity: 20 µS/cm) or Type SE58 M or Type SE58 L transmitters (required minimum conductivity: 5 µS/cm) results in a flowmeter with varying performance, functions, materials, and approvals, suitable for specific applications as per the respective requirements.

Compact devices are built with Type SE58 S, while with Type SE58 M or Type SE58 L, both compact devices and remote variants are available, where the transmitter and sensor are connected with 2 cables up to a maximum distance. Standard process connections for Type S056 are available as clamp or threaded (dairy thread) connections.

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1. General technical data

Note:

Empty pipe functionality is not available for sensors with connections of DN 03...DN 20.

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



Further 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	
Clamp	Stainless steel 316L
Lining	PTFE (conform to FDA)
Electrode	Stainless steel 316L
Seal	FKM (conform to FDA), EPDM (on request, conform to FDA)
Pipe diameter	DN 03...DN 100
Dimensions	Further information can be found in chapter "4. Dimensions" on page 6.
Measuring principle	Electromagnetic induction Further information can be found in chapter "6.1. Measuring principle" on page 11.
Measuring range	0...10 l/h to 0...280 m ³ /h Further information can be found in chapter "7.4. Ordering chart" on page 13.
Performance data	
At reference conditions and according to internal test procedures:	
<ul style="list-style-type: none"> • 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 Type SE58 transmitter: <ul style="list-style-type: none"> • in compact or remote L variant: ≤ ± 0.2 % of the measured value for flow velocity > 0.5 m/s • in compact or remote M variant: ≤ ± 0.8 % of the measured value for flow velocity > 0.5 m/s • in compact S variant: ≤ ± 0.5 % of the measured value for flow velocity > 0.5 m/s See data sheet Type SE58 ▶
Repeatability	If used with Type SE58 transmitter: <ul style="list-style-type: none"> • in compact or remote L variant: ≤ ± 0.1 % of the measured value for flow velocity > 0.5 m/s • in compact or remote M variant: ≤ ± 0.4 % of the measured value for flow velocity > 0.5 m/s • in compact S variant: ≤ ± 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	If used with transmitter Type SE58: <ul style="list-style-type: none"> • in compact variant: - 20...+ 110 °C (- 4...+ 230 °F) (130 °C (+ 266 °F) allowed for 60 min for steam/hot water cleaning) • in remote variant: - 20...+ 130 °C (- 4...+ 266 °F)
Fluid pressure	PN 16
Minimum conductivity	5 µS/cm (or 20 µS/cm with demineralised water)

Process/Pipe connection & communication

Pipe 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 variant of the sensor)

Approvals and conformities

Directives

CE directive	Further information on the CE directive can be found in chapter "2.2. Standards" on page 5.
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: <ul style="list-style-type: none"> • maximum allowable pressure (PS) ≤ 40 bar • minimum/maximum temperature (TS): - 10/+ 130 °C • within the following limits for liquids of group 2: <ul style="list-style-type: none"> – 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
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: <ul style="list-style-type: none"> • in compact L and M variant: IP67 (IP68 optional) • in compact S variant: IP67 (IP68 optional) • in remote L and M variant: IP68
Installation category	Category II according to UL/EN 61010-1
Pollution degree	Degree 2 according to UL/EN 61010-1

2. Approvals and conformities

2.1. Conformity

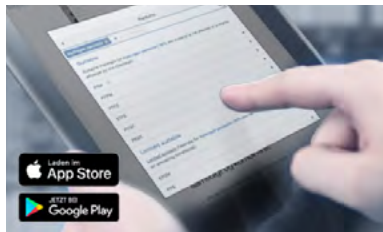
In accordance with the Declaration of Conformity, the product is compliant with the EU Directives.

2.2. Standards

The applied standards which are used to demonstrate compliance with the EU Directives are listed in the EU-Type Examination Certificate and/or the EU Declaration of Conformity.

3. Materials

3.1. Bürkert resistApp



Bürkert resistApp – Chemical resistance chart

You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

[Start chemical resistance check](#)

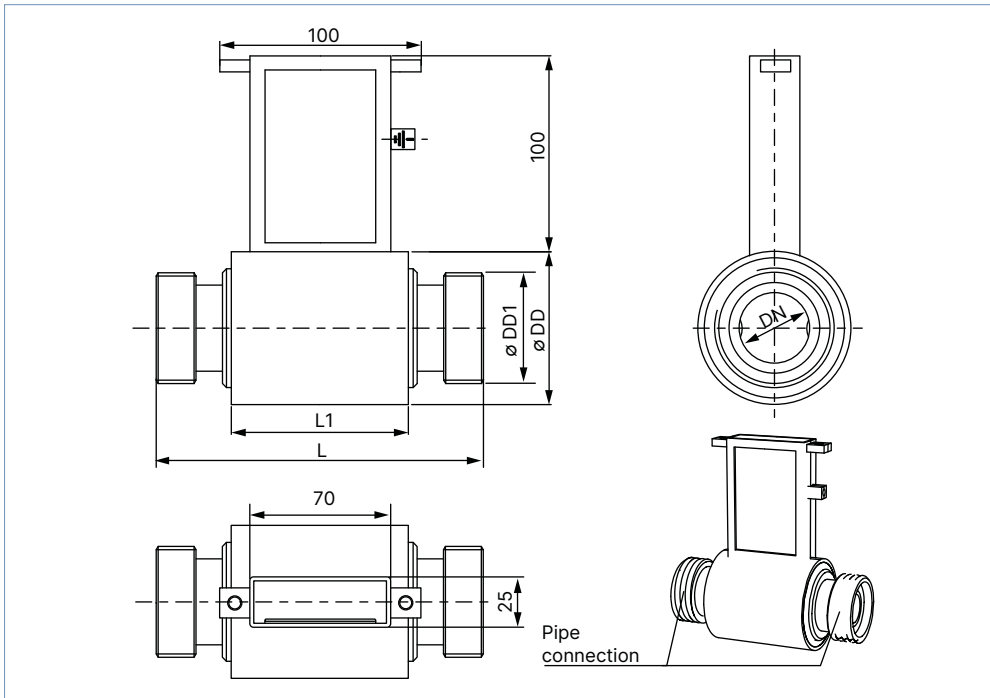
4. Dimensions

4.1. Compact variant

Pipe connection according to DIN 11851

Note:

- Further information on the dimensions of the Type SE58 transmitter can be found in **data sheet Type SE58** ▶.
- Dimensions in mm, unless otherwise stated

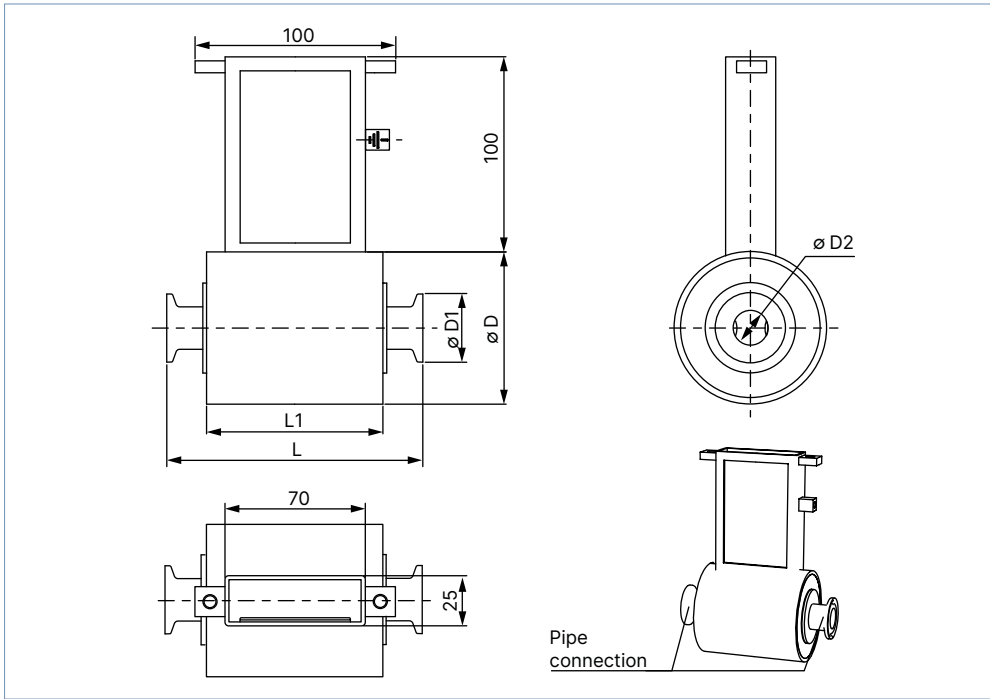


DN	Pipe connection	L	L1	ØD	ØD1
03	DN 10	128	77	76	RD28 x 1/8
06					RD28 x 1/8
10					RD28 x 1/8
15					RD34 x 1/8
20	DN 20	180	100	89	RD44 x 1/6
25	DN 25				RD52 x 1/6
32	DN 32				RD58 x 1/6
40	DN 40				RD65 x 1/6
50	DN 50	200		114	RD78 x 1/6
65	DN 65			140	RD95 x 1/6
80	DN 80				RD110 x 1/4
100	DN 100				RD130 x 1/4

Pipe connection according to clamp ISO 2852 or BS 4825

Note:

- Further information on the dimensions of the Type SE58 transmitter can be found in **data sheet Type SE58** ▶
- Dimensions in mm, unless otherwise stated



DN	Standard	L	L1	ØD	ØD1	ØD2		
03	Clamp ISO 2852	128	77	76	34	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	180	100		89	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			200	140	114	34	21.3
	Clamp BS 4825						50.5	22.2
25	Clamp ISO 2852			200	140	140	50.5	22.6
	Clamp BS 4825						50.5	22.2
40	Clamp ISO 2852	200	180	180	50.5	35.6		
	Clamp BS 4825				50.5	34.9		
50	Clamp ISO 2852	200	180	180	64	48.6		
	Clamp BS 4825				64	47.6		
65	Clamp ISO 2852	200	180	180	77.5	60.3		
	Clamp BS 4825				77.5	60.3		
80	Clamp ISO 2852	200	180	180	91	72.9		
	Clamp BS 4825				91	72.9		
100	Clamp ISO 2852	200	180	180	119	97.6		
	Clamp BS 4825				119	97.6		

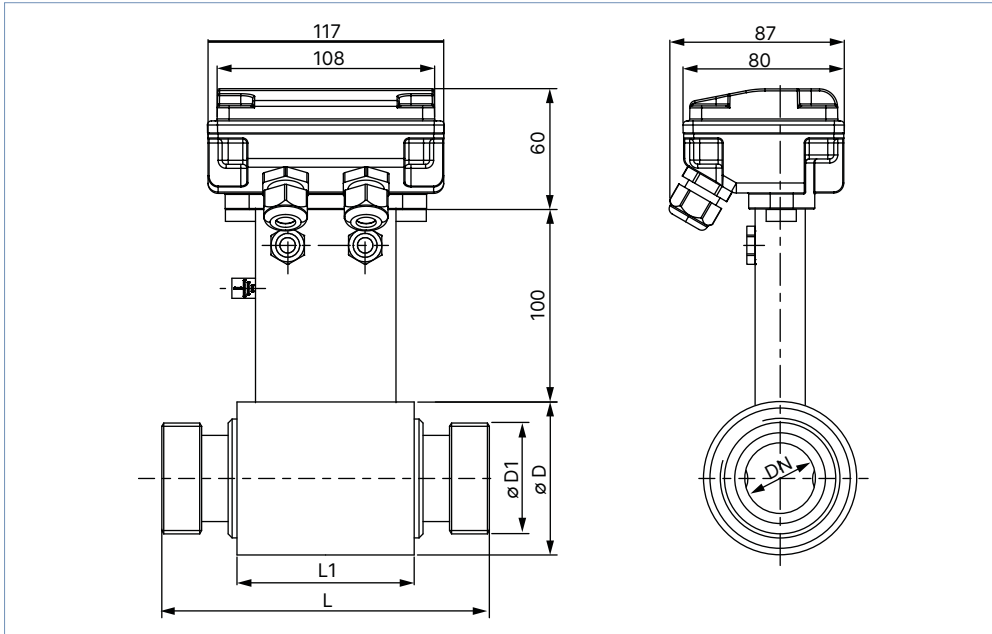
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4.2. Remote variant with junction box

Pipe connection according to DIN 11851

Note:

- Further information on the dimensions of the Type SE58 transmitter can be found in **data sheet Type SE58** ▶.
- Dimensions in mm, unless otherwise stated



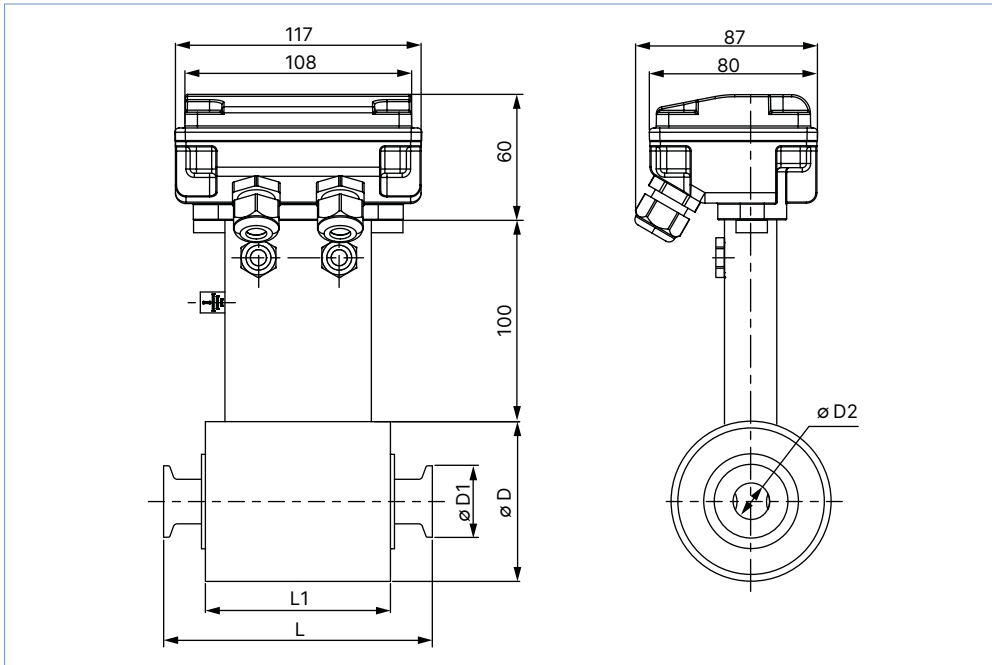
DN	Pipe connection	L	L1	ØD	ØD1
03	DN 10	128	77	76	RD28 x 1/8
06					RD28 x 1/8
10					RD28 x 1/8
15					RD34 x 1/8
20	DN 20	180	100	89	RD44 x 1/6
25	DN 25				RD52 x 1/6
32	DN 32				RD58 x 1/6
40	DN 40				RD65 x 1/6
50	DN 50	200	114	140	RD78 x 1/6
65	DN 65				RD95 x 1/6
80	DN 80				RD110 x 1/4
100	DN 100				RD130 x 1/4

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Pipe connection according to clamp ISO 2852 or BS 4825

Note:

- Further information on the dimensions of the Type SE58 transmitter can be found in **data sheet Type SE58** ▶
- Dimensions in mm, unless otherwise stated



DN	Standard	L	L1	ØD	ØD1	ØD2
03	Clamp ISO 2852	128	77	76	34	12.7
	Clamp BS 4825				25.4	9.5
06	Clamp ISO 2852	128	77	76	34	12.7
	Clamp BS 4825				25.4	9.5
10	Clamp ISO 2852	128	77	76	34	12.7
	Clamp BS 4825				25.4	9.5
15	Clamp ISO 2852	128	77	76	34	17.2
	Clamp BS 4825				25.4	15.85
20	Clamp ISO 2852	128	77	76	34	21.3
	Clamp BS 4825				50.5	22.2
25	Clamp ISO 2852	180	100	89	50.5	22.6
	Clamp BS 4825				50.5	22.2
40	Clamp ISO 2852	180	100	89	50.5	35.6
	Clamp BS 4825				50.5	34.9
50	Clamp ISO 2852	180	100	114	64	48.6
	Clamp BS 4825				64	47.6
65	Clamp ISO 2852	180	100	140	77.5	60.3
	Clamp BS 4825				77.5	60.3
80	Clamp ISO 2852	200	100	180	91	72.9
	Clamp BS 4825				91	72.9
100	Clamp ISO 2852	200	100	180	119	97.6
	Clamp BS 4825				119	97.6

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5. Product installation

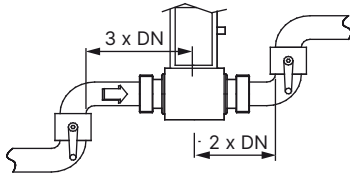
5.1. Installation notes

Flow measurement

Note:

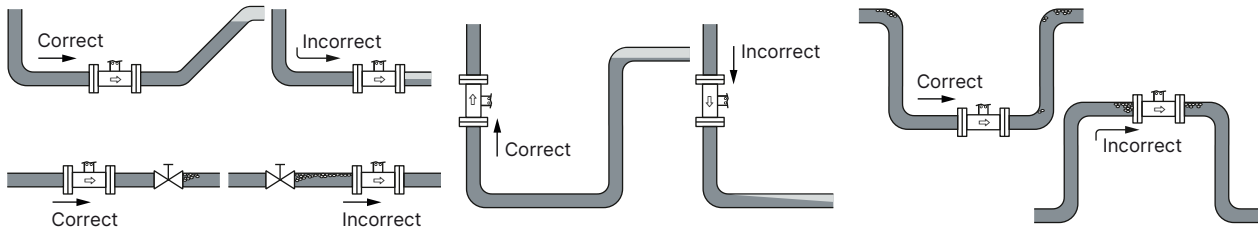
The device is not suitable for use in gaseous media and steam.

Minimum straight distances upstream and downstream of the sensor must be observed.



The device can be installed in either horizontal or vertical pipes, but following additional conditions should be respected:

- The pipe always has to be filled with fluid at all times near the device, when it is in operation.
- Mount the sensor in the indicated positions shown below to obtain an accurate flow measurement.



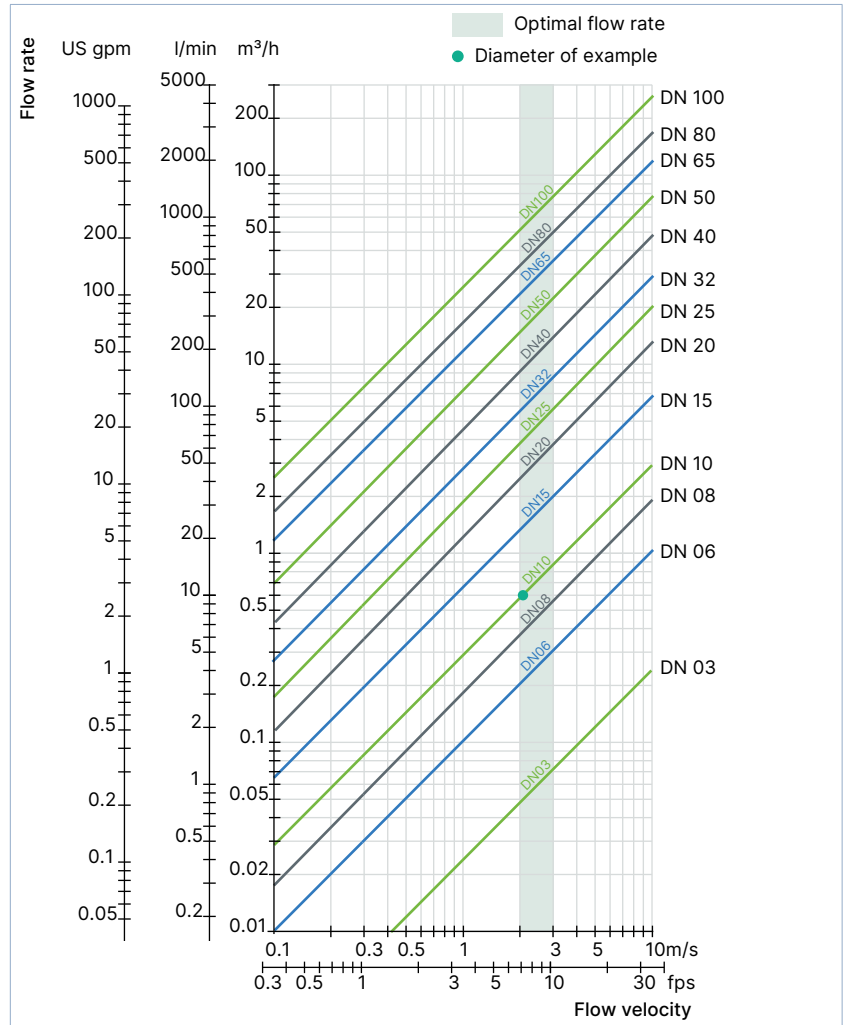
The suitable pipe size is selected using the diagram in the chapter [“5.2. Selection of the nominal diameter”](#) on page 11.

5.2. Selection of the nominal diameter

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

Example:

- Nominal flow: 10 l/min
 - Optimal flow rate: 2...3 m/s
- Result: Select a pipe size of DN 10



6. Product operation

6.1. 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 Type S056 must be amplified and processed by transmitter Type SE58.

Detailed information on the dimensions of the SE58 transmitter can be found in [data sheet Type SE58](#) ▶.

7. Ordering information

7.1. Bürkert eShop



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7.2. Recommendation regarding product selection

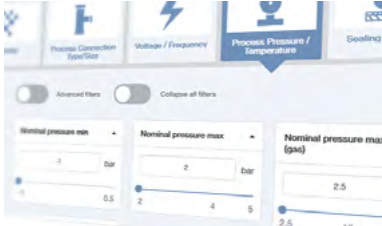
A complete flowmeter consists of a Type S056 (compact or remote variant) and a Type SE58 transmitter (compact or remote variant).

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** (see **“7.4. Ordering chart” on page 13**)
- **Article no.** of the transmitter **Type SE58** (see **data sheet Type SE58** ▶ for more information)

7.3. Bürkert product filter



Bürkert product filter – Get quickly to the right product

You want to select products comfortably based on your technical requirements? Use the Bürkert product filter and find suitable articles for your application quickly and easily.

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7.4. Ordering chart

DN [mm]	Flow rate range		Pipe connection	Material				Article no.
	Min. 0...0.4 m ³ /h	Max. 0...10 m ³ /h		Housing	Electrode ¹⁾	Seal	Lining	
Sensor Type S056, compact variant								
03	0...0.01 m ³ /h	0...0.25 m ³ /h	DIN 11851	Stainless steel 304	Stainless steel 316L	FKM	PTFE	555732
			Clamp ISO 2852					554004
			Clamp BS 4825					559786
06	0...0.04 m ³ /h	0...1 m ³ /h	DIN 11851	Stainless steel 304	Stainless steel 316L	FKM	PTFE	559430
			Clamp ISO 2852					559431
			Clamp BS 4825					553325
10	0...0.12 m ³ /h	0...3 m ³ /h	DIN 11851	Stainless steel 304	Stainless steel 316L	FKM	PTFE	559432
			Clamp ISO 2852					554904
			Clamp BS 4825					554350
15	0...0.24 m ³ /h	0...6 m ³ /h	DIN 11851	Stainless steel 304	Stainless steel 316L	FKM	PTFE	553527
			Clamp ISO 2852					553555
			Clamp BS 4825					553533
20	0...0.50 m ³ /h	0...12.5 m ³ /h	DIN 11851	Stainless steel 304	Stainless steel 316L	FKM	PTFE	553528
			Clamp ISO 2852					559433
			Clamp BS 4825					553534
25	0...0.72 m ³ /h	0...18 m ³ /h	DIN 11851	Stainless steel 304	Stainless steel 316L	FKM	PTFE	553486
			Clamp ISO 2852					554151
			Clamp BS 4825					553535
32	0...1.16 m ³ /h	0...29 m ³ /h	DIN 11851	Stainless steel 304	Stainless steel 316L	FKM	PTFE	553529
			Clamp ISO 2852					553530
			Clamp BS 4825					553741
40	0...1.80 m ³ /h	0...45 m ³ /h	DIN 11851	Stainless steel 304	Stainless steel 316L	FKM	PTFE	553536
			Clamp ISO 2852					553531
			Clamp BS 4825					555120
50	0...2.88 m ³ /h	0...72 m ³ /h	DIN 11851	Stainless steel 304	Stainless steel 316L	FKM	PTFE	553537
			Clamp ISO 2852					555120
			Clamp BS 4825					553537
65	0...4.80 m ³ /h	0...120 m ³ /h	DIN 11851	Stainless steel 304	Stainless steel 316L	FKM	PTFE	553532
			Clamp ISO 2852					554116
			Clamp BS 4825					553538
80	0...7.20 m ³ /h	0...180 m ³ /h	DIN 11851	Stainless steel 304	Stainless steel 316L	FKM	PTFE	555089
			Clamp ISO 2852					559434
			Clamp BS 4825					559791
100	0...11.20 m ³ /h	0...280 m ³ /h	DIN 11851	Stainless steel 304	Stainless steel 316L	FKM	PTFE	On request
			Clamp ISO 2852					On request
			Clamp BS 4825					On request

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DN [mm]	Flow rate range		Pipe connection	Material				Article no.
	Min. 0...0.4 m³/s	Max. 0...10 m³/s		Housing	Electrode ¹⁾	Seal	Lining	
Sensor Type S056, remote variant with junction box in stainless steel 304 (1.4301) polished and 10 m electrodes and coils cables (included)								
03	0...0.01 m³/h	0...0.25 m³/h	DIN 11851 Clamp ISO 2852 Clamp BS 4825	Stainless steel 304	Stainless steel 316L	FKM	PTFE	551506
								551501
								559787
06	0...0.04 m³/h	0...1 m³/h	DIN 11851 Clamp ISO 2852 Clamp BS 4825					551507
								551502
								559788
10	0...0.12 m³/h	0...3 m³/h	DIN 11851 Clamp ISO 2852 Clamp BS 4825					551508
								551503
								559759
15	0...0.24 m³/h	0...6 m³/h	DIN 11851 Clamp ISO 2852 Clamp BS 4825					551509
								551504
								554082
20	0...0.50 m³/h	0...12.5 m³/h	DIN 11851 Clamp ISO 2852 Clamp BS 4825					551510
								551505
								553925
25	0...0.72 m³/h	0...18 m³/h	DIN 11851 Clamp ISO 2852 Clamp BS 4825					448480
								448499
								559789
32	0...1.16 m³/h	0...29 m³/h	DIN 11851					448481
40	0...1.80 m³/h	0...45 m³/h	DIN 11851 Clamp ISO 2852 Clamp BS 4825	448482				
				448501				
				554147				
50	0...2.88 m³/h	0...72 m³/h	DIN 11851 Clamp ISO 2852 Clamp BS 4825	448483				
				448502				
				554138				
65	0...4.80 m³/h	0...120 m³/h	DIN 11851 Clamp ISO 2852 Clamp BS 4825	448484				
				448503				
				559790				
80	0...7.20 m³/h	0...180 m³/h	DIN 11851 Clamp ISO 2852 Clamp BS 4825	448485				
				448504				
				558854				
100	0...11.20 m³/h	0...280 m³/h	DIN 11851 Clamp ISO 2852 Clamp BS 4825	448486				
				448505				
				On request				

1) 2 measuring electrodes

Further variants on request	
Process connection SMS 1146 (from DN 10)	Material Seal: EPDM

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7.5. Ordering chart accessories

Accessories for remote sensor	No.	Description	Article no.
<p>Without junction box</p> <p>With junction box</p>	1	10 m cable for electrodes ¹⁾ For connecting the sensor (variant without junction box) Type S051, S054, S055 or S056 to the connecting box of the extension cable set	448518
	2	10 m cable for coils ¹⁾ For connecting the sensor (variant without junction box) Type S051, S054, S055 or S056 to the connecting box of the extension cable set	448519
	3	10 m cable for electrodes ¹⁾ For connecting <ul style="list-style-type: none"> the connecting box of the extension cable set to the transmitter Type SE58 the sensor (variant with junction box) Type S051, S054, S055 or S056 to the transmitter Type SE58 	562851
	4	10 m cable for coils ¹⁾ For connecting <ul style="list-style-type: none"> the connecting box of the extension cable set to the transmitter Type SE58 the sensor (variant with junction box) Type S051, S054, S055 or S056 to the transmitter Type SE58 	562852
	5	Connecting box of the extension cable set including resin	562853

1.) Cable lengths other than 10 m on request (for cables length > 20 m, a preamplifier is supplied for an additional charge).

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