

Flow Measurement

SITRANS FM (electromagnetic)

Flow sensors / SITRANS FM MAG 1100 F

Overview



The electromagnetic sensor SITRANS FM MAG 1100 F is designed to meet applications in the food and beverage industry.

Benefits

- Sensor sizes: DN 10 to DN 100 (3/8" to 4")
- AISI 316 stainless steel enclosure
- Sensor: Hygienic connection, 3A approval
- Sanitary design for CIP/SIP cleaning
- Easy commissioning, the SENSORPROM unit automatically updates settings
- Hose proof IP67/NEMA 6 enclosure rating
- Designed that patented in-situ verification can be conducted. Using SENSORPROM fingerprints.

Application

The main applications of the SITRANS FM electromagnetic sensors can be found in the following fields:

- Food industry
- Beverage industry
- Pharmaceutical industry

Design

- Unique mechanical design with a wide range of customer specified sanitary connection
- Compact or remote mounting possible easy "plug & play" field changeable
- Simple on-site upgrade to IP68/NEMA 6P terminal box
- ATEX 2G D version for hazardous areas (ceramic liner)

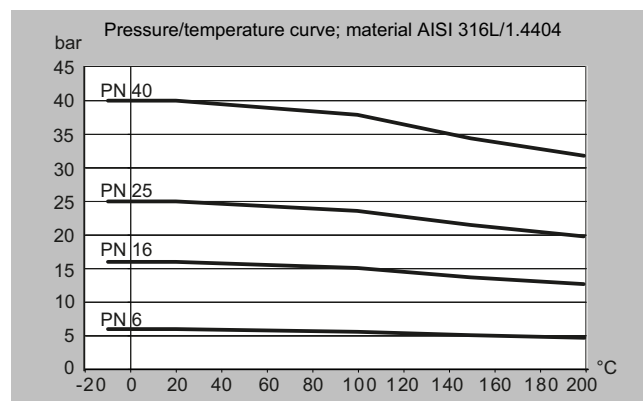
Mode of operation

The flow measuring principle is based on Faraday's law of electromagnetic induction according to which the sensor converts the flow into an electrical voltage proportional to the velocity of the flow.

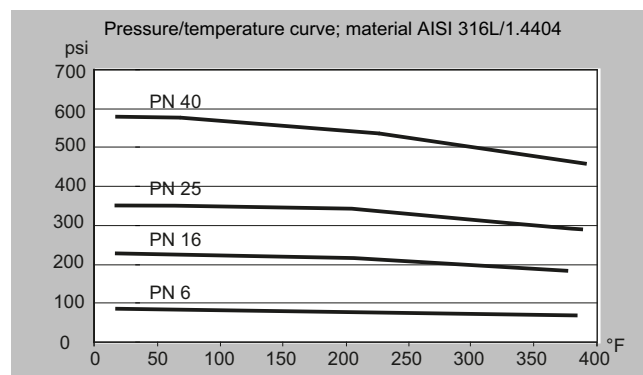
Integration

The complete flowmeter consists of a sensor and an associated transmitter SITRANS FM MAG 5000, 6000 and 6000 I. The flexible communication concept USM II simplifies integration and update to a variety of fieldbus systems such as PROFIBUS DP and PA, Modbus RTU/RS 485, HART, FOUNDATION Fieldbus H1, DeviceNet.

Pressure/temperature curve; material AISI 316L/1.4404



Pressure/temperature curve; material AISI 316L/1.4404



Selection and ordering data

| Sensor SITRANS FM MAG 1100 F | Article No. 7ME6140- |
|---|-------------------------|
| Click on the Article No. for the online configuration in the PIA Life Cycle Portal. | |
| Diameter | |
| DN 10 (3/8") | 1 R |
| DN 15 (1/2") | 1 V |
| DN 25 (1") | 2 D |
| DN 40 (1 1/2") | 2 R |
| DN 50 (2") | 2 Y |
| DN 65 (2 1/2") | 3 F |
| DN 80 (3") | 3 M |
| DN 100 (4") | 3 T |
| Process connections | |
| None (not suitable for 3A approval) | A |
| Weld in | |
| DIN 11850 | B |
| ISO 2037 (SMS 3008) | C |
| Tri-Weld/BS 4825-1 | D |
| Clamp type | |
| DIN 32676 | G |
| ISO 2852 (SMS 3016) | H |
| Tri-Clamp/BS 4825-3 | J |
| Threaded type | |
| DIN 11851 | M |
| SMS 1145 ¹⁾ | N |
| Liner material | |
| PFA | 1 |
| Ceramic | 2 |
| Gasket material¹⁾ | |
| EPDM flat gasket (3A) | 0 |
| FPM/FKM flat gasket (3A) (only with ceramic liner) | 2 |
| EPDM P gasket (3A) (only with PFA liner) | 3 |
| Electrode material | |
| Hastelloy C (only with PFA liner) | 1 |
| Platinum (only with ceramic liner) | 2 |
| Transmitter | |
| Standard sensor for remote transmitter (order transmitter separately), 3A approved | A |
| Ex sensor for remote transmitter (order transmitter separately), 3A approved | B |
| MAG 6000 I, Aluminum, 18 ... 90 V DC, 115 ... 230 V AC, FM / CSA Class I Div. 2 | C |
| MAG 6000 I, Aluminum, 18 ... 30 V DC, Ex | D |
| MAG 6000 I, Aluminum, 115 ... 230 V AC, Ex | E |
| MAG 6000 I, Aluminum, 18 ... 90 V DC, 115 ... 230 V AC (non-Ex) | F |
| MAG 6000, Polyamide, 11 ... 30 V DC/11 ... 24 V AC | H |
| MAG 6000, Polyamide, 115 ... 230 V AC | J |
| MAG 5000, Polyamide, 11 ... 30 V DC/11 ... 24 V AC | K |
| MAG 5000, Polyamide, 115 ... 230 V AC | L |
| Communication | |
| No communication, add-on possible | A |
| HART | B |
| PROFIBUS PA Profile 3 (only MAG 6000/MAG 6000 I) | F |
| PROFIBUS DP Profile 3 (not for Ex) (only MAG 6000/MAG 6000 I) | G |
| Modbus RTU/RS 485 (not for Ex) (only MAG 6000/MAG 6000 I) | E |
| FOUNDATION Fieldbus H1 (only MAG 6000/MAG 6000 I) | J |
| Cable glands/terminal box | |
| Metric: Polyamide terminal box or MAG 6000 I compact | 1 |
| 1/2" NPT: Polyamide terminal box or MAG 6000 I compact | 2 |
| Metric: Stainless steel terminal box | 3 |
| 1/2" NPT: Stainless steel terminal box | 4 |

¹⁾ SMS 1145 standard is not approved by 3A.

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Selection and ordering data (continued)


| Additional information | Order code |
|--|--------------------------|
| Please add "-Z" to Article No. and specify Order code(s) and plain text. | |
| Certificates | |
| Pressure test certificate according to EN 10204-3.1 | C01 |
| Material certificate according to EN 10204-3.1 | C12 |
| Factory certificate according to EN 10204-2.2 | C14 |
| Factory certificate according to EN 10204-2.1 | C15 |
| Country specific label | |
| CRN (Canadian Registration Number) | H25 |
| Terminal blocks | |
| Factory mounted terminal blocks | N02 |
| Tag name plate | |
| Tag name plate transmitter, stainless steel (specify in plain text) | Y15 |
| Tag name plate, stainless steel (specify in plain text) | Y17 |
| Tag name plate, plastic (self-adhesive) | Y18 |
| Device settings | |
| Customer-specific transmitter setting | Y20 |
| Factory mounted sensor cables | |
| Sensor cables wired | Y40 |
| Sensor cables wired and IP68 sealing | Y41 |
| Additional calibrations | |
| Matched-pair calibration | On request ¹⁾ |
| Accredited matched-pair calibration acc. to ISO/IEC 17025: 2005 | On request ¹⁾ |
| Customer-specified calibration up to 10 points | On request ¹⁾ |
| Customer-witnessed calibration (any of above calibration) | On request ¹⁾ |

¹⁾ Product Variation Request (PVR).

| Description | Article No. |
|-------------|-------------|
| • English | A5E02435647 |

All literature is available to download for free, in a range of languages, at www.siemens.com/processinstrumentation/documentation

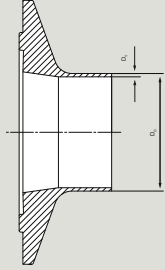
Accessories

| Description | Article No. | |
|--|--------------|---|
| Potting kit for IP68/ NEMA 6P sealing of sensor junction box | FDK:085U0220 |  |

Spare parts for MAG 1100 F sensor

| Description | Article No. |
|--|-------------|
| Weld-in connection fittings for use with P gaskets (stainless steel) Material: AISI 316L (1.4404) Only for PFA liner 2 pcs. fittings 2 pcs. clamps (to join flow sensor and fitting), P gaskets not included | |

Selection and ordering data (continued)

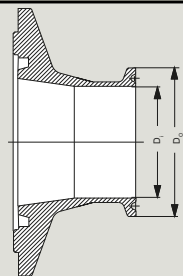
| Description | | | | Article No. |
|---|---------------------|---------------------|---------|---|
| DIN 11850 | | | |  |
| <u>Adapter</u> | | <u>Sensor</u> | | |
| DN (mm) | D ₀ (mm) | D _T (mm) | DN (mm) | |
| 10 | 13 | 1.5 | 10 | |
| 15 | 19 | 1.5 | 15 | |
| 20 | 23 | 1.5 | 15 | |
| 25 | 29 | 1.5 | 25 | |
| 32 | 35 | 1.5 | 25 | |
| 40 | 41 | 1.5 | 40 | |
| 50 | 53 | 1.5 | 50 | |
| 65 | 70 | 2.0 | 65 | |
| 80 | 85 | 2.0 | 80 | |
| 100 | 104 | 2.0 | 100 | |
| ISO 2037 | | | | |
| <u>Adapter</u> | | <u>Sensor</u> | | |
| DN (mm) | D ₀ (mm) | D _T (mm) | DN (mm) | |
| 12.7 | 12.7 | 1.0 | 10 | |
| 17.2 | 17.2 | 1.0 | 15 | |
| 25 | 25 | 1.6 | 25 | |
| 33 | 33.7 | 1.6 | 25 | |
| 38 | 38 | 1.6 | 40 | |
| 40 | 40 | 1.6 | 40 | |
| 51 | 51 | 1.6 | 50 | |
| 63.5 | 63.5 | 1.6 | 65 | |
| 76.1 | 76.1 | 1.6 | 80 | |
| 101.6 | 101.6 | 2.0 | 100 | |
| Tri-Weld (BS 4825-1) | | | | |
| <u>Adapter</u> | | <u>Sensor</u> | | |
| DN (mm) | D ₀ (mm) | D _T (mm) | DN (mm) | |
| 12.7 | 12.7 | 1.2 | 10 | |
| 19.05 | 19.05 | 1.2 | 15 | |
| 25.4 | 25.4 | 1.6 | 25 | |
| 38.1 | 38.1 | 1.6 | 40 | |
| 50.8 | 50.8 | 1.6 | 50 | |
| 63.5 | 63.5 | 1.6 | 65 | |
| 76.2 | 76.2 | 1.6 | 80 | |
| 101.6 | 101.6 | 2.0 | 100 | |
| Clamp-type connection fittings for use with P gaskets (stainless steel) | | | | |
| Material: AISI 316L (1.4404) Only for liner PFA 2 pcs. fittings 2 pcs. clamps (to join flow sensor and fitting), P gaskets not included | | | | |
| DIN 32676 | | <u>Sensor</u> | | |
| <u>Adapter</u> | | | | |

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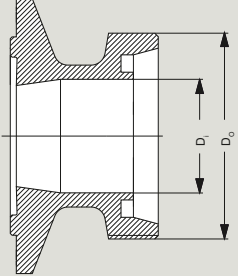
Selection and ordering data (continued)

| Description | | | | Article No. |
|------------------------------|---------------------|---------------------|---------------|---|
| DN (mm) | D _o (mm) | D _i (mm) | DN (mm) |  |
| 10 | 34 | 10 | 10 | |
| 15 | 34 | 16 | 15 | |
| 25 | 50.5 | 22.6 | 25 | |
| 40 | 50.5 | 38 | 40 | |
| 50 | 64 | 50 | 50 | |
| 65 | 91 | 66 | 65 | |
| 80 | 106 | 81 | 80 | |
| 100 | 119 | 100 | 100 | |
| ISO 2852 | | | | |
| Adapter | | | Sensor | |
| DN (mm) | D _o (mm) | D _i (mm) | DN (mm) | |
| 25 | 50.5 | 22.6 | 25 | A5E02213581 |
| 33.7 | 50.5 | 31.3 | 25 | A5E02213582 |
| 38 | 50.5 | 35.6 | 40 | A5E02213583 |
| 51 | 64 | 48.6 | 50 | A5E02213584 |
| 63.5 | 77.5 | 60.3 | 65 | A5E02213585 |
| 76.1 | 91 | 72.9 | 80 | A5E02213586 |
| 101.6 | 119 | 97.6 | 100 | A5E02213587 |
| Tri-Clamp (BS 4825-3) | | | | |
| Adapter | | | Sensor | |
| DN (mm) | D _o (mm) | D _i (mm) | DN (mm) | |
| 12.7 | 25.4 | 9.5 | 10 | A5E02213596 |
| 19.05 | 25.4 | 15.85 | 15 | A5E02213597 |
| 25.4 | 50.5 | 22.2 | 25 | A5E02213598 |
| 38.1 | 50.5 | 34.9 | 40 | A5E02213599 |
| 50.8 | 64 | 47.6 | 50 | A5E02213600 |
| 63.5 | 77.5 | 60.3 | 65 | A5E02213601 |
| 76.2 | 91 | 73 | 80 | A5E02213602 |
| 101.6 | 119 | 97.6 | 100 | A5E02213603 |

D_o: Outer diameterD_i: Inner diameter

| Description | Article No. |
|--|---------------|
| Threaded type connection fittings for use with P gaskets (stainless steel) Material: AISI 316L (1.4404) Only for PFA liner 2 pcs. fittings 2 pcs. clamps (to join flow sensor and fitting), P gaskets not included | |
| DIN 11851 Adapter | Sensor |

Selection and ordering data (continued)

| Description | | | | Article No. |
|-----------------|---------------------|---------------------|---------|--|
| DN (mm) | D _o (mm) | D _i (mm) | DN (mm) |  |
| 10 | 28 | 10 | 10 | |
| 15 | 34 | 16 | 15 | |
| 20 | 44 | 20 | 15 | |
| 25 | 52 | 26 | 25 | |
| 32 | 58 | 32 | 25 | |
| 40 | 65 | 38 | 40 | |
| 50 | 78 | 50 | 50 | |
| 65 | 95 | 66 | 65 | |
| 80 | 110 | 81 | 80 | |
| 100 | 130 | 100 | 100 | |
| SMS 1145 | | | |  |
| Adapter | | Sensor | | |
| DN (mm) | D _o (mm) | D _i (mm) | DN (mm) | |
| 25 | 40 | 22.6 | 25 | |
| 38 | 60 | 35.6 | 40 | |
| 51 | 70 | 48.6 | 50 | |
| 63.5 | 85 | 60.3 | 65 | |
| 76 | 98 | 72 | 65 | |

D_o: Outer diameter
D_i: Inner diameter

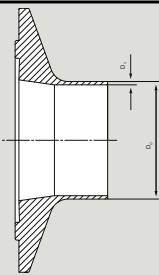
| Description | Article No. |
|---|---------------|
| Weld-in connection fittings for use with flat gaskets (stainless steel) Material: AISI 316L (1.4404) For PFA liner and ceramic 2 pcs. fittings 2 pcs. clamps (to join flow sensor and fitting), Flat gaskets not included | |
| DIN 11850¹⁾ Adapter | Sensor |

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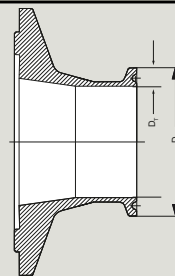
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Selection and ordering data (continued)

| Description | | | | Article No. | |
|--|---------------------|---------------------|---------------|---|--------------|
| DN (mm) | D _o (mm) | D _T (mm) | DN (mm) |  | |
| 10 | 13 | 1.5 | 10 | | FDK:083G2116 |
| 15 | 19 | 1.5 | 15 | | FDK:083G2117 |
| 20 | 23 | 1.5 | 15 | | FDK:083G2118 |
| 25 | 29 | 1.5 | 25 | | FDK:083G2119 |
| 32 | 35 | 1.5 | 25 | | FDK:083G2120 |
| 40 | 41 | 1.5 | 40 | | FDK:083G2121 |
| 50 | 53 | 1.5 | 50 | | FDK:083G2122 |
| 65 | 70 | 2.0 | 65 | | FDK:083G2123 |
| 80 | 85 | 2.0 | 80 | | FDK:083G2124 |
| 100 | 104 | 2.0 | 100 | | FDK:083G2125 |
| ISO 2037¹⁾ | | | | | |
| Adapter | | | Sensor | | |
| DN (mm) | D _o (mm) | D _T (mm) | DN (mm) | | |
| 12.7 | 12.7 | 1.0 | 10 | A5E03720273 | |
| 17.2 | 17.2 | 1.0 | 15 | FDK:083G2107 | |
| 25 | 25.6 | 1.6 | 25 | FDK:083G2109 | |
| 33.7 | 33.7 | 1.6 | 25 | FDK:083G2100 | |
| 38 | 38 | 1.6 | 40 | FDK:083G2111 | |
| 40 | 40 | 1.6 | 40 | FDK:083G2101 | |
| 51 | 51 | 1.6 | 50 | FDK:083G2112 | |
| 63.5 | 63.5 | 1.6 | 65 | FDK:083G2113 | |
| 76.1 | 76.1 | 1.6 | 80 | FDK:083G2114 | |
| 101.6 | 101.6 | 2.0 | 100 | FDK:083G2115 | |
| 114.3 | 118.3 | 2.0 | 100 | FDK:083G2105 | |
| Tri-Weld (BS 4825-1)¹⁾ | | | | | |
| Adapter | | | Sensor | | |
| DN (mm) | D _o (mm) | D _T (mm) | DN (mm) | | |
| 12.7 | 12.7 | 1.2 | 10 | FDK:083G2276 | |
| 19.05 | 19.05 | 1.2 | 15 | FDK:083G2277 | |
| 25.4 | 25.4 | 1.6 | 25 | FDK:083G2279 | |
| 38 | 38.1 | 1.6 | 40 | FDK:083G2281 | |
| 50.8 | 50.8 | 1.6 | 50 | FDK:083G2282 | |
| 63.5 | 63.5 | 1.6 | 65 | FDK:083G2283 | |
| 76.2 | 76.2 | 1.6 | 80 | FDK:083G2284 | |
| 101.6 | 101.6 | 2.0 | 100 | FDK:083G2285 | |

| Description | Article No. |
|--|-------------|
| Clamp-type connection fittings for use with flat gaskets (stainless steel) Material: AISI 316L (1.4404) For PFA liner and ceramic 2 pcs. fittings 2 pcs. clamps (to join flow sensor and fitting), Flat gaskets not included | |

Selection and ordering data (continued)

| Description | | | | Article No. |
|---|---------------------|---------------------|---------------|---|
| DIN 32676¹⁾ | | | | |
| <u>Adapter</u> | | | <u>Sensor</u> |  |
| DN (mm) | D _o (mm) | D _T (mm) | DN (mm) | |
| 10 | 34 | 10 | 10 | |
| 15 | 34 | 16 | 15 | |
| 25 | 50.5 | 26 | 25 | |
| 40 | 50.5 | 38 | 40 | |
| 50 | 64 | 50 | 50 | |
| 65 | 91 | 66 | 65 | |
| 80 | 106 | 81 | 80 | |
| 100 | 119 | 100 | 100 | |
| ISO 2852¹⁾ | | | | |
| <u>Adapter</u> | | | <u>Sensor</u> | |
| DN (mm) | D _o (mm) | D _T (mm) | DN (mm) | |
| 25 | 50.5 | 22.6 | 25 | |
| 33.7 | 50.5 | 31.3 | 25 | |
| 38 | 50.5 | 35.6 | 40 | |
| 51 | 64 | 48.6 | 50 | |
| 63.5 | 77.5 | 60.3 | 65 | |
| 76.1 | 91 | 72.9 | 80 | |
| 101.6 | 119 | 97.6 | 100 | |
| Tri-Clamp (BS 4825-3)¹⁾ | | | | |
| <u>Adapter</u> | | | <u>Sensor</u> | |
| DN (mm) | D _o (mm) | D _T (mm) | DN (mm) | |
| 12.7 | 25.4 | 9.5 | 10 | |
| 19.05 | 25.4 | 15.85 | 15 | |
| 25.4 | 50.5 | 22.2 | 25 | |
| 38.1 | 50.5 | 34.9 | 40 | |
| 50.8 | 64 | 47.6 | 50 | |
| 63.5 | 77.5 | 60.3 | 65 | |
| 76.2 | 91 | 73 | 80 | |
| 101.6 | 119 | 97.6 | 100 | |

D_o: Outer diameterD_i: Inner diameter¹⁾ Suitable for 3A

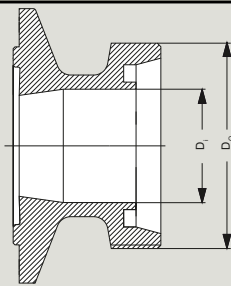
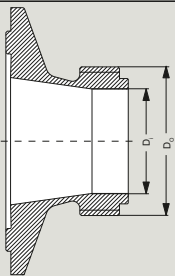
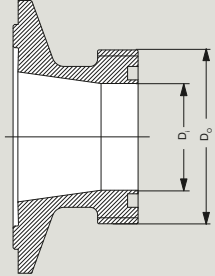
| Description | Article No. |
|---|---------------|
| Threaded type connection fittings for use with flat gaskets (stainless steel) Material: AISI 316L (1.4404) For PFA liner and ceramic 2 pcs. fittings 2 pcs. clamps (to join flow sensor and fitting), Flat gaskets not included | |
| DIN 11851¹⁾ <u>Adapter</u> | <u>Sensor</u> |

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Selection and ordering data (continued)

| Description | | | | Article No. |
|-------------------------------|---------------------|---------------------|---------|---|
| DN (mm) | D _o (mm) | D _i (mm) | DN (mm) |  |
| 10 | 28 | 10 | 10 | FDK:083G2156 |
| 15 | 34 | 16 | 15 | FDK:083G2157 |
| 20 | 44 | 20 | 15 | FDK:083G2158 |
| 25 | 52 | 26 | 25 | FDK:083G2159 |
| 32 | 58 | 32 | 25 | FDK:083G2160 |
| 40 | 65 | 38 | 40 | FDK:083G2161 |
| 50 | 78 | 50 | 50 | FDK:083G2162 |
| 65 | 95 | 66 | 65 | FDK:083G2163 |
| 80 | 110 | 81 | 80 | FDK:083G2164 |
| 100 | 130 | 100 | 100 | FDK:083G2165 |
| ISO 2853¹⁾ | | | | |
| Adapter | | Sensor | |  |
| DN (mm) | D _o (mm) | D _i (mm) | DN (mm) | |
| 25 | 37 | 22.6 | 25 | FDK:083G2149 |
| 38 | 51 | 35.6 | 40 | FDK:083G2151 |
| 51 | 64 | 48.6 | 50 | FDK:083G2152 |
| 63.5 | 78 | 60.3 | 65 | FDK:083G2153 |
| 76.1 | 91 | 72.9 | 80 | FDK:083G2154 |
| BS 4825-4¹⁾ | | | | |
| Adapter | | Sensor | | |
| DN (mm) | D _o (mm) | D _i (mm) | DN (mm) | |
| 101.6 | 126 | 97.6 | 100 | FDK:083G2145 |
| SMS 1145²⁾ | | | | |
| Adapter | | Sensor | |  |
| DN (mm) | D _o (mm) | D _i (mm) | DN (mm) | |
| 25 | 40 | 22.6 | 25 | FDK:083G2139 |
| 38 | 60 | 35.6 | 40 | FDK:083G2141 |

Selection and ordering data (continued)

| Description | | | | Article No. |
|-------------|----|------|----|--------------|
| 51 | 70 | 48.6 | 50 | FDK:083G2142 |
| 63.5 | 85 | 60.3 | 65 | FDK:083G2143 |
| 76 | 98 | 72 | 65 | FDK:083G2144 |

D_o: Outer diameterD_i: Inner diameter

1) Suitable for 3A

2) Not suitable for 3A

Accessories for MAG 1100 F sensor

| Description | Article No. |
|--|--------------|
| Gaskets (delivered in pairs, to be placed between flow sensor and adapter) | |
| <u>MAG 1100 F (PFA) - P gaskets</u> | |
| Rubber: EPDM ¹⁾ | |
| • DN 10 | A5E02055286 |
| • DN 15 | A5E02055287 |
| • DN 25 | A5E02055290 |
| • DN 40 | A5E02055291 |
| • DN 50 | A5E02055292 |
| • DN 65 | A5E02055293 |
| • DN 80 | A5E02055295 |
| • DN 100 | A5E02055297 |
| <u>MAG 1100 F (ceramic) - Flat gaskets</u> | |
| Rubber: FKM/FPM | |
| • DN 10 | A5E00915707 |
| • DN 15 | A5E00915764 |
| • DN 25 | A5E00915771 |
| • DN 40 | A5E00915773 |
| • DN 50 | A5E00915775 |
| • DN 65 | A5E00915780 |
| • DN 80 | A5E00915782 |
| • DN 100 | A5E00915784 |
| <u>MAG 1100 F (PFA, ceramic) - Flat gaskets</u> | |
| Rubber: EPDM | |
| • DN 10 | FDK:083G2206 |
| • DN 15 | FDK:083G2207 |
| • DN 25 | FDK:083G2209 |
| • DN 40 | FDK:083G2211 |
| • DN 50 | FDK:083G2212 |
| • DN 65 | FDK:083G2213 |
| • DN 80 | FDK:083G2214 |
| • DN 100 | FDK:083G2215 |
| Rubber: NBR | |
| • DN 10 | FDK:083G2216 |
| • DN 15 | FDK:083G2217 |
| • DN 25 | FDK:083G2219 |
| • DN 40 | FDK:083G2221 |
| • DN 50 | FDK:083G2222 |
| • DN 65 | FDK:083G2223 |
| • DN 80 | FDK:083G2224 |

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Selection and ordering data (continued)

| Description | Article No. |
|-------------|--------------|
| • DN 100 | FDK:083G2225 |

¹⁾ Suitable for 3A

Technical specifications

| MAG 1100 F | |
|--|--|
| Measuring principle | Electromagnetic induction |
| Excitation frequency (Mains supply: 50 Hz/60 Hz) | DN 10 ... 65 (¼" ... 2½"): 12.5 Hz/15 Hz DN 80 ... 100 (3", 4"): 6.25 Hz/7.5 Hz |
| Process connection | |
| Nominal size | DN 10 ... 100 (3/8" ... 4") |
| Process connection | Hygienic adapters available for: <ul style="list-style-type: none"> • Direct welding onto pipe • Clamp fitting • Threaded fitting |
| Rated operating conditions | |
| Ambient conditions | |
| Ambient temperature | |
| • Sensor | -40 ... +100 °C (-40 ... +212 °F) |
| • Ex sensor | -20 ... +60 °C (-4 ... +140 °F) |
| • Compact with transmitter MAG 5000/6000 | -20 ... +60 °C (-4 ... +140 °F) |
| • Compact with transmitter MAG 6000 I ¹⁾ | -20 ... +60 °C (-4 ... +140 °F) |
| • Compact with transmitter MAG 6000 I Ex ¹⁾ | -10 ... +60 °C (14 ... 140 °F) |
| Temperature of medium | |
| MAG 1100 F (Ceramic) | -20 ... +150 °C (-4 ... +302 °F) Suitable for steam sterilization |
| MAG 1100 F (PFA) | -30 ... +130 °C (-22 ... +266 °F) Suitable for steam sterilization at 150 °C (302 °F) |
| Temperature shock | |
| MAG 1100 F | |
| • Duration ≤ 1 min, followed by 10 min rest | <ul style="list-style-type: none"> • DN 10, 15, 25: Max. ΔT ≤ 80 °C/min (3/8", ½", 1": Max. ΔT ≤ 144 °F/min) • DN 40, 50, 65: Max. ΔT ≤ 70 °C/min (1½", 2", 2½": Max. ΔT ≤ 126 °F/min) • DN 80, 100: Max. ΔT ≤ 60 °C/min (3", 4": Max. ΔT ≤ 108 °F/min) |
| MAG 1100 F (PFA) | Max. ± 100 °C (212 °F) momentarily |
| Operating pressure | |
| MAG 1100 F (Ceramic) | DN 10 ... 65: 40 bar (3/8" ... 2½": 580 psi) DN 80: 25 bar (3": 363 psi) DN 100: 25 bar (4": 363 psi) |
| MAG 1100 F (PFA) | Vacuum: 1 x 10 ⁻⁶ bar _{abs} (1.5 x 10 ⁻⁵ psi _{abs}) 20 bar (290 psi) Vacuum: 0.02 bar _{abs} (0.3 psi _{abs}) DN 80 ... DN 100: CO ₂ pressure max. 7 bar (101.5 psi) |
| Mechanical load (vibration) | |
| | 18 ... 1 000 Hz random in x, y, z, directions for 2 hours according to EN 60068-2-36 Sensor: 3.17 g RMS Sensor with compact MAG 5000/6000 mounted transmitter: 3.17 grms Sensor with compact MAG 6000 I/MAG 6000 I Ex mounted transmitter: 1.14 grms |

Technical specifications (continued)

| MAG 1100 F | |
|---|--|
| Mechanical load (vibration) | For compact installation with the MAG 6000 I/MAG 6000 I Ex, transmitter to be supported to avoid tension on sensor part. |
| Enclosure rating | IP67 to EN 60529 (NEMA 6), 1 mH ₂ O for 30 min |
| EMC | 2014/30/EU |
| Design | |
| Weight | See Dimensional drawings |
| Material | |
| Enclosure | |
| • MAG 1100 F | Stainless steel AISI 316L/1.4404 |
| Terminal box (remote version only) | |
| • Standard | Fibre glass reinforced polyamide |
| • Option | Stainless steel AISI 316/1.4436 |
| • Ex ATEX (remote version only) | Stainless steel AISI 316/1.4436 |
| Liner | |
| MAG 1100 F (Ceramic) | Aluminum oxide Al ₂ O ₃ (ceramics) |
| MAG 1100 F (PFA) | Reinforced PFA (teflon) (not for Ex) |
| Electrodes | |
| MAG 1100 F (Ceramic) | Platinum with gold/Titanium brazing alloy |
| MAG 1100 F (PFA) | <ul style="list-style-type: none"> • DN 10 ... 15 (3/8" ... ½"): Hastelloy C276/2.4819 • DN 25 ... 100 (1" ... 4"): Hastelloy C22/2.4602 |
| Cable entries | <ul style="list-style-type: none"> • Remote installation 2 x M20 or 2 x ½" NPT • Compact installation - MAG 5000/MAG 6000: 4 x M20 or 4 x ½" NPT - MAG 6000 I: 2 x M25 (for supply/output) - MAG 6000 I Ex: 2 x M25 (for supply/output) |
| Certificates and approvals | |
| Calibration | <ul style="list-style-type: none"> • Default calibration Zero-point, 2 x 25 %, 2 x 90 % |
| Hazardous areas | |
| • MAG 1100 F (Ceramic) | |
| - Ex-sensor in compact or remote version with MAG 6000 I Ex | <ul style="list-style-type: none"> • ATEX, EAC Ex - Zone 1 Ex d e ia IIB T6 Gb • ATEX - Zone 21 Ex tD A21 IP67 |
| - Standard sensor in compact or remote version with MAG MAG 5000/6000/6000 I Ex | <ul style="list-style-type: none"> • FM - NI Class I Div. 2 Groups A, B, C, D |
| • MAG 1100 F (PFA) | |
| - Standard sensor in compact or remote version with MAG MAG 5000/6000/6000 I Ex | <ul style="list-style-type: none"> • FM - NI Class I Div. 2 Groups A, B, C, D |

Technical specifications (continued)

| MAG 1100 F | |
|------------------------|--|
| Hygienic | |
| • MAG 1100 F (Ceramic) | • 3A (remote version with Polyamide terminal box) |
| • MAG 1100 F (PFA) | • 3A (remote version with Polyamide terminal box) |
| | • Hygienic EC 1935:2004 European food contact material |
| Pressure equipment | PED - 2014/68/EU |
| Others | • EAC (Kazakhstan) |

Accessories for MAG 1100 F

| Weld-in adapter | |
|--|--|
| Adapter for welding onto dairy pipe, stainless steel 1.4404 | Tri-Weld ISO 2037, DIN 11850, SMS 3008, BS 4825-1 |
| • DN 10, 15, 25, 40, 50 and 65 (3/8", 1/2", 1", 1 1/2", 2" and 2 1/2") | PN 40 (600 psi) |
| • DN 8 and DN 100 (3" and 4") | PN 25 (350 psi) |
| Clamp adapter | |
| DN 10, 15, 25, 40 and 50 (3/8", 1/2", 1", 1 1/2" and 2") | Tri-Clamp, ISO 2852, DIN 32676, SMS 3016, BS 4825-3 |
| DN 65, 80 and 100 (2 1/2", 3" and 4") | PN 16 (200 psi) |
| | PN 10 (150 psi) |
| Thread adapter | |
| DIN 11851 | |
| • DN 10, 15, 25, and 40 (3/8", 1/2", 1", and 1 1/2") | PN 40 (600 psi) |
| • DN 50, 65, 80 and 100 (2", 2 1/2", 3" and 4") | PN 25 (350 psi) |
| ISO 2853, BS 4825-4 | |
| • DN 10, 15, 25, 40, 50, 65 and 80 (3/8", 1/2", 1", 1 1/2", 2", 2 1/2" and 3") | PN 16 (200 psi) |
| SMS 1145 | |
| • DN 25, 40, 50, 65 and 80 (1", 1 1/2", 2", 2 1/2" and 3") | PN 6 (80 psi) |
| Design | |
| Material | |
| Adapter | Stainless steel AISI 316/1.4436 |
| Gasket | |
| • MAG 1100 F (Ceramic) | FKM/FPM with stainless steel insert (AISI 304/1.4301) (-20 ... +150 °C (-4 ... +302 °F)) |
| | EPDM (-20 ... +150 °C (-4 ... +302 °F)) |
| • MAG 1100 F (PFA) | EPDM (-20 ... +150 °C (-4 ... +302 °F)) |
| | NBR (-20 ... +100 °C (-4 ... +212 °F)) |

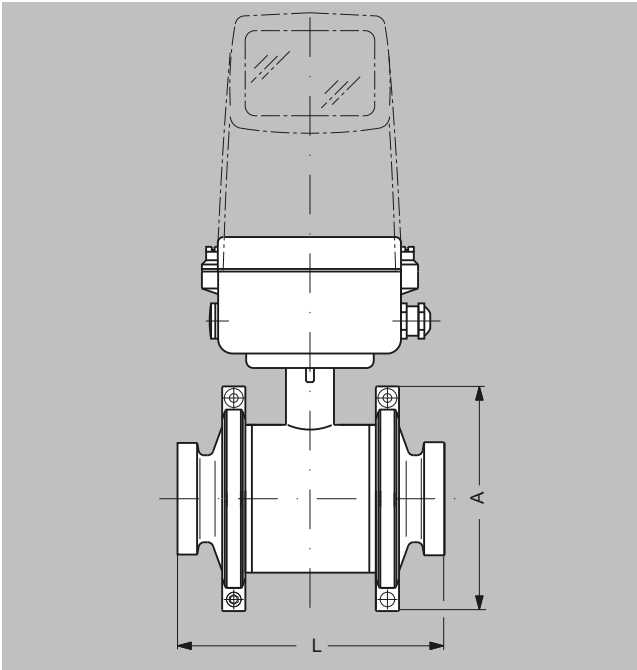
¹⁾ With HART communication max. ambient temperature 50 °C (122 °F).

Note:

When combined sensor and adapter, the operating pressure is the lower rated of the pair.

Dimensional drawings (continued)

Sensor MAG 1100 F compact/separate – built-in length



| Size | | A | | L ¹⁾ | |
|------|--------|------|--------|-----------------|--------|
| DN | [Inch] | [mm] | [inch] | [mm] | [inch] |
| 10 | 3/8 | 99 | 3.90 | 146 | 5.75 |
| 15 | 1/2 | 99 | 3.90 | 146 | 5.75 |
| 25 | 1 | 113 | 4.45 | 161 | 6.34 |
| 40 | 1½ | 126 | 4.96 | 176 | 6.93 |
| 50 | 2 | 154 | 6.06 | 186 | 7.32 |
| 65 | 2½ | 165 | 6.50 | 223 | 8.78 |
| 80 | 3 | 200 | 7.87 | 258 | 10.16 |
| 100 | 4 | 225 | 8.86 | 288 | 11.34 |

¹⁾ The total built-in length "L" is independent of the adapter type selected.