

Flow Measurement

SITRANS F X

SITRANS FX300

Overview



SITRANS F X vortex flowmeters provide accurate volumetric and mass flow measurement of steam, gases and liquids as an all-in-one solution with integrated temperature and pressure compensation.

Benefits

- 2-wire technology with HART communication
- Integrated temperature compensation for saturated steam as standard feature
- Integrated temperature and pressure compensation enabling direct measurement of mass, standard volume flow rate and energy
- One instrument for measuring pressure, temperature and flow. No additional installation of pressure and temperature sensors
- Maximum process reliability thanks to Intelligent Signal Processing (ISP) - stable readings, free of external disturbances
- Fully welded stainless steel construction with high corrosion, pressure and temperature resistance
- Maintenance-free design
- Ready to use due to plug & play feature
- Minimal pressure drop
- Compact or remote design
- Free Air Delivery (FAD) measurement of a compressor






Application

The SITRANS FX300 is a flowmeter in a single or dual transmitter version, suitable for measuring industrial steam, gases, as well as conductive and non-conductive liquids, e.g. steam (saturated steam, superheated steam), industrial gases (compressed air, nitrogen, liquefied gases, flue gases), and conductive and non-conductive liquids (demineralized water, boiler feed water, solvents, heat transfer oil).

The main applications of SITRANS FX300 can be found in the following sectors:

- Chemical
- Petrochemical
- Oil & Gas
- Power plants
 - Air
 - Heating
 - Cooling
 - Chilling
- Food & beverage
 - Pharmaceutical
 - Sugar refineries
 - Dairies
 - Breweries
 - Production of soft drinks
- Pulp & paper
- Water & waste water

System Overview

| Version | Flange | Sandwich | Dual transmitter |
|---------|--|---|---|
| Compact |  |  |  |
| Remote |  |  | |

Design

SITRANS FX300 vortex flowmeters are available in the following variants:

SITRANS FX300 Single transmitter

The single transmitter variant exists in flange or sandwich design. In flange design the SITRANS FX300 offers a sensor with integrated nominal diameter reduction up to two nominal diameter sizes. That ensures best results in accuracy and optimal measuring ranges even in pipelines with large diameters, designed for low pressure loss. By forgoing complex pipeline reduction installations, space and cost saving installations can be realized. At the same time the number of potential leakages is reduced to a minimum.

The flowmeters in sandwich design will be supplied with additional optimised centring rings. With installation of the centring rings the SITRANS FX300 can be aligned centrally and eliminates any offset between the sensor and the pipeline.

The SITRANS FX300 is also available as a remote version. This feature allows separating the transmitter from the sensor up to a distance of 15m (49 ft). The remote mounted transmitter allows easy operation and optimal readability.

The following configurations can be selected for the single transmitter variant:

- **Basic version**
Suitable for liquids and gases, integrated temperature compensation included as standard for saturated steam
- **With integrated pressure compensation**
Version with integrated temperature and pressure compensation for gases, wet gases, gas mixtures or steam (energy measurement optional)
- **With integrated pressure compensation and isolation valve**
Allowing the pressure sensor to be shut off for the purpose of pressure and leak testing of the pipeline or for being exchanged without interrupting the process.
- **Remote version**
With this version transmitter and sensor are locally separated. In addition, it offers the same the features as the compact version (integrated temperature and pressure compensation, isolation valve).

SITRANS FX300 Dual transmitter

This is a genuine redundant system with two independent sensors and transmitters providing twofold functional reliability and availability of the measurement. This variant is optimally suited for measurements in multi-product pipelines.

The dual transmitter version is available as:

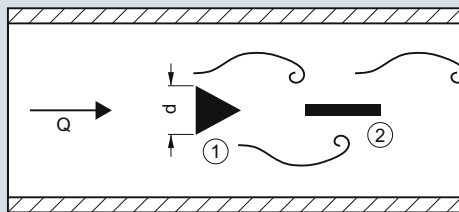
- **Basic version**
Suitable for liquids and gases, temperature compensation integrated as standard for saturated steam

Function

Operating Principle

SITRANS F X vortex flowmeters measure flow rate by detecting the frequency at which alternating vortices are shed from a bluff body inserted into the flow stream. This principle of measurement is derived from the Karman phenomenon of vortex shedding. The frequency of the alternating vortices is proportional to the flow rate.

The passage of a vortex causes a slight stress on a pick-up sensor placed downstream of the bluff body. The stress is detected by piezo-electric crystals placed inside the pick-up sensor.



① = Bluff Body, ② = Pick-up

The flowmeter calculates the flow velocity using the following equation:

$$Q = A \cdot V = A \cdot d / St \cdot f = 101.93 \cdot f / K \text{ [m}^3\text{/h]}$$

Where:

- Q = flow rate [m³/h]
- f = vortex shedding frequency [Hz]
- K = calibration constant [pulses/m³]
- d = width of the bluff body [m]
- St = Strouhal Number
- A = cross-section area [m²]
- V = flow velocity [m/s]

Requirements

In order to generate the vortex streets, the medium must have a minimum velocity:

- For steam and gases, the flow velocity must be 2 to 80 m/s (6.6 to 262 ft/s)
- For liquids the flow velocity must be 0.4 to 10 m/s (1.3 to 32.8 ft/s)

Technical specifications

| Input | |
|---|---|
| Measuring range limits | See „Dimensional Drawings“ |
| Media pressure | 1 ... 100 bar (14.5 ... 1450 psi) (Higher pressures on request) |
| Output | |
| Current output | |
| • Measuring range | 4 ... 20 mA |
| • Over range | 20.8 mA ± 1 % (105 % ± 1 %) |
| • Load | |
| - min. | 100 Ω |
| - max. | $R_{\max} = (U_{\text{Power Supply}} - 14 \text{ V}) / 22 \text{ mA}$ |
| • Error signal | NAMUR NE 43 |
| • Maximum output | 22 mA (112.5 %) |
| • Multidrop mode | 4 mA |
| Digital output | |
| • Communication | HART |
| • Physical layer | FSK |
| • Device category | Transmitter |
| Pulse output | |
| Passive pulse output, setting pulse value (meter factor) for totalized flow or heat quantity (energy) with option Y47 (e.g.: 1 pulse/kg or 1 pulse/kWh) | |
| • Pulse frequency | Max. 0.5 Hz |
| • Power supply | Min. 24 V DC as NAMUR or |
| • Non-Ex version | open < 1 mA, max. 36 V, closed 100 mA, U < 2 V |
| • Ex version | open < 1 mA, max. 30 V, closed 100 mA, U < 2 V |
| Accuracy | |
| Standard version | |
| • For liquids | |
| - Re ≥ 20 000 | ± 0.75 % |
| • For steam and gases | |
| - Re ≥ 20 000 | ± 1 % |
| • For steam, gases and liquids | |
| - 10 000 < Re < 20 000 | ± 2 % |
| Pressure and temperature-compensated version | |
| • For liquids | |
| - 10 000 < Re < 20 000 | ± 2 % |
| - Re ≥ 20 000 | ± 0.75 % |
| • For gases and steam | |
| - 10 000 < Re < 20 000 | ± 2.5 % |
| - Re ≥ 20 000 | ± 1.5 % |
| Repeatability | ± 0.1 % |
| Installation conditions | |
| (At different conditions, e.g. installation after control valve, bends or reductions, please refer to the operating instructions.) | |
| • Inlet run | ≥ 20 x DN |
| • Outlet run | ≥ 5 x DN |

Flow Measurement

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Software

| | |
|---|--|
| Uncompensated for liquids and gases, density-compensated by temperature for saturated steam | Order option 1 |
| Density-compensated by temperature and pressure for superheated steam | Order option 4 |
| Gross heat meter | |
| When the thermal energy of steam is to be measured | Order option 5 |
| Following information is required at option Y51 to Y56 | <ul style="list-style-type: none"> • Y51 Variable current output: Flow rate, power • Y52 Power unit Select one of the following units: kJ/h, MJ/h, GJ/h, Btu/h, kcal/h, kW, MW or special (custom) • Y53 Fullscale value power • Y54 Variable pulse output: Totalized flow, energy • Y55 Totalizer on/off • Y56 Energy unit Select one of the following units: kJ, MJ, GJ, Btu th, kcal, kWh, MWh or special (custom). |
| Density compensated by temperature and pressure for gases, wet gases | Order option 7 |
| Wet gases | Select Y49 and enter relative humidity of process medium in % |
| FAD - Free Air Delivery | |
| When the delivered air of a compressor is to be measured | Order option 8 |
| In Y81 to Y87 add information regarding: | <ul style="list-style-type: none"> • Y81 Inlet suction temperature • Y82 Atmospheric pressure • Y83 Pressure drop at inlet suction filter • Y84 Inlet relative humidity • Y85 Actual compressor rotation (rpm) • Y86 Rated compressor rotation (rpm) • Y87 Relative humidity at compressor output |
| Mixed gases | When fluid is a gas mixture, specify the single gas components and their amount/concentration in %. |
| Rated operation conditions | |
| Ambient temperature | |
| • Non-Ex version | -40 ... +85 °C (-40 ... +185 °F) |
| • Ex version | -40 ... +65 °C (-40 ... +149 °F) |
| Storage temperature | -50 ... +85 °C (-58 ... +185 °F) |
| Media temperature | -40 ... +240 °C (-40 ... +464 °F) |
| Density | Taken into consideration when dimensioning |
| Viscosity | <10 cP |
| Reynolds number | 10 000 ... 2 300 000 |
| Media pressure limit | Max. 100 bar (1450 psi) Higher pressure on request (contact your local Siemens representative) |

Design

| | |
|--|---|
| Material | |
| • Sensor/Pick-up | AISI 316L (1.4404)/ AISI 316L (1.4435) |
| | Hastelloy C22/2.4602 available on request (contact your local Siemens representative) |
| • Transmitter housing | Aluminum |
| • Sensor gaskets (Pick-up/Pressure sensor) | AISI 316L (1.4435) / FPM or FFKM |
| | FPM (Viton) for steam and non-aggressive gases. FFKM (Kalrez) for chlorine and other aggressive gases. (The meter is fitted with FPM/FFKM gasket only when configured with pressure sensor) |
| Process connections | Flange norm EN 1092-1 form B1/B2 or ANSI B16.5 RF. Other flanges on request (contact your local Siemens representative) |
| • Flange version | DN 15 ... 300 (½ ... 12") |
| • Sandwich version | DN 15 ... 100 (½ ... 4") |
| Degree of protection | IP66/IP67 |
| Dimensions and weights | See "Dimensional Drawings" |
| Display and operating interface | |
| Local display | 2 lines, 10 characters per line |
| Languages | German, English, French |
| Power supply | |
| • Standard version | 14 ... 36 V DC |
| • Ex version | 14 ... 30 V DC |
| Certificates and approvals | |
| Explosion protection | |
| • ATEX | II 2G EEx d ia [ia] IIC T6 |
| • FM US/C | Class I, II, III, Div. 1 and 2 |
| Calibration | All flowmeters will be delivered with a 3 point calibration certificate |
| Material Certificate | Certificate of compliance, pressure test, material certificate, material in acc. of NACE and PMI of pressure bearing metal parts. |
| Cleaning | Choose Cleaning Class1 when fluid is oxygen or contains chloride. |
| Certificates | X-ray and dye penetration test on pressure bearing weldings |

Valid combinations of sensor/connections size with flange norm/nominal pressure are shown in the following table.

| Sensor size | Connection size | EN 1092-1, Form B1/B2, PN 10 | EN 1092-1, Form B1/B2, PN 16 | EN 1092-1, Form B1/B2, PN 25 | EN 1092-1, Form B1/B2, PN 40 | EN 1092-1, Form B1/B2, PN 63 | EN 1092-1, Form B1/B2, PN 100 | ANSI B16.5, class 150 | ANSI B16.5, class 300 | ANSI B16.5, class 600 |
|--|-----------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|-----------------------|-----------------------|-----------------------|
| SITRANS FX Flanged - Single transmitter (7ME2600-...) | | | | | | | | | | |
| DN 15 | DN 15 | - | - | - | ● | - | ● | ● | ● | ● |
| | DN 25 | - | - | - | ● | - | ● | ● | ● | ● |
| | DN 40 | - | - | - | ● | - | ● | ● | ● | ● |
| DN 25 | DN 25 | - | - | - | ● | - | ● | ● | ● | ● |
| | DN 40 | - | - | - | ● | - | ● | ● | ● | ● |
| | DN 50 | - | ● | - | ● | ● | ● | ● | ● | ● |
| DN 40 | DN 40 | - | - | - | ● | - | ● | ● | ● | ● |
| | DN 50 | - | ● | - | ● | ● | ● | ● | ● | ● |
| | DN 80 | - | ● | - | ● | ● | ● | ● | ● | ● |
| DN 50 | DN 50 | - | ● | - | ● | ● | ● | ● | ● | ● |
| | DN 80 | - | ● | - | ● | ● | ● | ● | ● | ● |
| | DN 100 | - | ● | - | ● | ● | ● | ● | ● | ● |
| DN 80 | DN 80 | - | ● | - | ● | ● | ● | ● | ● | ● |
| | DN 100 | - | ● | - | ● | ● | ● | ● | ● | ● |
| | DN 150 | - | ● | - | ● | ● | ● | ● | ● | ● |
| DN 100 | DN 100 | - | ● | - | ● | ● | ● | ● | ● | ● |
| | DN 150 | - | ● | - | ● | ● | ● | ● | ● | ● |
| | DN 200 | ● | ● | ● | ● | - | - | ● | ● | - |
| DN 150 | DN 150 | - | ● | - | ● | ● | ● | ● | ● | ● |
| | DN 200 | ● | ● | ● | ● | - | - | ● | ● | - |
| | DN 250 | ● | ● | ● | ● | - | - | ● | ● | - |
| DN 200 | DN 200 | ● | ● | ● | ● | - | - | ● | ● | - |
| | DN 250 | ● | ● | ● | ● | - | - | ● | ● | - |
| | DN 300 | ● | ● | ● | ● | - | - | ● | ● | - |
| DN 250 | DN 250 | ● | ● | ● | ● | - | - | ● | ● | - |
| | DN 300 | ● | ● | ● | ● | - | - | ● | ● | - |
| DN 300 | DN 300 | ● | ● | ● | ● | - | - | ● | ● | - |

● available
- not available

Flow Measurement

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| Selection and Ordering data | | Article No. | Ord. code |
|---|---|--|-----------|
| SITRANS FX300 Flanged Single transmitter and T_{max} = 240 °C (464 °F) | | 7ME2600- | |
| Click on the Article No. for the online configuration in the PIA Life Cycle Portal. | | | |
| Sensor size | Connection size | | |
| DN 15 (½") | DN 15 (½") DN 25 (1") DN 40 (1½") | 1 A 1 B 1 C | |
| DN 25 (1") | DN 25 (1") DN 40 (1½") DN 50 (2") | 2 B 2 C 2 D | |
| DN 40 (1½") | DN 40 (1½") DN 50 (2") DN 80 (3") | 2 K 2 L 2 M | |
| DN 50 (2") | DN 50 (2") DN 80 (3") DN 100 (4") | 2 R 2 S 2 T | |
| DN 80 (3") | DN 80 (3") DN 100 (4") DN 150 (6") | 3 L 3 M 3 R | |
| DN 100 (4") | DN 100 (4") DN 150 (6") DN 200 (8") | 3 S 3 T 3 Q | |
| DN 150 (6") | DN 150 (6") DN 200 (8") DN 250 (10") | 4 M 4 P 4 Q | |
| DN 200 (8") | DN 200 (8") DN 250 (10") DN 300 (12") | 4 T 4 U 4 V | |
| DN 250 (10") | DN 250 (10") DN 300 (12") | 4 W 4 Y | |
| DN 300 (12") | DN 300 (12") | 5 E | |
| Flange norm and nominal pressure | | | |
| Form B1/B2 | EN 1092-1 | | |
| PN 10 | DN 200 ... 300 | A | |
| PN 16 | DN 50 ... 300 | B | |
| PN 25 | DN 200 ... 300 | C | |
| PN 40 | DN 15 ... 300 | D | |
| PN 63 | DN 50 ... 150 | E | |
| PN 100 | DN 15 ... 150 | F | |
| RF | ANSI B16.5 | | |
| class 150 | ½ ... 12" | J | |
| class 300 | ½ ... 12" | K | |
| class 600 | ½ ... 6" | L | |
| Sensor material/Gasket | | | |
| St. steel AISI 316L (1.4404)/AISI 316L (1.4435)/FPM | | 1 | |
| St. steel AISI 316L (1.4404)/AISI 316L (1.4435)/FFKM | | 5 | |
| Transmitter design | | | |
| Compact version - no cable | | 1 | |
| Remote version: | | | |
| 5 m (16.4 ft) | | 2 | |
| 10 m (32.8 ft) | | 3 | |
| 15 m (49.2 ft) | | 4 | |

| Selection and Ordering data | | Article No. | Ord. code |
|---|--|-----------------|--------------|
| SITRANS FX300 Flanged Single transmitter and T_{max} = 240 °C (464 °F) | | 7ME2600- | |
| Approval and cable gland | | | |
| Non-Ex, M20 x 1.5 | | 1 | |
| Non-Ex, ½" NPT | | 2 | |
| FM approval Class 1 Div. 2, M20 x 1.5 | | 3 | |
| ATEX, M20 x 1.5 | | 4 | |
| ATEX, ½" NPT | | 5 | |
| FM approval Class 1 Div. 1, M20 x 1.5 | | 6 | |
| FM approval Class 1 Div. 1, 1/2" NPT | | 7 | |
| FM approval Class 1 Div. 2, 1/2" NPT | | 8 | |
| Further approvals and cable glands | | | |
| IEC Ex with M20 x 1.5 | | 9 | N 0 A |
| IEC Ex with ½" NPT | | 9 | N 0 B |
| Transmitter, display and communication | | | |
| With display, HART | | A | |
| Pressure sensor and isolation valve | | | |
| Without pressure sensor | | A | |
| With pressure sensor, range: | | | |
| 4 bar (58 psi) | | B | |
| 6 bar (87 psi) | | D | |
| 10 bar (145 psi) | | E | |
| 16 bar (232 psi) | | G | |
| 25 bar (363 psi) | | H | |
| 40 bar (580 psi) | | K | |
| 60 bar (870 psi) | | L | |
| 100 bar (1450 psi) | | N | |
| With isolation valve and pressure sensor, range: | | | |
| 4 bar (58 psi) | | P | |
| 6 bar (87 psi) | | Q | |
| 10 bar (145 psi) | | R | |
| 16 bar (232 psi) | | S | |
| 25 bar (363 psi) | | U | |
| 40 bar (580 psi) | | V | |
| 60 bar (870 psi) | | W | |
| 100 bar (1450 psi) | | Y | |
| Software | | | |
| Uncompensated for liquids and gases, density compensated by temperature for saturated steam | | 1 | |
| Density compensation for superheated steam | | 4 | |
| Density compensated by temperature and pressure for superheated steam, gross heat meter - setting of energy metering at option Y51 ... Y56 | | 5 | |
| Density compensation for gases, wet gases and mixed gases - setting of relative humidity at option Y49 | | 7 | |
| Density compensation for gases, wet gases and mixed gases, Free air delivery (FAD) - setting of FAD at option Y81 ... Y87 and relative humidity at option Y49 | | 8 | |

| Selection and Ordering data | Order code |
|---|------------|
| Additional information Please add "-Z" to Article No. and specify as minimum Order code Y40, Y41, Y42 and Y45 and plain text. | |
| Input process data | |
| Medium: Specify medium (Liquid, gas, steam or customer-specific) | Y40 |
| Temperature: Specify operating temperature with unit | Y41 |
| Pressure: Specify operating pressure with unit | Y42 |
| Density (only for customer-specified medium): Specify density with unit | Y43 |
| Viscosity (only for customer-specified medium): Specify viscosity with unit | Y44 |
| Flow rate: Specify max. flow rate with units | Y45 |
| Setting of pulse output: Specify pulse value (meter factor) for totalized flow or energy (1 pulse/unit) | Y47 |
| Relative humidity of process medium in % | Y49 |
| Settings of gross heat | |
| Variable current output: Flow rate, power | Y51 |
| Power unit (specify: kJ/h, MJ/h, GJ/h, Btu/h, kcal/h, kW, MW or special (custom)) | Y52 |
| Fullscale value power | Y53 |
| Variable pulse output: Totalized flow, energy | Y54 |
| Totalizer on/off | Y55 |
| Energy unit (specify: kJ, MJ, GJ, Btu th, kcal, kWh, MWh or special (custom)) | Y56 |
| Settings of FAD | |
| Inlet suction temperature ¹⁾ | Y81 |
| Atmospheric pressure ¹⁾ | Y82 |
| Pressure drop at inlet suction filter ²⁾ | Y83 |
| Inlet relative humidity ¹⁾ | Y84 |
| Actual compressor rotation (rpm) ²⁾ | Y85 |
| Rated compressor rotation (rpm) ²⁾ | Y86 |
| Relative humidity at compressor outlet ²⁾ | Y87 |

¹⁾ Required information from customer.

²⁾ Required information from compressor manufacturer (data sheet).

Operating instructions

| Description | Article No. |
|-------------|--------------------|
| English | A5E2100423 |
| German | A5E02171807 |

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

| Selection and Ordering data | Order code |
|--|------------|
| Further designs Please add "-Z" to Article No. and specify Order code. | |
| Converter housing material | |
| Aluminum for increased requirement, color: petrol green | A10 |
| Material certificate | |
| Certificate of compliance EN 10204-2.1 | C10 |
| Pressure test + 3.1 accordance EN 10204 | C11 |
| Material certificate of pressure bearing parts + certificate 3.1 | C12 |
| Material in accordance with NACE MR 0175-01 | C13 |
| PMI of pressure bearing metal parts + certificate 3.1 | C14 |
| Material certificate of pressure bearing parts + PMI + certificate 3.1 | C15 |
| Calibration certificate FX300 As standard the flow device has a 3-point calibration certificate. | |
| 5-point calibration certificate | D11 |
| Hardness test | |
| Hardness test on pressure bearing parts + certificate 3.1 | H30 |
| Cleaning | |
| Cleaning class 1 | K46 |
| Cleaning class 1 + certificate 3.1 acc. EN 10204 | K48 |
| Certificates | |
| X-ray test on pressure bearing weldings | M56 |
| Dye penetration test on pressure bearing weldings | M58 |
| Tag name plate | |
| Stainless steel tag with 3 mm characters, max. 2 x 8 characters (40 x 20 mm, add plain text) | Y17 |
| Stainless steel tag with 2.5 mm characters, max. 8 x 40 characters (120 x 46 mm, add plain text) | Y18 |

Flow Measurement

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| Selection and Ordering data | | Article No. | Ord. code |
|---|------------------------|-----------------|--------------|
| SITRANS FX300 Sandwich Single transmitter and T_{max} = 240 °C (464 °F) | | 7ME2700- | |
| Click on the Article No. for the online configuration in the PIA Life Cycle Portal. | | | |
| Sensor size | Connection size | | |
| DN 15 (½") | DN 15 (½") | 1 A | |
| DN 25 (1") | DN 25 (1") | 2 B | |
| DN 40 (1½") | DN 40 (1½") | 2 K | |
| DN 50 (2") | DN 50 (2") | 2 R | |
| DN 80 (3") | DN 80 (3") | 3 L | |
| DN 100 (4") | DN 100 (4") | 3 S | |
| Nominal pressure | | | |
| Form B1/B2 | EN 1092-1 | | |
| PN 16 | DN 50 ... 100 | B | |
| PN 40 | DN 15 ... 100 | D | |
| PN 63 | DN 50 ... 100 | E | |
| PN 100 | DN 15 ... 100 | F | |
| RF | ANSI B16.5 | | |
| class 150 | ½ ... 4" | J | |
| class 300 | ½ ... 4" | K | |
| class 600 | ½ ... 4" | L | |
| Sensor material/Gasket | | | |
| St. steel AISI 316L (1.4404)/AISI 316L (1.4435)/FPM | | 1 | |
| St. steel AISI 316L (1.4404)/AISI 316L (1.4435)/FFKM | | 5 | |
| Transmitter design | | | |
| Compact version - no cable | | 1 | |
| Remote version: | | | |
| 5 m (16.4 ft) | | 2 | |
| 10 m (32.8 ft) | | 3 | |
| 15 m (49.2 ft) | | 4 | |
| Approval and cable gland | | | |
| Non-Ex, M20 x 1.5 | | 1 | |
| Non-Ex, ½" NPT | | 2 | |
| FM approval Class 1 Div. 2, M20 x 1.5 | | 3 | |
| ATEX, M20 x 1.5 | | 4 | |
| ATEX, ½" NPT | | 5 | |
| FM approval Class 1 Div. 1, M20 x 1.5 | | 6 | |
| FM approval Class 1 Div. 1, 1/2" NPT | | 7 | |
| FM approval Class 1 Div. 2, 1/2" NPT | | 8 | |
| Further approvals and cable glands | | | |
| IEC Ex with M20 x 1.5 | | 9 | N O A |
| IEC Ex with ½" NPT | | 9 | N O B |
| Transmitter, display and communication | | | |
| With display, HART | | A | |

| Selection and Ordering data | | Article No. | Ord. code |
|---|--|-----------------|-----------|
| SITRANS FX300 Sandwich Single transmitter and T_{max} = 240 °C (464 °F) | | 7ME2700- | |
| Pressure sensor and isolation valve | | | |
| Without pressure sensor | | | A |
| With pressure sensor, range: | | | B |
| 4 bar (58 psi) | | | D |
| 6 bar (87 psi) | | | E |
| 10 bar (145 psi) | | | G |
| 16 bar (232 psi) | | | H |
| 25 bar (363 psi) | | | K |
| 40 bar (580 psi) | | | L |
| 60 bar (870 psi) | | | N |
| 100 bar (1450 psi) | | | |
| With isolation valve and pressure sensor, range: | | | P |
| 4 bar (58 psi) | | | Q |
| 6 bar (87 psi) | | | R |
| 10 bar (145 psi) | | | S |
| 16 bar (232 psi) | | | U |
| 25 bar (363 psi) | | | V |
| 40 bar (580 psi) | | | W |
| 60 bar (870 psi) | | | Y |
| 100 bar (1450 psi) | | | |
| Software | | | |
| Uncompensated for liquids and gases, density compensated by temperature for saturated steam | | | 1 |
| Density compensation for superheated steam | | | 4 |
| Density compensated by temperature and pressure for superheated steam, gross heat meter - setting of energy metering at option Y51 ... Y56 | | | 5 |
| Density compensation for gases, wet gases and mixed gases - setting of relative humidity at option Y49 | | | 7 |
| Density compensation for gases, wet gases and mixed gases, Free air delivery (FAD) - setting of FAD at option Y81 ... Y87 and relative humidity at option Y49 | | | 8 |

| Selection and Ordering data | Order code |
|---|------------|
| Additional information Please add "-Z" to Article No. and specify as minimum Order code Y40, Y41, Y42 and Y45 and plain text. | |
| Input process data | |
| Medium: Specify medium (Liquid, gas, steam or customer-specific) | Y40 |
| Temperature: Specify operating temperature with unit | Y41 |
| Pressure: Specify operating pressure with unit | Y42 |
| Density (only for customer-specified medium): Specify density with unit | Y43 |
| Viscosity (only for customer-specified medium): Specify viscosity with unit | Y44 |
| Flow rate: Specify max. flow rate with units | Y45 |
| Setting of pulse output: Specify pulse value (meter factor) for totalized flow or energy (1 pulse/unit) | Y47 |
| Relative humidity of process medium in % | Y49 |
| Settings of gross heat | |
| Variable current output: Flow rate, power | Y51 |
| Power unit (specify: kJ/h, MJ/h, GJ/h, Btu/h, kcal/h, kW, MW or special (custom)) | Y52 |
| Fullscale value power | Y53 |
| Variable pulse output: Totalized flow, energy | Y54 |
| Totalizer on/off | Y55 |
| Energy unit (specify: kJ, MJ, GJ, Btu th, kcal, kWh, MWh or special (custom)) | Y56 |
| Settings of FAD | |
| Inlet suction temperature ¹⁾ | Y81 |
| Atmospheric pressure ¹⁾ | Y82 |
| Pressure drop at inlet suction filter ²⁾ | Y83 |
| Inlet relative humidity ¹⁾ | Y84 |
| Actual compressor rotation (rpm) ²⁾ | Y85 |
| Rated compressor rotation (rpm) ²⁾ | Y86 |
| Relative humidity at compressor outlet ²⁾ | Y87 |

¹⁾ Required information from customer.

²⁾ Required information from compressor manufacturer (data sheet).

Operating instructions

| Description | Article No. |
|-------------|--------------------|
| English | A5E2100423 |
| German | A5E02171807 |

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

| Selection and Ordering data | Order code |
|--|------------|
| Further designs Please add "-Z" to Article No. and specify Order code. | |
| Converter housing material | |
| Aluminum for increased requirement, color: petrol green | A10 |
| Material certificate | |
| Certificate of compliance EN 10204-2.1 | C10 |
| Pressure test + 3.1 accordance EN 10204 | C11 |
| Material certificate of pressure bearing parts + certificate 3.1 | C12 |
| Material in accordance with NACE MR 0175-01 | C13 |
| PMI of pressure bearing metal parts + certificate 3.1 | C14 |
| Material certificate of pressure bearing parts + PMI + certificate 3.1 | C15 |
| Calibration certificate FX300 As standard the flow device has a 3-point calibration certificate. | |
| 5-point calibration certificate | D11 |
| Hardness test | |
| Hardness test on pressure bearing parts + certificate 3.1 | H30 |
| Cleaning | |
| Cleaning class 1 | K46 |
| Cleaning class 1 + certificate 3.1 acc. EN 10204 | K48 |
| Certificates | |
| X-ray test on pressure bearing weldings | M56 |
| Dye penetration test on pressure bearing weldings | M58 |
| Tag name plate | |
| Stainless steel tag with 3 mm characters, max. 2 x 8 characters (40 x 20 mm, add plain text) | Y17 |
| Stainless steel tag with 2.5 mm characters, max. 8 x 40 characters (120 x 46 mm, add plain text) | Y18 |

Flow Measurement

SITRANS F X

SITRANS FX300

Selection and Ordering data

SITRANS FX300 Flanged
Dual transmitter and
T_{max} = 240 °C (464 °F)

➤ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

| Sensor size | Connection size | |
|--------------|-----------------|-----|
| DN 40 (1½") | DN 40 (1½") | 2 K |
| DN 50 (2") | DN 50 (2") | 2 R |
| DN 80 (3") | DN 80 (3") | 3 L |
| DN 100 (4") | DN 100 (4") | 3 S |
| DN 150 (6") | DN 150 (6") | 4 M |
| DN 200 (8") | DN 200 (8") | 4 T |
| DN 250 (10") | DN 250 (10") | 4 W |
| DN 300 (12") | DN 300 (12") | 5 E |

Flange norm and nominal pressure

Form B1/B2 EN 1092-1

| | | |
|--------|----------------|---|
| PN 10 | DN 200 ... 300 | A |
| PN 16 | DN 50 ... 300 | B |
| PN 25 | DN 200 ... 300 | C |
| PN 40 | DN 40 ... 300 | D |
| PN 63 | DN 50 ... 150 | E |
| PN 100 | DN 40 ... 150 | F |

RF ANSI B16.5

| | | |
|-----------|------------|---|
| class 150 | 1½ ... 12" | J |
| class 300 | 1½ ... 12" | K |
| class 600 | 1½ ... 6" | L |

Sensor material/Gasket

| | |
|--|---|
| Stainless steel AISI 316L (1.4404)/ AISI 316L (1.4435)/FPM | 1 |
| Stainless steel AISI 316L (1.4404)/ AISI 316L (1.4435)/FFKM | 5 |

Transmitter design

| | |
|----------------------------|---|
| Compact version - no cable | 1 |
| Remote version: | |
| 5 m (16.4 ft) | 2 |
| 10 m (32.8 ft) | 3 |
| 15 m (49.2 ft) | 4 |

Approval and cable gland

| | | |
|---|---|-------|
| Non-Ex, M20 x 1.5 | 1 | |
| Non-Ex, ½" NPT | 2 | |
| FM approval Class 1 Div. 2, M20 x 1.5 | 3 | |
| ATEX, M20 x 1.5 | 4 | |
| ATEX, ½" NPT | 5 | |
| FM approval Class 1 Div. 1, M20 x 1.5 | 6 | |
| FM approval Class 1 Div. 1, 1/2" NPT | 7 | |
| FM approval Class 1 Div. 2, 1/2" NPT | 8 | |
| <u>Further approvals and cable glands</u> | | |
| IEC Ex with M20 x 1.5 | 9 | N O A |
| IEC Ex with ½" NPT | 9 | N O B |

Transmitter, display and communication

With display, HART

Pressure sensor and isolation valve

Without pressure sensor

Software

Uncompensated for liquids and gases,
density-compensated by temperature for
saturated steam

Article No. Ord. code

7ME2800 -

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Selection and Ordering data

Order code

Additional information

Please add "-Z" to Article No. and specify as minimum
Order code Y40, Y41, Y42 and Y45 and plain text.

Input process data

| | |
|---|-----|
| Specify medium (Liquid, gas, steam or customer-specific) | Y40 |
| Temperature: Specify operating temperature with unit | Y41 |
| Pressure: Specify operating pressure with unit | Y42 |
| Density (only for customer-specified medium): Specify density with unit | Y43 |
| Viscosity (only for customer-specified medium): Specify viscosity with unit | Y44 |
| Flow rate: Specify max. flow rate with units | Y45 |
| Setting of pulse output: Specify pulse value (meter factor) for totalized flow (1 pulse/unit) | Y47 |
| Relative humidity of process medium in % | Y49 |

Operating instructions for SITRANS FX300

| Description | Article No. |
|-------------|-------------|
| English | A5E2100423 |
| German | A5E02171807 |

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

Selection and Ordering data

Order code

Further designs

Please add "-Z" to Article No. and specify Order code.

Converter housing material

| | |
|--|-----|
| Aluminum for increased requirement, color: petrol green | A10 |
|--|-----|

Material certificate

| | |
|--|-----|
| Certificate of compliance EN 10204-2.1 | C10 |
| Pressure test + 3.1 accordance EN 10204 | C11 |
| Material certificate of pressure bearing parts + certificate 3.1 | C12 |
| Material in accordance with NACE MR 0175-01 | C13 |
| PMI of pressure bearing metal parts + certificate 3.1 | C14 |
| Material certificate of pressure bearing parts + PMI + certificate 3.1 | C15 |

Calibration certificate FX300

As standard the flow device has a 3-point calibration certificate.

| | |
|---------------------------------|-----|
| 5-point calibration certificate | D11 |
|---------------------------------|-----|

Hardness test

| | |
|---|-----|
| Hardness test on pressure bearing parts + certificate 3.1 | H30 |
|---|-----|

Cleaning

| | |
|--|-----|
| Cleaning class 1 | K46 |
| Cleaning class 1 + certificate 3.1 acc. EN 10204 | K48 |



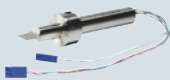


Certificates

| | |
|---|-----|
| X-ray test on pressure bearing weldings | M56 |
| Dye penetration test on pressure bearing weldings | M58 |

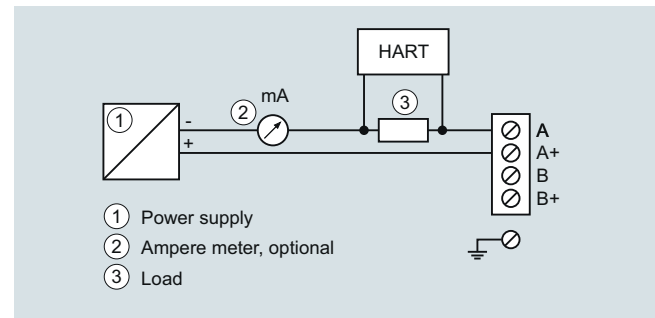
Tag name plate

| | |
|--|-----|
| Stainless steel tag with 3 mm characters, max. 2 x 8 characters (40 x 20 mm, add plain text) | Y17 |
| Stainless steel tag with 2.5 mm characters, max. 8 x 40 characters (120 x 46 mm, add plain text) | Y18 |

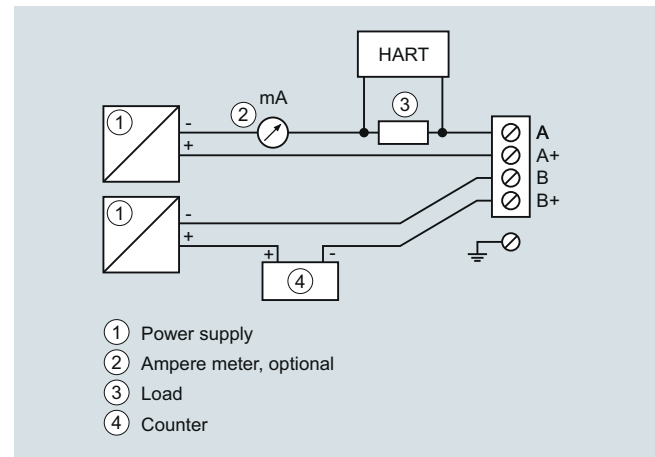
SITRANS FX300 spare parts

| Description | Article No. | |
|---|--|---|
| Electronic <ul style="list-style-type: none"> • Basic D-HART • Steam D-HART • Gas D-HART Serial number of flow meter must be specified on order. | A5E02181531 A5E02181541 A5E02181544 A5E02181544 |  |
| Display | A5E02181558 |  |
| Sensor replacement (incl. seal disc, pickup, O-rings for pickup, and pressure screw) <ul style="list-style-type: none"> • DN 15 (incl. 1/2" socket) • DN 25 (incl. 1" socket) • DN 40 ... 100 • DN 150 ... 300 | A5E02181087 A5E02181116 A5E02181152 A5E02275105 |  |
| Pressure sensor replacement (Incl. pressure sensor, DUBOX plug, 2 O-rings and calibration certificate) <ul style="list-style-type: none"> • 4 bar (58 psi) • 6 bar (87 psi) • 10 bar (145 psi) • 16 bar (232 psi) • 25 bar (363 psi) • 40 bar (580 psi) • 60 bar (870 psi) • 100 bar (1450 psi) | A5E02181157 A5E02181175 A5E02181180 A5E02181221 A5E02181307 A5E02181316 A5E02181322 A5E02181437 |  |
| Service Toolbox for programming software (basic, steam and gas); for changing settings and diagnostics Note: Dedicated service training is required. Please contact Customer Support. | A5E02375819 |  |
| Connection cable for remote mounting <ul style="list-style-type: none"> • 15 m (49 ft) | A5E36832003 | |

Schematics



Connection power supply and HART communication



Connection pulse output

Flow Measurement

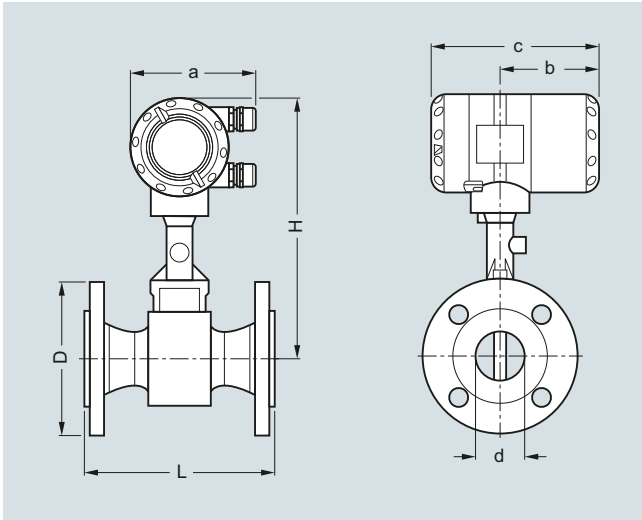
SITRANS F X

SITRANS FX300

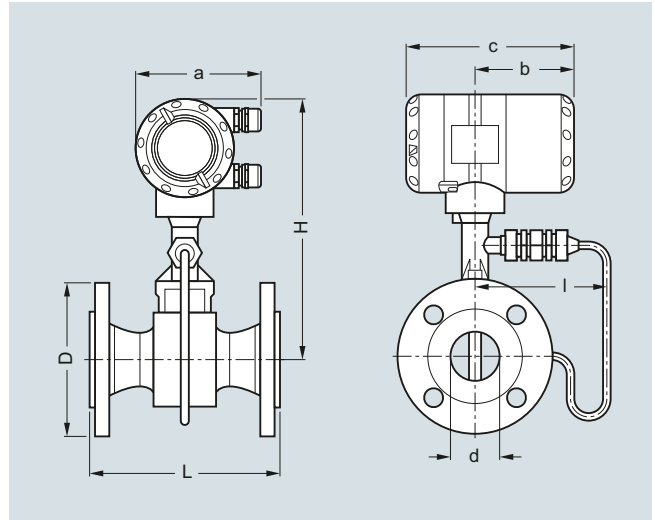
Dimensional drawings

Compact version

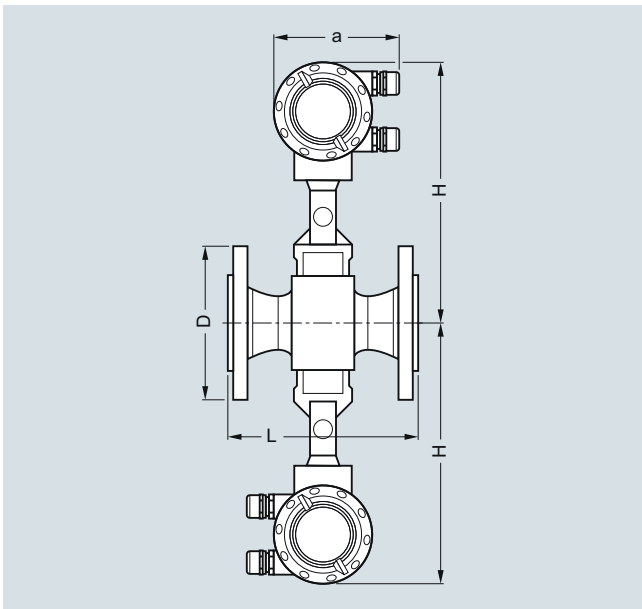
3



Flange version



Flange version with pressure sensor



Flange version, dual converter

Flange version EN1092-1

| Size DN | Pres- sure rating PN | Dimensions [mm (inch)] a = 135 (5.32), b = 108 (4.26), c = 184 (7.25) | | | | | | | Weight [kg (lb)] ¹⁾ | |
|------------|-------------------------------|--|-----------------------|------------------------|-------------|-------------|-------------|------------|---|--|
| | | d | d FR ²⁾ | d F2R ³⁾ | D | L | H | I | Flowmeter (without pres- sure sensor) | Flowmeter (with pressure sensor) |
| 15 | 40 | 17.3 (0.68) | - | - | 95 (3.74) | 200 (7.87) | 315 (12.40) | 144 (5.67) | 5.5 (12.13) | 6.1 (13.45) |
| 15 | 100 | 17.3 (0.68) | - | - | 105 (4.13) | 200 (7.87) | 315 (12.40) | 144 (5.67) | 6.5 (14.33) | 7.1 (15.65) |
| 25 | 40 | 28.5 (1.12) | 17.3 (0.68) | - | 115 (4.53) | 200 (7.87) | 315 (12.40) | 144 (5.67) | 7.3 (16.09) | 7.9 (17.42) |
| 25 | 100 | 28.5 (1.12) | 17.3 (0.68) | - | 140 (5.51) | 200 (7.87) | 315 (12.40) | 144 (5.67) | 9.3 (20.50) | 9.9 (21.83) |
| 40 | 40 | 43.1 (1.70) | 28.5 (1.12) | 17.3 (0.68) | 150 (5.91) | 200 (7.87) | 320 (12.60) | 144 (5.67) | 10.2 (22.49) | 10.8 (23.81) |
| 40 | 100 | 42.5 (1.67) | 28.5 (1.12) | 17.3 (0.68) | 170 (6.69) | 200 (7.87) | 320 (12.60) | 144 (5.67) | 14.2 (31.31) | 14.8 (32.63) |
| 50 | 16 | 54.5 (2.15) | 42.5 (1.67) | 28.5 (1.12) | 165 (6.50) | 200 (7.87) | 325 (12.80) | 144 (5.67) | 12.1 (26.68) | 12.7 (28.00) |
| 50 | 40 | 54.5 (2.15) | 42.5 (1.67) | 28.5 (1.12) | 165 (6.50) | 200 (7.87) | 325 (12.80) | 144 (5.67) | 12.3 (27.12) | 12.9 (28.44) |
| 50 | 63 | 54.5 (2.15) | 42.5 (1.67) | 28.5 (1.12) | 180 (7.09) | 200 (7.87) | 325 (12.80) | 144 (5.67) | 16.3 (35.94) | 16.9 (37.26) |
| 50 | 100 | 53.9 (2.12) | 42.5 (1.67) | 28.5 (1.12) | 195 (7.68) | 200 (7.87) | 325 (12.80) | 144 (5.67) | 17.8 (39.24) | 18.4 (40.57) |
| 80 | 16 | 82.5 (3.25) | 54.5 (2.15) | 42.5 (1.67) | 200 (7.87) | 200 (7.87) | 340 (13.39) | 154 (6.06) | 16.8 (37.04) | 17.4 (38.36) |
| 80 | 40 | 82.5 (3.25) | 54.5 (2.15) | 42.5 (1.67) | 200 (7.87) | 200 (7.87) | 340 (13.39) | 154 (6.06) | 18.8 (41.45) | 19.4 (42.77) |
| 80 | 63 | 81.7 (3.22) | 54.5 (2.15) | 42.5 (1.67) | 215 (8.46) | 200 (7.87) | 340 (13.39) | 154 (6.06) | 22.8 (50.27) | 23.4 (51.59) |
| 80 | 100 | 80.9 (3.19) | 54.5 (2.15) | 42.5 (1.67) | 230 (9.06) | 200 (7.87) | 340 (13.39) | 154 (6.06) | 26.8 (59.08) | 27.4 (60.41) |
| 100 | 16 | 107.1 (4.22) | 80.9 (3.19) | 54.5 (2.15) | 220 (8.66) | 250 (9.84) | 360 (14.17) | 164 (6.46) | 21.4 (47.18) | 22 (48.50) |
| 100 | 40 | 107.1 (4.22) | 80.9 (3.19) | 54.5 (2.15) | 235 (9.25) | 250 (9.84) | 360 (14.17) | 164 (6.46) | 24.4 (53.79) | 25 (55.12) |
| 100 | 63 | 106.3 (4.19) | 80.9 (3.19) | 54.5 (2.15) | 250 (9.84) | 250 (9.84) | 360 (14.17) | 164 (6.46) | 29.4 (64.82) | 30 (66.14) |
| 100 | 100 | 104.3 (4.11) | 80.9 (3.19) | 54.5 (2.15) | 265 (10.43) | 250 (9.84) | 360 (14.17) | 164 (6.46) | 35.4 (78.04) | 36 (79.37) |
| 150 | 16 | 159.3 (6.27) | 107.1 (4.22) | 80.9 (3.19) | 285 (11.22) | 300 (11.81) | 375 (14.76) | 174 (6.85) | 35.2 (77.60) | 35.8 (78.93) |
| 150 | 40 | 159.3 (6.27) | 107.1 (4.22) | 80.9 (3.19) | 300 (11.81) | 300 (11.81) | 375 (14.76) | 174 (6.85) | 41.2 (90.83) | 41.8 (92.15) |
| 150 | 63 | 157.1 (6.19) | 107.1 (4.22) | 80.9 (3.19) | 345 (13.58) | 300 (11.81) | 375 (14.76) | 174 (6.85) | 59.2 (130.51) | 59.8 (131.84) |
| 150 | 100 | 154.1 (6.07) | 107.1 (4.22) | 80.9 (3.19) | 355 (13.98) | 300 (11.81) | 375 (14.76) | 174 (6.85) | 67.2 (148.15) | 67.8 (149.47) |
| 200 | 10 | 206.5 (8.13) | 159.3 (6.27) | 107.1 (4.22) | 340 (13.39) | 300 (11.81) | 400 (15.75) | 194 (7.64) | 37.8 (83.33) | 38.4 (84.66) |
| 200 | 16 | 206.5 (8.13) | 159.3 (6.27) | 107.1 (4.22) | 340 (13.39) | 300 (11.81) | 400 (15.75) | 194 (7.64) | 37.8 (83.33) | 38.4 (84.66) |
| 200 | 25 | 206.5 (8.13) | 159.3 (6.27) | 107.1 (4.22) | 360 (14.17) | 300 (11.81) | 400 (15.75) | 194 (7.64) | 46.8 (103.18) | 47.4 (104.50) |
| 200 | 40 | 206.5 (8.13) | 159.3 (6.27) | 107.1 (4.22) | 375 (14.76) | 300 (11.81) | 400 (15.75) | 194 (7.64) | 54.8 (120.81) | 55.4 (122.14) |
| 250 | 10 | 260.4 (10.25) | 206.5 (8.13) | 159.3 (6.27) | 395 (15.55) | 380 (14.96) | 420 (16.54) | 224 (8.82) | 57.4 (126.55) | 58.0 (127.87) |
| 250 | 16 | 260.4 (10.25) | 206.5 (8.13) | 159.3 (6.27) | 405 (15.94) | 380 (14.96) | 420 (16.54) | 224 (8.82) | 58.4 (128.75) | 59.0 (130.07) |
| 250 | 25 | 258.8 (10.19) | 206.5 (8.13) | 159.3 (6.27) | 425 (16.73) | 380 (14.96) | 420 (16.54) | 224 (8.82) | 74.4 (164.02) | 75.0 (165.35) |
| 250 | 40 | 258.8 (10.19) | 206.5 (8.13) | 159.3 (6.27) | 450 (17.72) | 380 (14.96) | 420 (16.54) | 224 (8.82) | 92.4 (203.71) | 93.0 (205.03) |
| 300 | 10 | 309.7 (12.19) | 260.4 (10.25) | 206.5 (8.13) | 445 (17.52) | 450 (17.72) | 445 (17.52) | 244 (9.61) | 75.7 (166.89) | 76.3 (168.21) |
| 300 | 16 | 309.7 (12.19) | 260.4 (10.25) | 206.5 (8.13) | 460 (18.11) | 450 (17.72) | 445 (17.52) | 244 (9.61) | 82.2 (181.22) | 82.8 (182.54) |
| 300 | 25 | 307.9 (12.12) | 260.4 (10.25) | 206.5 (8.13) | 485 (19.09) | 450 (17.72) | 445 (17.52) | 244 (9.61) | 98.7 (217.60) | 99.3 (218.92) |
| 300 | 40 | 307.9 (12.12) | 260.4 (10.25) | 206.5 (8.13) | 515 (20.28) | 450 (17.72) | 445 (17.52) | 244 (9.61) | 127.5 (281.09) | 128.1 (282.41) |

1) For dual converter: specified weight + 2.80 kg (6.17 lb).

2) FR - single reduction

3) F2R - double reduction

Flow Measurement

SITRANS F X

SITRANS FX300

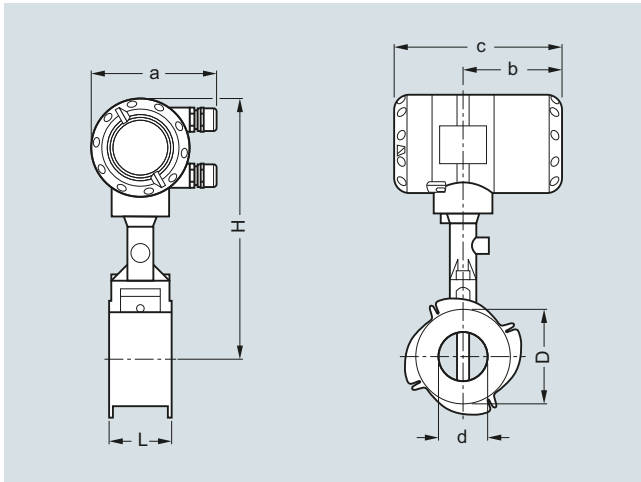
Flange version ANSI B16.5

| Size | Pressure rating | Dimensions [mm (inch)] | | | | | | | Weight [kg (lb)] ¹⁾ | |
|------|-----------------|--|--------------------|---------------------|-------------|-------------|-------------|------------|-------------------------------------|----------------------------------|
| | | a = 135 (5.32), b = 108 (4.26), c = 184 (7.25) | | | | | | | Flowmeter (without pressure sensor) | Flowmeter (with pressure sensor) |
| DN | Class | d | d FR ²⁾ | d F2R ³⁾ | D | L | H | I | | |
| ½ | 150 | 15.8 (0.62) | - | - | 90 (3.54) | 200 (7.87) | 315 (12.40) | 144 (5.67) | 4.5 (9.92) | 5.1 (11.24) |
| ½ | 300 | 15.8 (0.62) | - | - | 95 (3.74) | 200 (7.87) | 315 (12.40) | 144 (5.67) | 4.9 (10.80) | 5.5 (12.13) |
| ½ | 600 | 13.9 (0.55) | - | - | 95 (3.74) | 200 (7.87) | 315 (12.40) | 144 (5.67) | 5.1 (11.24) | 5.7 (12.57) |
| 1 | 150 | 26.6 (1.05) | 15.8 (0.62) | - | 110 (4.33) | 200 (7.87) | 315 (12.40) | 144 (5.67) | 6.2 (13.67) | 6.8 (14.99) |
| 1 | 300 | 26.6 (1.05) | 15.8 (0.62) | - | 125 (4.92) | 200 (7.87) | 315 (12.40) | 144 (5.67) | 7.2 (15.87) | 7.8 (17.20) |
| 1 | 600 | 24.3 (0.96) | 15.8 (0.62) | - | 125 (4.92) | 200 (7.87) | 315 (12.40) | 144 (5.67) | 7.5 (16.53) | 8.1 (17.86) |
| 1½ | 150 | 40.9 (1.61) | 26.6 (1.05) | 15.8 (0.62) | 125 (4.92) | 200 (7.87) | 320 (12.60) | 144 (5.67) | 8.3 (18.30) | 8.9 (19.62) |
| 1½ | 300 | 40.9 (1.61) | 26.6 (1.05) | 15.8 (0.62) | 155 (6.10) | 200 (7.87) | 320 (12.60) | 144 (5.67) | 10.4 (22.93) | 11 (24.25) |
| 1½ | 600 | 38.1 (1.50) | 26.6 (1.05) | 15.8 (0.62) | 155 (6.10) | 200 (7.87) | 320 (12.60) | 144 (5.67) | 11.4 (25.13) | 12 (26.46) |
| 2 | 150 | 52.6 (2.07) | 40.9 (1.61) | 26.6 (1.05) | 150 (5.91) | 200 (7.87) | 325 (12.80) | 144 (5.67) | 11 (24.25) | 11.6 (25.57) |
| 2 | 300 | 52.6 (2.07) | 40.9 (1.61) | 26.6 (1.05) | 165 (6.50) | 200 (7.87) | 325 (12.80) | 144 (5.67) | 12.4 (27.34) | 13 (28.66) |
| 2 | 600 | 49.3 (1.94) | 40.9 (1.61) | 26.6 (1.05) | 165 (6.50) | 200 (7.87) | 325 (12.80) | 144 (5.67) | 13.9 (30.64) | 14.5 (31.97) |
| 3 | 150 | 78 (3.07) | 52.6 (2.07) | 40.9 (1.61) | 190 (7.48) | 200 (7.87) | 340 (13.39) | 154 (6.06) | 19.8 (43.65) | 20.4 (44.97) |
| 3 | 300 | 78 (3.07) | 52.6 (2.07) | 40.9 (1.61) | 210 (8.27) | 200 (7.87) | 340 (13.39) | 154 (6.06) | 22.8 (50.27) | 23.4 (51.59) |
| 3 | 600 | 73.7 (2.90) | 52.6 (2.07) | 40.9 (1.61) | 210 (8.27) | 200 (7.87) | 340 (13.39) | 154 (6.06) | 23.8 (52.47) | 24.4 (53.79) |
| 4 | 150 | 102.4 (4.03) | 78 (3.07) | 52.6 (2.07) | 230 (9.06) | 250 (9.84) | 360 (14.17) | 164 (6.46) | 23.4 (51.59) | 24 (52.91) |
| 4 | 300 | 102.4 (4.03) | 78 (3.07) | 52.6 (2.07) | 255 (10.04) | 250 (9.84) | 360 (14.17) | 164 (6.46) | 31.4 (69.23) | 32 (70.55) |
| 4 | 600 | 97.2 (3.83) | 78 (3.07) | 52.6 (2.07) | 275 (10.83) | 250 (9.84) | 360 (14.17) | 164 (6.46) | 40.4 (89.07) | 41 (90.39) |
| 6 | 150 | 154.2 (6.07) | 102.4 (4.03) | 78 (3.07) | 280 (11.02) | 300 (11.81) | 375 (14.76) | 174 (6.85) | 36.2 (79.81) | 36.8 (81.13) |
| 6 | 300 | 154.2 (6.07) | 102.4 (4.03) | 78 (3.07) | 320 (12.60) | 300 (11.81) | 375 (14.76) | 174 (6.85) | 51.2 (112.88) | 51.8 (114.20) |
| 6 | 600 | 146.3 (5.76) | 102.4 (4.03) | 78 (3.07) | 355 (13.98) | 300 (11.81) | 375 (14.76) | 174 (6.85) | 46.2 (101.85) | 76.8 (169.31) |
| 8 | 150 | 202.7 (7.98) | 154.2 (6.07) | 102.4 (4.03) | 345 (13.58) | 300 (11.81) | 400 (15.75) | 194 (7.64) | 50.0 (110.23) | 50.6 (111.55) |
| 8 | 300 | 202.7 (7.98) | 154.2 (6.07) | 102.4 (4.03) | 380 (14.96) | 300 (11.81) | 400 (15.75) | 194 (7.64) | 74.8 (164.91) | 75.4 (166.23) |
| 10 | 150 | 254.5 (10.02) | 202.7 (7.98) | 154.2 (6.07) | 405 (15.94) | 380 (14.96) | 420 (16.54) | 224 (8.82) | 74.4 (164.02) | 75.0 (165.35) |
| 10 | 300 | 254.5 (10.02) | 202.7 (7.98) | 154.2 (6.07) | 455 (17.91) | 380 (14.96) | 420 (16.54) | 224 (8.82) | 106.4 (234.57) | 107.0 (235.89) |
| 12 | 150 | 304.8 (12.00) | 254.5 (10.02) | 202.7 (7.98) | 485 (19.09) | 450 (17.72) | 445 (17.52) | 244 (9.61) | 106.3 (234.35) | 106.9 (235.67) |
| 12 | 300 | 304.8 (12.00) | 254.5 (10.02) | 202.7 (7.98) | 520 (20.47) | 450 (17.72) | 445 (17.52) | 244 (9.61) | 151.3 (333.56) | 151.9 (334.88) |

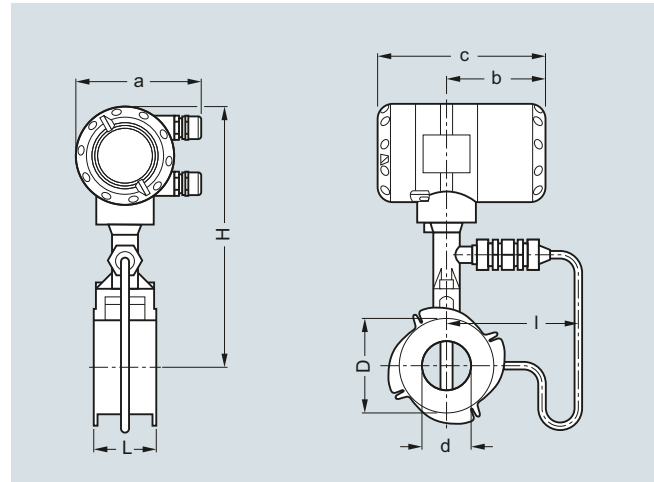
¹⁾ For dual converter: specified weight + 2.80 kg (6.17 lb).

²⁾ FR - single reduction

³⁾ F2R - double reduction



Sandwich version



Sandwich version with pressure sensor

Sandwich version EN

| Size DN | Pressure rating PN | Dimensions [mm (inch)] | | | | | | | | Weight [kg (lb)] | |
|------------|-----------------------|------------------------|------------|------------|-----------|------------|-----------|-------------|------------|--|--|
| | | a | b | c | d | D | L | H | I | Flowmeter (without pressure sensor) | Flowmeter (with pres- sure sensor) |
| 15 | 16 ... 100 | 133 (5.24) | 105 (4.13) | 179 (7.05) | 16 (0.63) | 45 (1.77) | 65 (2.56) | 265 (10.43) | 144 (5.67) | 3.5 (7.72) | 4.1 (9.04) |
| 25 | 16 ... 100 | 133 (5.24) | 105 (4.13) | 179 (7.05) | 24 (0.94) | 65 (2.56) | 65 (2.56) | 265 (10.43) | 144 (5.67) | 4.3 (9.48) | 4.9 (10.80) |
| 40 | 16 ... 100 | 133 (5.24) | 105 (4.13) | 179 (7.05) | 38 (1.50) | 82 (3.23) | 65 (2.56) | 270 (10.63) | 144 (5.67) | 4.9 (10.80) | 5.5 (12.13) |
| 50 | 16 ... 100 | 133 (5.24) | 105 (4.13) | 179 (7.05) | 50 (1.97) | 102 (4.02) | 65 (2.56) | 275 (10.83) | 144 (5.67) | 6 (13.23) | 6.6 (14.55) |
| 80 | 16 ... 100 | 133 (5.24) | 105 (4.13) | 179 (7.05) | 74 (2.91) | 135 (5.31) | 65 (2.56) | 290 (11.42) | 155 (6.10) | 8.2 (18.08) | 8.8 (19.40) |
| 100 | 16 ... 100 | 133 (5.24) | 105 (4.13) | 179 (7.05) | 97 (3.82) | 158 (6.22) | 65 (2.56) | 310 (12.20) | 164 (6.46) | 9.5 (20.94) | 10.1 (22.27) |

Sandwich version ANSI

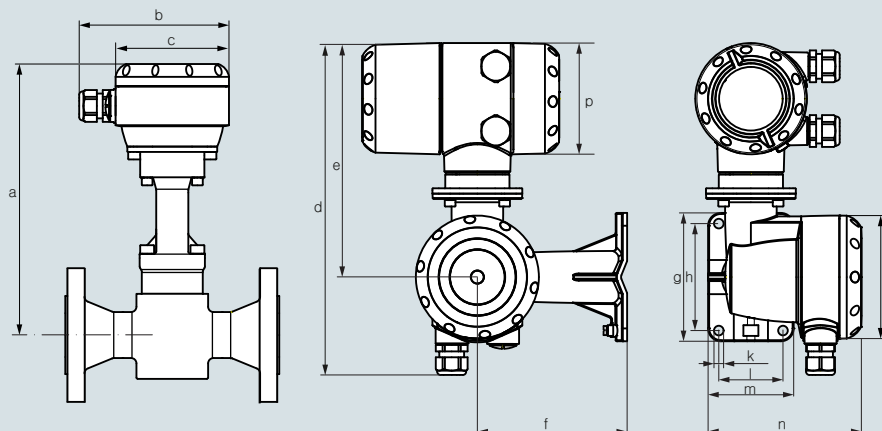
| Size DN | Pressure rating Class | Dimensions [inch] | | | | | | | | Weight [lb] | |
|------------|--------------------------|-------------------|------|------|------|------|------|-------|------|--|--|
| | | a | b | c | d | D | L | H | I | Flowmeter (without pressure sensor) | Flowmeter (with pres- sure sensor) |
| ½" | 150, 300, 600 | 5.24 | 4.13 | 7.05 | 0.63 | 1.77 | 2.56 | 10.43 | 5.67 | 7.72 | 9.04 |
| 1" | 150, 300, 600 | 5.24 | 4.13 | 7.05 | 0.94 | 2.56 | 2.56 | 10.43 | 5.67 | 9.48 | 10.80 |
| 1½" | 150, 300, 600 | 5.24 | 4.13 | 7.05 | 1.50 | 3.23 | 2.56 | 10.63 | 5.67 | 10.80 | 12.13 |
| 2" | 150, 300, 600 | 5.24 | 4.13 | 7.05 | 1.97 | 4.02 | 2.56 | 10.83 | 5.67 | 13.23 | 14.55 |
| 3" | 150, 300, 600 | 5.24 | 4.13 | 7.05 | 2.91 | 5.31 | 2.56 | 11.42 | 6.10 | 18.08 | 19.40 |
| 4" | 150, 300, 600 | 5.24 | 4.13 | 7.05 | 3.82 | 6.22 | 2.56 | 12.20 | 6.46 | 20.94 | 22.27 |

Flow Measurement

SITRANS F X

SITRANS FX300

Remote version



Flanged version

| DN | 15 | 25 | 40 | 50 | 80 | 100 | 150 | 200 | 250 | 300 | | | |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|------------|----------|----------|----------|----------|
| | ½" | 1" | 1½" | 2" | 3" | 4" | 6" | 8" | 10" | 12" | | | |
| | a | | | | | | | | | | | | |
| [mm] | 248 | 248 | 253 | 258 | 273 | 293 | 308 | 333 | 353 | 378 | | | |
| [inch] | 9.77 | 9.77 | 9.97 | 10.2 | 10.8 | 11.5 | 12.1 | 13.1 | 13.9 | 14.9 | | | |
| | b | c | d | e | f | g | h | j | k | l | m | n | p |
| [mm] | 140 | Ø106 | 310 | 219 | 140 | 120 | 100 | Ø115 | Ø9 (4x) | 60 | 80 | 144 | 104 |
| [inch] | 5.52 | Ø4.18 | 12.2 | 8.63 | 5.52 | 4.73 | 3.94 | Ø4.53 | Ø0.36 (4x) | 2.36 | 3.15 | 5.67 | 4.09 |

Sandwich version

| DN | 15 | 25 | 40 | 50 | 80 | 100 | | | | | | | |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|------------|----------|----------|----------|----------|
| | ½" | 1" | 1½" | 2" | 3" | 4" | | | | | | | |
| | a | | | | | | | | | | | | |
| [mm] | 248 | 248 | 253 | 258 | 273 | 293 | | | | | | | |
| [inch] | 9.77 | 9.77 | 9.97 | 10.2 | 10.8 | 11.5 | | | | | | | |
| | b | c | d | e | f | g | h | j | k | l | m | n | p |
| [mm] | 140 | Ø106 | 310 | 219 | 140 | 120 | 100 | Ø115 | Ø9 (4x) | 60 | 80 | 144 | 104 |
| [inch] | 5.52 | Ø4.18 | 12.2 | 8.63 | 5.52 | 4.73 | 3.94 | Ø4.53 | Ø0.36 (4x) | 2.36 | 3.15 | 5.67 | 4.09 |

Flow tablesMeasuring Range Limits**Water**

| Size DN to EN 1092-1 | DN to ANSI B16.5 | Q _{min} EN 1092-1 [m ³ /h] | Q _{max} EN 1092-1 [m ³ /h] | Q _{min} ANSI B16.5 [m ³ /h] | Q _{max} ANSI B16.5 [m ³ /h] |
|-------------------------|------------------|---|---|--|--|
| 15 | ½" | 0.45 | 5.07 | 0.44 | 4.94 |
| 25 | 1" | 0.81 | 11.40 | 0.81 | 11.40 |
| 40 | 1½" | 2.04 | 28.58 | 2.04 | 28.58 |
| 50 | 2" | 3.53 | 49.48 | 3.53 | 49.48 |
| 80 | 3" | 7.74 | 108.37 | 7.74 | 108.37 |
| 100 | 4" | 13.30 | 186.22 | 13.30 | 186.21 |
| 150 | 6" | 30.13 | 421.86 | 30.13 | 421.86 |
| 200 | 8" | 56.60 | 792.42 | 56.60 | 792.42 |
| 250 | 10" | 90.48 | 1 266.8 | 90.48 | 1 266.8 |
| 300 | 12" | 131.41 | 1 839.8 | 131.41 | 1 839.8 |

Values based on water at 20 °C (68 °F)

Air

| Size DN to EN 1092-1 | DN to ANSI B16.5 | Q _{min} EN 1092-1 [m ³ /h] | Q _{max} EN 1092-1 [m ³ /h] | Q _{min} ANSI B16.5 [m ³ /h] | Q _{max} ANSI B16.5 [m ³ /h] |
|-------------------------|------------------|---|---|--|--|
| 15 | ½" | 6.80 | 25.33 | 6.72 | 24.70 |
| 25 | 1" | 10.20 | 81.43 | 10.20 | 81.43 |
| 40 | 1½" | 25.35 | 326.63 | 25.35 | 326.63 |
| 50 | 2" | 43.89 | 565.49 | 43.89 | 565.49 |
| 80 | 3" | 96.14 | 1 238.64 | 96.14 | 1 238.60 |
| 100 | 4" | 165.19 | 2 128.27 | 165.19 | 2 128.27 |
| 150 | 6" | 374.23 | 4 821.60 | 374.23 | 4 821.60 |
| 200 | 8" | 702.95 | 9 056.8 | 702.95 | 9 056.8 |
| 250 | 10" | 1 123.7 | 14 478.0 | 1 123.7 | 14 478.0 |
| 300 | 12" | 1 632.1 | 21 028.0 | 1 632.1 | 21 028.0 |

Values based on air at 20 °C (68 °F) and 1.013 bar_{abs} (14.7 psi_{abs})Flow rate limits

| Product | Nominal diameters | | Minimum flow rates [m/s] | Maximum flow rates [m/s] |
|------------------|-------------------|----------------|---------------------------------|--------------------------------|
| | to EN | to ANSI | | |
| Liquids | DN 15 ... DN 300 | DN ½"...DN 12" | 0.5 x (998/ρ) ^{0.5 1)} | 7 x (998/ρ) ^{0.47 1)} |
| Gas, steam/vapor | DN 15 ... DN 300 | DN ½"...DN 12" | 6 x (1.29/ρ) ^{0.5 2)} | 7 x (998/ρ) ^{0.47 3)} |

ρ = operating density [kg/m³]

1) Minimum flow rate 0.3 m/s (0.984 ft/s), maximum flow rate 7 m/s (23 ft/s)

2) Minimum flow rate 2 m/s (6.6 ft/s)

3) Maximum flow rate 80 m/s (262 ft/s); DN 15: 45 m/s (148 ft/s) and DN 25: 70 m/s (230 ft/s)

Flow Measurement

SITRANS F X

SITRANS FX300

Measuring range saturated steam: 1 to 7 bar

| Overpressure [bar] | | 1 | | 3.5 | | 5.2 | | 7 | |
|------------------------------|------------------|---------|----------|---------|----------|---------|----------|---------|---------|
| Density [kg/m ³] | | 1.13498 | | 2.4258 | | 3.27653 | | 4.16732 | |
| Temperature [°C] | | 120.6 | | 148.2 | | 160.4 | | 170.6 | |
| Flow [kg/h] | | min. | max. | min. | max. | min. | max. | min. | max. |
| DN to EN 1092-1 | DN to ANSI B16.5 | | | | | | | | |
| 15 | ½" | 5.87 | 28.75 | 7.68 | 61.46 | 8.93 | 83.01 | 10.06 | 105.57 |
| 25 | 1" | 11.82 | 92.42 | 17.28 | 197.53 | 20.09 | 266.81 | 22.66 | 339.35 |
| 40 | 1½" | 29.64 | 370.71 | 43.33 | 792.33 | 50.63 | 1 070.2 | 56.8 | 1 361.2 |
| 50 | 2" | 51.31 | 641.82 | 75.02 | 1 371.8 | 87.19 | 1 852.8 | 98.33 | 2 356.6 |
| 80 | 3" | 112.41 | 1 405.8 | 164.33 | 3 004.7 | 191 | 4 058.4 | 215.39 | 5 161.8 |
| 100 | 4" | 193.14 | 2 415.5 | 282.36 | 5 162.7 | 328.16 | 6 973.3 | 370.09 | 8 869.2 |
| 150 | 6" | 437.56 | 5 472.4 | 639.69 | 11 696 | 743.45 | 15 798 | 838.44 | 20 093 |
| 200 | 8" | 821.9 | 10 279.0 | 1 201.6 | 21 970.0 | 1 396.5 | 29 675.0 | 1 574.9 | 37 743 |
| 250 | 10" | 1 313.9 | 16 433.0 | 1 920.9 | 35 122.0 | 2 232.5 | 47 439.0 | 2 517.7 | 60 337 |
| 300 | 12" | 1 908.3 | 23 866.0 | 2 789.8 | 51 010.0 | 3 242.4 | 68 899.0 | 3 656.6 | 87 630 |

Measuring range saturated steam: 10.5 to 20 bar

| Overpressure [bar] | | 10.5 | | 14 | | 17.5 | | 20 | |
|------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Density [kg/m ³] | | 5.88803 | | 7.60297 | | 9.31702 | | 10.5442 | |
| Temperature [°C] | | 186.2 | | 198.5 | | 208.7 | | 215 | |
| Flow [kg/h] | | min. | max. | min. | max. | min. | max. | min. | max. |
| DN to EN 1092-1 | DN to ANSI B16.5 | | | | | | | | |
| 15 | ½" | 12.78 | 149.17 | 16.51 | 192.61 | 20.23 | 236.04 | 22.89 | 267.12 |
| 25 | 1" | 26.93 | 479.46 | 30.6 | 619.11 | 33.87 | 758.69 | 36.04 | 858.62 |
| 40 | 1½" | 67.51 | 1 878.2 | 76.72 | 2 150.7 | 84.93 | 2 395.3 | 90.35 | 2 557.7 |
| 50 | 2" | 116.89 | 3 251.7 | 132.82 | 3 723.4 | 147.03 | 4 147 | 156.42 | 4 428.1 |
| 80 | 3" | 256.03 | 7 122.4 | 290.93 | 8 155.8 | 322.06 | 9 083.7 | 342.62 | 9 699.3 |
| 100 | 4" | 439.91 | 12 238 | 499.9 | 14 013 | 553.38 | 15 608 | 588.69 | 16 666 |
| 150 | 6" | 996.62 | 27 725 | 1 132.5 | 31 747 | 1 253.7 | 35 359 | 1 333.7 | 37 756 |
| 200 | 8" | 1 872.1 | 52 079 | 2 127.3 | 59 634 | 2 354.9 | 66 419 | 2 505.2 | 70 921 |
| 250 | 10" | 2 992.7 | 83 254 | 3 400.7 | 95 333 | 3 764.6 | 106 180 | 4 004.9 | 113 380 |
| 300 | 12" | 4 346.5 | 120 920 | 4 939.1 | 138 460 | 5 467.5 | 154 210 | 5 816.5 | 164 660 |

Measuring range saturated steam: 15 to 100 psig

| Overpressure [psig] | | 15 | | 50 | | 75 | | 100 | |
|------------------------------------|-------------------------|---------------|---------|---------------|---------|---------------|---------|----------------|---------|
| Density [lb/ft³] | | 0.0719 | | 0.1497 | | 0.2036 | | 0.2569 | |
| Temperature [°F] | | 249.98 | | 297.86 | | 320.36 | | 338.184 | |
| Flow [lb/h] | | min. | max. | min. | max. | min. | max. | min. | max. |
| DN to EN 1092-1 | DN to ANSI B16.5 | | | | | | | | |
| 15 | ½" | 12.95 | 64.35 | 16.83 | 133.87 | 19.62 | 182.02 | 22.04 | 229.63 |
| 25 | 1" | 26.25 | 206.83 | 37.86 | 430.3 | 44.15 | 585.06 | 49.59 | 738.09 |
| 40 | 1½" | 65.81 | 829.61 | 94.92 | 1 726 | 110.68 | 2 346.7 | 124.32 | 2 960.5 |
| 50 | 2" | 113.94 | 1 436.3 | 164.34 | 2 988 | 191.63 | 4 062.9 | 215.23 | 5 125.6 |
| 80 | 3" | 249.57 | 3 146.1 | 360 | 6 545.3 | 419.74 | 8 899.4 | 471.45 | 11 227 |
| 100 | 4" | 428.81 | 5 405.7 | 618.51 | 11 246 | 721.21 | 15 291 | 810.06 | 19 291 |
| 150 | 6" | 971.47 | 12 246 | 1 401.2 | 25 478 | 1 633.9 | 34 642 | 1 835.2 | 43 703 |
| 200 | 8" | 1 824.8 | 23 004 | 2 632.1 | 47 859 | 3 069.1 | 65 072 | 3 447.2 | 82 092 |
| 250 | 10" | 2 917.2 | 36 774 | 4 207.7 | 76 508 | 4 906.4 | 104 030 | 5 510.8 | 131 230 |
| 300 | 12" | 4 236.8 | 53 410 | 6 111.1 | 111 120 | 7 125.8 | 151 080 | 8 003.6 | 190 600 |

Measuring range saturated steam: 150 to 300 psig

| Overpressure [psig] | | 150 | | 200 | | 250 | | 300 | |
|------------------------------------|-------------------------|---------------|---------|---------------|---------|---------------|---------|---------------|---------|
| Density [lb/ft³] | | 0.3627 | | 0.4681 | | 0.5735 | | 0.6792 | |
| Temperature [°F] | | 366.08 | | 388.04 | | 406.22 | | 422.06 | |
| Flow [lb/h] | | min. | max. | min. | max. | min. | max. | min. | max. |
| DN to EN 1092-1 | DN to ANSI B16.5 | | | | | | | | |
| 15 | ½" | 27.79 | 324.21 | 35.86 | 418.47 | 43.94 | 512.66 | 52.04 | 607.12 |
| 25 | 1" | 58.93 | 1 042.1 | 66.94 | 1 345.1 | 74.1 | 1 647.8 | 80.63 | 1 951.5 |
| 40 | 1½" | 147.72 | 4 107.2 | 167.83 | 4 702.8 | 185.76 | 5 237 | 202.15 | 5 728 |
| 50 | 2" | 255.75 | 7 111.9 | 290.56 | 8 141.9 | 321.6 | 9 066.8 | 350 | 9 917 |
| 80 | 3" | 560.19 | 15 578 | 636.44 | 17 834 | 704.43 | 19 860 | 766.6 | 21 722 |
| 100 | 4" | 962.54 | 26 766 | 1 093.5 | 30 643 | 1 210.4 | 34 124 | 1 317.2 | 37 324 |
| 150 | 6" | 2 180.6 | 60 639 | 2 477.4 | 69 421 | 2 742.1 | 77 307 | 2 984 | 84 556 |
| 200 | 8" | 4 096.1 | 113 900 | 4 653.6 | 130 400 | 5 150.7 | 145 210 | 5 605.2 | 158 830 |
| 250 | 10" | 6 548.1 | 182 090 | 7 439.3 | 208 460 | 8 234.1 | 232 140 | 8 960.6 | 253 910 |
| 300 | 12" | 9 510.2 | 264 460 | 10 805 | 302 760 | 11 959 | 337 150 | 13 014 | 368 770 |