

Flow Measurement



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Flow Measurement

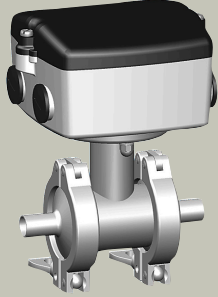
Product overview

Overview

SITRANS FM electromagnetic flowmeters – Flowmeter with pulsed DC field technology

	Application	Description
FMT020 flow transmitter 	High performance, robust and intelligent product, designed to fit perfectly for a wide area of process applications that require accurate, and reliable flow measurement of conductive fluids.	• High accuracy up to 0.2% of rate • 3 totalizers for forward, reverse, and net flow • Backwards compatible with older (up to 15 years) flowmeter sensors (MAG 5100W) • Fast start-up without zero-point adjustments • Variety of functions for comprehensive device check, self-diagnosis, and onboard verification • Verifactor compatible - Independently verifies performance of sensor, transmitter, and installation (including cable) without process interruption • Easy to use HMI display with local four-button programming, menu-driven parameters, and Wizard support for key applications • Multi-functional outputs for process control, minimum configuration with analog, digital (pulse, frequency, status), and relay output • SD memory card for data logging, configuration backup, and firmware update • Seamless field device integration in host systems • Communication modules: HART, Modbus RTU, Modbus TCP/IP, PROFINET, EtherNet/IP, PROFIBUS
MAG 5000/6000 flow transmitter 	Versatile, microprocessor-based transmitter with multiple function outputs and a modular housing concept for more flexible installation options is the ideal product for a wide range of applications. Available in a robust polyamide housing or as a 19" rack-mount version, the product is designed to offer high performance, simple operation and reduced maintenance.	• High performance: Cost-effective transmitter with high accuracy • Rugged design: Suitable for universal applications with a durable construction • Function outputs: Includes 0/4 ... 20mA, digital, and relay outputs for process control • SensorProm Technology: Stores sensor characteristic data for easy commissioning • Plug & Play: Allows simple on-site replacement and commissioning in minutes • Hot swappable: Exchangeable during operation without downtime • Mounting Flexibility: Supports both compact (integral mount) and remote design • Comprehensive self-diagnostic, for error indication and logging • Service and diagnostics: Designed for on-site verification with traceable certification • Communication module: HART, MODBUS, PROFIBUS, FOUNDATION Fieldbus, DeviceNet • Custody transfer approvals: MI-001, PTB K7.2
MAG 6000 I flow transmitter 	Designed in robust die-cast aluminum housing for demanding applications and where explosion proof protection is necessary.	• Remote and compact mounting with all sensors • Communication modules: HART, Modbus, PROFIBUS, FOUNDATION Fieldbus, DeviceNet • Ex Approval: ATEX, IECEx, FM, CSA • Multi-lingual display and touchpad keypad • Comprehensive self-diagnostic

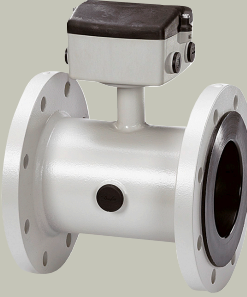
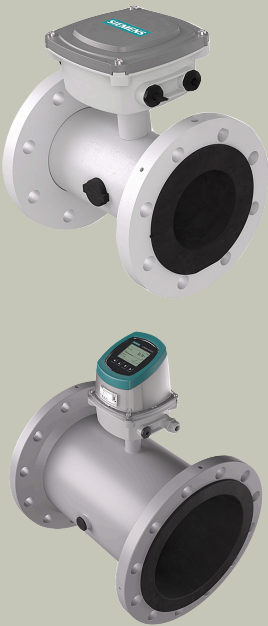
Overview (continued)

SITRANS FM electromagnetic flowmeters – Flowmeter with pulsed DC field technology		
	Application	Description
MAG 1100 / 1100 HT flow sensor 	Compact and cost-effective device suitable for measuring ultra low flows, for flow measurement in chemical applications and for use in industries with extreme process conditions. The obstructionless performance of the MAG 1100 is unaffected by the suspended solids, viscosity and temperature challenges.	• Wafer type sensor (flangeless), diameter DN 2 ... 1 00, 1/12" ... 4" • Corrosion-resistant AISI 316 stainless steel housing • Highly resistant liner (ceramic or PFA) and electrodes fitting most extreme process media • Temperature rating up to 200 °C (390 °F) • Approvals for use in hazardous areas
MAG 1100 F flow sensor 	Specially designed for the food & beverage and pharmaceutical industry.	• AISI 316 stainless steel enclosure • Hygienic seal, 3A • Easy to clean • Supplied with connections according to your specification • Ex approval: ATEX, FM
FMS300, MAG 3100 / 3100 HT flow sensor 	Device with a large variety of pipe diameters and wetted materials to meet the demands of almost every flow application. A fully welded construction, liner and electrode materials capable of withstanding the most extreme process conditions provide a ruggedness that allows measurement of even the most extreme process media.	• Wide range of pipe dimensions: DN 15 ... 2200 (1/2" ... 88") • High-temperature version for application with temperatures up to 180 °C (355 °F) • Fully welded construction provides a ruggedness that suits the toughest applications and environments • Wide range of electrode and liner materials to fit even the most extreme process media • Easy commissioning, the SENSORPROM memory unit automatically updates the settings. • Approvals for use in hazardous areas

Flow Measurement

Product overview

Overview (continued)

SITRANS FM electromagnetic flowmeters – Flowmeter with pulsed DC field technology		
	Application	Description
MAG 3100 P flow sensor 	Tailored product to meet the specific requirements of the chemical and process industries. Moreover, this versatile sensor finds its primary applications also in the pulp and paper sector as well as in the industrial wastewater management.	• Pipe dimensions DN 15 ... 300 (½" ... 12") • Standardized warehousing ensures short delivery times • Approvals for use in hazardous areas • Fully welded design withstands special process conditions • Temperature resistant up to 150 °C (302 °F)
MAG 5100 W flow sensor 	Ideal product for applications in water abstraction, wastewater treatment, water distribution networks, custody transfer metering and irrigation.	• Pipe dimensions DN 15 ... 2000 (½" ... 80") • Zero Up and Zero Down installation capabilities • EPDM liner specifically for drinking water applications • NBR rubber liner for all water and wastewater applications • Integrated grounding electrodes – no grounding rings • Increased low flow accuracy for water leak detection • Drinking water and custody transfer approvals • Rugged construction with no moving parts for maintenance-free operation over many years • Simple on-site upgrade to IP68 of a standard sensor allowing underground installation, permanent immersion or underwater installation
SITRANS FMS500 flowmeter sensor 	Magnetic flowmeter sensor for measuring of liquids (conductive), ideal for applications in water abstraction, wastewater treatment, water distribution networks and irrigation.	• Zero Up and Zero Down installation capabilities • NBR rubber liner for all water and wastewater applications • EPDM liner specifically for drinking water applications requiring special approvals • Increased low flow accuracy for water leak detection • Simple on-site upgrade to IP68 of a standard sensor allowing underground installation, permanent immersion or underwater installation • Built-in length according to ISO 20456 (up to DN 400 mm) • SENSORPROM™ Technology provides an automatic upload of start-up settings and calibration data for easy commissioning • Designed to allow in-situ verification for easy performance check • In conformity with ISO 4064, OIML R49 and EN 14154

Overview (continued)

SITRANS FM electromagnetic flowmeters – Flowmeter with pulsed DC field technology		
	Application	Description
FM100 flowmeter 	Electromagnetic flowmeter for measuring and monitoring small and medium flows.	• Connection ½", ¾", 1", 2" • Flow- and temperature measurement • IO-Link communication • Dosing function with external control output • Flexible usage in different applications due to two individual configurable outputs • Bidirectional measurement • Robust stainless-steel design

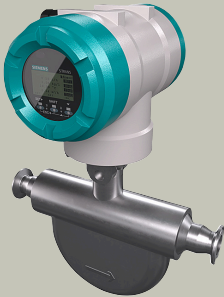
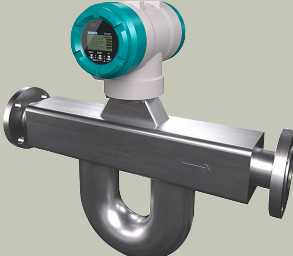
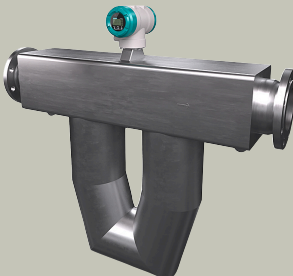
SITRANS FM electromagnetic flowmeters – High-power AC magnetic flowmeter		
	Application	Description
TRANSMAG 2 transmitter 	Designed for heavy-duty applications like pulp & paper stock over 3%; heavy mining slurries and mining slurries with magnetic particles.	• Magnetic flowmeter with a very strong pulsed AC magnetic field • PROFIBUS PA or HART communication • Comprehensive self-test function
MAG 911/E flow sensor 	Designed for heavy-duty applications like pulp & paper stock over 3%; heavy mining slurries and mining slurries with magnetic particles.	• Metering tube: DN 15 ... 1000 (½" ... 40") • Metering tube liner: Hard Rubber, Linatex, Soft rubber, PTFE and Novolak • Integral smartPLUG for storing of calibration values • Multi-lingual display and touchpad keypad • Only remote version

SITRANS FM electromagnetic flowmeters – Battery-operated water meter		
	Application	Description
MAG 8000 water meter 	Battery-operated electromagnetic water meter for water applications within abstraction, distribution network and revenue metering.	• Battery- and/or mains power operated water meter • Metering tube DN 25 ... 1200 (1 ... 48") • Remote and compact installation IP68/NEMA 6P enclosure • Custody transfer approval: PTB K7.2, OIML R 49 and MI-001 • Drinking water approvals • Communication modules: GSM/GPRS, Modbus, Encoder

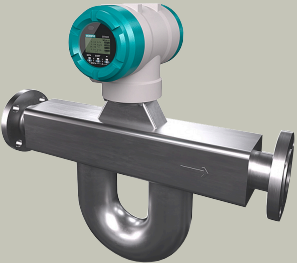
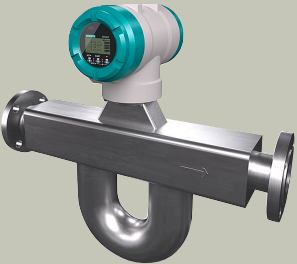
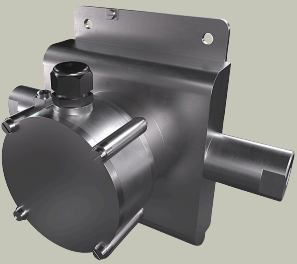
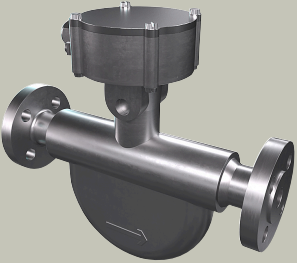
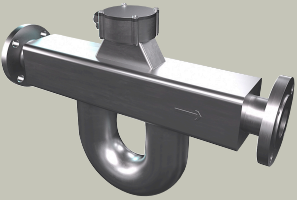
Flow Measurement

Product overview

Overview (continued)

SITRANS FC mass flowmeters Coriolis		Application	Description
FC120/FC140 flowmeter system 	The flowmeter systems of the SITRANS FC100 series are the precision Coriolis multi-parameter flowmeter for low flow applications.	• Batching function with batch leakage detection and batch control by transmitter for precise dosing • Accurate density measurement and up to four advanced concentration measurement data sets • Sizes to suit pilot plants, R&D labs and high value fluid additives • Wide choice of process connections, starting with DN 6 (¼ inch) for reduced installation efforts	
FC520/FC540 flowmeter system 	The flowmeter systems of the SITRANS FC500 series are the universal Coriolis multi-parameter flowmeter for routine and hygienic applications.	• Energy-efficient low pressure loss design with short tube paths and large tube diameter • Batching function with batch leakage detection and batch control by transmitter for precise dosing • Accurate density measurement and up to four advanced Concentration Measurement data sets • Benefit from viscosity function and capability to handle high viscous process fluids • Hygienic design, self-draining in vertical installation, with hygienic approval options	
FC620/FC640 flowmeter system 	The flowmeter systems of the SITRANS FC600 series are the resistant Coriolis multi-parameter flowmeter for extreme conditions.	• Temperatures from -196 °C (-321 °F), for cryogenic fluids, up to +350 °C (+662 °F) • Insulation and heat tracing options for viscous and molten liquids • Dynamic pressure compensation for accurate measurement under changing process pressure • Accurate density measurement and up to four advanced concentration measurement data sets	
FC720/FC740 flowmeter system 	The flowmeter systems of the SITRANS FC500 series are the grande Coriolis multi-parameter flowmeter for large pipes and high flows.	• Energy-efficient low pressure loss design with short tube paths and large tube diameter • Optimal decoupling of the dual tube measuring element from external stress and vibration • Accurate density measurement and up to four advanced concentration measurement data sets • Benefit from viscosity function and capability to handle high viscous process fluids • High power tube driver to detect gas content to maintain dependable measurements with entrained gas	

Overview (continued)

SITRANS FC mass flowmeters Coriolis		Application	Description
FCT020 transmitter 		FCT020 is the standard transmitter, suitable for general purpose applications. It delivers accurate and precise measurements of mass flow rate, density, temperature and volume flow rate.	• Tube health check • Communication modules: HART, Modbus
FCT040 transmitter 		FCT040 is the advanced transmitter, offering a wider range of application solutions with improved performance.	• Tube health check • Standard concentration measurement • Petroleum measurement function • Fraction (advanced concentration) • Viscosity function • Batching function • Communication modules: HART, Modbus, PROFIBUS, PROFINET over Ethernet-APL
FCS100 sensor 		SITRANS FCS100 sensor is the precision Coriolis flow sensor for low flow applications.	• Install in tight spaces with no inlet and outlet restrictions • Sizes to suit pilot plants, R&D labs, and high value fluid additives • Combination with a remote transmitter via a connecting cable • Installation of sensor and transmitter in different locations
FCS500 sensor 		SITRANS FCS500 sensor is the universal Coriolis flow sensor for routine and hygienic applications.	• Dual curved AISI 316L stainless steel tubes with polished option • Hygienic approvals for food, beverage, and pharmaceutical sectors • Versatile solution with superior turndown and low pressure loss • Combination with compact or remote transmitters
FCS600 sensor 		SITRANS FCS600 sensor is the resistant Coriolis flow sensor for extreme conditions and corrosive fluids.	• Dual curved AISI 316L or alloy 22 tubes with optimum decoupling from external influences • Temperatures from -196 °C (for cryogenic fluids), up to +350 °C • Insulation and heat tracing options for viscous and molten liquids • Combination with compact or remote transmitters

Flow Measurement

Product overview

Overview (continued)

SITRANS FC mass flowmeters Coriolis		
	Application	Description
FCS700 sensor 	SITRANS FCS700 sensor is the grande Coriolis flow sensor for large pipes and high flows.	• Dual curved AISI 316L stainless steel or alloy 22 tubes with optimum decoupling from external influences • Energy efficient low pressure loss design with short tube paths and large tube diameter • High power tube driver for dependable measurements in high damping applications • Combination with compact or remote transmitters
SITRANS FS in-line ultrasonic flowmeters		
	Application	Description
SITRANS FST030 transmitter 	SITRANS FST030 Inline is designed for all ultrasonic flowmetering. The SITRANS FST030 can measure liquids or oil with the SONOKIT.	• For SONOKIT up to DN 3000 and more • 1 or 2 path option • Single, dual or four path version • Hazardous area approvals for ATEX Zone 1,2, IECEx Zone 1,2 FMc Class I Div. 1,2
SITRANS FUS080/FUE080 transmitter 	SITRANS FUS080 is a time-based transmitter designed for ultrasonic flowmetering in pipes for the SONOKIT, FUS380 and FUE380 series up to DN 1200	• Battery or mains-powered • Easy one-button operation • Bidirectional measuring • IrDA optical eye communication • Robust polyamide enclosure
SITRANS FSS100 (SONOKIT) 	Installation of one, two or four transducer sets in existing concrete or steel pipes. Typically installed in pipes with large diameters or in hot/cold water applications	• SITRANS FST030 transmitter for separate mounting • DN 100 ... 3000 (4" ... 120") • Control and display unit • Temperature of medium: -20 ... +200 °C (-4 ... +395 °F) • Installation on empty pipes or pipes under pressure (hot-tap installation) • Standard 1-, 2- or 4-path

Overview (continued)

SITRANS FS in-line ultrasonic flowmeters

FUS380/FUE380



Application

Battery or mains-powered ultrasonic flowmeter for use within water-based district heating, cooling systems and utility.
The FUS380 can also be used for water irrigation systems.
SITRANS FUS380/FUE380 are designed to work with the SITRANS FUE950 energy calculator.

Description

- FUS380/FUE380: DN 50 ... 1200 (2" ... 48")
- FUE380: Approved for custody transfer according to MID MI004 (according to EN 1434 Class 2, OIML R 75)
- FUS380/FUE380: Red brass or painted carbon steel flanges and metering tube. AISI transducers
- Water temperatures 2 ... 200 °C (35.6 ... 392 °F)
- Battery or mains-powered

SITRANS FUE950



Universal thermal energy calculator for district heating and cooling applications.

- Battery or mains-powered
- 24 periods memory
- 2 ports for plug-in modules as data output, extra input, M-Bus, RS 232/RS 485, current output
- Complete set with temperature sensors and pockets
- MID heating approval, PTB K7.2 cooling approval, MI004 type approval

SITRANS FS clamp-on ultrasonic flowmeters

SITRANS FS230



Application

SITRANS FS clamp-on ultrasonic flowmeters provide highly accurate measurement while minimizing installation time and maintenance expense. These dedicated flowmeters are suitable for a wide variety of liquid applications, including those in the:

- Water Industry
- Wastewater Industry
- HVAC Industry
- Power Industry
- Processing Industry
- Hydrocarbon Industry

Description

- Suitable for virtually any liquid, even those with high aeration or suspended solids
- Hydrocarbon functions are ideal for applications carrying crude oil, refined petroleum or gas
- Choice of single, dual or four path versions to suit your operating conditions and requirements
- Easy installation; no need to cut pipe or stop flow
- Minimal maintenance; external sensors do not require periodic cleaning
- Easy to read display with intuitive menu system
- Hazardous area approvals for ATEX Zone 1,2, IECEx Zone 1,2 FMc Class I Div. 1,2

SITRANS FS220



SITRANS FS220 basic is a fast-to-install clamp-on ultrasonic flowmeter for accurate measurements with minimal maintenance. Based on latest technology, this flowmeter is ideal suitable for applications like:

- Water Industry
- Wastewater Industry
- HVAC Industry
- Power Industry
- Process controls

- Easy installation during process condition, no need to cut pipe or stop flow
- Minimal maintenance; external sensors do not require periodic cleaning
- No media-contacting parts, no wear, no pressure drop, no energy loss
- Wide turn-down ratio, very sensitive in low flow condition
- Optional WideBeam technology ensures high performance
- Compatible with all previously fielded transit time sensors

Flow Measurement

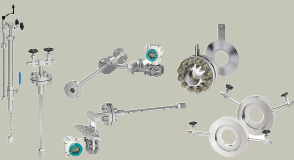
Product overview

Overview (continued)

SITRANS FS clamp-on ultrasonic flowmeters		
	Application	Description
SITRANS FS290 	The portable clamp-on ultrasonic flow measurement system SITRANS FS290 is formed by the SITRANS FST090 portable clamp-on flowmeter with FSS200 sensors. This system represents the next generation of digital flow measurement which allows you to easily measure or check flows in pipes.	• Easy installation: just clamp it on, with no need to cut pipe or stop flow • Minimal maintenance: sensors do not require upkeep or cleaning • No moving parts to foul or wear • No pressure drop or energy loss • Wide turn-down ratio • Precise single path measuring
SITRANS FST070 	The technology module SITRANS FST070 is an ultrasonic clamp-on flowmeter transmitter for the SIMATIC ET200SP. The SITRANS FST070 can be used for machine builders, in the chemical industry or water treatments and is suitable for measuring on liquid, hydrocarbon and gas	• Easy integration into automation process control as TIA Portal and PCS 7 (SIMATIC) • Easy selection and integration of flowmeters via TIA selector • Precast face plates for TIA Portal and PCS 7 • No additional transmitter between automation and clamp-on sensors required • Cost effective integration of clamp-on flowmeters for water treatments, control rooms with PCS 7 • SITRANS FST070 ET 200SP technology module can be combined with all other SIMATIC ET200 modules • Fast and trouble-free communication between the flowmeter and the PLC through digital data communication with up to 10 ms update rate • ATEX Zone 2 Class 1 Div. 2. With the barrier SITRANS I300 the flowmeters sensor can be used in Ex Zone 1/0 Class 1 Div. 1 approval
SITRANS FX Vortex flowmeter		
	Application	Description
SITRANS FX330 	Very versatile and flexible for use in many process applications. Flow sensors combines flow, pressure and temperature measurement into one user-friendly, two-wire device. • Measurement of saturated steam and superheated steam • Heat metering of steam and hot water • Measurement of consumption in compressed air systems • Evaluation of Free Air Delivery (FAD) • SIP and CIP processes in the food, beverage and pharmaceutical industries • Measurement of conductive and non-conductive liquids • Safety-related measurement in SIL applications (SIL2).	• Integrated pressure and temperature compensation • Temperature compensation for saturated steam included as standard • SIL2 certified according to IEC 61508 Edition 2 • Use in hazardous areas • Integrated reduction of nominal diameter for space-saving and economic installation • Exchange of electronics without loss of calibration and configuration data • Gross and net heat calculation to support energy management • Remote version with cable length up to 50 m (164 ft)

Overview (continued)

SITRANS FVA variable area meters		
	Application	Description
FVA250 	Measurement of flow of liquids and gases, also highly suitable for corrosive media, high temperatures and high pressures.	• All-metal variable area meter with various float materials • Connections: DN 15 ... 100 (½" ... 4") • Temperature of medium: -20 °C ... +300 °C (-4 ... +572 °F) • Optionally available with analog output or contacts

SITRANS FP differential pressure flow measurement		
	Application	Description
	SITRANS FP product line is suitable for all kinds of applications – liquids, dry or humid gases and steam. Due to the robust though variable design it has been and still is one of the main technologies for flow measurement in various industries. A new digital sizing process ensures minimum effort during presales and full traceability in aftersales. The differential pressure portfolio consists of • pitot tubes SITRANS FPS300 • primary elements according to ISO 5167 (orifices) SITRANS FPS200	• Suitable for a vast range of different applications • Available as pre-mounted compact system as well as remote parts • Advanced intelligent sizing procedure • Web-based sizing and data storage enables full traceability and easy communication • All benefits of SITRANS P320 available

Flow Measurement

Introduction

Criteria for selection of flowmeter

Overview

Criteria for selection of flowmeter

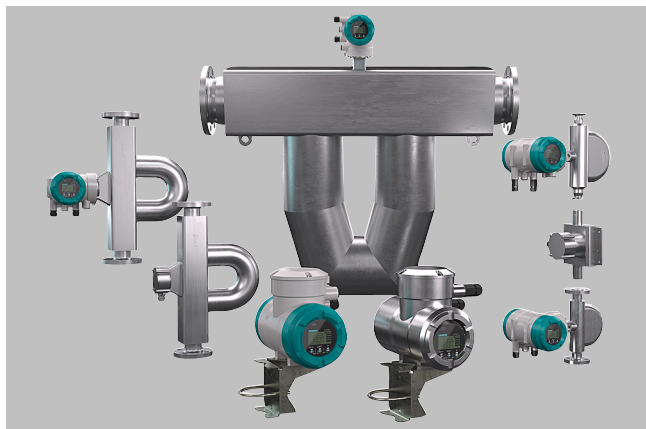
Each method for measuring flow has specific properties, and each flow measuring point is characterized by specific requirements. The table shown below compares the properties of the various measuring instruments and thus provides assistance in selection of the optimum device.

This section of the field device catalog includes the following instruments for measuring flow:

- Electromagnetic
- Coriolis mass flow
- Ultrasonic
- Vortex volumetric- and mass flow
- Variable area meter
- Primary element

Measurement principle	Electromagnetic	Coriolis	Ultrasonic (inline)	Ultrasonic (clamp-on)	Vortex	Variable area meter	Primary element
Medium	Liquid (conductive)	Liquid or gas	Liquid	Liquid or gas	Steam/vapor, gases, liquid	Liquid or gas	Liquid, vapor, gas
Nominal size	DN 2 ... 2200 (0.08" ... 88")	DN 1 ... 200 (0.04" ... 8")	DN 50 ... 1200 (2" ... 48")	6.4 mm ... 9.14 m (0.25" ... 360")	DN 15 ... 300 (½" ... 12")	DN 10 ... 100 (0.4" ... 4") G½" ... G3"	DN 10 ... 4000 (0.4" ... 160")
Temperature range [°C (°F)]	-40 ... +200 (-40 ... +392)	-50 ... +180 (-58 ... +356)	-20 ... +200 (-4 ... +392)	-40 ... +120 (-40 ... +248)	-40 ... +240 (-40 ... +464)	-20 ... +300 (-4 ... +572)	-100 ... +490 (-148 ... +914)
Max. pressure [bar (psi)]	160 (2 320), optional higher	Up to 410 (Up to 5 950)	40 (580)	Unlimited	100 (1 450)	100 (1 450)	315 (4 569)
Accuracy [%]	± 0.25 or ± 0.4	± 0.1 or ± 0.15	± 0.5 ... ± 2	0.5 ... 1.0 % of flow, for velocities greater than 0.3 m/s (1 ft/s)	± 0.75 ... ± 1	± 1.6 ... ± 2.0	± 0.5 ... ± 1.2
Repeatability [%]	0.1/0.2	0.05	0.25	0.15% of flow, for velocities greater than 0.3 m/s (1 ft/s)	0.1	0.5	0.1
Dynamic response range	1:100	1:100	1:400	1:100	1:25	1:10	1:6
Start-of-scale value [m/s (ft/s)]	0 (0)	0 (0)	0.1 (0.33)	0 (0)	0.4 (1.31) 2.0 (6.56)	0.2 (0.66)	Re > 500
Full-scale value				± 36/120			Re < 10 ⁸
• For liquids [m/s (ft/s)]	0.25 ... 10 (0.825 ... 32.8)	10 (32.8)	10 (32.8)	± 12/40	10 (32.8)	3.5 (11.4)	3 (9.8)
• For steam/vapor, gases [m/s (ft/s)]		Approx. 300 (1000)		± 12/40	80 (262.5)	60 (197)	50/25 (164/82)
Measured values							
Volume flow	•	•	•	•	•	•	•
Flow velocity	•		•	•			
Electrical conductivity	•		•	•			
Density		•		•			
Mass flow		•	•	•	•		
Bidirectional measurement	•	•	•	•			•
Use							
• For custody transfer	•	•	•	•			
• As batching system	•	•		•			
• In viscosity range [mPa s (cp)]	0.1 ... 100 000 (0.1 ... 100 000)	0 ... 100 000 (0 ... 100 000)	0 ... 350 (0 ... 350)	0.5 ... 2800 (0.5 ... 2800)	0 ... 10 (0 ... 10)	0.5 ... 100 (0.5 ... 100)	0 ... 10 (0 ... 10)
Power supply	Mains or battery	Mains	Mains or battery	90 ... 240 V AC, 50 ... 60 Hz, 15 VA or 9 ... 36 V DC, 10 W	2-wire	non	2-wire

Overview



SITRANS FC is the range of Siemens Coriolis mass flowmeters that provides high performance process measurements. The extensive portfolio provides multi-parameter measurement solutions for all fluid types, including liquids, gases and multi-phase fluids.

Primary measurements of mass flow, density and temperature are available immediately on device start-up.

SITRANS FC also calculates multiple secondary measurements including:

- Fraction (or concentration)
- Liquid volume flow
- Normal (standard) volume flow of gases
- Viscosity (requires external input)
- Thermal energy

Siemens measurement experts are available globally. They provide application guidance to optimize the whole life value of SITRANS FC multi-parameter instruments, across all process industry sectors.

Diligence in the design, carried through manufacturing and calibration, is evident in the solution-specific range of sensors and transmitters, described on the following pages.

Product overview

SITRANS FC sensors

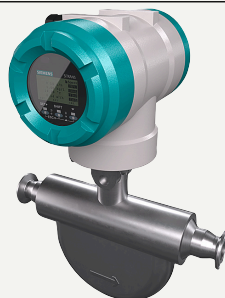
SITRANS FCS100



Precision sensors for low flow applications

- Alloy 22 measuring tubes
- Process connection: flange, thread or hygienic clamp
- Nominal sizes: DN 1, DN 2, DN 4, DN 6, DN 8
- Connection sizes: DN 6 ... 40 (1/4 ... 1 1/2")
- Nominal flow: 21 ... 950 kg/h (46 ... 2 094 lb/h)

SITRANS FCS500



Universal sensors for standard applications

- Wetted parts: stainless steel 316L
- Process connections: flange or thread
- Nominal sizes: DN 10, DN 15, DN 25, DN 50, DN 80
- Connection sizes: DN 8 ... 125 (3/8 ... 5")
- Nominal flow: 1 600 ... 170 000 kg/h (3 527 ... 374 786 lb/h)

Hygienic sensors with 3A and EHEDG approvals

- Wetted parts: stainless steel 316L
- Process connection: hygienic, thread or clamp
- Nominal sizes: DN 10, DN 15, DN 25, DN 50
- Connection sizes: DN 25 ... 80 (1 ... 3")
- Nominal flow: 1 600 ... 51 000 kg/h (3 527 ... 112 436 lb/h)

Flow Measurement

SITRANS FC (Coriolis)

System information

Overview (continued)

SITRANS FC sensors

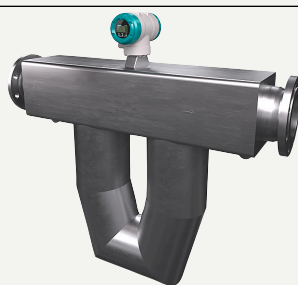
SITRANS FCS600



Resistant sensors for extreme conditions

- Resistant to high temperature, up to 350 °C (662 °F)
- Resistant to high pressure, up to 700 bar (10 153 psi) (gauge)
- Resistant to corrosive fluids
- Wetted parts: stainless steel 316L or alloy 22
- Process connection: flange or thread
- Nominal sizes: DN 2, DN 4, DN 15, DN 25, DN 40, DN 65
- Connection sizes: DN 8 ... 125 (¾ ... 5")
- Nominal flow: 45 ... 100 000 kg/h (99 ... 220 462 lb/h)

SITRANS FCS700



Grand sensors for high flow applications

- Wetted parts: stainless steel 316L or alloy 22
- Process connection: flange
- Nominal sizes: DN 100, DN 150, DN 200
- Connection sizes: DN 100 ... 250 (4 ... 10")
- Nominal flow: 250 000 kg/h ... 900 000 kg/h (551 156 ... 1 984 160 lb/h)

SITRANS FC transmitters

SITRANS FCT020



Standard transmitter for routine applications

- Mass flow accuracy: $\pm 0.2\%$ (of rate)
- Density accuracy: $\pm 4 \text{ kg/m}^3$ ($\pm 0.25 \text{ lb/ft}^3$)
- Easy setup wizard, microSD card, self-verification
- Digital communication: HART, Modbus

SITRANS FCT040



Advanced transmitter with extended functionality

- Mass flow accuracy: $\pm 0.1\%$ (of rate)
- Density accuracy: $\pm 0.5 \text{ kg/m}^3$ ($\pm 0.03 \text{ lb/ft}^3$)
- Easy setup wizard, microSD card, self-verification
- Batch control, viscosity measurement
- Fraction (percent concentration), e.g. API, Brix, ABV
- Thermal energy calculation
- Digital communication: HART, Modbus, over

Each SITRANS FC Coriolis mass flowmeter system comprises one sensor and one transmitter. The FCS100 precision sensors for low flow are compatible with remote mounted transmitters only. The user

can select either compact or remote mounted transmitters in the specification of all other sensor types.

Overview (continued)

Transmitter	Compact	Remote	Ex	Sensor
FCT020 (standard)	Yes	Yes	Yes	FCS500
	No	Yes	Yes	FCS100
	Yes	Yes	Yes	FCS600
	Yes	Yes	Yes	FCS700
FCT040 (advanced)	Yes	Yes	Yes	FCS500
	No	Yes	Yes	FCS100
	Yes	Yes	Yes	FCS600
	Yes	Yes	Yes	FCS700

Benefits

	User value targets	SITRANS FC features and solutions
Engineering and project management	• Reduce engineering investment • Cut specification effort • Minimize project expenditure • Decrease the spending on each measurement point • Eliminate function duplication • Reduce number of suppliers	• Siemens project teams offer complimentary evaluation of customer specifications, provided by regional and HQ experts • Simple product selection using intuitive sizing software • One SITRANS FC device can typically provide 3 to 6 individual measurements, all transmitted via digital communication, when planned during pre-project design • Added value functions: batch control, viscosity, thermal energy, concentration measurement (Fraction) of two-component solutions, and pressure compensation
Installation	• Reduce footprint and transport outlay of OEM machinery • Lower installation complexity • Avoid costly modifications of existing plant	• Can be installed in horizontal or vertical (self-draining) pipes • Twin tube bend design delivers strong signal to noise characteristic resistant to external influence, so install in tight spaces with no inlet and outlet restrictions • Adaptable to existing pipes: typically, 3 or 4 connection sizes for each sensor size • Flexible selection of traditional inputs, outputs, and digital communications
Configuration and commissioning	• Shorter commissioning schedules with lower costs • Faster start-up with reduced outgoings	• Easy setup wizard delivers working meters straight after start-up • microSD card stores sensor calibration data and default setup • Simple configuration using Process Device Manager (PDM) • Siemens device-specific faceplates simplify operation in plantwide control systems
Efficient plant operation	• Improve finished product consistency to reduce waste • Keep process performance when scaling production up or down • Optimize process control • Improve finished product quality enabling higher levels of profit • Reduce downtime with fast resolution of process upsets • Improve asset performance	• SITRANS FC meters are calibrated in rigs accredited to EN/ISO 17025 to ensure consistently high performance of flow, density, and concentration measurements • First-class zero-point quality maintains high accuracy into the low flow region • High sensitivity and intelligent dynamic range keeps the measurement active in demanding high fluid damping cases • Designed-in resilience to process extremes • Self-verification alerts to potential performance issues due to unplanned process events, for example gas or vapor breakout or solid deposits building up in the tubes • Diagnostic data via local menu or PDM is backed by Siemens applications experts • Intelligent Siemens SITRANS IQ apps for continuing asset evaluation

Flow Measurement

SITRANS FC (Coriolis)

System information

Benefits (continued)

	User value targets	SITRANS FC features and solutions
Maintenance and asset management	• Optimize technician training • Reduce cost of spare parts • Increase predictive maintenance • Reduce production downtime and associated costs • Decrease unplanned maintenance • Maximize asset value	• Simple product design with interchangeable modular parts • microSD card loads sensor-specific data to deliver fast service exchange • Self-verification: tube health check monitors key diagnostics, including tube stiffness, driver and pickups; the user defines verification frequency and alarm behavior • Verification results indicate whether preventive maintenance action is required • Siemens SIMATIC Maintenance Station uses cyclical acquisition to provide life cycle reports and intelligent preventive maintenance strategies
Industry compliance	• Cut effort required to comply with Industry-specific demands • Reduce resource needed to maintain regulatory compliance	• Food and beverage sector covered with EHEDG and 3-A approvals, polished tubes • Global hazardous area approvals for international plant duplications • Common and emerging digital networks covered: HART, PROFIBUS PA, PROFINET over Ethernet-APL • Class-leading safety: SIL2/SIL3, secondary containment, PED, NAMUR NE95

Application

The SITRANS FC Coriolis family provides flexibility to the user including

- Choice of sizes from DN 1 to DN 250
- Choice of performance levels
- Optionally selectable functions, approvals and certification
- Selection of sensor types, process connections and materials to suit specific application demands
- Resistance to extreme process conditions where necessary

This flexibility and extensive range of options means an excellent value solution is available for routine and challenging applications alike, with no industry sector excluded.

Generic measurement and application examples found in all industry sectors

- Mass flow rate, density and temperature of liquids, gases, and mixed phase fluids
- Bulk volume flow rate of all fluid types
- Concentration measurement (fraction) of two-component slurries, solutions and mixtures
- Fractional mass flow rate of each component in a two-component fluid (net flow)
- Fractional volume flow rate of each component in a two-component fluid (net flow)
- Single or two stage batch control
- Viscosity measurement (requires differential pressure via analog input or digital communication)
- Thermal energy measurement
- Accumulated (totalized) mass and volume values of the bulk fluid and each fractional component
- Finished product filling and dosing into appropriate containers

During the selection of any SITRANS FC Coriolis flow meter it is important to obtain sufficient application data. The application checklist below provides guidance on what to look out for.

Application checklist

- Name of fluid?
- What type of fluid are you measuring – gas, liquid, slurry, other?
- Fluid properties and operating conditions – density, viscosity, temperature, pressure?
- Measurement(s) required: mass flow, volume flow, density, concentration, temperature?
- Expected flow rates – minimum, normal, maximum?
- Any hazardous area or corrosive properties?
- Adjacent pipe layout, disturbances (e.g. valves, bends)?
- What are the priorities – accuracy, installation and running costs, approvals?
- Power supply and outputs – analog, digital network?
- Will periodic verification or re-calibration be required – consider isolation valves, and bypass?

Application (continued)

Application examples for SITRANS FC multi-parameter meters across diverse industry sectors

Industry sector	Application
Chemical and petrochemical Bulk chemicals Industrial gases Polymers Agrochemicals Fine chemicals Aroma chemicals	• Transfer, loading and unloading of bulk chemicals • Concentration control of acids and alkalis (process optimization) • Accurate mass or volume flow of feed chemicals to in-line blending systems • Accurate mass flow and density (quality) of reactor fluid feeds catalyst • Chemical recovery • Mass balance optimization • Compressed and cryogenic gases • Lubricating oil blending and dosing • High-accuracy measurement of critical fluid components • Low flow control in pilot plants and R&D facilities
Food and beverage Food processing Dairies Breweries Distilleries Confectionary Soft drinks Animal feed plants OEM	• Accurate bulk transfer (mass or volume) of all dairy products: milk, cream, whey and yoghurt • Fat concentration in cream • Flow, density, temperature, and concentration (Plato) during all fermentation processes • Flow, density, temperature, and sugar concentration (Brix) in soft drink processing • Distilled spirits – % alcohol by volume (ABV), liters of pure alcohol, volume transfer, blending, batch and column still optimization and energy management, cask filling, tanker loading • Flow and density of fruit juices and pulps • Mixing and inventory control of confectionary ingredients, e.g. chocolate, syrup, oils, flavors • Metering pump control • Oils, fat enzymes dosing in animal feed plants • CO₂ dosing • CIP liquids • Bottling of beer, spirits, wine, soft drinks, etc. • Bulk sugar processing – molasses, sugar slurries, density, Brix of finished product
Oil and gas Offshore, onshore Upstream, downstream Pipelines Distribution networks Refineries Skid manufacturers	• Loading/unloading of hydrocarbons (e.g. crude oil, bitumen) from/to ship, road tanker, rail car • High-pressure chemical injection • High-pressure low flow gas • Net oil computing • Gas void fraction • Filling of gas bottles • Furnace control • Test separators • LPG, natural gas hydration • Well-head water-cut monitoring • All hydrocarbon fluids in refineries • Metrology, custody transfer • Drilling mud • Oil well cementing and hydrofracturing

Flow Measurement

SITRANS FC (Coriolis)

System information

Application (continued)

Industry sector	Application
Life sciences Pharmaceutical Bio	• High-accuracy flow and batching of bioreactor feeds • Solvent flow rate, density and batching • Flow of demineralized and deionized water • Solvents and fish oils used in high grade omega 3 oils • Precision coatings • Vacuum thin film coating
Household and personal care Detergents Cosmetics	• Blending and batching of detergent ingredients • Tanker loading and unloading • Salt concentration • Reliable measurement of aerated liquids
Automotive and aeronautical Vehicle manufacturing Paint Engine testing OEM	• Fuel injection nozzle and pump testing • Filling of under bonnet fluid reservoirs, air conditioning, coolant • Fuel flow and density measurement in engine test beds • Checking for air in oil using high-accuracy density measurement • Paint spray robots – requires accurate and fast measurements • Aircraft fuel loading (kerosene) • High pressure flow used in turbine blade manufacture
Power and energy Renewable Hydrogen	• Boiler fuel flow and burner control • Turbine fuel flow • Glycol flow and concentration • Bioethanol
Marine OEM Shipbuilders	• Fuel consumption management • Boiler control • Bunkering management • Density used to indicate fuel quality
Pulp, paper and textiles	• Accurate dosing of dyes and chemicals
Water and environmental	• Dosing of chemicals for water treatment • Chemical concentration for water quality control

Design

Each SITRANS FC Coriolis mass flowmeter is built from one SITRANS FCS sensor and one SITRANS FCT transmitter. FCS sensors have a common twin tube U-shaped design.

The four available sensor types are defined by size, wetted part materials, pressure and temperature rating, and process connection type. Generally, sensors can be combined with compact or remote mounted transmitters.

Two transmitter versions, FCT020 standard and FCT040 advanced, provide a choice of performance, measurement functions, housing material and output types.

Examples

Compact mount

FCS600 resistant sensor with FCT020 standard transmitter becomes a complete FC620 Coriolis flowmeter. Specification of sensor size, transmitter and process connections is required.

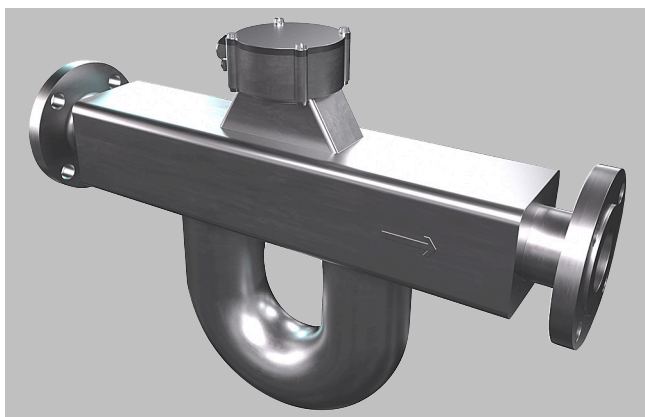


FC620 Coriolis flowmeter

Remote mount

FCS600 resistant sensor with FCT040 advanced transmitter becomes a complete FC640 Coriolis flowmeter.

Specification of sensor size, terminal housing design, transmitter, process connections and cable are required.



FCS600 sensor



FCT040 transmitter

FCS100 precision sensors (sizes DN 1 to DN 8) are compatible with remote mounted transmitters only.

Other example

FCS100 precision sensor with remote FCT020 standard transmitter becomes a complete FC120 Coriolis flowmeter.



The following table shows a more complete interpretation of available combinations and the compatibility between sensors and transmitters.

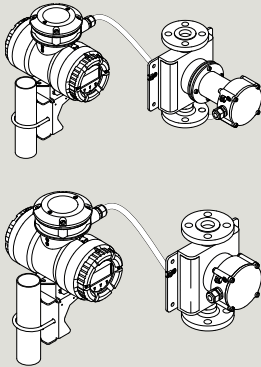
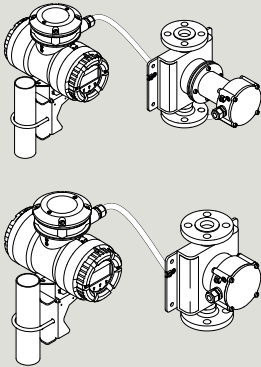
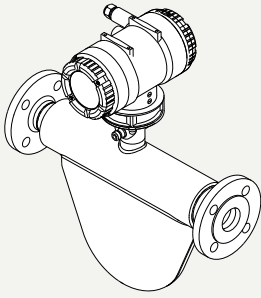
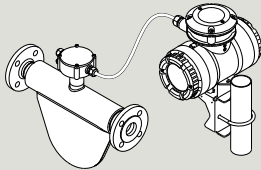
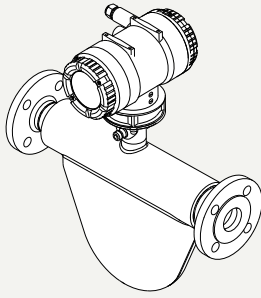
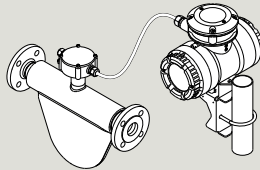
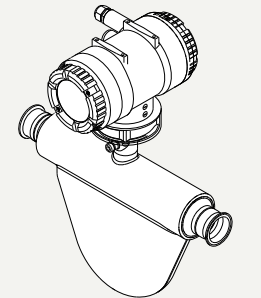
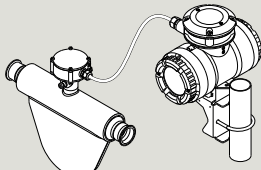
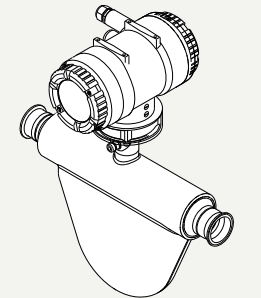
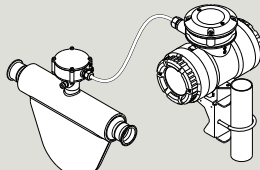
Flow Measurement

SITRANS FC (Coriolis)

System information

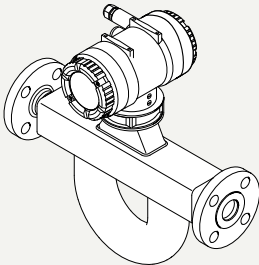
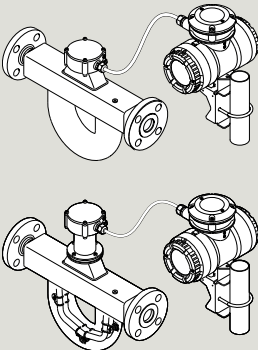
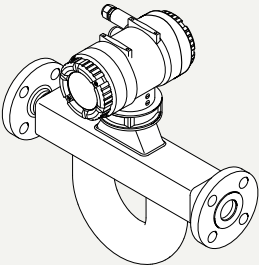
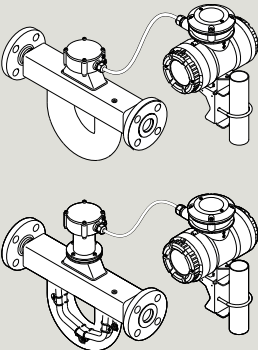
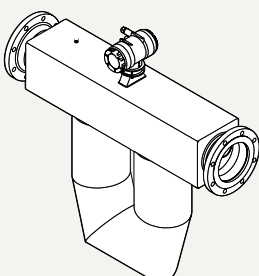
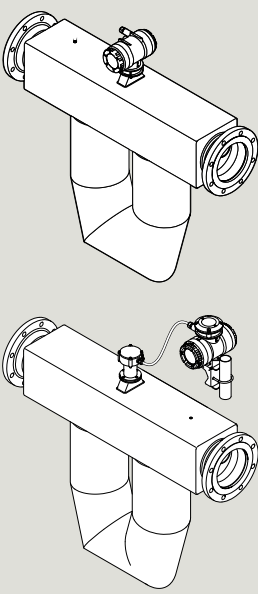
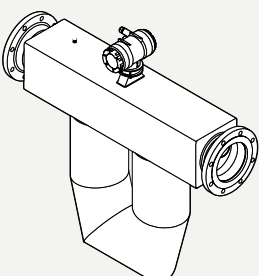
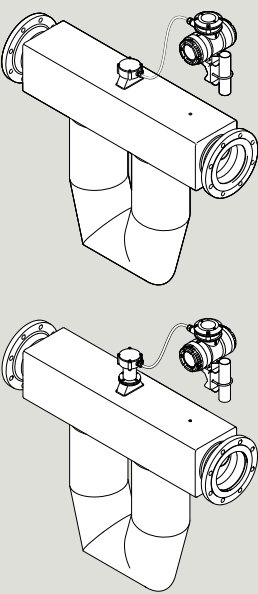
Design (continued)

Overview of the available combinations and compatibility between sensors and transmitters

	Transmitter FCT020 Standard		Transmitter FCT040 Advanced	
	- Accuracy 0.2% - Easy setup wizard, microSD card, tube health check, up to 4 × I/O - HART, Modbus - Mass, density, temperature, volume		- Accuracy 0.1% - Easy setup wizard, microSD card, tube health check, up to 4 × I/O - HART, Modbus, PROFIBUS PA, PROFINET over Ethernet-APL - Mass, density, temperature, volume - Fraction, batch, viscosity, net oil	
Sensors	Compact Aluminum alloy	Remote Aluminum alloy or CF 8M	Compact Aluminum alloy	Remote Aluminum alloy or CF 8M
FC5100 - DN 1 to DN 8 - Alloy 22 or 316L ss - max. 260 °C (500 °F) (long neck) - max. 285 bar (4 134 psi) - Ex, PED, SIL2/3 - NACE, Marine, CT	Not available	FC120 	Not available	FC140 
FC5500 non hygienic - DN 10 to DN 80 316L ss - max. 200 °C (392 °F) (remote) - max. 100 bar (1450 psi) - Ex. PED. SIL2/3 - NACE, Marine, CT	FC520 	FC520 	FC540 	FC540 
FC5500 hygienic - DN 10 to DN 50 316L ss, polished - max. 140 °C (284 °F) - max. 40 bar (580 psi) - Ex. PED. SIL2/3 - EHEDG, 3A	FC520 	FC520 	FC540 	FC540 

Design (continued)

Overview of the available combinations and compatibility between sensors and transmitters

FCS600 • DN 15 to DN 80 • Alloy 22 or 316L ss • -196 °C ... +350 °C (-321 ... +662 °F) • Max. 700 bar (10 153 psi) • Ex, PED, SIL2/3 • NACE, Marine, CT • EHEDG, 3A	FC620 	FC620 	FC640 	FC640 
FCS700 • DN 100 to DN 200 • Alloy 22 or 316L ss • Max. 350 °C (662 °F) • Max. 100 bar (1 450 psi) • Ex, PED, SIL2/3 • NACE, Marine, CT	FC720 	FC720 	FC740 	FC740 

Selection Guide

							
	FCS100 sensors		FCS500 sensors		FCS600 sensors		FCS700 sensors
	FC120	FC140	FC520	FC540	FC620	FC640	FC720
	7ME4412	7ME4414	7ME4452	7ME4454	7ME4462	7ME4464	7ME4472
Design							
Compact			•	•	•	•	•
Remote	•	•	•	•	•	•	•
Flow accuracy (liquids)							
Mass flow 0.1%		• ¹⁾		•		•	•
Mass flow 0.2%	•		•		•		•

Flow Measurement

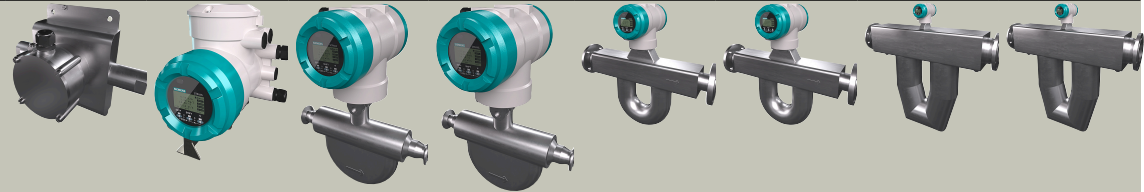
SITRANS FC (Coriolis)

System information

Design (continued)

								
	FCS100 sensors		FCS500 sensors		FCS600 sensors		FCS700 sensors	
	FC120	FC140	FC520	FC540	FC620	FC640	FC720	FC740
	7ME4412	7ME4414	7ME4452	7ME4454	7ME4462	7ME4464	7ME4472	7ME4474
Density accuracy (liquids)								
Density 0.5 kg/m ³		● ²⁾		● ²⁾		● ²⁾		
Density 2 kg/m ³								●
Density 4 kg/m ³	● ³⁾		●		● ³⁾		●	
Flow accuracy (gases)								
Mass flow: 0.35%				●		● ⁴⁾		● ⁴⁾
Mass flow: 0.5%		●						
Mass flow: 0.75%	●		●		●		●	
Transmitter enclosure								
IP66/IP67	●	●	●	●	●	●	●	●
Cast aluminum	●	●	●	●	●	●	●	●
Standard coating	●	●	●	●	●	●	●	●
Cast aluminum	●	●	●	●	●	●	●	●
Corrosion protection coating	●	●	●	●	●	●	●	●
Stainless steel (remote only)	●	●	●	●	●	●	●	●
Inputs and outputs								
Up to 4 input and output channels (passive or active)	●	●	●	●	●	●	●	●
Analog output	●	●	●	●	●	●	●	●
Pulse or status output	●	●	●	●	●	●	●	●
Pulse or status input	●	●	●	●	●	●	●	●
Analog input		●		●		●		●
Communication								
HART	●	●	●	●	●	●	●	●
PROFIBUS PA		●		●		●		●
MODBUS	●	●	●	●	●	●	●	●
PROFINET over Ethernet-APL		●		●		●		●
Supply voltage								
24 V DC	●	●	●	●	●	●	●	●
115/230 V AC	●	●	●	●	●	●	●	●
Sensor size								
DN 1	●	●						
DN 2	●	●			●	●		
DN 4	●	●			●	●		
DN 6	●	●						
DN 8	●	●						
DN 10			●	●		●		
DN 15			●	●		●		
DN 25			●	●	●	●		
DN 40					●	●		
DN 50			●	●				
DN 65					●	●		
DN 80			●	●				
DN 100							●	●
DN 150							●	●
DN 200							●	●

Design (continued)



	FCS100 sensors		FCS500 sensors		FCS600 sensors		FCS700 sensors	
	FC120 7ME4412	FC140 7ME4414	FC520 7ME4452	FC540 7ME4454	FC620 7ME4462	FC640 7ME4464	FC720 7ME4472	FC740 7ME4474
Pipe thread connections								
Internal G (BSPP)	•	•	• DN 10/15 only	• DN 10/15 only	• DN 15 only	• DN 15 only		
Internal NPT	•	•	• DN 10/15 only	• DN 10/15 only	• DN 15 only	• DN 15 only		
Flange connections								
ASME B15.5	•	•	•	•	•	•	•	•
EN 1092-1	•	•	•	•	•	•	•	•
JIS B 2220	•	•	•	•	•	•	• DN 100 only	• DN 100 only
Hygienic connections								
DIN 32676 clamp	•	•	•	•	•	•		
ISO 2852 clamp			•	•	• not DN 65	• not DN 65		
DIN 11851 thread			•	•				
SMS 1145 thread			•	•				
Wetted part materials								
Alloy 22/2.4602 and 316L/1.4404	•	•						
316L ss/1.4404			•	•	•	•	•	•
Alloy 22/2.4602					•	•	• DN 100 only	• DN 100 only
Maximum pressure								
100 bar g ⁵⁾			•	•			•	•
260 bar g ⁵⁾					•	•		
285 bar g ⁵⁾	•	•						
700 bar g ⁵⁾					•			
Temperature range compact								
Standard -50 ... +150 °C (-58 ... +302 °F)			• 6), 7)	• 6), 7)	• 6), 7)	• 6), 7)	•	•
Temperature range remote								
Standard -50 ... +150 °C (-58 ... +302 °F)	• 7)	• 7)						
Standard -70 ... +200 °C (-94 ... +392 °F)			• 6), 7)	• 6), 7)				
Standard -70 ... +150 °C (-94 ... +302 °F)					• 6), 7)	• 8), 9)	•	•
Medium -50 ... +260 °C (-58 ... +500 °F)	• 8), 9)	• 8), 9)						
Medium -70 ... +230 °C (-94 ... +446 °F)					• 8), 9)	• 8), 9)	• 8)	• 8)
High 0 ... 350 °C (32 ... 662 °F)					• 8), 9)	• 8), 9)	• 8)	• 8)
Low -196 ... +150 °C (-321 ... +302 °F)					• 8), 9)	• 8), 9)		

Flow Measurement

SITRANS FC (Coriolis)

System information

Design (continued)

	FCS100 sensors		FCS500 sensors		FCS600 sensors		FCS700 sensors	
	FC120 7ME4412	FC140 7ME4414	FC520 7ME4452	FC540 7ME4454	FC620 7ME4462	FC640 7ME4464	FC720 7ME4472	FC740 7ME4474
Sensor features								
Cleaning for oxygen service	●	●	●	●	●	●	●	●
Insulation and heat tracing	●	●			●	●	●	●
Polished surface Ra ≤ 0.8 µm			●	●	●	●		
Rupture disk					●	●	●	●
Customer defined built-in length	●	●	●	●	●	●	●	●
Namur NE132 built-in length	●	●	●	●	●	●	●	●
Software functions								
Thermal energy		●		●		●		●
Fraction		●		●		●		●
Viscosity		●		●		●		●
Batching		●		●		●		●
Net oil computing		●		●		●		●
Tube health check	●	●	●	●	●	●	●	●
Hazardous area (Ex) approvals								
ATEX	●	●	●	●	●	●	●	●
IECEX	●	●	●	●	●	●	●	●
FM	●	●	●	●	●	●	●	●
EAC Ex	●	●	●	●	●	●	●	●
NEPSI	●	●	●	●	●	●	●	●
Korea Ex	●	●	●	●	●	●	●	●
INMETRO	●	●	●	●	●	●	●	●
Hygienic approvals								
3-A certificate Ra ≤ 0.8 µm			●	●	●	●		
EHEDG certificate Ra ≤ 0.8 µm			●	●	●	●		
Marine approvals (Classes 2 and 3)								
Det Norske Veritas	●	●	●	●	●	●	●	●
Lloyds Register	●	●	●	●	●	●	●	●
Bureau Veritas	●	●	●	●	●	●	●	●
American Bureau of Shipping	●	●	●	●	●	●	●	●
Korean Register	●	●	●	●	●	●	●	●
Additional approvals								
NACE MR0175, MR0103	●	●	●	●	●	●	●	●
Pressure Equipment Directive	●	●	●	●	●	●	●	●
Functional Safety SIL 2/3	●	●	●	●	●	●	●	●
Custody Transfer (NTEP accuracy class 0.3)	●	●	●	●	●	●	●	●
NAMUR NE 21, NE 95	●	●	●	●	●	●	●	●
EMC	●	●	●	●	●	●	●	●
Low voltage	●	●	●	●	●	●	●	●
RoHS	●	●	●	●	●	●	●	●

● = Available

Design (continued)

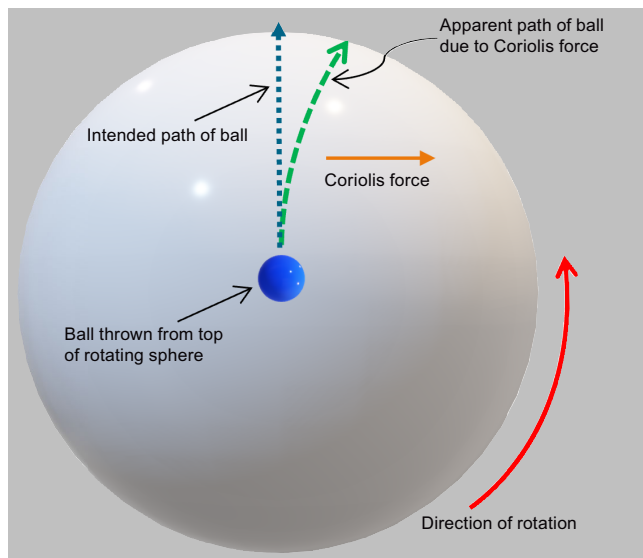
- 1) FC140 meters in sizes DN 1 and DN 2 have 0.2% liquid mass flow accuracy.
- 2) Some sensor sizes do not have 0.5 kg/m^3 (0.03 lb/ft^3) density accuracy with FCT040 transmitters. Refer to technical specifications for more details.
- 3) Some sensor sizes do not have 4 kg/m^3 (0.25 lb/ft^3) density accuracy with FCT020 transmitters. Refer to technical specifications for more details.
- 4) Some sensor sizes do not have 0.35% gas mass flow accuracy with FCT040 transmitters. Refer to technical specifications for more details.
- 5) Maximum pressure ratings may be lower than shown, depending on the type of process connection (fitting) selected. Refer to the technical specifications for more details.
- 6) With hygienic thread fittings temperature range is $-50 \dots +140 \text{ }^\circ\text{C}$ ($-58 \dots +284 \text{ }^\circ\text{F}$).
- 7) With hygienic clamp fittings temperature range is $-10 \dots +140 \text{ }^\circ\text{C}$ ($14 \dots 284 \text{ }^\circ\text{F}$).
- 8) Long neck sensor option is mandatory for low (cryogenic), medium and high temperature ranges.
- 9) Hygienic fittings cannot be selected with low (cryogenic), medium and high temperature ranges.

Mode of operation

The Coriolis Effect

Gaspar-Gustave de Coriolis (1792–1843) was a French mathematician, mechanical engineer and scientist. His work explained the supplementary forces detected in a rotating frame of reference, one of which would eventually bear his name.

Imagine that the rotating sphere in the sketch below is the earth, with the viewer looking down from above. When a ball is thrown from the top of the sphere (north pole) several forces act upon it including centrifugal force and gravity. Our focus is on the Coriolis force which acts perpendicular to the flight of the ball and opposite to the direction of rotation. The path of the ball is shifted to the right, away from its intended path due to the Coriolis effect.

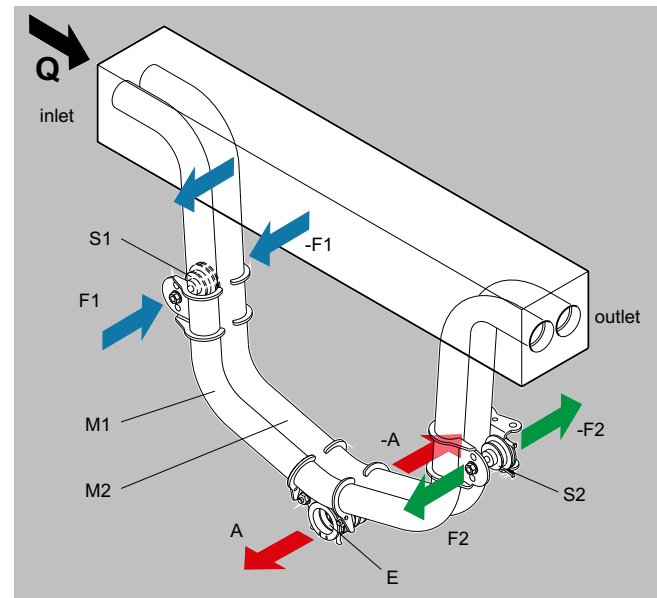


Coriolis force: effect on the direction of rotation

Inside the Coriolis flowmeter an oscillating system is used in place of continuous rotation.

SITRANS FC sensors are energized by an electromagnetic driver which causes the twin measuring tubes to oscillate at their resonant frequency. The oscillation generates back and forth rotation at the tube ends, close to the electromagnetic pickups S1 and S2.

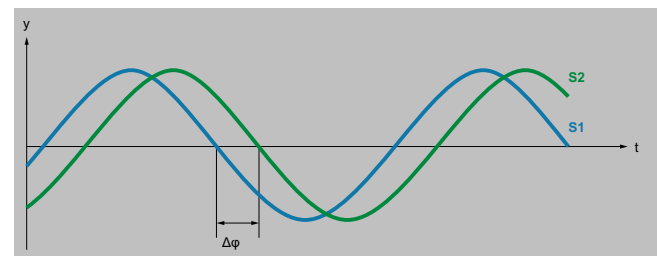
Mode of operation (continued)



M1, M2	Measuring tubes
S1, S2	Pick-offs
F1, F2	Coriolis forces
E	Driver system
A	Direction of measuring tube vibration
Q	Direction of fluid flow

When the fluid in the rotating system is not flowing, there is no Coriolis force. As fluid starts to flow, Coriolis forces are generated ($F1$ and $F2$), together with a phase shift (time difference) between the output of pickups.

The phase shift is directly proportional to the **mass flow rate** of the flowing fluid, and it can be measured with high accuracy.



Mass flow rate proportional to phase shift

Flow Measurement

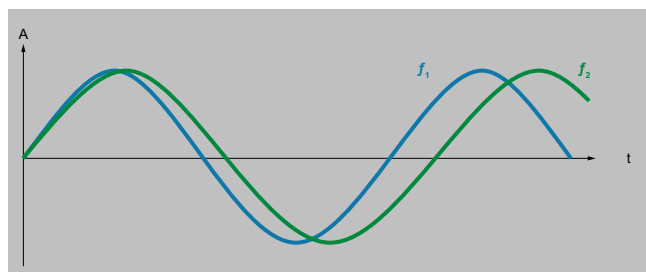
SITRANS FC (Coriolis)

System information

Mode of operation (continued)

$\Delta\phi$	Phase shift
t	Time
S1, S2	Pick-offs

Fluid density becomes the second primary measurement, achieved using the inverse relationship between fluid density and tube resonant frequency. Fluid 2 frequency f_2 is lower than fluid 1 frequency f_1 , therefore fluid 2 has a greater density than fluid 1.



Density inversely proportional to frequency

A	Measuring tube displacement
t	Time
f_1	Resonance frequency with fluid 1
f_2	Resonance frequency with fluid 2

The third primary measurement, **temperature**, is made using a PT1000 temperature sensor.

Function

Before making out your order for Coriolis flowmeters, why not let Siemens measurement experts help with the planning and specification of your new plant or existing process upgrade. Coriolis meters can be expensive, but not when you use the proven multi-measurement power to get real value from your investment by loading all the potential functionality into a single device.

Primary measurements

Make use of the three independent primary process variables, measured simultaneously and continuously.

Mass flow rate with liquid accuracy up to 0.1% of actual flow

Directly proportional to the phase shift measured between the two pickups mounted at either end of the oscillating tubes – the shift is created by the naturally occurring Coriolis forces acting on the tubes whenever fluid flows through.

In-line fluid density with choice of accuracies to suit your application

Inversely proportional to the oscillating system's resonant frequency. The tubes are driven to resonance with an electromagnetic driver circuit flexible enough to allow the tubes to find their natural resonant frequency, defined by the density of the fluid passing through.

Process temperature

Provided by the process industries' go to high resolution device, a PT1000 resistance temperature detector (RTD).

Secondary measurement possibilities

No need to stop at three measurements, but instead take advantage of the computing ability of the SITRANS FCT020 or FCT040 transmitters to make secondary measurements.

Volume flow rate

Both transmitters, FCT020 standard and FCT040 advanced, calculate volume flow from mass flow and density using the simple school physics formula: density = mass / volume.

FCT040 secondary measurements

Measurements below are available only with the SITRANS FCT040 advanced transmitter.

Standard concentration

Used for concentration measurements of emulsions or suspensions when fluid density depends largely on temperature.

The standard concentration measurement can be used for many low-concentration solutions if there is only minor interaction between the liquids or if the miscibility is negligible.

Fraction (advanced concentration)

Up to four pre-configured fraction ranges can be selected using the SITRANS FC option order codes from the table below.

Order code	Fraction description	Type	Range	Unit	Temperature range
G01	Sugar / water (sucrose solution)	Mass fraction	0 ... 85	°Bx	0 ... 80 °C (32 ... 176 °F)
G02	NaOH / water (sodium hydroxide solution)	Mass fraction	2 ... 50	%	0 ... 100 °C (32 ... 212 °F)
G03	KOH / water (potassium hydroxide solution)	Mass fraction	0 ... 60	%	54 ... 100 °C (129 ... 212 °F)
G04	NH ₄ NO ₃ / water (ammonium nitrate solution)	Mass fraction	1 ... 50	%	0 ... 80 °C (32 ... 176 °F)
G05	NH ₄ NO ₃ / water (ammonium nitrate solution)	Mass fraction	20 ... 70	%	20 ... 100 °C (68 ... 212 °F)
G06	HCl / water (hydrochloric acid)	Mass fraction	22 ... 34	%	20 ... 40 °C (68 ... 104 °F)
G07	HNO ₃ / water (nitric acid)	Mass fraction	50 ... 67	%	10 ... 60 °C (50 ... 140 °F)
G09	H ₂ O ₂ / water (hydrogen peroxide)	Mass fraction	30 ... 75	%	4 ... 44 °C (39 ... 111 °F)
G10	Ethylene glycol / water (homogenous mixture)	Mass fraction	10 ... 50	%	-20 ... +40 °C (-4 ... +104 °F)
G11	Amylum (starch) / water (paste-like suspension)	Mass fraction	33 ... 43	%	35 ... 45 °C (95 ... 113 °F)
G12	Methanol / water (homogenous mixture)	Mass fraction	35 ... 60	%	0 ... 40 °C (32 ... 104 °F)
G20	Alcohol / water (homogenous mixture)	Volume fraction	55 ... 100	%	10 ... 40 °C (50 ... 104 °F)
G21	Sugar / water (sucrose solution)	Mass fraction	40 ... 80	°Bx	75 ... 100 °C (167 ... 212 °F)
G30	Alcohol / water (homogenous mixture)	Mass fraction	66 ... 100	%	15 ... 40 °C (59 ... 104 °F)
G37	Alcohol / water (homogenous mixture)	Mass fraction	66 ... 100	%	10 ... 40 °C (50 ... 104 °F)

Fraction A & B volume flow rate (net flow computing)

Example: In an alcohol application the net volume flow rate of each component of the mixture can be displayed and transmitted. So, volume flow of ethanol (fraction A) and volume flow of water (fraction B) are both available.

Fraction A & B mass flow rate (net flow computing)

Like the volume example but with mass flow units for each fraction.

Petroleum measurement function / Net oil computing (NOC)

The NOC function provides real-time measurements of water cut and includes American Petroleum Institute (API) correction according to API MPMS Chapter 11.1.

Oil sometimes contains entrained gas. SITRANS FC meters measure the density of the combined emulsion oil and gas, which is lower than the oil density. The NOC function includes a Gas Void Fraction (GVF) parameter to be set.

Viscosity measurement

Viscosity is sometimes used as reference value to activate other processes like fluid heating systems.

Flow Measurement

SITRANS FC (Coriolis)

System information

Function (continued)

The viscosity estimation is calculated based on a comparison between measured pressure loss and a calculated value between two points of the pipe. A differential pressure transmitter is required to use this function. Its output is connected to the analog input of the FCT040. Based on an iteration process, a viscosity value is determined.

Thermal energy calculation (heat quantity measurement)

Either a constant value of the calorific value of the fluid can be used, or an additional device like a gas chromatograph can provide the instantaneous calorific value via the analog input of the FCT040 transmitter.

Based on the fluid flow, the total calorific energy of the fluid is calculated.

Additional functions available with SITRANS FC Coriolis flowmeters

Tube health check

This feature is available in both transmitters, FCT020 and FCT040.

Tube health check monitors key diagnostics, including tube stiffness, driver and pickups. Self-verification alerts to potential performance issues due to unplanned process events, for example gas or vapor breakout, or solid deposits building up in the tubes. The user defines verification frequency and alarm behavior. Verification results indicate whether preventive maintenance action is required.

Six totalizers

A maximum of six totalizers can be used on the device to provide accumulation of process flow variables, including:

- Mass flow
- Volume flow
- Corrected volume flow
- Energy

When a concentration option has been selected in the order code, additional variables can be assigned to the totalizers:

- Net mass flow, component A or B
- Net volume flow, component A or B
- Net corrected volume flow

Universal power supply

Single power supply compatible with DC and AC supply voltage

Easy Setup Wizard

For the most important functions, there is a wizard menu to help set up common parameters used in many applications, such as date, installation, display, outputs and totalizers.

Event Management

According to NAMUR NE107

Batch control

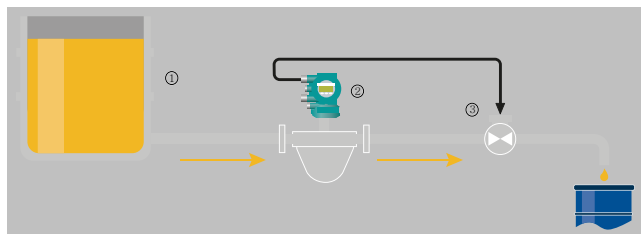
Batching and filling processes are found in many industries: food and beverage, cosmetic, pharmaceutical, oil and gas, and chemical.

SITRANS FCT040 transmitters offer an integrated batching function to carry out the task. A self-learning algorithm optimizes the process to provide accurate and reliable results.

The function supports two filling modes:

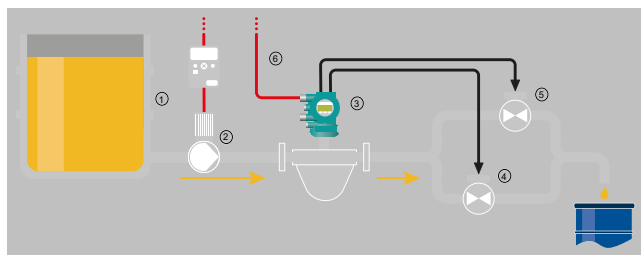
- Single-stage batch control with single valve
- Two-stage batching to control two valves for more accurate filling

The error management function allows the user to set alarms and warnings according to the application.



Example diagram for 1-stage batching

1	Storage tank
2	SITRANS FC
3	Valve



Example diagram for 2-stage batching

1	Storage tank
2	Pump
3	SITRANS FC
4	Valve A
5	Valve B
6	HART

For questions regarding a specific application, contact your regional Siemens Measurement Intelligence team.

Technical specifications

Mass flow rate of liquids

The mass flow rate characteristics of SITRANS FC meters are defined by the values of zero stability, Q_{flat} , Q_{nom} and Q_{max} .

Zero stability is the maximum allowable flow rate value that can be displayed at zero flow under reference conditions. It is a good indicator of the meter performance as flow rates reduce, and approach zero.

Q_{flat} is the mass flow rate above which the base accuracy is maintained (0.1% when using FCT040 transmitters).

Q_{nom} is the nominal mass flow rate of water at reference conditions that would result in a pressure drop of 1 bar (15 psi).

Q_{max} is the recommended maximum mass flow rate for each sensor size.

FCS100: the precision sensor for low flow rates

Nominal size	Zero stability kg/h	lb/h	Q_{flat} kg/h	lb/min	Q_{nom} kg/h	lb/min	Q_{max} kg/h	lb/min
DN 1	0.003	0.007	2.52	0.092	21.0	0.0771	40.0	1.47
DN 2	0.005	0.011	4.50	0.165	45.0	1.65	94.0	3.45
DN 4	0.009	0.020	14.0	0.514	170	6.24	300	11.0
DN 6	0.019	0.042	30.0	1.10	370	13.6	600	22.0
DN 8	0.048	0.106	79.0	2.90	950	34.9	1 500	55.1

FCS500: the universal sensor for standard and hygienic applications

Nominal size	Zero stability kg/h	lb/h	Q_{flat} kg/h	lb/min	Q_{nom} kg/h	lb/min	Q_{max} kg/h	lb/min
DN 10	0.032	0.070	80.0	2.94	1 600	58.7	2 300	84.4
DN 15	0.090	0.198	235	8.62	4 700	172	7 000	257
DN 25	0.400	0.880	1 000	36.7	20 000	734	29 000	1 064
DN 50	2.55	5.61	2 550	93.6	51 000	1872	76 000	2 789
DN 80	8.50	18.7	8 500	312	170 000	6239	255 000	9 359

FCS600: the resistant sensor for high pressure, high temperature, cryogenic and corrosive liquids

Nominal size	Zero stability kg/h	lb/h	Q_{flat} kg/h	lb/min	Q_{nom} kg/h	lb/min	Q_{max} kg/h	lb/min
DN 2	0.005	0.011	4.00	0.147	45.0	1.65	94.0	3.45
DN 4	0.018	0.040	14.0	0.514	170	6.24	300	11.0
DN 15	0.150	0.330	250	9.18	3 000	110	5 000	184
DN 25	0.500	1.10	830	30.5	10 000	367	17 000	624
DN 40	1.60	3.52	2 670	98.0	32 000	1 174	50 000	1 835
DN 65	5.00	11.0	8 330	306	100 000	3 670	170 000	6 239

FCS700: the grande sensor for high flow rates

Nominal size	Zero stability kg/h	lb/h	Q_{flat} kg/h	lb/min	Q_{nom} kg/h	lb/min	Q_{max} kg/h	lb/min
DN 100	13.0	28.6	20 000	734	250 000	9 175	300 000	11 010
DN 150	25.0	55.0	38 000	1 395	500 000	18 350	600 000	22 020
DN 200	27.0	59.4	45 000	1 652	900 000	33 030	1 100 000	40 370

Volumetric liquid flow characteristics and gas flow capability

When measuring volume flow rate and gas flow rates, fluid properties will influence the selection of sensor type and size. Please contact your regional Siemens Measurement Intelligence team for further assistance. Based on your application details, they will be able to provide suitable sizing and selection advice.

Mass flow calibration and density adjustment for liquids

Siemens SITRANS FC Coriolis meters are calibrated in rigs accredited according to the international standard DIN EN ISO/IEC 17025:2018. Each flowmeter comes with a standard calibration certificate.

Mass flow calibration takes place at reference conditions. Specific values are listed in the standard calibration certificate.

Mass flow calibration reference conditions	
Fluid	Water
Density	900 ... 1 100 kg/m ³ (56 ... 69 lb/ft ³)
Fluid temperature	10 ... 35 °C (50 ... 95 °F), average temperature: 22.5 °C (72.5 °F)
Ambient temperature	10 ... 35 °C (50 ... 95 °F)
Process pressure	1 ... 5 bar (15 ... 73 psi)

Liquid density calibration is performed when density accuracy of 0.5 kg/m³ (0.03 lb/ft³) is selected in the model code.

Flow Measurement

SITRANS FC (Coriolis)

System information

Technical specifications (continued)

Density calibration reference conditions	
Flow condition	Fully developed flow profile
Fluid densities used to obtain density calibration constants	700 kg/m ³ (44 lb/ft ³) 1 000 kg/m ³ (62 lb/ft ³) 1 650 kg/m ³ (103 lb/ft ³)
Fluid temperature	20 °C (68 °F)
Determination of temperature compensation coefficients	20 ... 80 °C (68 ... 176 °F)

Performance specifications

SITRANS FCS100: the precision sensor for low flow applications

Sensor size			DN 1	DN 2	DN 4	DN 6	DN 8
Mass flow (liquids)							
Accuracy	% (of rate)	FCT020	±0.2	±0.2	±0.2	±0.2	±0.2
	% (of rate)	FCT040	±0.2	±0.2	±0.1	±0.1	±0.1
Zero stability	kg/h (lb/h)		±0.003 (0.007)	±0.005 (0.011)	±0.009 (0.02)	±0.019 (0.042)	±0.048 (0.106)
Density (liquids)							
Accuracy	kg/m ³ (lb/ft ³)	FCT020	±20 (1.25)	±8 (0.5)	±4 (0.25)	±4 (0.25)	±4 (0.25)
	kg/m ³ (lb/ft ³)	FCT040	±20 (1.25)	±8 (0.5)	±1 (0.06)	±0.5 (0.03)	±0.5 (0.03)
Mass flow (gases)							
Accuracy	% (of rate)	FCT020	±0.75	±0.75	±0.75	±0.75	±0.75
	% (of rate)	FCT040	±0.5	±0.5	±0.5	±0.5	±0.5
Temperature							
Accuracy	°C (°F)		±0.5 (0.9)	±0.5 (0.9)	±0.5 (0.9)	±0.5 (0.9)	±0.5 (0.9)

SITRANS FCS500: the universal sensor for routine and hygienic applications

Sensor size			DN 10	DN 15	DN 25	DN 50	DN 80
Mass flow (liquids)							
Accuracy	% (of rate)	FCT020	±0.2	±0.2	±0.2	±0.2	±0.2
	% (of rate)	FCT040	±0.1	±0.1	±0.1	±0.1	±0.1
Zero stability	kg/h (lb/h)		±0.032 (0.07)	±0.09 (0.198)	±0.4 (0.88)	±2.55 (5.61)	±8.5 (18.7)
Density (liquids)							
Accuracy	kg/m ³ (lb/ft ³)	FCT020	±4 (0.25)	±4 (0.25)	±4 (0.25)	±4 (0.25)	±4 (0.25)
	kg/m ³ (lb/ft ³)	FCT040	±0.5 (0.03)	±0.5 (0.03)	±0.5 (0.03)	±0.5 (0.03)	±1 (0.06)
Mass flow (gases)							
Accuracy	% (of rate)	FCT020	±0.75	±0.75	±0.75	±0.75	±0.75
	% (of rate)	FCT040	±0.35	±0.35	±0.35	±0.35	±0.35
Temperature							
Accuracy	°C (°F)		±1 (1.8)	±1 (1.8)	±1 (1.8)	±1 (1.8)	±1 (1.8)

SITRANS FCS600: the resistant sensor for high pressure, high temperature, cryogenic and corrosive liquids

Sensor size			DN2	DN4	DN15	DN25	DN40	DN65
Mass flow (liquids)								
Accuracy	% (of rate)	FCT020	±0.2	±0.2	±0.2	±0.2	±0.2	±0.2
	% (of rate)	FCT040	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1
Zero stability	kg/h (lb/h)		±0.005 (0.011)	±0.018 (0.44)	±0.15 (0.33)	±0.5 (1.1)	±1.6 (3.52)	±5 (11)
Density (liquids)								
Accuracy	kg/m ³ (lb/ft ³)	FCT020	±8 (0.5)	±4 (0.25)	±4 (0.25)	±4 (0.25)	±4 (0.25)	±4 (0.25)
	kg/m ³ (lb/ft ³)	FCT040	±8 (0.5)	±1 (0.06)	±0.5 (0.03)	±0.5 (0.03)	±0.5 (0.03)	±0.5 (0.03)
Mass flow (gases)								
Accuracy	% (of rate)	FCT020	±0.75	±0.75	±0.75	±0.75	±0.75	±0.75
	% (of rate)	FCT040	±0.5	±0.5	±0.35	±0.35	±0.35	±0.35
Temperature								
Accuracy	°C (°F)		±0.5 (0.9)	±0.5 (0.9)	±0.5 (0.9)	±0.5 (0.9)	±0.5 (0.9)	±0.5 (0.9)

Technical specifications (continued)

FCS700: the grande sensor for high flow rates

Sensor size			DN100	DN150	DN200
Mass flow (liquids)					
Accuracy	% (of rate)	FCT020	±0.2	±0.2	±0.2
	% (of rate)	FCT040	±0.1	±0.1	±0.1
Zero stability	kg/h (lb/h)		±13 (28.6)	±25 (55)	±27 (59.4)
Density (liquids)					
Accuracy	kg/m ³ (lb/ft ³)	FCT020	±4 (0.25)	±4 (0.25)	±4 (0.25)
	kg/m ³ (lb/ft ³)	FCT040	±2 (0.12)	±2 (0.12)	±2 (0.12)
Mass flow (gases)					
Accuracy	% (of rate)	FCT020	±0.75	±0.75	±0.75
	% (of rate)	FCT040	±0.35	±0.35	±0.5
Temperature					
Accuracy	°C (°F)		±1 (1.8)	±1 (1.8)	±1 (1.8)

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS100

Overview

SITRANS FCS100 sensor is the precision Coriolis flow sensor for low flow applications.

Features:

- Possibly the most compact dual curve Coriolis flow sensor
- Nominal sizes: DN 1 to DN 8
- Process connection: flange, thread, or hygienic clamp
- Install in tight spaces with no inlet and outlet restrictions
- Sizes to suit pilot plants, R&D labs, and high value fluid additives
- FCS100 sensors always combine with a remote transmitter via a connecting cable
- Installation of sensor and transmitter in different locations



FCS100 sensor

Design

Sensor installation position related to type of fluid

Installation position	Fluid	Description
Position 1 	Liquid	• Horizontal • Measuring tubes below process pipe • Avoids accumulation of entrained gas
Position 2 	Gas	• Horizontal • Measuring tubes above process pipe • Accumulation of liquid or condensate is less likely
Position 3 	Gas / Liquid	• Vertical • Upwards direction of flow • In liquid application accumulation of entrained gas is avoided • This position allows self-draining in liquid flow

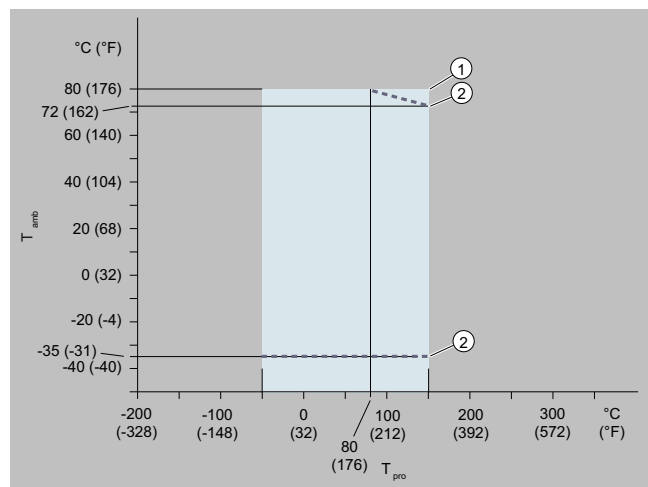
Technical specifications

Allowed ambient temperature for FCS100 sensors

The allowed combinations of process fluid and ambient temperature for the sensor are illustrated as light areas in the diagrams below.

Standard temperature specification, remote type

(except versions with hygienic clamp process connections)

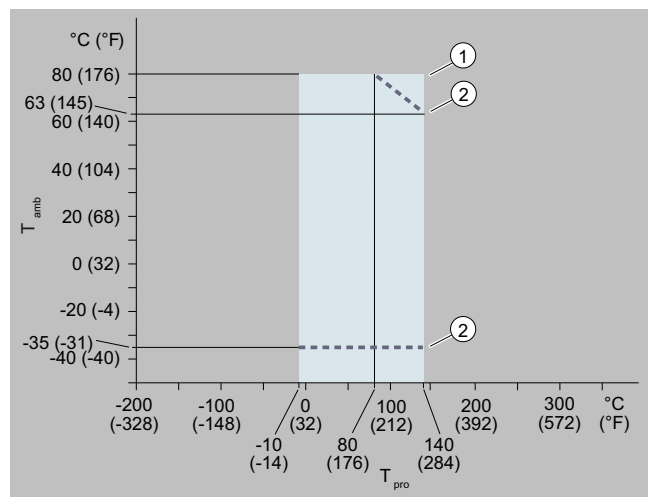


Allowed process fluid and ambient temperatures, remote type (except hygienic clamp process connections)

1	Standard cable option
2	Limitation for fire retardant cable option
T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

Standard temperature specification, remote type

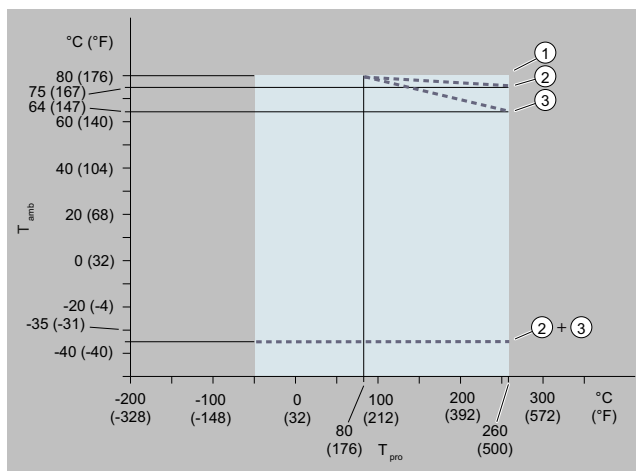
(versions with hygienic clamp process connection versions only)



Allowed process fluid and ambient temperatures, remote type (hygienic clamp process connections only)

1	Standard cable option
2	Limitation for fire retardant cable option
T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

Medium temperature specification, remote type



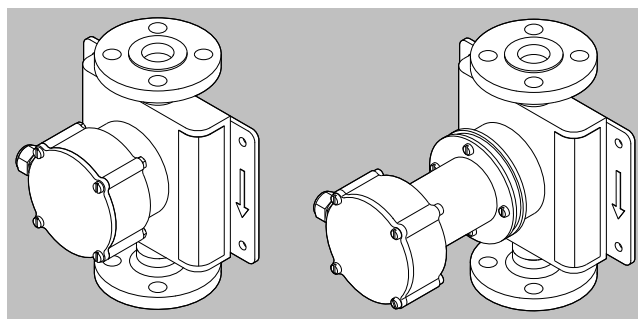
Allowed process fluid and ambient temperatures

1	Standard cable option
2	Fire retardant cable without insulation options
3	Fire retardant cable with insulation options JXX
T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

Mechanical specifications of FCS100 sensors

The FCS100 sensor is available in standard neck and long neck designs. The neck can also be described as the pedestal connecting the sensor body to the terminal housing.

When configuring FCS100 sensors with medium range temperature specification (up to 260 °C (500 °F)), it is compulsory to select long neck options. Order code position 14 (Mounting style, Transmitter housing and material) includes the neck options.



FCS100 sensor with standard neck and long neck designs

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS100

Technical specifications (continued)

Materials

Material specifications		
Wetted parts ¹⁾		
Process connections	AISI 316L stainless steel, mat. no. 1.4404	
Measuring tubes	alloy 22/2.4602	
Sensor housing		
Junction box	AISI 316L stainless steel	Mat. no. 1.4404
Neck	similar to ASTM CF-8 cast stainless steel	Mat. no. 1.4308
Body	AISI 304 stainless steel	Mat. no. 1.4301 (order code option B01)
	AISI 316L stainless steel	Mat. no. 1.4404 (order code option B02)
Nameplates ²⁾		
Sensor with AISI 304 stainless steel housing	Process temperature range Standard, up to 150 °C (302 °F)	Material Polyester film
Sensor with AISI 304 stainless steel housing	Medium, up to 260 °C (500 °F)	AISI 316L ss
Sensor with AISI 316L stainless steel housing	All	AISI 316L ss

¹⁾ The user is responsible to ensure chemical compatibility of the material of the wetted parts with the measured process fluid.

²⁾ Nameplate material depends on the materials selected for SITRANS FC sensors.

Secondary containment

Some applications or environment conditions require secondary containment retaining the process pressure for increased safety. SITRANS FCS100 sensors have a secondary containment filled with inert gas.

Typical burst pressure at room temperature for sizes 65 bar (942 psi)

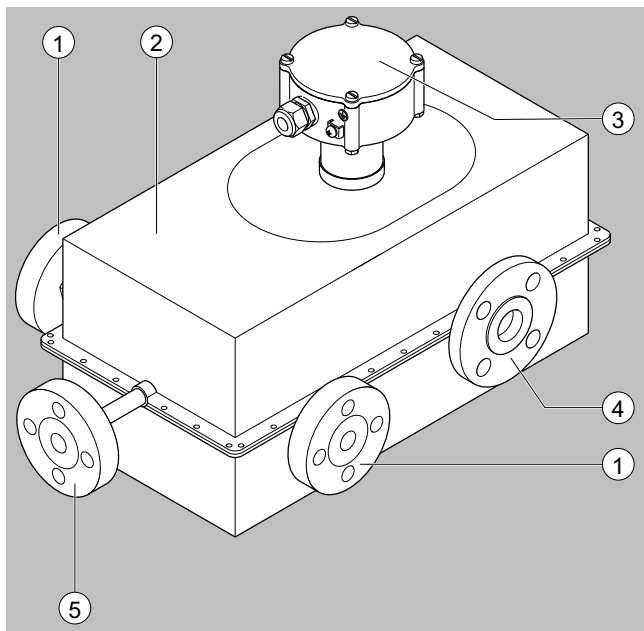
- | | |
|---|----------------------------|
| 1 | Heating tracing connection |
| 2 | Insulation |
| 3 | Sensor terminal box |
| 4 | Process connection |
| 5 | Purging connection |

Maximum temperature of heat carrier

Order code position 12	Process temperature range	Temperature range of heat carrier
1	Standard, up to 150 °C (302 °F)	0 ... 150 °C (32 ... 302 °F)
2	Medium, up to 260 °C (500 °F)	0 ... 200 °C (32 ... 392 °F)

Insulation and heat tracing

In cases where fluid temperature deviates more than 80 °C from ambient temperature, sensor insulation is recommended to avoid negative effects from temperature fluctuations.



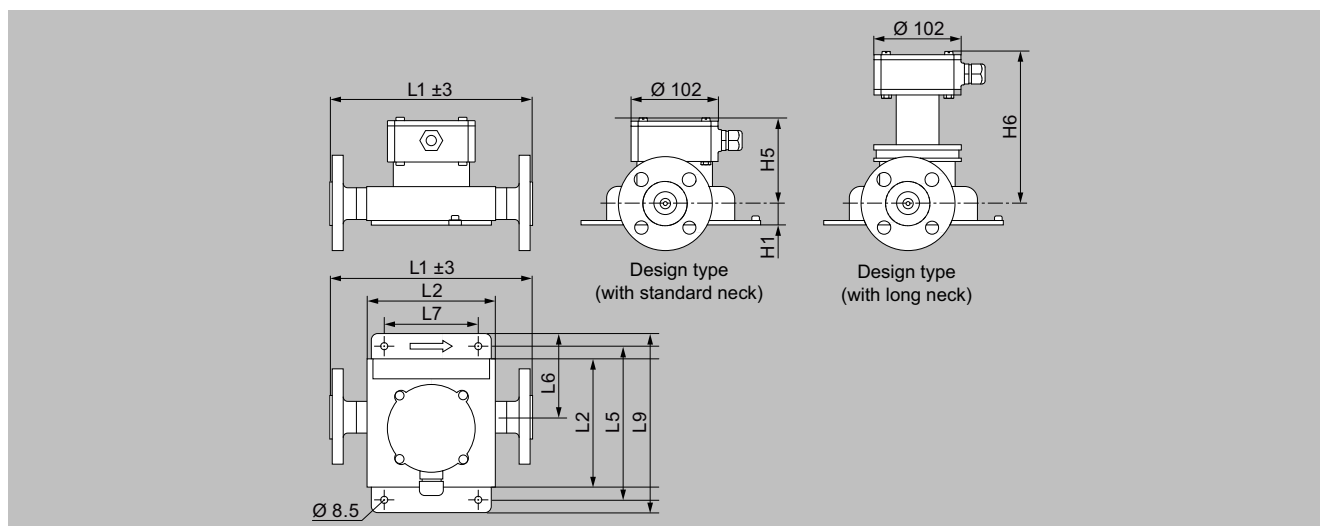
Configuration of FCS100 sensor with insulation and heat tracing

Insulation and heat tracing may be installed by the user but not in hazardous areas and the following must be noted:

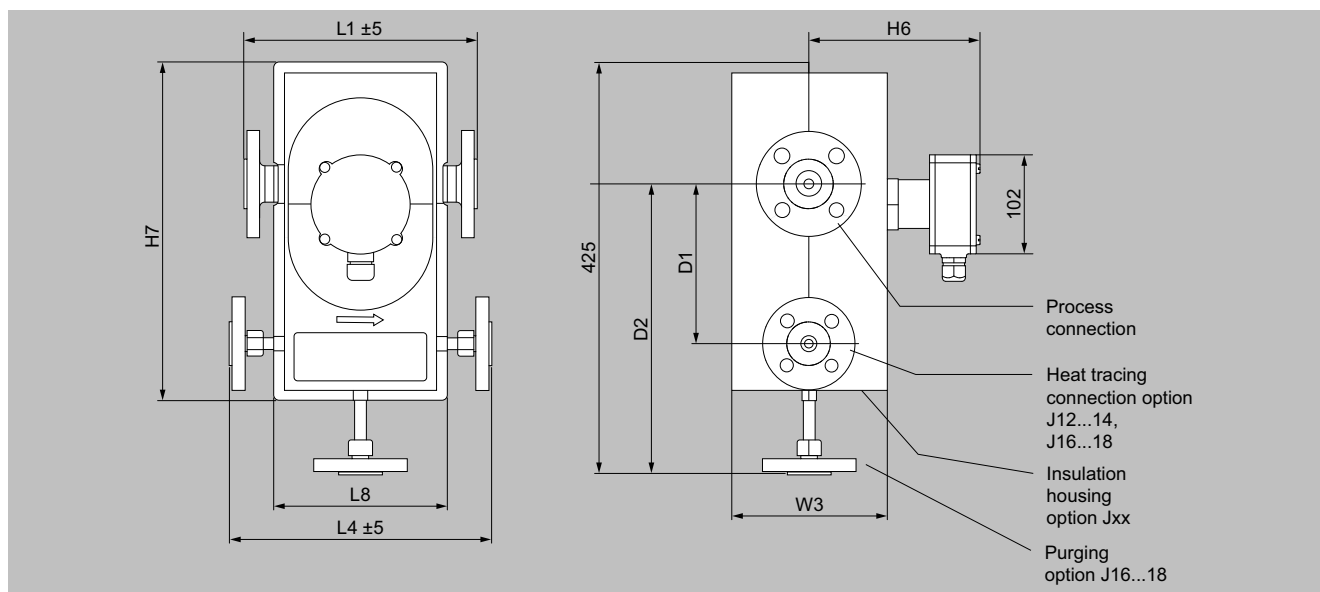
- Do not insulate sensor terminal box.
- Do not expose transmitters to ambient temperatures exceeding 60 °C (140 °F)
- The preferred insulation is 60 mm (2.36 inch) thick with a heat transfer coefficient of 0.4 W/m² K (0.07 Btu/ ft² °F)

Dimensional drawings

Drawings, dimensions and weight for FCS100 sensors



FCS100 sensor, dimensions in mm



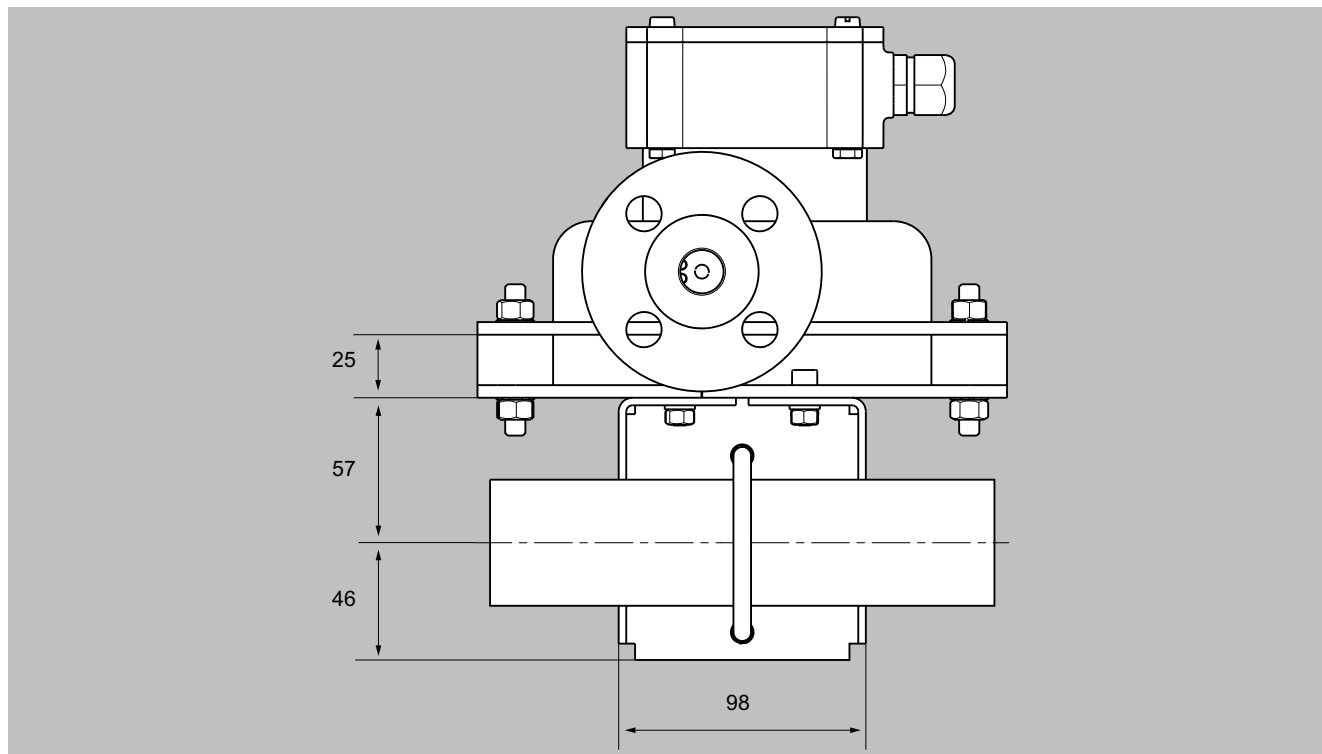
FCS100 with insulation housing, dimensions in mm

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS100

Dimensional drawings (continued)



FCS100 with optional pipe mounting bracket, dimensions in mm

FCS100 sensor dimensions

Nominal size	L2	L4	L5	L6	L7	L8	L9
	Dimensions in mm (inch)						
DN 1	150 (5.9)	270 (10.6)	180 (7.1)	111 (4.4)	110 (4.3)	180 (7.1)	210 (8.3)
DN 2	150 (5.9)	270 (10.6)	180 (7.1)	111 (4.4)	110 (4.3)	180 (7.1)	210 (8.3)
DN 4	150 (5.9)	270 (10.6)	180 (7.1)	99 (3.9)	110 (4.3)	180 (7.1)	210 (8.3)
DN 6	150 (5.9)	270 (10.6)	180 (7.1)	89 (3.5)	110 (4.3)	180 (7.1)	210 (8.3)
DN 8	150 (5.9)	270 (10.6)	180 (7.1)	55 (2.2)	110 (4.3)	180 (7.1)	210 (8.3)

Nominal size	H1	H3	H5	H6	H7	W3	D1	D2
	Dimensions in mm (inch)							
DN 1	25 (1)	81 (3.2)	101 (4)	176 (6.9)	350 (13.8)	160 (6.3)	165 (6.5)	299 (11.8)
DN 2	25 (1)	81 (3.2)	101 (4)	176 (6.9)	350 (13.8)	160 (6.3)	165 (6.5)	299 (11.8)
DN 4	25 (1)	81 (3.2)	101 (4)	176 (6.9)	350 (13.8)	160 (6.3)	165 (6.5)	299 (11.8)
DN 6	25 (1)	81 (3.2)	101 (4)	176 (6.9)	350 (13.8)	160 (6.3)	165 (6.5)	299 (11.8)
DN 8	25 (1)	81 (3.2)	101 (4)	176 (6.9)	350 (13.8)	160 (6.3)	165 (6.5)	299 (11.8)

L1 dimension and weight with process connections according to ASME B16.5 (ISI 216 / AISI 316L)

Process connection size and type	FCS100 sensor nominal size									
	DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME ½" class 150, raised face (RF)	240 (9.4)	6.2 (14)	240 (9.4)	6.2 (14)	240 (9.4)	6.2 (14)	240 (9.4)	6.2 (14)	240 (9.4)	6.2 (14)
ASME ½" class 300, raised face (RF)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)
ASME ½" class 600, raised face (RF)	250 (9.8)	6.9 (15)	250 (9.8)	6.9 (15)	250 (9.8)	6.9 (15)	250 (9.8)	6.9 (15)	250 (9.8)	6.9 (15)

Dimensional drawings (continued)

Process connection size and type	FCS100 sensor nominal size DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME ½" class 600, ring joint (RJ)	250 (9.8)	6.8 (15)	250 (9.8)	6.8 (15)	250 (9.8)	6.8 (15)	250 (9.8)	6.8 (15)	250 (9.8)	6.8 (15)
ASME ½" class 900, raised face (RF)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)
ASME ½" class 900, ring joint (RJ)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)
ASME ½" class 1500, raised face (RF)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)
ASME ½" class 1500, ring joint (RJ)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)
ASME 1" class 150, raised face (RF)	n/a	n/a	240 (9.4)	7.1 (16)	240 (9.4)	7.1 (16)	240 (9.4)	7.1 (16)	240 (9.4)	7.1 (16)
ASME 1" class 300, raised face (RF)	n/a	n/a	240 (9.4)	8.1 (18)	240 (9.4)	8.1 (18)	240 (9.4)	8.1 (18)	240 (9.4)	8.1 (18)
ASME 1" class 600, raised face (RF)	n/a	n/a	260 (10.2)	8.5 (19)	260 (10.2)	8.5 (19)	260 (10.2)	8.5 (19)	260 (10.2)	8.5 (19)
ASME 1" class 600, ring joint (RJ)	n/a	n/a	260 (10.2)	8.6 (19)	260 (10.2)	8.6 (19)	260 (10.2)	8.6 (19)	260 (10.2)	8.6 (19)
ASME 1" class 900, raised face (RF)	n/a	n/a	320 (12.6)	12.7 (28)	320 (12.6)	12.7 (28)	320 (12.6)	12.7 (28)	320 (12.6)	12.7 (28)
ASME 1" class 900, ring joint (RJ)	n/a	n/a	320 (12.6)	12.8 (28)	320 (12.6)	12.8 (28)	320 (12.6)	12.8 (28)	320 (12.6)	12.8 (28)
ASME 1" class 1500, raised face (RF)	n/a	n/a	320 (12.6)	12.7 (28)	320 (12.6)	12.7 (28)	320 (12.6)	12.7 (28)	320 (12.6)	12.7 (28)
ASME 1" class 1500, ring joint (RJ)	n/a	n/a	320 (12.6)	12.8 (28)	320 (12.6)	12.8 (28)	320 (12.6)	12.8 (28)	320 (12.6)	12.8 (28)
ASME 1½" class 150, raised face (RF)	n/a	n/a	250 (9.8)	8 (18)	250 (9.8)	8 (18)	250 (9.8)	8 (18)	250 (9.8)	8 (18)
ASME 1½" class 300, raised face (RF)	n/a	n/a	250 (9.8)	10.3 (23)	250 (9.8)	10.3 (23)	250 (9.8)	10.3 (23)	250 (9.8)	10.3 (23)
ASME 1½" class 600, raised face (RF)	n/a	n/a	270 (10.6)	11.7 (26)	270 (10.6)	11.7 (26)	270 (10.6)	11.7 (26)	270 (10.6)	11.7 (26)
ASME 1½" class 600, ring joint (RJ)	n/a	n/a	270 (10.6)	11.6 (26)	270 (10.6)	11.6 (26)	270 (10.6)	11.6 (26)	270 (10.6)	11.6 (26)
ASME 1½" class 900, raised face (RF)	n/a	n/a	340 (13.4)	17.5 (39)	340 (13.4)	17.5 (39)	340 (13.4)	17.5 (39)	340 (13.4)	17.5 (39)
ASME 1½" class 900, ring joint (RJ)	n/a	n/a	340 (13.4)	17.7 (39)	340 (13.4)	17.7 (39)	340 (13.4)	17.7 (39)	340 (13.4)	17.7 (39)
ASME 1½" class 1500, raised face (RF)	n/a	n/a	340 (13.4)	17.5 (39)	340 (13.4)	17.5 (39)	340 (13.4)	17.5 (39)	340 (13.4)	17.5 (39)
ASME 1½" class 1500, ring joint (RJ)	n/a	n/a	340 (13.4)	17.7 (39)	340 (13.4)	17.7 (39)	340 (13.4)	17.7 (39)	340 (13.4)	17.7 (39)

L1 dimension and weight with process connections according to EN 1092-1 (AISI 316L)

Process connection size and type	FCS100 sensor nominal size DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 15 PN 40 type B1, raised face (RF)	240 (9.4)	6.8 (15)	240 (9.4)	6.8 (15)	240 (9.4)	6.8 (15)	240 (9.4)	6.8 (15)	240 (9.4)	6.8 (15)
EN DN 15 PN 40 type D, with groove	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)
EN DN 15 PN 40 type E, with spigot	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)
EN DN 15 PN 40 type F, with recess	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)
EN DN 15 PN 100 type B1, raised face (RF)	250 (9.8)	7.6 (17)	250 (9.8)	7.6 (17)	250 (9.8)	7.6 (17)	250 (9.8)	7.6 (17)	250 (9.8)	7.6 (17)
EN DN 15 PN 100 type D, with groove	250 (9.8)	13.6 (30)	250 (9.8)	13.6 (30)	250 (9.8)	13.6 (30)	250 (9.8)	13.6 (30)	250 (9.8)	13.6 (30)
EN DN 15 PN 100 type E, with spigot	250 (9.8)	7.3 (16)	250 (9.8)	7.3 (16)	250 (9.8)	7.3 (16)	250 (9.8)	7.3 (16)	250 (9.8)	7.3 (16)
EN DN 15 PN 100 type F, with recess	250 (9.8)	7.5 (17)	250 (9.8)	7.5 (17)	250 (9.8)	7.5 (17)	250 (9.8)	7.5 (17)	250 (9.8)	7.5 (17)
EN DN 25 PN 40 type B1, raised face (RF)	n/a	n/a	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS100

Dimensional drawings (continued)

Process connection size and type	FCS100 sensor nominal size									
	DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 25 PN 40 type D, with groove	n/a	n/a	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)
EN DN 25 PN 40 type E, with spigot	n/a	n/a	240 (9.4)	7.4 (16)	240 (9.4)	7.4 (16)	240 (9.4)	7.4 (16)	240 (9.4)	7.4 (16)
EN DN 25 PN 40 type F, with recess	n/a	n/a	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)
EN DN 25 PN 100 type B1, raised face (RF)	n/a	n/a	260 (10.2)	10.3 (23)	260 (10.2)	10.3 (23)	260 (10.2)	10.3 (23)	260 (10.2)	10.3 (23)
EN DN 25 PN 100 type D, with groove	n/a	n/a	260 (10.2)	10.2 (22)	260 (10.2)	10.2 (22)	260 (10.2)	10.2 (22)	260 (10.2)	10.2 (22)
EN DN 25 PN 100 type E, with spigot	n/a	n/a	260 (10.2)	9.7 (21)	260 (10.2)	9.7 (21)	260 (10.2)	9.7 (21)	260 (10.2)	9.7 (21)
EN DN 25 PN 100 type F, with recess	n/a	n/a	260 (10.2)	10.1 (22)	260 (10.2)	10.1 (22)	260 (10.2)	10.1 (22)	260 (10.2)	10.1 (22)
EN DN 40 PN 40 type B1, raised face (RF)	n/a	n/a	240 (9.4)	9.2 (20)	240 (9.4)	9.2 (20)	240 (9.4)	9.2 (20)	240 (9.4)	9.2 (20)
EN DN 40 PN 40 type D, with groove	n/a	n/a	240 (9.4)	9.1 (20)	240 (9.4)	9.1 (20)	240 (9.4)	9.1 (20)	240 (9.4)	9.1 (20)
EN DN 40 PN 40 type E, with spigot	n/a	n/a	240 (9.4)	8.8 (19)	240 (9.4)	8.8 (19)	240 (9.4)	8.8 (19)	240 (9.4)	8.8 (19)
EN DN 40 PN 40 type F, with recess	n/a	n/a	240 (9.4)	9.0 (20)	240 (9.4)	9.0 (20)	240 (9.4)	9.0 (20)	240 (9.4)	9.0 (20)
EN DN 40 PN 100 type B1, raised face (RF)	n/a	n/a	320 (12.6)	13.7 (30)	320 (12.6)	13.7 (30)	320 (12.6)	13.7 (30)	320 (12.6)	13.7 (30)
EN DN 40 PN 100 type D, with groove	n/a	n/a	320 (12.6)	13.6 (30)	320 (12.6)	13.6 (30)	320 (12.6)	13.6 (30)	320 (12.6)	13.6 (30)
EN DN 40 PN 100 type E, with spigot	n/a	n/a	320 (12.6)	13.2 (29)	320 (12.6)	13.2 (29)	320 (12.6)	13.2 (29)	320 (12.6)	13.2 (29)
EN DN 40 PN 100 type F, with recess	n/a	n/a	320 (12.6)	13.5 (30)	320 (12.6)	13.5 (30)	320 (12.6)	13.5 (30)	320 (12.6)	13.5 (30)

L1 dimension and weight with process connections according to JIS B 2220 (AISI 316 / AISI 316L)

Process connection size and type	FCS100 sensor nominal size									
	DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS DN 15 10K	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)
JIS DN 15 20K	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)
JIS DN 25 10K	n/a	n/a	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)
JIS DN 25 20K	n/a	n/a	240 (9.4)	8 (18)	240 (9.4)	8 (18)	240 (9.4)	8 (18)	240 (9.4)	8 (18)
JIS DN 40 10K	n/a	n/a	240 (9.4)	8.4 (19)	240 (9.4)	8.4 (19)	240 (9.4)	8.4 (19)	240 (9.4)	8.4 (19)
JIS DN 40 20K	n/a	n/a	240 (9.4)	8.8 (19)	240 (9.4)	8.8 (19)	240 (9.4)	8.8 (19)	240 (9.4)	8.8 (19)

L1 dimension and weight with process connections according to NPT internal thread

Process connection size and type	FCS100 sensor nominal size									
	DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
¼" NPT	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)
⅜" NPT	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)
½" NPT	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)
¾" NPT	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)

L1 dimension and weight with process connections according to G internal thread

Process connection size and type	FCS100 sensor nominal size									
	DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
G ¼ inch	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)
G ⅜ inch	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)
G ½ inch	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)
G ¾ inch	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)

Dimensional drawings (continued)

L1 dimension and weight with hygienic clamp process connections according to DIN 32676 series A

Process connection size and type	FCS100 sensor nominal size									
	DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 32676 series A DN 15	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)
DIN 32676 series A DN 25	n/a	n/a	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)
DIN 32676 series A DN 40	n/a	n/a	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)

L1 dimension and weight with hygienic clamp process connections according to DIN 32676 series C (Tri-clamp)

Process connection size and type	FCS100 sensor nominal size									
	DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 32676 series C ½ inch	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)
DIN 32676 series C 1 inch	n/a	n/a	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)
DIN 32676 series C 1½ inch	n/a	n/a	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)

Flow Measurement

SITRANS FC (Coriolis)

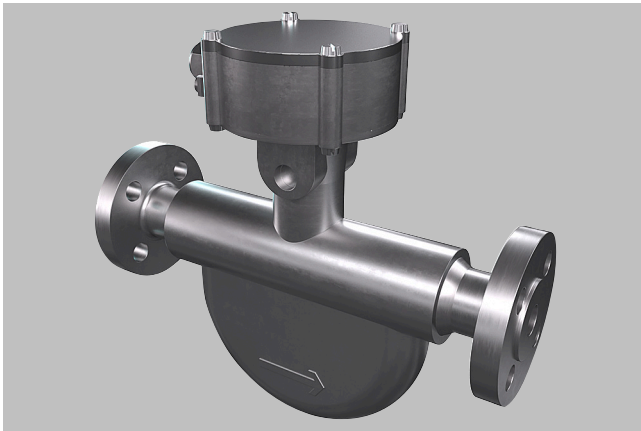
Sensors / SITRANS FCS500

Overview

SITRANS FCS500 sensor is the universal Coriolis flow sensor for routine and hygienic applications.

Features:

- Dual curved AISI 316L stainless steel tubes with polished option
- Nominal sizes: DN 10 to DN 80
- Process connection: flange, thread, or a selection of hygienic fittings
- Hygienic approvals for food, beverage, and pharmaceutical sectors
- Versatile solution with superior turndown and low pressure loss
- Combination with compact or remote transmitters



FCS500 sensor

Design

Sensor installation position related to type of fluid

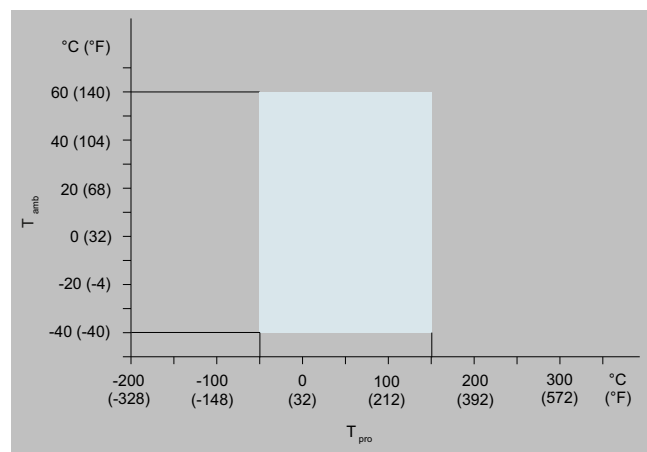
Installation position	Fluid	Description
Position 1 	Liquid	• Horizontal • Measuring tubes below process pipe • Avoids accumulation of entrained gas
Position 2 	Gas	• Horizontal • Measuring tubes above process pipe • Accumulation of liquid or condensate is less likely
Position 3 	Gas / Liquid	• Vertical • Upwards direction of flow • In liquid application accumulation of entrained gas is avoided • This position allows self-draining in liquid flow

Technical specifications

Allowed ambient temperature for FCS500 sensors

The allowed combinations of process fluid and ambient temperature for the sensor are illustrated as light areas in the diagrams below.

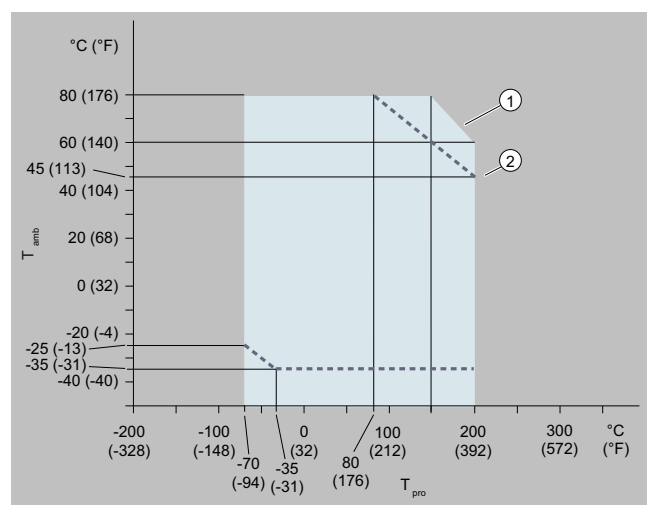
Standard temperature specification, non-hygienic version, compact transmitter



Allowed process fluid and ambient temperatures, compact type

T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

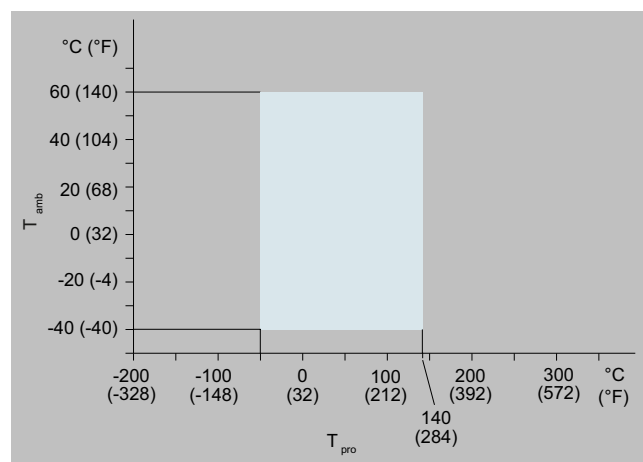
Standard temperature specification, non-hygienic version, remote transmitter



Allowed process fluid and ambient temperatures, non-hygienic, remote transmitter style

1	Standard cable option
2	Limitation for fire retardant cable option
T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

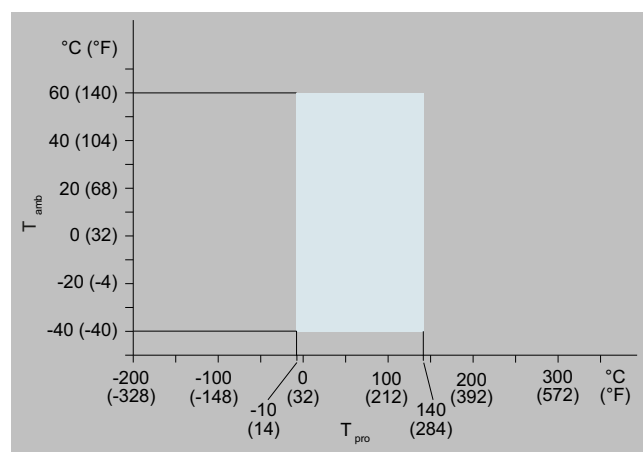
Standard temperature specification, hygienic version with threaded connections, compact transmitter



Allowed process fluid and ambient temperatures, threaded hygienic connections, compact transmitter

T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

Standard temperature specification, hygienic version with clamp connections, compact transmitter



Allowed process fluid and ambient temperatures, clamp hygienic connections, compact transmitter

T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

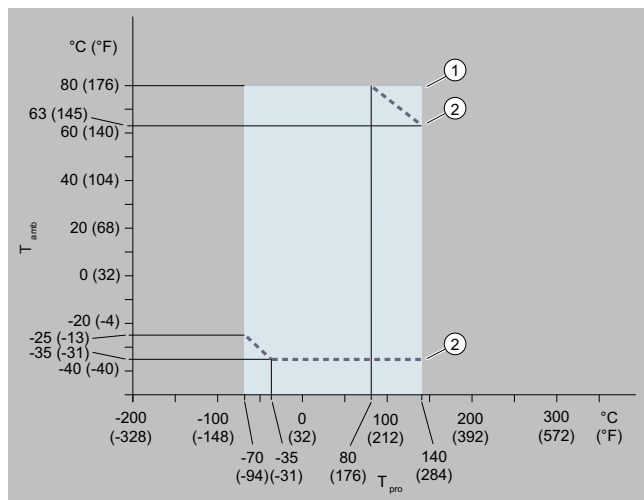
Flow Measurement

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Technical specifications (continued)

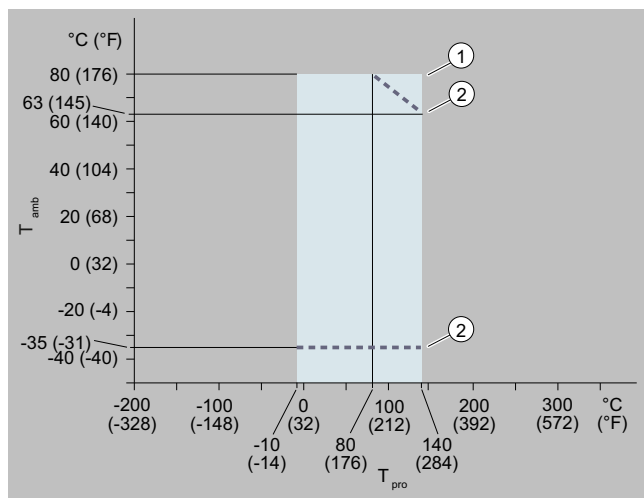
Standard temperature specification, hygienic version with threaded connections, remote transmitter



Allowed process fluid and ambient temperatures, threaded hygienic connections, remote transmitter

1	Standard cable option
2	Limitation for fire retardant cable option
T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

Standard temperature specification, hygienic version with clamp connections, remote transmitter

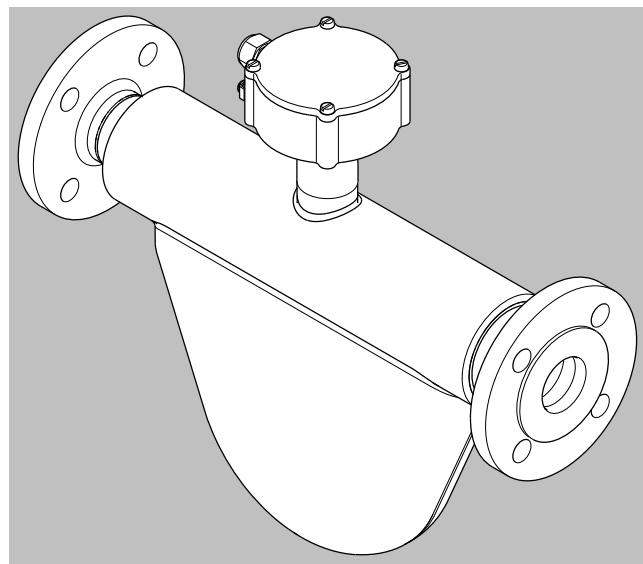


Allowed process fluid and ambient temperatures, hygienic clamp connections, remote transmitter

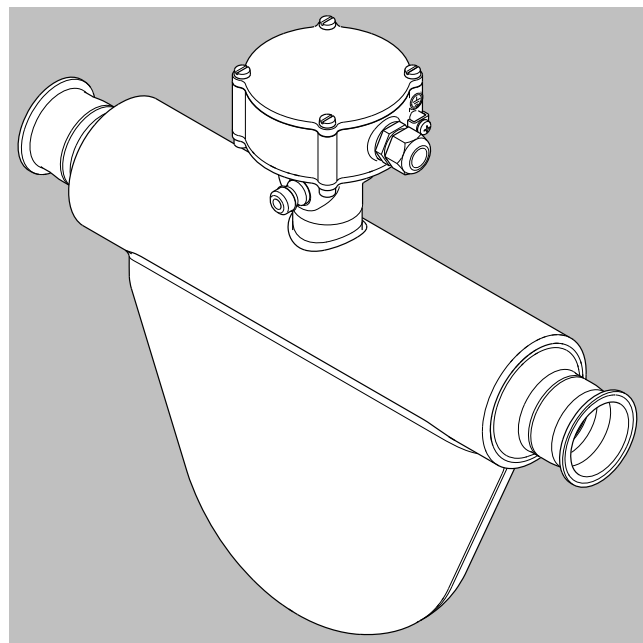
1	Standard cable option
2	Limitation for fire retardant cable option
T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

Mechanical specifications of FCS500 sensors

FCS500 sensors are available only with the standard neck design and can be combined with compact or remote transmitters. The neck can also be described as the pedestal connecting the sensor body to the transmitter or terminal housing.



FCS500 sensor (for remote transmitter) with standard neck, non hygienic version



FCS500 sensor (for remote transmitter) with standard neck, hygienic version

Technical specifications (continued)

Material specifications		
Wetted parts ³⁾		
Measuring tubes (for sensors with hygienic process connections)	Surface roughness Ra ≤ 0.8 μm ¹⁾	
Process connections	AISI 316L stainless steel, mat. no. 1.4404	
Sensor housing		
Junction box	AISI 316L stainless steel	Mat. no. 1.4404
Neck	similar to ASTM CF-8 cast stainless steel	Mat. no. 1.4308
Body	AISI 304 stainless steel	Mat. no. 1.4301
Nameplates ²⁾		
Sensor with AISI 304 stainless steel housing	Process temperature range	Material
	Standard, up to 150 °C (302 °F)	Polyester film

¹⁾ Other parts including the flow divider and process connections exhibit the same roughness.

²⁾ Nameplate material depends on the materials selected for SITRANS FC sensors.

³⁾ The user is responsible to ensure chemical compatibility of the material of the wetted parts with the measured process fluid.

Secondary containment

Some applications or environment conditions require secondary containment retaining the process pressure for increased safety. SITRANS FCS500 sensors have a secondary containment filled with inert gas.

Typical burst pressure at room temperature for sizes DN 10, DN 15, DN 25, and DN 50	49 bar (710 psi)
Typical burst pressure at room temperature for size DN 80	30 bar (435 psi)

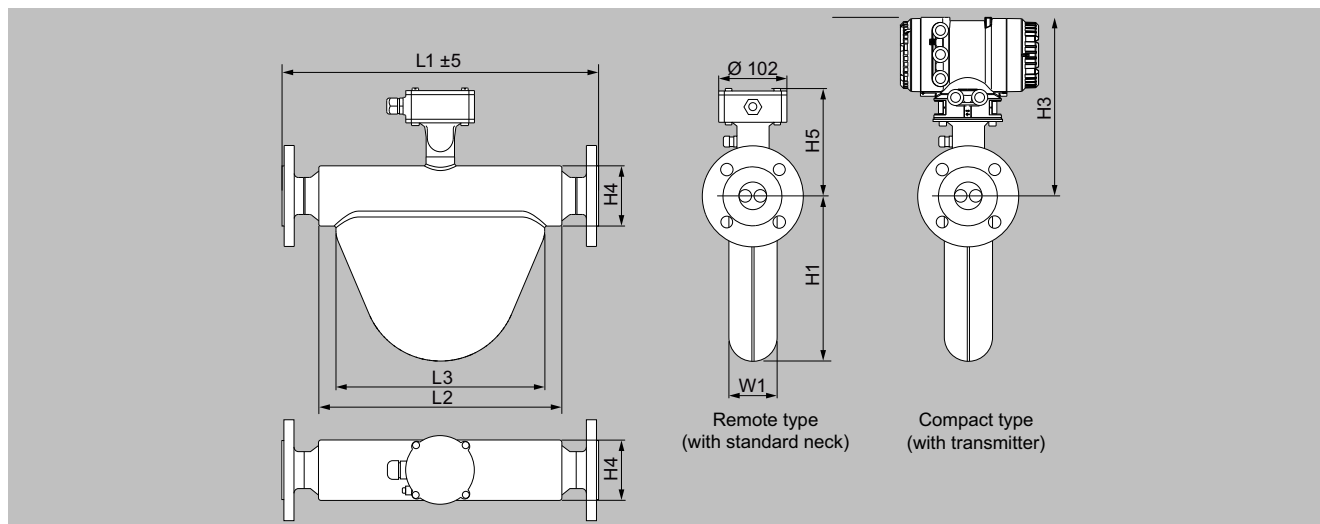
Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS500

Dimensional drawings

Drawings, dimensions and weight for FCS500 sensors (non-hygienic versions)



FCS500 sensor non hygienic, dimensions in mm

FCS500 sensor dimensions (non-hygienic versions)

Nominal size	L2	L3	H1	H3	H4	H5	W1
	Dimensions in mm (inch)						
DN 10	190 (7.5)	165 (6.5)	117 (4.6)	268 (10.6)	56 (2.2)	138 (5.4)	42 (1.7)
DN 15	227 (8.9)	195 (7.7)	145 (5.7)	277 (10.9)	71 (2.8)	148 (5.8)	50 (2)
DN 25	361 (14.2)	310 (12.2)	245 (9.6)	289 (11.4)	90 (3.5)	159 (6.3)	72 (2.8)
DN 50	455 (17.9)	400 (15.7)	333 (13.1)	296 (11.7)	102 (4)	167 (6.6)	96 (3.8)
DN 80	682 (26.9)	620 (24.4)	482 (19)	330 (13)	168 (6.6)	201 (7.9)	150 (5.9)

Overall length L1 and weight

The overall length of the sensor depends on the selected process connection (type and size). The following tables list the overall length and weight as functions of the individual process connection.

The weights in the tables are for the remote type. Additional weight for the compact type: up to 3.2 kg (7.1 lb)

L1 dimension and weight with process connections according to ASME B16.5 (AISI 316/AISI 316L)

Process connection size and type	FCS500 sensor nominal size									
	DN 10		DN 15		DN 25		DN 50		DN 80	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME ½" class 150, raised face (RF)	280 (11)	6 (13)	320 (12.6)	8 (18)	n/a	n/a	n/a	n/a	n/a	n/a
ASME ½" class 300, raised face (RF)	280 (11)	6.4 (14)	320 (12.6)	8.4 (18)	n/a	n/a	n/a	n/a	n/a	n/a
ASME ½" class 600, raised face (RF)	290 (11.4)	6.7 (15)	330 (13)	8.7 (19)	n/a	n/a	n/a	n/a	n/a	n/a
ASME ½" class 600, ring joint (RJ)	290 (11.4)	6.6 (15)	330 (13)	8.6 (19)	n/a	n/a	n/a	n/a	n/a	n/a
ASME 1" class 150, raised face (RF)	280 (11)	6.9 (15)	320 (12.6)	8.9 (20)	490 (19.3)	15.7 (35)	n/a	n/a	n/a	n/a
ASME 1" class 300, raised face (RF)	280 (11)	7.9 (17)	320 (12.6)	9.9 (22)	490 (19.3)	16.7 (37)	n/a	n/a	n/a	n/a
ASME 1" class 600, raised face (RF)	300 (11.8)	8.3 (18)	340 (13.4)	10.3 (23)	500 (19.7)	17 (38)	n/a	n/a	n/a	n/a
ASME 1" class 600, ring joint (RJ)	300 (11.8)	8.4 (19)	340 (13.4)	10.4 (23)	500 (19.7)	17.2 (38)	n/a	n/a	n/a	n/a
ASME 1½" class 150, raised face (RF)	290 (11.4)	7.8 (17)	330 (13)	9.8 (22)	470 (18.5)	16.5 (36)	620 (24.4)	25.7 (57)	n/a	n/a

Dimensional drawings (continued)

Process connection size and type	FCS500 sensor nominal size									
	DN 10 L1 in mm (inch)	Weight in kg (lb)	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 50 L1 in mm (inch)	Weight in kg (lb)	DN 80 L1 in mm (inch)	Weight in kg (lb)
ASME 1½" class 300, raised face (RF)	290 (11.4)	10.1 (22)	330 (13)	12.1 (27)	480 (18.9)	19 (42)	620 (24.4)	28.1 (62)	n/a	n/a
ASME 1½" class 600, raised face (RF)	310 (12.2)	11.5 (25)	350 (13.8)	13.5 (30)	500 (19.7)	20 (44)	630 (24.8)	28.9 (64)	n/a	n/a
ASME 1½" class 600, ring joint (RJ)	310 (12.2)	11.4 (25)	350 (13.8)	13.4 (30)	500 (19.7)	20 (44)	630 (24.8)	29.1 (64)	n/a	n/a
ASME 2" class 150, raised face (RF)	n/a	n/a	n/a	n/a	480 (18.9)	18.1 (40)	580 (22.8)	26.8 (59)	n/a	n/a
ASME 2" class 300, raised face (RF)	n/a	n/a	n/a	n/a	480 (18.9)	19.7 (43)	580 (22.8)	28.3 (62)	n/a	n/a
ASME 2" class 600, raised face (RF)	n/a	n/a	n/a	n/a	510 (20.1)	21.3 (47)	610 (24)	30.5 (67)	n/a	n/a
ASME 2" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	510 (20.1)	21.8 (48)	610 (24)	30.3 (67)	n/a	n/a
ASME 2½" class 150, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	29.8 (66)	n/a	n/a
ASME 2½" class 300, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	31.3 (69)	n/a	n/a
ASME 2½" class 600, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	610 (24)	33.4 (74)	n/a	n/a
ASME 2½" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	n/a	n/a	610 (24)	33.8 (74)	n/a	n/a
ASME 3" class 150, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	580 (23.3)	30.9 (68)	870 (34.3)	71.2 (157)
ASME 3" class 300, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	590 (22.8)	34.5 (76)	880 (34.6)	75 (165)
ASME 3" class 600, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	630 (24.8)	37.8 (83)	900 (35.4)	77.7 (171)
ASME 3" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	n/a	n/a	610 (24)	38.4 (85)	900 (35.4)	78.3 (173)
ASME 4" class 150, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	74.4 (164)
ASME 4" class 300, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	81.8 (180)
ASME 4" class 600, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	920 (36.2)	94 (207)
ASME 4" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	920 (36.2)	94.6 (209)
ASME 5" class 150, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	870 (34.3)	77 (170)
ASME 5" class 300, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	890 (35)	89.4 (197)
ASME 5" class 600, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	920 (36.2)	114.2 (252)
ASME 5" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	920 (36.2)	114.9 (253)

L1 dimension and weight with process connections according to EN 1092-1 (AISI 316L)

Process connection size and type	FCS500 sensor nominal size									
	DN 10 L1 in mm (inch)	Weight in kg (lb)	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 50 L1 in mm (inch)	Weight in kg (lb)	DN 80 L1 in mm (inch)	Weight in kg (lb)
EN DN 15 PN 40 type B1, raised face (RF)	280 (11)	6.6 (14)	320 (12.6)	8.6 (19)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 40 type D, with groove	280 (11)	6.4 (14)	320 (12.6)	8.4 (18)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 40 type E, with spigot	280 (11)	6.3 (14)	320 (12.6)	8.3 (18)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 40 type F, with recess	280 (11)	6.5 (14)	320 (12.6)	8.5 (19)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type B1, raised face (RF)	290 (11.4)	7.4 (16)	330 (13)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type D, with groove	290 (11.4)	7.4 (16)	330 (13)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a

Flow Measurement

SITRANS FC (Coriolis)

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Dimensional drawings (continued)

Process connection size and type	FCS500 sensor nominal size									
	DN 10 L1 in mm (inch)	Weight in kg (lb)	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 50 L1 in mm (inch)	Weight in kg (lb)	DN 80 L1 in mm (inch)	Weight in kg (lb)
EN DN 15 PN 100 type E, with spigot	290 (11.4)	7.1 (16)	330 (13)	9.1 (20)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type F, with recess	290 (11.4)	7.3 (16)	330 (13)	9.3 (21)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type B1, raised face (RF)	280 (11)	7.5 (17)	320 (12.6)	9.5 (21)	490 (19.3)	16.4 (36)	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type D, with groove	280 (11)	7.5 (17)	320 (12.6)	9.5 (21)	490 (19.3)	16.3 (36)	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type E, with spigot	280 (11)	7.2 (16)	320 (12.6)	9.2 (20)	490 (19.3)	16.1 (35)	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type F, with recess	280 (11)	7.4 (67)	320 (12.6)	9.4 (21)	490 (19.3)	16.3 (36)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type B1, raised face (RF)	300 (10.1)	10.1 (22)	340 (13.4)	12.1 (27)	490 (19.3)	18.8 (41)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type D, with groove	300 (10.1)	10 (22)	340 (13.4)	12 (26)	490 (19.3)	18.7 (41)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type E, with spigot	300 (10.1)	9.5 (21)	340 (13.4)	11.5 (25)	490 (19.3)	18.3 (40)	n/a	n/a	n/a	n/a
EN DN 25 PN100 type F, with recess	300 (10.1)	9.9 (22)	340 (13.4)	11.9 (26)	490 (19.3)	18.7 (41)	n/a	n/a	n/a	n/a
EN DN 40 PN40 type B1, raised face (RF)	280 (11)	9.1 (20)	320 (12.6)	11.1 (24)	470 (18.5)	17.7 (39)	610 (24)	26.9 (59)	n/a	n/a
EN DN 40 PN 40 type D, with groove	280 (11)	8.9 (20)	320 (12.6)	10.9 (24)	470 (18.5)	17.6 (39)	610 (24)	26.8 (59)	n/a	n/a
EN DN 40 PN 40 type E, with spigot	280 (11)	8.6 (19)	320 (12.6)	10.6 (23)	470 (18.5)	17.4 (38)	610 (24)	26.5 (58)	n/a	n/a
EN DN 40 PN 40 type F, with recess	280 (11)	8.8 (19)	320 (12.6)	10.8 (24)	470 (18.5)	17.5 (39)	610 (24)	26.7 (59)	n/a	n/a
EN DN 40 PN 100 type B1, raised face (RF)	360 (14.2)	13.5 (30)	400 (15.7)	15.5 (34)	500 (19.7)	21.5 (47)	610 (24)	30.5 (67)	n/a	n/a
EN DN 40 PN 100 type D, with groove	360 (14.2)	13.4 (30)	400 (15.7)	15.4 (34)	500 (19.7)	21.4 (47)	610 (24)	30.4 (67)	n/a	n/a
EN DN 40 PN 100 type E, with spigot	360 (14.2)	13 (29)	400 (15.7)	15 (33)	500 (19.7)	21.1 (46)	610 (24)	30 (66)	n/a	n/a
EN DN 40 PN 100 type F, with recess	360 (14.2)	13.3 (29)	400 (15.7)	15.3 (34)	500 (19.7)	21.3 (47)	610 (24)	30.3 (67)	n/a	n/a
EN DN 50 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	470 (18.5)	19.1 (42)	580 (22.8)	27.8 (61)	n/a	n/a
EN DN 50 PN 40 type D, with groove	n/a	n/a	n/a	n/a	470 (18.5)	18.9 (42)	580 (22.8)	27.7 (61)	n/a	n/a
EN DN 50 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	470 (18.5)	18.6 (41)	580 (22.8)	27.4 (60)	n/a	n/a
EN DN 50 PN 40 type F, with recess	n/a	n/a	n/a	n/a	470 (18.5)	18.8 (41)	580 (22.8)	27.6 (61)	n/a	n/a
EN DN 50 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	540 (21.3)	25.4 (56)	610 (24)	33.5 (74)	n/a	n/a
EN DN 50 PN 100 type D, with groove	n/a	n/a	n/a	n/a	540 (21.3)	25.3 (56)	610 (24)	33.4 (74)	n/a	n/a
EN DN 50 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	540 (21.3)	24.8 (55)	610 (24)	32.9 (72)	n/a	n/a
EN DN 50 PN 100 type F, with recess	n/a	n/a	n/a	n/a	540 (21.3)	25.2 (56)	610 (24)	33.2 (73)	n/a	n/a
EN DN 80 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	31.5 (69)	870 (34.2)	71.6 (158)
EN DN 80 PN 40 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	31.3 (69)	870 (34.2)	71.1 (157)
EN DN 80 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	30.9 (68)	870 (34.2)	70.7 (156)
EN DN 80 PN 40 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	31.1 (69)	870 (34.2)	70.9 (156)
EN DN 80 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	650 (25.6)	40 (88)	890 (35)	79.1 (174)
EN DN 80 PN 100 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	650 (25.6)	39.8 (88)	890 (35)	78.9 (174)
EN DN 80 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	650 (25.6)	39.2 (86)	890 (35)	78.3 (173)

Dimensional drawings (continued)

Process connection size and type	FCS500 sensor nominal size									
	DN 10		DN 15		DN 25		DN 50		DN 80	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 80 PN 100 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	650 (25.6)	39.6 (87)	890 (35)	78.7 (173)
EN DN 100 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	73.8 (163)
EN DN 100 PN 40 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	73.6 (162)
EN DN 100 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	73 (161)
EN DN 100 PN 40 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	73.3 (162)
EN DN 100 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	870 (34.3)	85.2 (188)
EN DN 100 PN 100 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	870 (34.3)	84.8 (187)
EN DN 100 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	870 (34.3)	84 (185)
EN DN 100 PN 100 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	870 (34.3)	84.5 (186)
EN DN125 PN40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	860 (33.9)	78.5 (173)
EN DN 135 PN 40 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	860 (33.9)	78.1 (172)
EN DN 125 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	860 (33.9)	77.4 (171)
EN DN 125 PN 40 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	860 (33.9)	77.7 (171)
EN DN 125 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	880 (34.6)	98 (216)
EN DN 125 PN 100 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	880 (34.6)	97.6 (215)
EN DN 125 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	880 (34.6)	96.3 (212)
EN DN 125 PN 100 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	880 (34.6)	97.1 (214)

L1 dimension and weight with process connections according to JIS B 2220 (AISI 316/AISI 316L)

Process connection size and type	FCS500 sensor nominal size									
	DN 10		DN 15		DN 25		DN 50		DN 80	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS DN 15 10 K	280 (11)	6.3 (14)	320 (12.6)	8.3 (18)	n/a	n/a	n/a	n/a	n/a	n/a
JIS DN 15 20 K	280 (11)	6.5 (14)	320 (12.6)	8.5 (19)	n/a	n/a	n/a	n/a	n/a	n/a
JIS DN 25 10 K	280 (11)	7.4 (16)	320 (12.6)	9.4 (21)	490 (19.3)	16.3 (36)	n/a	n/a	n/a	n/a
JIS DN 25 20 K	280 (11)	7.8 (17)	320 (12.6)	9.8 (22)	490 (19.3)	16.6 (37)	n/a	n/a	n/a	n/a
JIS DN 40 10 K	280 (11)	8.2 (18)	320 (12.6)	10.2 (23)	470 (18.5)	16.9 (37)	620 (24.4)	26.1 (58)	n/a	n/a
JIS DN 40 20 K	280 (11)	8.6 (19)	320 (12.6)	10.6 (23)	470 (18.5)	17.3 (38)	620 (24.4)	26.5 (58)	n/a	n/a
JIS DN 50 10 K	n/a	n/a	n/a	n/a	470 (18.5)	17.5 (39)	600 (23.6)	26.6 (59)	n/a	n/a
JIS DN 50 20 K	n/a	n/a	n/a	n/a	470 (18.5)	17.7 (39)	600 (23.6)	26.7 (59)	n/a	n/a
JIS DN 80 10 K	n/a	n/a	n/a	n/a	n/a	n/a	570 (22.4)	27.9 (62)	880 (34.6)	68.7 (151)
JIS DN 80 20 K	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	30.4 (67)	880 (34.6)	71 (156)
JIS DN 100 10 K	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	69.8 (154)
JIS DN 100 20 K	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	73.4 (162)
JIS DN 125 10 K	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	73.5 (162)
JIS DN 125 20 K	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	79.7 (176)

L1 dimension and weight with process connections according to NPT internal thread

Process connection size and type	FCS500 sensor nominal size									
	DN 10		DN 15		DN 25		DN 50		DN 80	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
3/8" NPT	300 (11.8)	5.4 (12)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1/2" NPT	300 (11.8)	5.4 (12)	340 (13.4)	7.4 (16)	n/a	n/a	n/a	n/a	n/a	n/a
3/4" NPT	300 (11.8)	5.3 (12)	340 (13.4)	7.3 (16)	n/a	n/a	n/a	n/a	n/a	n/a

Flow Measurement

SITRANS FC (Coriolis)

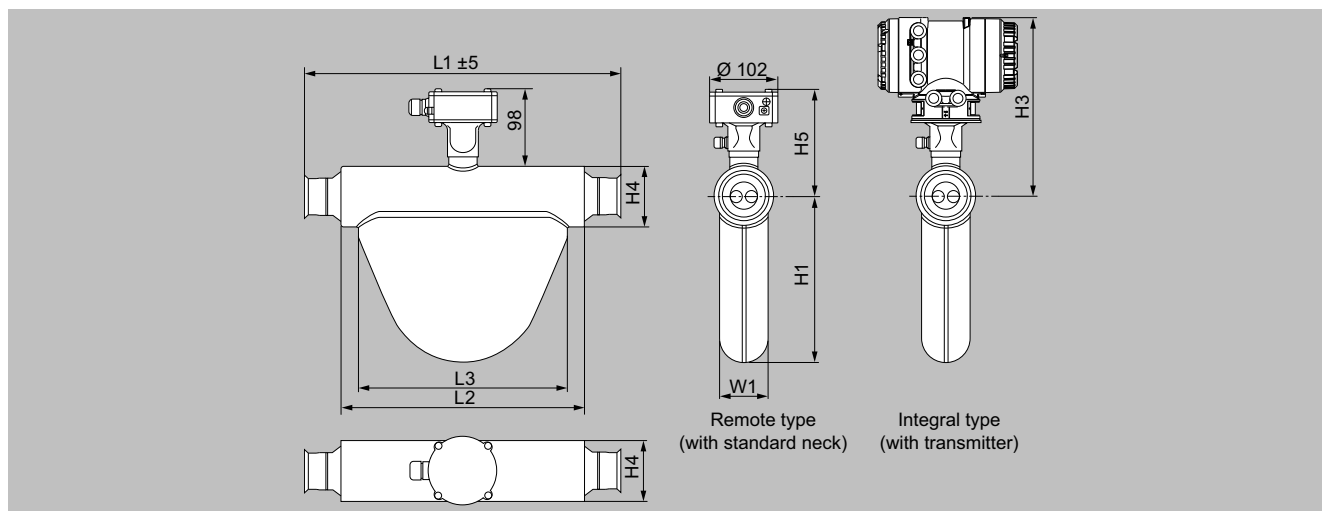
Sensors / SITRANS FCS500

Dimensional drawings (continued)

L1 dimension and weight with process connections according to G internal thread

Process connection size and type	FCS500 sensor nominal size									
	DN 10 L1 in mm (inch)	Weight in kg (lb)	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 50 L1 in mm (inch)	Weight in kg (lb)	DN 80 L1 in mm (inch)	Weight in kg (lb)
G 3/8"	300 (11.8)	5.4 (12)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
G 1/2"	300 (11.8)	5.4 (12)	340 (13.4)	7.4 (16)	n/a	n/a	n/a	n/a	n/a	n/a
G 3/4"	300 (11.8)	5.3 (12)	340 (13.4)	7.3 (16)	n/a	n/a	n/a	n/a	n/a	n/a

Drawings, dimensions and weight for FCS500 sensors (hygienic versions)



Dimensions in mm

FCS500 sensor dimensions (hygienic versions)

Nominal size	L2 Dimensions in mm (inch)	L3 Dimensions in mm (inch)	H1	H3	H4	H5	W1
DN 10	190 (7.5)	165 (6.5)	117 (4.6)	268 (10.6)	56 (2.2)	138 (5.4)	42 (1.7)
DN 15	227 (8.9)	195 (7.7)	145 (5.7)	277 (10.9)	71 (2.8)	148 (5.8)	50 (2)
DN 25	361 (14.2)	310 (12.2)	245 (9.6)	289 (11.4)	90 (3.5)	159 (6.3)	72 (2.8)
DN 50	455 (17.9)	400 (15.7)	333 (13.1)	296 (11.7)	102 (4)	167 (6.6)	96 (3.8)

Overall length L1 and weight

The overall length of the sensor depends on the selected process connection (type and size). The following tables list the overall length and weight as functions of the individual process connection.

The weights in the tables are for the remote type. Additional weight for the compact type: up to 3.2 kg (7.1 lb)

L1 dimension and weight with threaded hygienic process connections according to DIN 11851

Process connection size and type	FCS500 sensor nominal size							
	DN 10 L1 in mm (inch)	Weight in kg (lb)	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 50 L1 in mm (inch)	Weight in kg (lb)
DIN 11851, DN 25	280 (11)	5.4 (12)	320 (12.6)	7.4 (16)	n/a	n/a	n/a	n/a
DIN 11851, DN 40	290 (11.4)	5.5 (12)	330 (13)	7.5 (17)	490 (19.3)	14.3 (32)	n/a	n/a
DIN 11851, DN 50	n/a	n/a	n/a	n/a	480 (18.9)	14.4 (32)	610 (24)	23.4 (52)
DIN 11851, DN 65	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	23.4 (52)
DIN 11851, DN 80	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	23.8 (52)

Dimensional drawings (continued)

L1 dimension and weight with hygienic clamp process connections according to DIN 32676 Series A

Process connection size and type	FCS500 sensor nominal size		DN 15		DN 25		DN 50	
	DN 10 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 32676 series A, DN 25	280 (11)	5.2 (11)	320 (12.6)	7.2 (16)	n/a	n/a	n/a	n/a
DIN 32676 series A, DN 40	280 (11)	5.2 (11)	320 (12.6)	7.2 (16)	470 (18.5)	14 (31)	n/a	n/a
DIN 32676 series A, DN 50	n/a	n/a	n/a	n/a	470 (18.5)	14 (31)	600 (23.6)	22.9 (50)
DIN 32676 series A, DN 65	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	23 (51)
DIN 32676 series A, DN 80	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	23.1 (51)

L1 dimension and weight with hygienic clamp process connections according to DIN 32676 Series C (Tri-clamp)

Process connection size and type	FCS500 sensor nominal size		DN 15		DN 25		DN 50	
	DN 10 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 32676 series C, 1"	280 (11)	5.2 (11)	320 (12.6)	7.2 (16)	n/a	n/a	n/a	n/a
DIN 32676 series C, 1½"	280 (11)	5.2 (11)	320 (12.6)	7.2 (16)	480 (18.9)	14 (31)	n/a	n/a
DIN 32676 series C, 2"	n/a	n/a	n/a	n/a	470 (18.5)	14 (31)	600 (23.6)	22.9 (50)
DIN 32676 series C, 2½"	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	22.8 (50)
DIN 32676 series C, 3"	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	22.9 (50)

L1 dimension and weight with hygienic clamp process connections according to JIS/ISO 2852

Process connection size and type	FCS500 sensor nominal size		DN 15		DN 25		DN 50	
	DN 10 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS/ISO 2852, 1"	280 (11)	5.2 (11)	320 (12.6)	7.2 (16)	n/a	n/a	n/a	n/a
JIS/ISO 2852, 1½"	280 (11)	5.2 (11)	320 (12.6)	7.2 (16)	480 (18.9)	14 (31)	n/a	n/a
JIS/ISO 2852, 2"	n/a	n/a	n/a	n/a	470 (18.5)	14 (31)	600 (23.6)	22.9 (50)
JIS/ISO 2852, 2½"	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	22.8 (50)
JIS/ISO 2852, 3"	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	22.9 (50)

Flow Measurement

SITRANS FC (Coriolis)

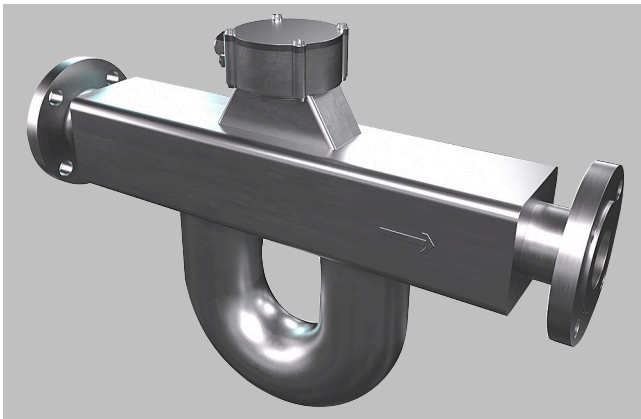
Sensors / SITRANS FCS600

Overview

SITRANS FCS600 sensor is the resistant Coriolis flow sensor for extreme conditions and corrosive fluids.

Features:

- Dual curved AISI 316L or alloy 22 tubes with optimum decoupling from external influences
- Nominal sizes from DN 2 to DN 65
- Process connection: flange, thread, or high pressure autoclave
- Temperatures from -196 °C (for cryogenic fluids), up to +350 °C
- Insulation and heat tracing options for viscous and molten liquids
- Combination with compact or remote transmitters.



FCS600 sensor

Design

Sensor installation position related to type of fluid

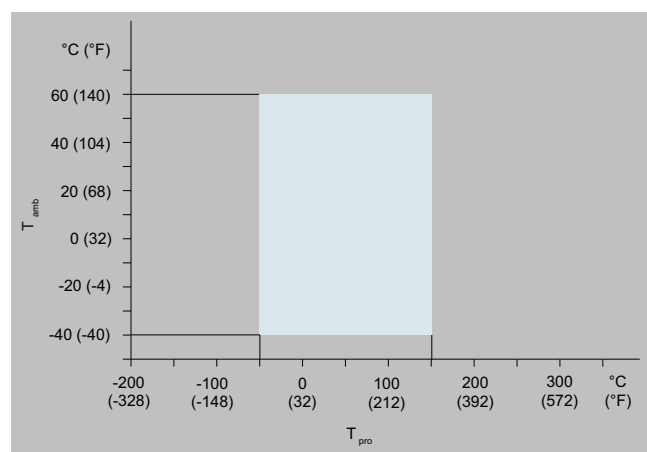
Installation position	Fluid	Description
Position 1 	Liquid	• Horizontal • Measuring tubes below process pipe • Avoids accumulation of entrained gas
Position 2 	Gas	• Horizontal • Measuring tubes above process pipe • Accumulation of liquid or condensate is less likely
Position 3 	Gas / Liquid	• Vertical • Upwards direction of flow • In liquid application accumulation of entrained gas is avoided • This position allows self-draining in liquid flow

Technical specifications

Allowed ambient temperature for FCS600 sensors

The allowed combinations of process fluid and ambient temperature for the sensor are illustrated as light areas in the diagrams below.

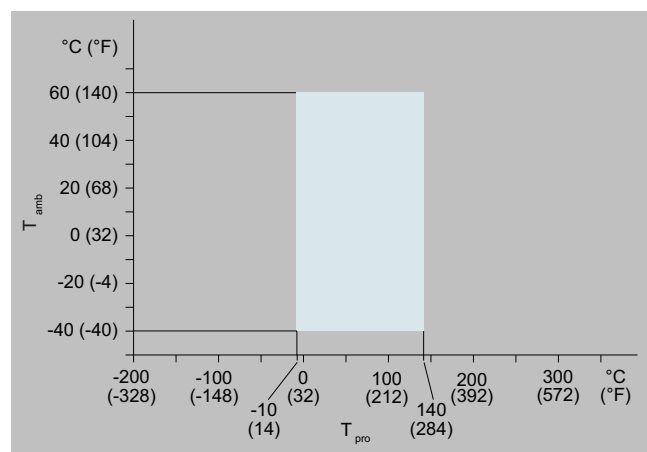
Standard temperature specification, compact transmitter



Allowed process fluid and ambient temperatures, compact transmitter

T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

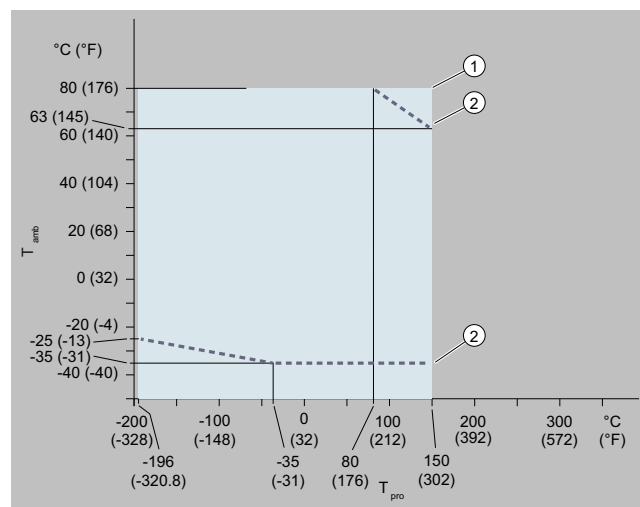
Standard temperature specification with hygienic clamp connections, compact transmitter



Allowed process fluid and ambient temperatures, hygienic clamp connections, compact transmitter

T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

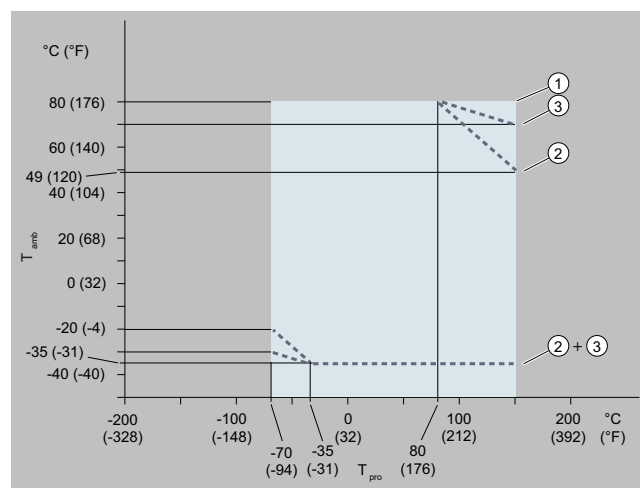
Low temperature specification, remote transmitter



Allowed process fluid and ambient temperatures, remote transmitter

1	Standard cable option
2	Limitation for fire retardant cable option
T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

Standard temperature specification, remote transmitter



Allowed process fluid and ambient temperatures, remote transmitter

1	Standard cable option
2	Limitation for fire retardant cable option and standard neck
3	Limitation for fire retardant cable option and long neck
T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

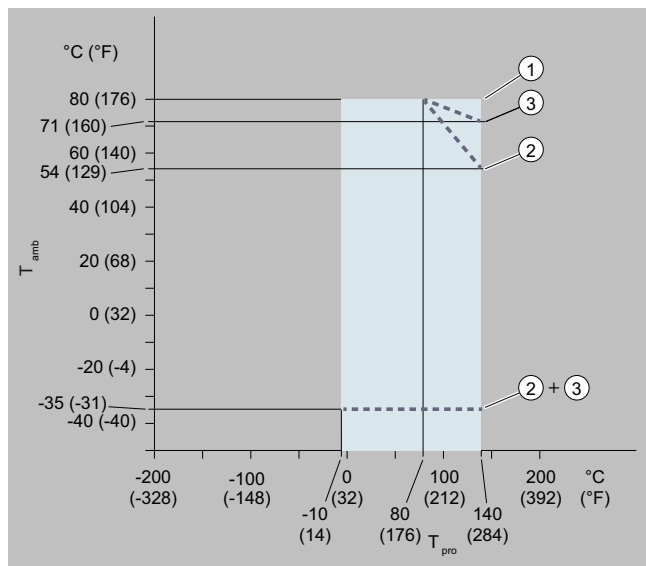
Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS600

Technical specifications (continued)

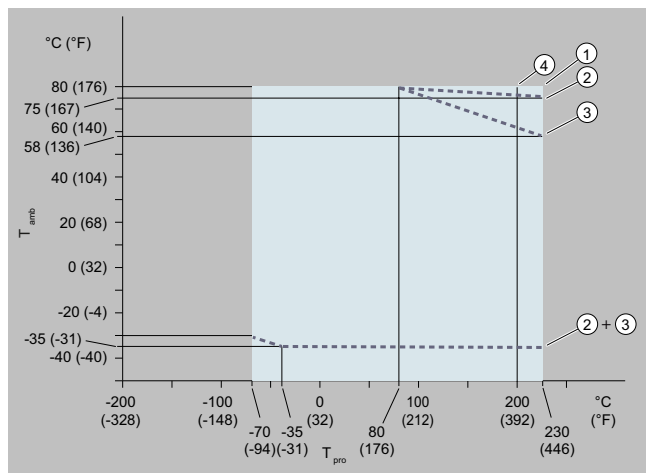
Standard temperature specification with hygienic clamp connections, remote transmitter



Allowed process fluid and ambient temperatures, hygienic clamp connections, remote transmitter

- 1 Standard cable option
- 2 Limitation for fire retardant cable option and standard neck
- 3 Limitation for fire retardant cable option and long neck
- T_{amb} Ambient temperature
- T_{pro} Process fluid temperature

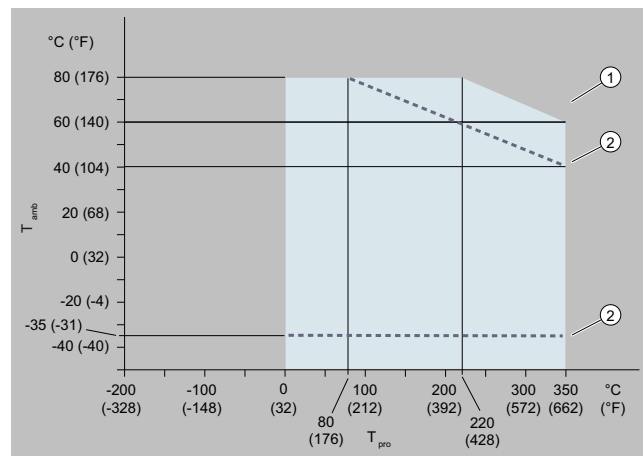
Medium temperature specification, remote transmitter



Allowed process fluid and ambient temperatures, remote transmitter

- 1 Standard cable option
- 2 Limitation for fire retardant cable without insulation/tracing option
- 3 Limitation for fire retardant cable option with insulation/tracing option
- T_{amb} Ambient temperature
- T_{pro} Process fluid temperature

High temperature specification, remote transmitter

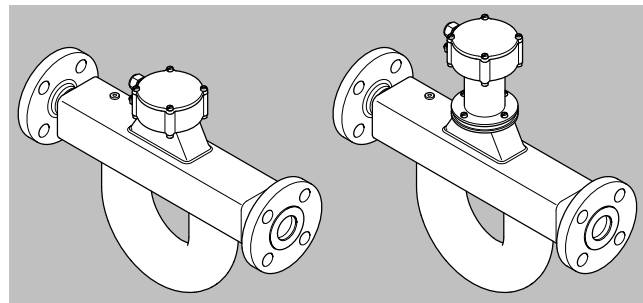


Allowed process fluid and ambient temperatures, remote transmitter

- 1 Standard cable option
- 2 Limitation for fire retardant cable option
- T_{amb} Ambient temperature
- T_{pro} Process fluid temperature

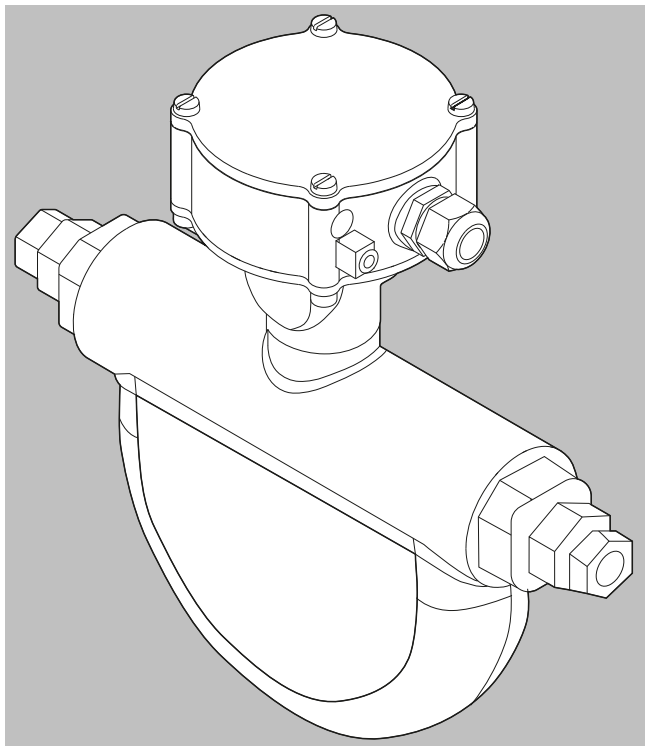
Mechanical specifications of FCS600 sensors

FCS600 sensors are available with standard neck or long neck design and can be combined with compact or remote transmitters. The neck can also be described as the pedestal connecting the sensor body to the transmitter or terminal housing.



FCS600 sensors (for remote transmitter) in sizes DN 15, DN 25, DN 40 and DN 65, standard neck and long neck

Technical specifications (continued)



FCS600 sensors (for remote transmitter) in sizes DN 2 and DN 4 standard neck

Material specifications

Wetted parts ¹⁾		
Sensor size DN 2	Alloy 22 dual measuring tubes with AISI 316L stainless steel process connections	
Sensor size DN 4	Alloy 22 dual measuring tubes with AISI 316L stainless steel process connections	
Sensor size DN 15	AISI 316L stainless steel or alloy 22	
Sensor size DN 25	AISI 316L stainless steel or alloy 22	
Sensor size DN 40	AISI 316L stainless steel or alloy 22	
Sensor size DN 65	AISI 316L stainless steel	
Sensor housing		
Junction box	AISI 316L stainless steel	All sensors with remote transmitters
Neck (pedestal)	ASTM A351 CF3M stainless steel	DN 2 and DN 4 sensors only (short neck)
Neck (pedestal)	AISI 316L stainless steel	All sensors, except sizes DN 2 and DN 4
Body (outer casing)	AISI 304 stainless steel	All versions, except sizes DN 2 and DN 4
Body (outer casing)	AISI 316L stainless steel	All versions
Nameplates ²⁾		
	Process temperature range	Material
Sensor with AISI 304 stainless steel housing	Standard, up to 150 °C (302 °F)	Polyester film
Sensor with AISI 304 stainless steel housing	Low, medium or high	AISI 316L ss
Sensor with AISI 316L stainless steel housing	All versions	AISI 316L ss

¹⁾ The user is responsible to ensure chemical compatibility of the material of the wetted parts with the measured process fluid.

²⁾ Nameplate material depends on the materials selected for SITRANS FC sensors.

Secondary containment

Some applications or environment conditions require secondary containment retaining the process pressure for increased safety. SITRANS FCS600 sensors have a secondary containment filled with inert gas.

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS600

Technical specifications (continued)

Typical burst pressure at room temperature for sizes DN 2 and DN 4	49 bar (710 psi)
Typical burst pressure at room temperature for sizes DN 15, DN 25 and DN 40: 120 bar (1 740 psi)	120 bar (1 740 psi)
Typical burst pressure at room temperature for size DN 65	80 bar (1 160 psi)

Insulation and heat tracing (not available for sizes DN 2 and DN 4)

In cases where fluid temperature deviates more than 80 °C (176 °F) from ambient temperature, sensor insulation is recommended to avoid negative effects from temperature fluctuations.

Maximum temperature of heat carrier

Process temperature range	Temperature range of heat carrier
Standard, up to 150 °C (302 °F)	0 ... 150 °C (32 ... 302 °F)
Medium, up to 260 °C (500 °F)	0 ... 230 °C (32 ... 446 °F) ¹⁾
High, up to 350 °C (662 °F)	0 ... 350 °C (32 ... 662 °F)

¹⁾ With Ex Approval 0 ... 220 °C (32 ... 428 °F)

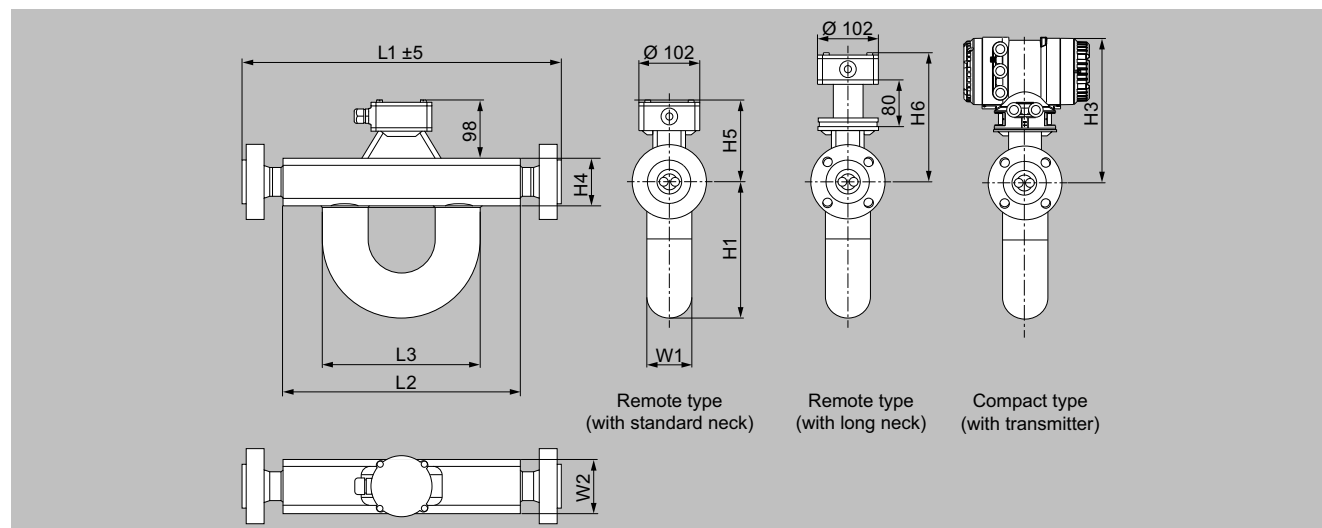
Insulation and heat tracing may be installed by the user but not in hazardous areas and the following must be noted:

- Do not insulate sensor terminal box.
- Do not expose transmitters to ambient temperatures exceeding 60 °C (140 °F).
- The preferred insulation is 60 mm (2.36") thick with a heat transfer coefficient of 0.4 W/m² K (0.07 Btu/ft² °F).

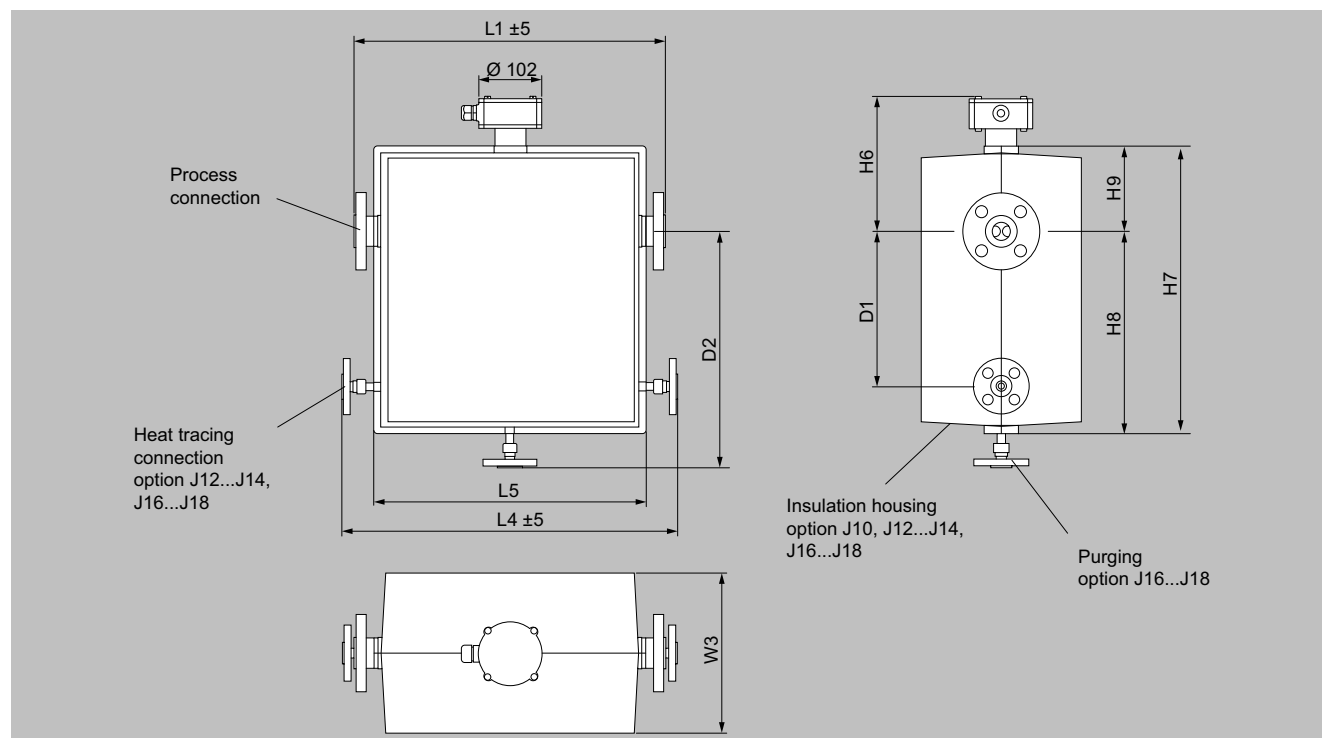
Dimensional drawings

Drawings, dimensions and weight for FCS600 sensors

FCS dimensions and weight (excluding high pressure versions)



Dimensions in mm



Dimensions in mm (with insulation and heating options)

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS600

Dimensional drawings (continued)

FCS600 sensor dimensions without L1

Nominal size	L2	L3	L4	L5	W1	W2	W3	D1	D2
	Dimensions in mm (inch)								
DN 15	272 (10.7)	212 (8.3)	420 (16.5)	310 (12.2)	60 (2.4)	80 (3.1)	240 (9.4)	200 (7.9)	330 (13)
DN 25	400 (15.7)	266 (10.5)	540 (21.3)	439 (17.3)	76 (3)	90 (3.5)	260 (10.2)	250 (9.8)	380 (15)
DN 40	490 (19.3)	267 (10.5)	640 (25.2)	530 (20.9)	89 (3.5)	110 (4.3)	260 (10.2)	250 (9.8)	430 (16.9)
DN 65	850 (33.5)	379 (14.9)	1000 (39.4)	894 (35.2)	129 (5.1)	160 (6.3)	302 (11.9)	350 (13.8)	545 (21.5)

Nominal size	H1	H3	H4	H5	H6	H7	H8	H9
	Dimensions in mm (inch)							
DN 15	177 (7)	267 (10.5)	80 (3.1)	138 (5.4)	218 (8.6)	411 (16.2)	273 (10.7)	138 (5.4)
DN 25	230 (9.1)	267 (10.5)	80 (3.1)	138 (5.4)	218 (8.6)	464 (18.3)	326 (12.8)	138 (5.4)
DN 40	268 (10.6)	277 (10.9)	100 (3.9)	148 (5.8)	228 (9)	524 (20.6)	376 (14.8)	148 (5.8)
DN 65	370 (14.6)	294.5 (11.6)	135 (5.3)	165 (6.5)	246 (9.7)	668 (26.3)	503 (19.8)	165 (6.5)

Overall length L1 and weight

The overall length of the sensor depends on the selected process connection (type and size). The following tables list the overall length and weight as functions of the individual process connection.

The weights in the tables are for the remote type. Additional weight for the compact type: up to 3.2 kg (7.1 lb).

L1 dimension and weight with process connections according to ASME B16.5, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size							
	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 40 L1 in mm (inch)	Weight in kg (lb)	DN 65 L1 in mm (inch)	Weight in kg (lb)
ASME ½" class 150, raised face (RF)	370 (14.6)	10 (22)	n/a	n/a	n/a	n/a	n/a	n/a
ASME ½" class 300, raised face (RF)	370 (14.6)	10.4 (23)	n/a	n/a	n/a	n/a	n/a	n/a
ASME ½" class 600, raised face (RF)	380 (15)	10.6 (23)	n/a	n/a	n/a	n/a	n/a	n/a
ASME ½" class 600, ring joint (RJ)	380 (15)	10.6 (23)	n/a	n/a	n/a	n/a	n/a	n/a
ASME 1" class 150, raised face (RF)	370 (14.6)	10.8 (24)	500 (19.7)	14.8 (33)	n/a	n/a	n/a	n/a
ASME 1" class 300, raised face (RF)	370 (14.6)	11.8 (26)	500 (19.7)	15.8 (35)	n/a	n/a	n/a	n/a
ASME 1" class 600, raised face (RF)	390 (15.4)	12.2 (27)	520 (20.5)	16.2 (36)	n/a	n/a	n/a	n/a
ASME 1" class 600, ring joint (RJ)	390 (15.4)	12.4 (27)	520 (20.5)	16.2 (36)	n/a	n/a	n/a	n/a
ASME 1½" class 150, raised face (RF)	380 (15)	11.8 (26)	500 (19.7)	15.8 (35)	600 (23.6)	25 (56)	n/a	n/a
ASME 1½" class 300, raised face (RF)	380 (15)	14.2 (31)	510 (20.1)	18.2 (40)	600 (23.6)	27.2 (60)	n/a	n/a
ASME 1½" class 600, raised face (RF)	400 (15.7)	15.4 (34)	530 (20.9)	19.2 (42)	620 (24.4)	28.2 (62)	n/a	n/a
ASME 1½" class 600, ring joint (RJ)	400 (15.7)	15.4 (34)	530 (20.9)	19.4 (43)	620 (24.4)	28.2 (62)	n/a	n/a
ASME 2" class 150, raised face (RF)	n/a	n/a	510 (20.1)	17.4 (38)	600 (23.6)	26.4 (58)	n/a	n/a
ASME 2" class 300, raised face (RF)	n/a	n/a	510 (20.1)	19 (42)	600 (23.6)	28 (62)	n/a	n/a
ASME 2" class 600, raised face (RF)	n/a	n/a	540 (21.3)	20.8 (46)	630 (24.8)	29.8 (66)	n/a	n/a
ASME 2" class 600, ring joint (RJ)	n/a	n/a	540 (21.3)	21.2 (47)	630 (24.8)	29.8 (66)	n/a	n/a
ASME 2½" class 150, raised face (RF)	n/a	n/a	n/a	n/a	610 (24)	29.6 (65)	n/a	n/a
ASME 2½" class 300, raised face (RF)	n/a	n/a	n/a	n/a	610 (24)	31 (68)	n/a	n/a
ASME 2½" class 600, raised face (RF)	n/a	n/a	n/a	n/a	640 (25.2)	33.4 (74)	n/a	n/a
ASME 2½" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	640 (25.2)	34.4 (76)	n/a	n/a
ASME 3" class 150, raised face (RF)	n/a	n/a	n/a	n/a	610 (24)	30.6 (67)	1 000 (39.4)	60.2 (133)

Dimensional drawings (continued)

Process connection size and type	FCS600 sensor nominal size		DN 25		DN 40		DN 65	
	DN 15 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 3" class 300, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	34.6 (76)	1 000 (39.4)	63.4 (140)
ASME 3" class 600, raised face (RF)	n/a	n/a	n/a	n/a	640 (25.2)	38 (84)	1 000 (39.4)	65.8 (145)
ASME 3" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	640 (25.2)	38.6 (85)	1 000 (39.4)	65.8 (145)
ASME 4" class 150, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	64 (141)
ASME 4" class 300, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	71.4 (157)
ASME 4" class 600, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 030 (40.6)	82.6 (182)
ASME 4" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	n/a	n/a	1 030 (40.6)	82.8 (183)
ASME 5" class 150, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	66 (146)
ASME 5" class 300, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	78.4 (173)
ASME 5" class 600, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 030 (40.6)	102.8 (227)
ASME 5" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	n/a	n/a	1 030 (40.6)	103.6 (228)

L1 dimension and weight with process connections according to ASME B16.5, alloy 22 wetted parts

Process connection size and type	FCS600 sensor nominal size		DN 25		DN 40	
	DN 15 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 1" class 150, raised face (RF)	390 (15.4)	11.4 (25)	n/a	n/a	n/a	n/a
ASME 1" class 300, raised face (RF)	390 (15.4)	12.6 (28)	n/a	n/a	n/a	n/a
ASME 1" class 600, raised face (RF)	390 (15.4)	12.4 (27)	n/a	n/a	n/a	n/a
ASME 1½" class 150, raised face (RF)	390 (15.4)	12.6 (28)	520 (20.5)	16.5 (35)	n/a	n/a
ASME 1½" class 300, raised face (RF)	390 (15.4)	15.4 (34)	520 (20.5)	19.1 (42)	n/a	n/a
ASME 1½" class 600, raised face (RF)	400 (15.7)	15.6 (34)	530 (20.9)	19.6 (43)	n/a	n/a
ASME 2" class 150, raised face (RF)	390 (15.4)	14.8 (33)	520 (20.5)	18.5 (41)	620 (24.4)	27.3 (60)
ASME 2" class 300, raised face (RF)	390 (15.4)	16 (35)	520 (20.5)	20.5 (45)	620 (24.4)	29.1 (64)
ASME 2" class 600, raised face (RF)	410 (16.1)	17.6 (39)	540 (21.3)	21.6 (48)	630 (24.8)	29.7 (66)
ASME 2½" class 150, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	30.9 (68)
ASME 2½" class 300, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	32.5 (72)
ASME 2½" class 600, raised face (RF)	n/a	n/a	n/a	n/a	640 (25.2)	33.9 (75)
ASME 3" class 150, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	32.8 (72)
ASME 3" class 300, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	36.6 (81)
ASME 3" class 600, raised face (RF)	n/a	n/a	n/a	n/a	640 (25.2)	38.9 (86)

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS600

Dimensional drawings (continued)

L1 dimension and weight with process connections according to EN 1092-1, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size							
	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 40 L1 in mm (inch)	Weight in kg (lb)	DN 65 L1 in mm (inch)	Weight in kg (lb)
EN DN 15 PN 40 type B1, raised face (RF)	370 (14.6)	10.6 (23)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 40 type D, with groove	370 (14.6)	10.4 (23)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 40 type E, with spigot	370 (14.6)	10.4 (23)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 40 type F, with recess	370 (14.6)	10.4 (23)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type B1, raised face (RF)	380 (15)	11.4 (25)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type D, with groove	380 (15)	11.4 (25)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type E, with spigot	380 (15)	11.2 (25)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type F, with recess	380 (15)	11.4 (25)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type B1, raised face (RF)	370 (14.6)	11.6 (26)	500 (19.7)	15.6 (34)	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type D, with groove	370 (14.6)	11.4 (25)	500 (19.7)	15.4 (34)	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type E, with spigot	370 (14.6)	11.2 (25)	500 (19.7)	15.2 (34)	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type F, with recess	370 (14.6)	11.4 (25)	500 (19.7)	15.4 (34)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type B1, raised face (RF)	390 (15.4)	14 (31)	520 (20.5)	18.2 (40)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type D, with groove	390 (15.4)	14 (31)	520 (20.5)	18 (40)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type E, with spigot	390 (15.4)	13.6 (30)	520 (20.5)	17.6 (39)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type F, with recess	390 (15.4)	14 (31)	520 (20.5)	18 (40)	n/a	n/a	n/a	n/a
EN DN 40 PN 40 type B1, raised face (RF)	370 (14.6)	13 (29)	500 (19.7)	17 (37)	600 (23.6)	26.2 (58)	n/a	n/a
EN DN 40 PN 40 type D, with groove	370 (14.6)	13 (29)	500 (19.7)	17 (37)	600 (23.6)	26 (57)	n/a	n/a
EN DN 40 PN 40 type E, with spigot	370 (14.6)	12.6 (28)	500 (19.7)	16.6 (37)	600 (23.6)	25.8 (57)	n/a	n/a
EN DN 40 PN 40 type F, with recess	370 (14.6)	12.8 (29)	500 (19.7)	16.8 (37)	600 (23.6)	26 (57)	n/a	n/a
EN DN 40 PN 100 type B1, raised face (RF)	450 (17.7)	17.6 (39)	560 (22)	21.2 (47)	620 (24.4)	29.8 (66)	n/a	n/a
EN DN 40 PN 100 type D, with groove	450 (17.7)	17.4 (38)	560 (22)	21.2 (47)	620 (24.4)	29.6 (65)	n/a	n/a
EN DN 40 PN 100 type E, with spigot	450 (17.7)	17 (37)	560 (22)	20.8 (46)	620 (24.4)	29.2 (64)	n/a	n/a
EN DN 40 PN 100 type F, with recess	450 (17.7)	17.4 (38)	560 (22)	21 (46)	620 (24.4)	29.6 (65)	n/a	n/a
EN DN 50 PN 40 type B1, raised face (RF)	n/a	n/a	500 (19.7)	18.4 (41)	600 (23.6)	27.4 (60)	n/a	n/a
EN DN 50 PN 40 type D, with groove	n/a	n/a	500 (19.7)	18.2 (40)	600 (23.6)	27.4 (60)	n/a	n/a
EN DN 50 PN 40 type E, with spigot	n/a	n/a	500 (19.7)	18 (40)	600 (23.6)	27 (60)	n/a	n/a
EN DN 50 PN 40 type F, with recess	n/a	n/a	500 (19.7)	18.2 (40)	600 (23.6)	27.2 (60)	n/a	n/a
EN DN 50 PN 63 type B1, raised face (RF)	n/a	n/a	520 (20.5)	21.6 (48)	620 (24.4)	30.6 (67)	n/a	n/a
EN DN 50 PN 63 type D, with groove	n/a	n/a	520 (20.5)	21.4 (47)	620 (24.4)	30.4 (67)	n/a	n/a
EN DN 50 PN 63 type E, with spigot	n/a	n/a	520 (20.5)	21 (46)	620 (24.4)	30 (66)	n/a	n/a
EN DN 50 PN 63 type F, with recess	n/a	n/a	520 (20.5)	21.2 (47)	620 (24.4)	30.2 (67)	n/a	n/a
EN DN 50 PN 100 type B1, raised face (RF)	n/a	n/a	590 (23.2)	25.2 (56)	660 (26)	33.6 (74)	n/a	n/a

Dimensional drawings (continued)

Process connection size and type	FCS600 sensor nominal size							
	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 40 L1 in mm (inch)	Weight in kg (lb)	DN 65 L1 in mm (inch)	Weight in kg (lb)
EN DN 50 PN 100 type D, with groove	n/a	n/a	590 (23.2)	25 (55)	660 (26)	33.4 (74)	n/a	n/a
EN DN 50 PN 100 type E, with spigot	n/a	n/a	590 (23.2)	24.4 (54)	660 (26)	33 (73)	n/a	n/a
EN DN 50 PN 100 type F, with recess	n/a	n/a	590 (23.2)	24.8 (56)	660 (26)	33.4 (74)	n/a	n/a
EN DN 80 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	610 (24)	31 (68)	1 000 (39.4)	60.4 (133)
EN DN 80 PN 40 type D, with groove	n/a	n/a	n/a	n/a	610 (24)	30.8 (68)	1 000 (39.4)	60.2 (133)
EN DN 80 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	610 (24)	30.4 (67)	1 000 (39.4)	59.8 (132)
EN DN 80 PN 40 type F, with recess	n/a	n/a	n/a	n/a	610 (24)	30.6 (67)	1 000 (39.4)	60 (132)
EN DN 80 PN 63 type B1, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	34.4 (76)	1 000 (39.4)	63.4 (140)
EN DN 80 PN 63 type D, with groove	n/a	n/a	n/a	n/a	620 (24.4)	34.2 (75)	1 000 (39.4)	63.2 (139)
EN DN 80 PN 63 type E, with spigot	n/a	n/a	n/a	n/a	620 (24.4)	33.6 (74)	1 000 (39.4)	62.8 (138)
EN DN 80 PN 63 type F, with recess	n/a	n/a	n/a	n/a	620 (24.4)	33.8 (75)	1 000 (39.4)	63 (139)
EN DN 80 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	730 (28.7)	41.8 (92)	1 000 (39.4)	67.2 (148)
EN DN 80 PN 100 type D, with groove	n/a	n/a	n/a	n/a	730 (28.7)	41.6 (92)	1 000 (39.4)	67 (148)
EN DN 80 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	730 (28.7)	41 (90)	1 000 (39.4)	66.4 (146)
EN DN 80 PN 100 type F, with recess	n/a	n/a	n/a	n/a	730 (28.7)	41.4 (91)	1 000 (39.4)	66.6 (147)
EN DN 100 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	63.6 (140)
EN DN 100 PN 40 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	63.2 (139)
EN DN 100 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	62.4 (138)
EN DN 100 PN 40 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	62.6 (138)
EN DN 100 PN 63 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	68 (150)
EN DN 100 PN 63 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	67.8 (149)
EN DN 100 PN 63 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	67 (148)
EN DN 100 PN 63 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	67.4 (149)
EN DN 100 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 050 (41.3)	76.6 (169)
EN DN 100 PN 100 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	1 050 (41.3)	76.2 (168)
EN DN 100 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	1 050 (41.3)	75.4 (166)
EN DN 100 PN 100 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	1 050 (41.3)	75.8 (167)
EN DN 125 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	67.6 (149)
EN DN 125 PN 40 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	67.2 (148)
EN DN 125 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	66.4 (146)
EN DN 125 PN 40 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	66.6 (147)
EN DN 125 PN 63 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	77.8 (172)
EN DN 125 PN 63 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	77.4 (171)

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS600

Dimensional drawings (continued)

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 125 PN 63 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	76.4 (168)
EN DN 125 PN 63 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	76.8 (169)
EN DN 125 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 100 (43.3)	93.2 (205)
EN DN 125 PN 100 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	1 100 (43.3)	92.8 (205)
EN DN 125 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	1 100 (43.3)	91.4 (202)
EN DN 125 PN 100 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	1 100 (43.3)	92.4 (204)

L1 dimension and weight with process connections according to EN 1092-1, alloy 22 wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 25 PN 40, type B1, raised face (RF)	390 (15.4)	11.7 (26)	520 (20.5)	15.7 (35)	n/a	n/a
EN DN 40 PN 40, type B1, raised face (RF)	390 (15.4)	13.7 (30)	520 (20.5)	17.5 (39)	n/a	n/a
EN DN 50 PN 40, type B1, raised face (RF)	n/a	n/a	520 (20.5)	19.3 (43)	620 (24.4)	28 (62)
EN DN 80 PN 40, type B1, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	32.6 (72)

L1 dimension and weight with process connections according to JIS B 2220, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS DN 15 10 K	370 (14.6)	10.4 (23)	n/a	n/a	n/a	n/a	n/a	n/a
JIS DN 15 20 K	370 (14.6)	10.4 (23)	n/a	n/a	n/a	n/a	n/a	n/a
JIS DN 25 10 K	370 (14.6)	11.4 (25)	500 (19.7)	15.6 (34)	n/a	n/a	n/a	n/a
JIS DN 25 20 K	370 (14.6)	11.8 (26)	500 (19.7)	15.8 (35)	n/a	n/a	n/a	n/a
JIS DN 40 10 K	370 (14.6)	12.2 (27)	500 (19.7)	16.2 (36)	600 (23.6)	25.4 (56)	n/a	n/a
JIS DN 40 20 K	370 (14.6)	12.6 (28)	500 (19.7)	16.6 (37)	600 (23.6)	25.8 (57)	n/a	n/a
JIS DN 50 10 K	n/a	n/a	500 (19.7)	17 (37)	600 (23.6)	26 (57)	n/a	n/a
JIS DN 50 20 K	n/a	n/a	500 (19.7)	17.2 (38)	600 (23.6)	26.2 (58)	n/a	n/a
JIS DN 80 10 K	n/a	n/a	n/a	n/a	600 (23.6)	27.8 (61)	1 000 (40.2)	57.8 (127)
JIS DN 80 20 K	n/a	n/a	n/a	n/a	610 (24)	30.4 (67)	1 000 (40.2)	60 (132)
JIS DN 100 10 K	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (40.2)	59 (130)
JIS DN 100 20 K	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (40.2)	63 (139)
JIS DN 125 10 K	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (40.2)	62.8 (138)
JIS DN 125 20 K	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (40.2)	69 (152)

Dimensional drawings (continued)

L1 dimension and weight with process connections according to JIS B 2220, alloy 22 wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS DN 25 10 K	390 (15.4)	12.1 (27)	n/a	n/a	n/a	n/a
JIS DN 25 20 K	390 (15.4)	12.5 (28)	n/a	n/a	n/a	n/a
JIS DN 40 10 K	390 (15.4)	13.6 (30)	520 (20.5)	17.4 (38)	n/a	n/a
JIS DN 40 20 K	390 (15.4)	14 (31)	520 (20.5)	17.6 (39)	n/a	n/a
JIS DN 50 10 K	n/a	n/a	520 (20.5)	18.6 (41)	620 (24.4)	27.3 (60)
JIS DN 50 20 K	n/a	n/a	520 (20.5)	18.8 (41)	620 (24.4)	27.3 (60)
JIS DN 80 10 K	n/a	n/a	n/a	n/a	620 (24.4)	30.8 (68)
JIS DN 80 20 K	n/a	n/a	n/a	n/a	620 (24.4)	33.3 (73)

L1 dimension and weight with G threaded process connections, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
G 3/8"	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a
G 1/2"	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a
G 3/4"	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a

L1 dimension and weight with NPT threaded process connections, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
3/8" NPT	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a
1/2" NPT	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a
3/4" NPT	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a

L1 dimension and weight with hygienic clamp process connections to DIN 32676 Series A, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 32676 series A, DN 25	370 (14.8)	9.2 (20)	n/a	n/a	n/a	n/a	n/a	n/a
DIN 32676 series A, DN 40	370 (14.8)	9.2 (20)	500 (19.7)	13.2 (29)	n/a	n/a	n/a	n/a
DIN 32676 series A, DN 50	n/a	n/a	500 (19.7)	13.2 (29)	600 (23.6)	22.4 (49)	n/a	n/a
DIN 32676 series A, DN 65	n/a	n/a	n/a	n/a	600 (23.6)	22.5 (50)	n/a	n/a
DIN 32676 series A, DN 100	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	52.1 (115)

L1 dimension and weight with hygienic clamp process connections to DIN 32676 Series C (Tri-clamp), AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 32676 series C, 1"	370 (14.8)	9.2 (20)	n/a	n/a	n/a	n/a	n/a	n/a
DIN 32676 series C, 1 1/2"	370 (14.8)	9.2 (20)	500 (19.7)	13.2 (29)	n/a	n/a	n/a	n/a
DIN 32676 series C, 2"	n/a	n/a	500 (19.7)	13.2 (29)	600 (23.6)	22.4 (49)	n/a	n/a
DIN 32676 series C, 3"	n/a	n/a	n/a	n/a	600 (23.6)	22.5 (50)	n/a	n/a
DIN 32676 series C, 4"	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	52.2 (115)

Flow Measurement

SITRANS FC (Coriolis)

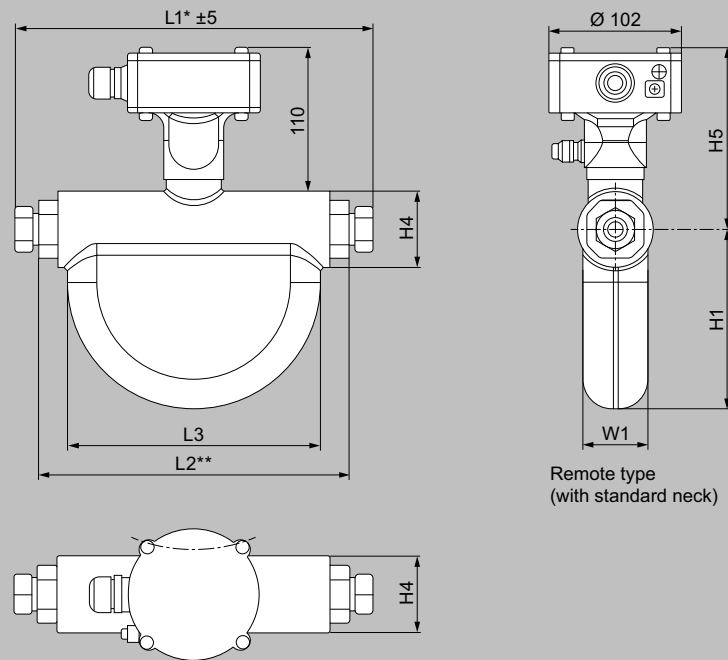
Sensors / SITRANS FCS600

Dimensional drawings (continued)

L1 dimension and weight with hygienic clamp process connections to JIS/ISO 2852, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS/ISO 2852, 1"	370 (14.8)	9.2 (20)	n/a	n/a	n/a	n/a	n/a	n/a
JIS/ISO 2852, 1½"	370 (14.8)	9.2 (20)	500 (19.7)	13.2 (29)	n/a	n/a	n/a	n/a
JIS/ISO 2852, 2"	n/a	n/a	500 (19.7)	13.3 (29)	600 (23.6)	22.4 (49)	n/a	n/a
JIS/ISO 2852, 3"	n/a	n/a	n/a	n/a	600 (23.6)	22.5 (50)	n/a	n/a

FCS600 dimensions and weight (high pressure versions)

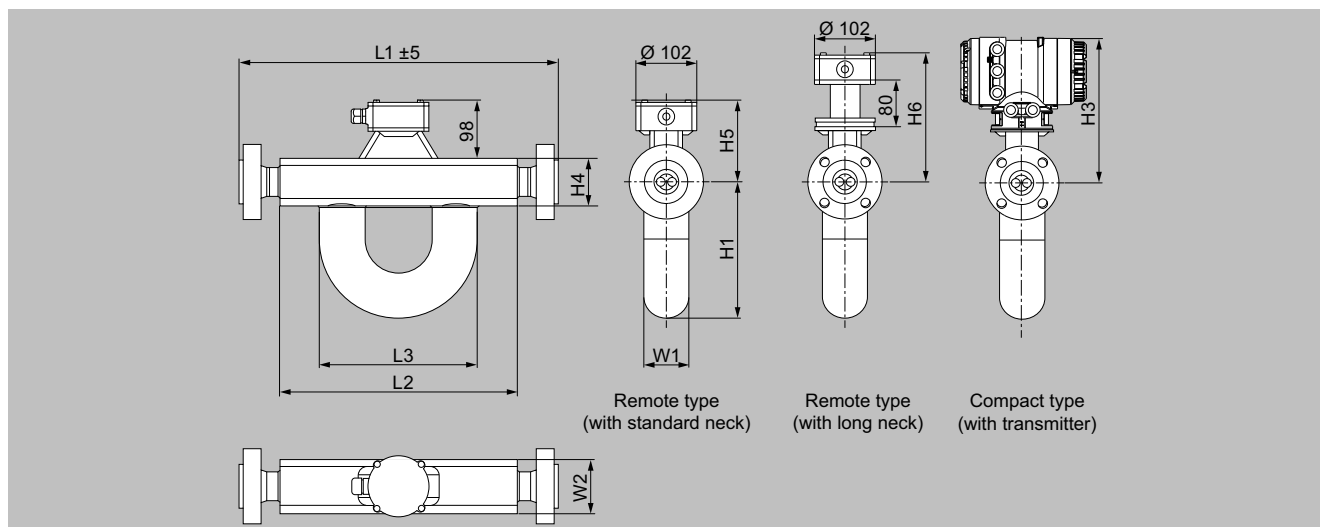


* with process connection adapter 7ME446.-0AK1 or 7ME446.-1AK1

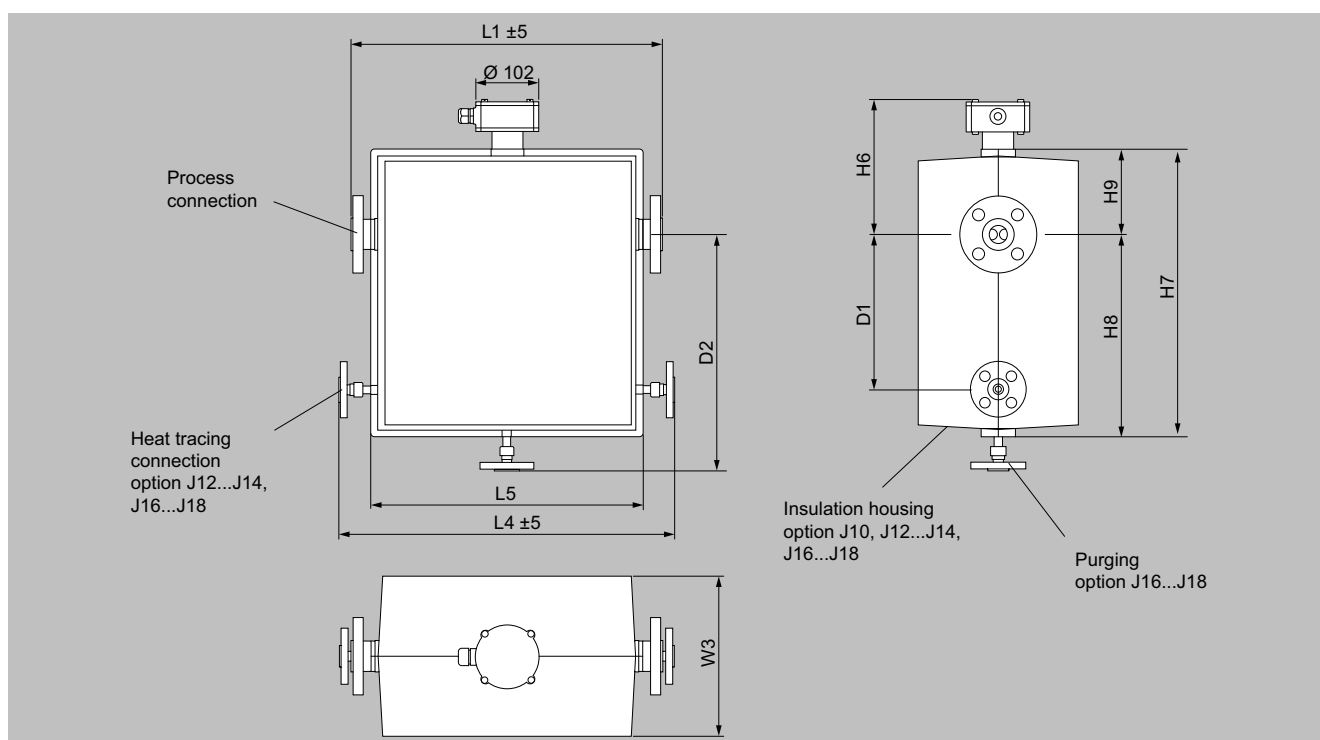
**with process connection 7ME446.-0DK1 or 7ME446.-1DK1

Dimensions in mm for sizes DN 2 and DN 4

Dimensional drawings (continued)



Dimensions in mm for sizes DN 15, DN 25 and DN 40



Dimensions in mm, version with insulation housing for sizes DN 15, DN 25 and DN 40 only

Dimensions without length L1

Nominal size	L2	L3	L4	L5	W1	W2	W3	D1	D2
Dimensions in mm (inch)									
DN 2	240 (9.5)	195 (7.7)			50 (2.0)				
DN 4	240 (9.5)	195 (7.7)			50 (2.0)				
DN 15	272 (10.7)	212 (8.3)	420 (16.5)	310 (12.2)	60 (2.4)	80 (3.1)	240 (9.4)	200 (7.9)	330 (13)
DN 25	400 (15.7)	266 (10.5)	540 (21.3)	439 (17.3)	76 (3)	90 (3.5)	260 (10.2)	250 (9.8)	380 (15)
DN 40	490 (19.3)	267 (10.5)	640 (25.2)	530 (20.9)	89 (3.5)	110 (4.3)	260 (10.2)	250 (9.8)	430 (16.9)

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS600

Dimensional drawings (continued)

Nominal size	H1	H3	H4	H5	H6	H7	H8	H9
Dimensions in mm (inch)								
DN 2	138 (5.4)		59 (2.3)	140 (5.5)				
DN 4	138 (5.4)		59 (2.3)	140 (5.5)				
DN 15	177 (7)	267 (10.5)	80 (3.1)	138 (5.4)	218 (8.6)	411 (16.2)	273 (10.7)	138 (5.4)
DN 25	230 (9.1)	267 (10.5)	80 (3.1)	138 (5.4)	218 (8.6)	464 (18.3)	326 (12.8)	138 (5.4)
DN 40	268 (10.6)	277 (10.9)	100 (3.9)	148 (5.8)	228 (9)	524 (20.6)	376 (14.8)	148 (5.8)

Overall length L1 and weight

The overall length of the sensor depends on the selected process connection (type and size). The following tables list the overall length and weight as functions of the individual process connection.

The weights in the tables are for the remote type. Additional weight for the compact type: up to 3.2 kg (7.1 lb).

L1 dimension and weight for medium pressure autoclave process connections

Wetted parts AISI 316L stainless steel and alloy 22

Process connection size and type	FCS600 sensor nominal size DN 2		DN 4	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
Autoclave 9/16" adapter	275 (10.8)	7 (15.4)	275 (10.8)	7 (15.4)
Autoclave 3/4"	240 (9.5)	7 (15.4)	240 (9.5)	7 (15.4)

L1 dimension and weight for process connections compatible to ASME B16.5, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 1/2" class 900, raised face (RF)	400 (15.7)	12.6 (28)	n/a	n/a	n/a	n/a
ASME 1/2" class 900, ring joint (RJ)	400 (15.7)	13 (29)	n/a	n/a	n/a	n/a
ASME 1/2" class 1 500, raised face (RF)	400 (15.7)	12.6 (28)	n/a	n/a	n/a	n/a
ASME 1/2" class 1 500, ring joint (RJ)	400 (15.7)	13 (29)	n/a	n/a	n/a	n/a
ASME 1" class 900, raised face (RF)	450 (17.7)	16.4 (36)	540 (21.3)	20.6 (45)	n/a	n/a
ASME 1" class 900, ring joint (RJ)	450 (17.7)	16.6 (37)	540 (21.3)	20.4 (45)	n/a	n/a
ASME 1" class 1500, raised face (RF)	450 (17.7)	16.4 (36)	n/a	n/a	n/a	n/a
ASME 1" class 1500, ring joint (RJ)	450 (17.7)	16.6 (37)	n/a	n/a	n/a	n/a
ASME 2" class 900, raised face (RF)	n/a	n/a	660 (26)	35.2 (78)	720 (28.3)	43 (95)
ASME 2" class 900, ring joint (RJ)	n/a	n/a	660 (26)	35.6 (78)	720 (28.3)	43.4 (96)

Dimensional drawings (continued)

L1 dimension and weight for process connections compatible to ASME B16.5, alloy 22 wetted parts

Process connection size and type	FCS600 sensor nominal size		DN 25		DN 40	
	DN 15 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 1" class 900, raised face (RF)	400 (15.7)	16.4 (36)	n/a	n/a	n/a	n/a
ASME 1" class 900, ring joint (RJ)	n/a	n/a	580 (23)	21 (46)	n/a	n/a
ASME 1" class 1 500, raised face (RF)	400 (15.7)	16.4 (36)	n/a	n/a	n/a	n/a
ASME 1" class 1 500, ring joint (RJ)	n/a	n/a	580 (23)	21 (46)	n/a	n/a
ASME 2" class 900, raised face (RF)	n/a	n/a	580 (23)	34 (75)	710 (28)	44 (97)
ASME 2" class 900, ring joint (RJ)	n/a	n/a	580 (23)	36 (80)	710 (28)	44 (97)
ASME 2" class 1 500, ring joint (RJ)	n/a	n/a	580 (23)	36 (80)	710 (28)	44 (97)
ASME 3" class 900, raised face (RF)	n/a	n/a	n/a	n/a	710 (28)	50 (110)
ASME 3" class 900, ring joint (RJ)	n/a	n/a	n/a	n/a	710 (28)	52 (115)

L1 dimension and weight for process connections with internal thread G

Process connection size and type	FCS600 sensor nominal size		DN 25		DN 40	
	DN 15 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
G 3/8"	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a
G 1/2"	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a
G 3/4"	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a

L1 dimension and weight for process connections with internal thread NPT

Process connection size and type	FCS600 sensor nominal size		DN 25		DN 40	
	DN 15 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
3/8" NPT	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a
1/2" NPT	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a
3/4" NPT	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS700

Overview

SITRANS FCS700 sensor is the grande Coriolis flow sensor for large pipes and high flows.

Features:

- Dual curved AISI 316L stainless steel or alloy 22 tubes with optimum decoupling from external influences
- Nominal sizes: DN 100 to DN 200
- Process connection: flanges
- Energy efficient low pressure loss design with short tube paths and large tube diameter
- High power tube driver for dependable measurements in high damping applications
- Combination with compact or remote transmitters



FCS700 sensor

Design

Sensor installation position related to type of fluid

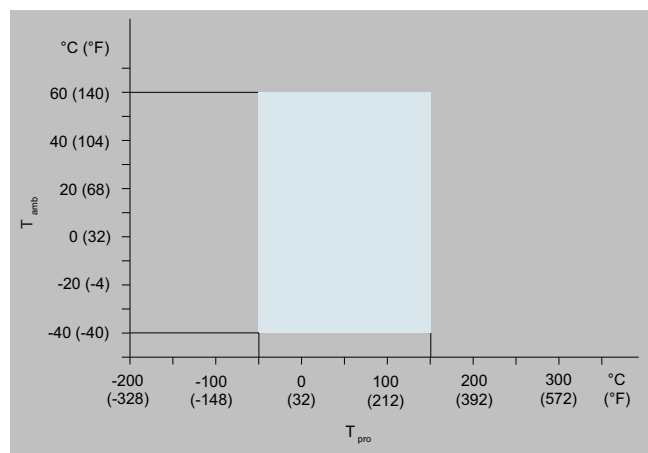
Installation position	Fluid	Description
Position 1 	Liquid	• Horizontal • Measuring tubes below process pipe • Avoids accumulation of entrained gas
Position 2 	Gas	• Horizontal • Measuring tubes above process pipe • Accumulation of liquid or condensate is less likely
Position 3 	Gas / liquid	• Vertical • Upwards direction of flow • In liquid application accumulation of entrained gas is avoided • This position allows self-draining in liquid flow

Technical specifications

Allowed ambient temperature for FCS700 sensors

The allowed combinations of process fluid and ambient temperature for the sensor are illustrated as light areas in the diagrams below.

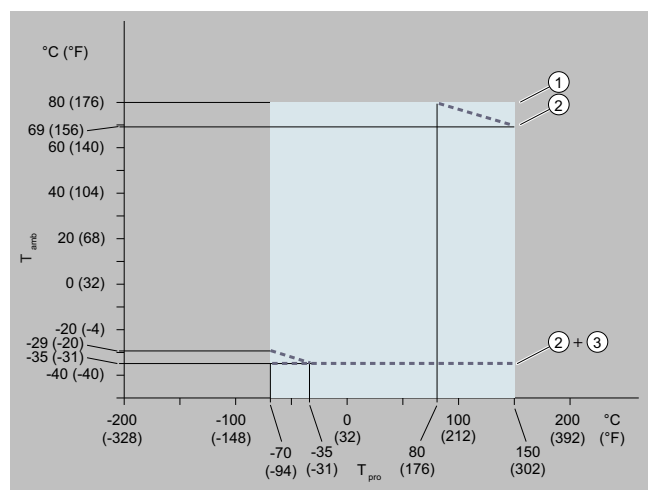
Standard temperature specification, compact transmitter



Allowed process fluid and ambient temperatures, compact transmitter

T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

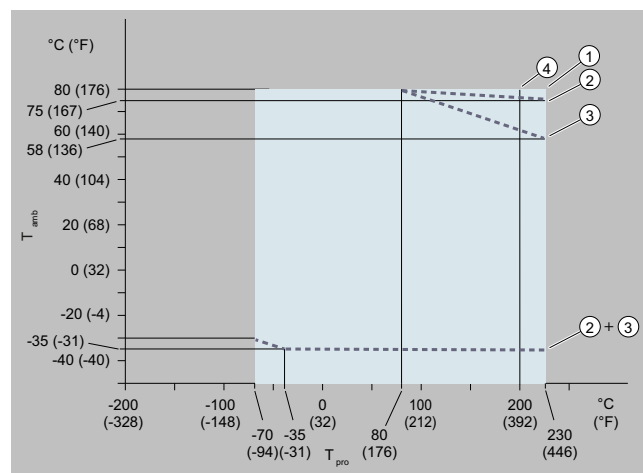
Standard temperature specification, remote transmitter



Allowed process fluid and ambient temperatures, remote transmitter

1	Standard cable option
2	Fire retardant cable standard neck or long neck with insulation and heating options
3	Fire retardant cable long neck without insulation and heating options
T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

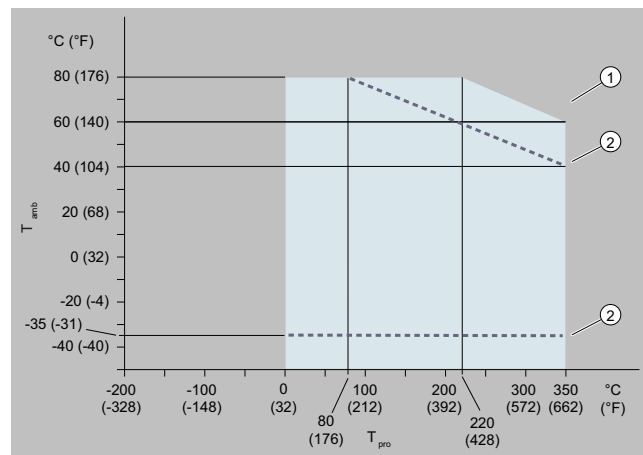
Medium temperature specification, remote transmitter



Allowed process fluid and ambient temperatures, compact transmitter

1	Standard cable option
2	Fire retardant cable without insulation and heating options
3	Fire retardant cable with insulation and heating options
4	For FCS700 DN 200 medium temperature range is limited to 200 °C (392 °F)
T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

High temperature specification, remote transmitter



Allowed process fluid and ambient temperatures, remote transmitter

1	Standard cable option
2	Fire retardant cable option
T_{amb}	Ambient temperature
T_{pro}	Process fluid temperature

Mechanical specifications of FCS700 sensors

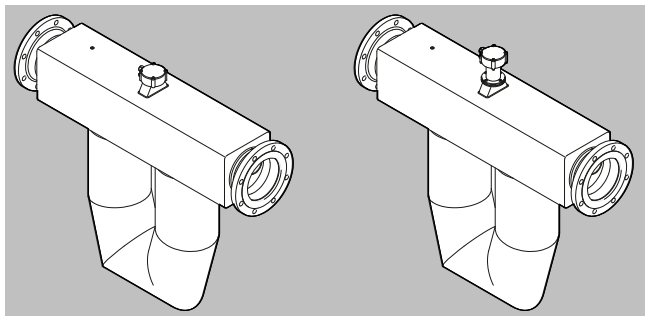
FCS700 sensors are available in standard neck and long neck designs and can be combined with compact or remote transmitters. The neck can also be described as the pedestal connecting the sensor body to the transmitter or terminal housing.

Flow Measurement

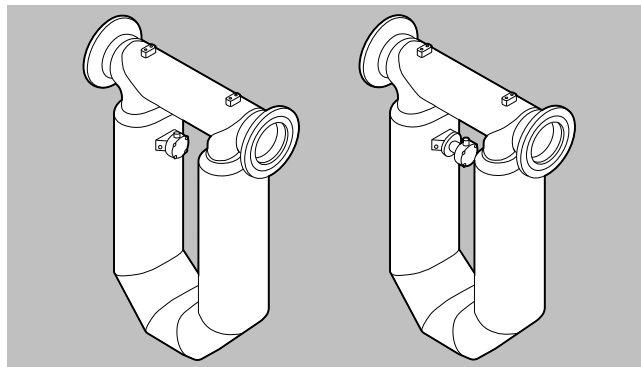
SITRANS FC (Coriolis)

Sensors / SITRANS FCS700

Technical specifications (continued)



FCS700 sensors DN 100 and DN 150 (for remote transmitter) with standard neck, and long neck version shown to the right



FCS700 sensors DN 200 (for remote transmitter) with standard neck, and long neck version shown to the right

Material specifications

Wetted parts¹⁾

Sensor size DN 100	AISI 316L stainless steel or alloy 22
Sensor size DN 150	AISI 316L stainless steel or alloy 22
Sensor size DN 200	AISI 316L stainless steel with ASTM A351 CF3M stainless steel flow separator

Sensor housing

Junction box	AISI 316L stainless steel	All sensors with remote transmitters
Neck (pedestal)	AISI 316L stainless steel	All versions
Body (outer casing)	AISI 304 stainless steel	Versions with housing code B01
Body (outer casing)	AISI 316L stainless steel	Versions with housing codes B02, B03 and B04

Nameplates²⁾

	Process temperature range	Material
Sensor with AISI 304 stainless steel housing	Standard, up to 150 °C (302 °F)	Polyester film
Sensor with AISI 304 stainless steel housing	Medium or high	AISI 316L ss
Sensor with AISI 316L stainless steel housing	All versions	AISI 316L ss

¹⁾ The user is responsible to ensure chemical compatibility of the material of the wetted parts with the measured process fluid.

²⁾ Nameplate material depends on the materials selected for SITRANS FC sensors.

Secondary containment

Some applications or environment conditions require secondary containment retaining the process pressure for increased safety. SITRANS FCS700 sensors have a secondary containment filled with inert gas.

Typical burst pressure at room temperature for size DN 100	65 bar (942 psi)
Typical burst pressure at room temperature for size DN 150	50 bar (725 psi)
Typical burst pressure at room temperature for size DN 200	30 bar (435 psi)

Insulation and heat tracing (not available for sizes DN 150 and DN 200)

In cases where fluid temperature deviates more than 80 °C (176 °F) from ambient temperature, sensor insulation is recommended to avoid negative effects from temperature fluctuations.

Maximum temperature of heat carrier

Process temperature range	Temperature range of heat carrier
Standard, up to 150 °C (302 °F)	0 ... 150 °C (32 ... 302 °F)
Medium, up to 260 °C (500 °F)	0 ... 230 °C (32 ... 446 °F) ¹⁾
High, up to 350 °C (662 °F)	0 ... 350 °C (32 ... 662 °F)

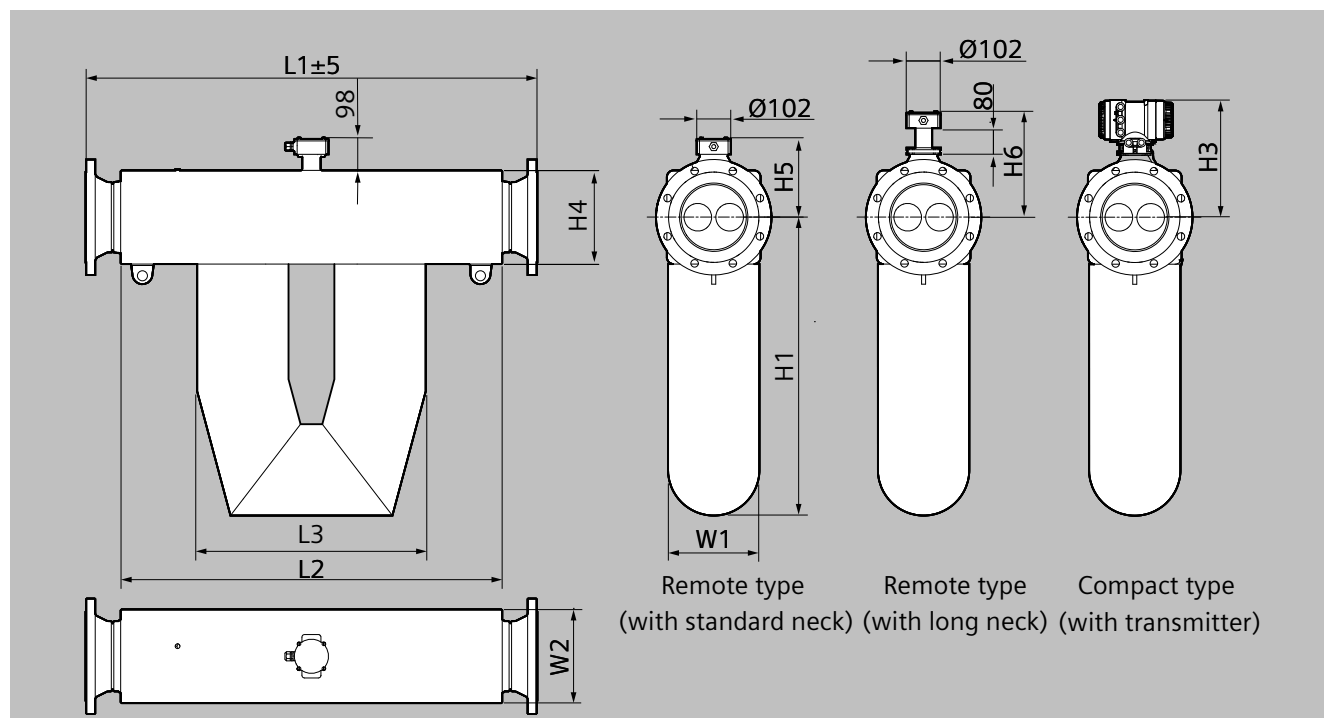
¹⁾ With Ex Approval 0 ... 220 °C (32 ... 428 °F)

Insulation and heat tracing may be installed by the user but not in hazardous areas, and the following must be noted:

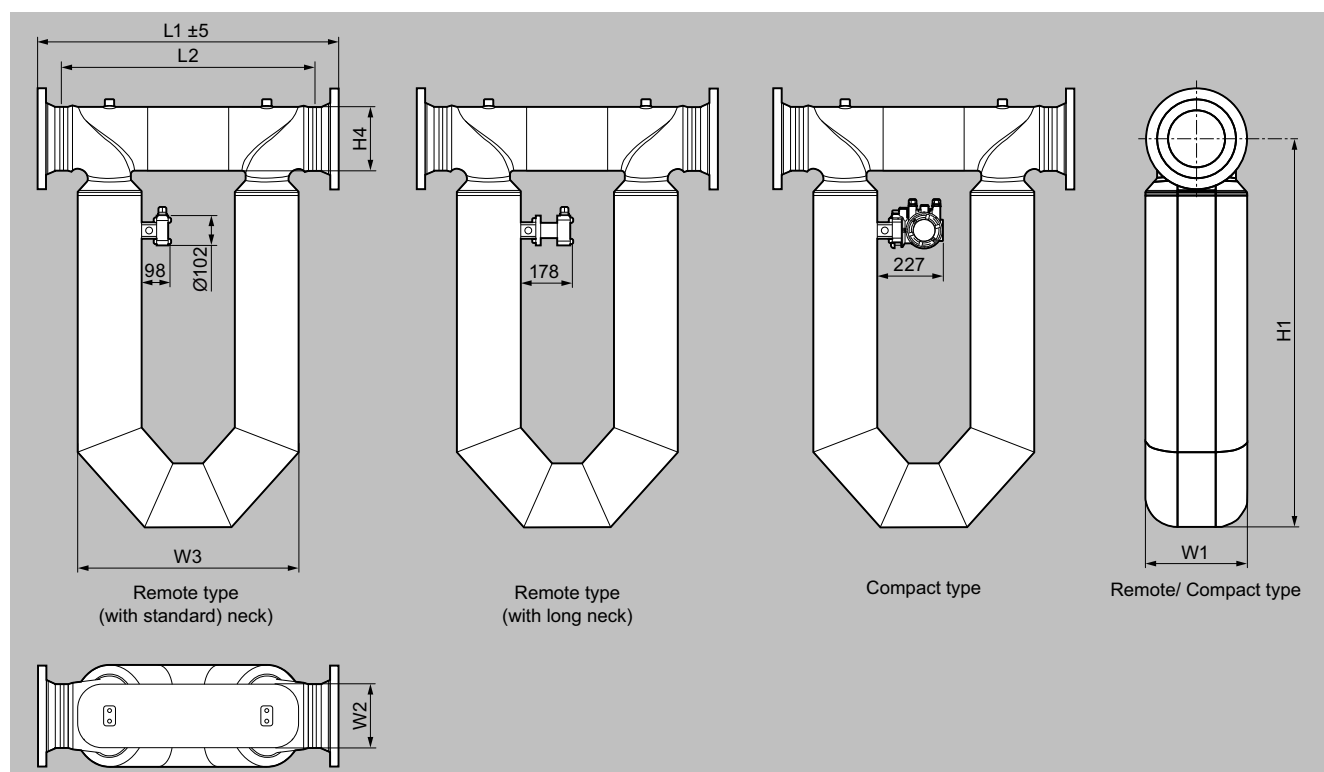
- Do not insulate sensor terminal box.
- Do not expose transmitters to ambient temperatures exceeding 60 °C (140 °F).
- The preferred insulation is 60 mm (2.36") thick with a heat transfer coefficient of 0.4 W/m² K (0.07 Btu/ ft² °F).

Dimensional drawings

Drawings, dimensions and weight for FCS700 sensors



Dimensions in mm, sizes DN 100 and DN 150



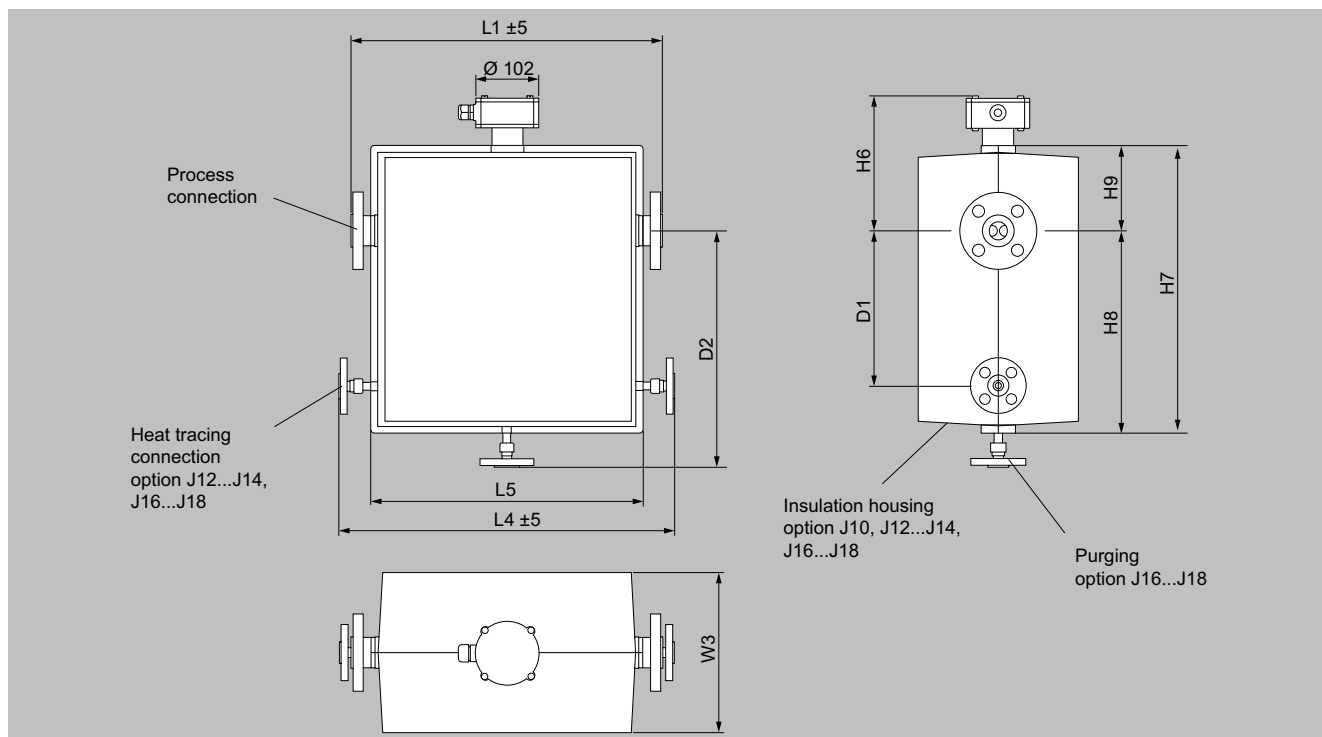
Dimensions in mm, sizes DN 200

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS700

Dimensional drawings (continued)



Dimensions in mm (with insulation and heating options)

FCS700 sensor dimensions without L1

Nominal size	L2	L3	L4	L5	W1	W2	W3	D1	D2
Dimensions in mm (inch)									
DN 100	892 (35.1)	691 (27.2)	1050 (41.3)	944 (37.2)	168 (6.6)	176 (6.9)	342 (13.5)	350 (13.8)	677 (26.7)
DN 150	1 140 (44.9)	683 (26.9)	n/a	n/a	273 (10.7)	280 (11)	n/a	n/a	n/a
DN 200	870 (34.3)	759 (29.9)	n/a	n/a	350 (13.8)	350 (13.8)	n/a	n/a	n/a

Nominal size	H1	H3	H4	H5	H6	H7	H8	H9
Dimensions in mm (inch)								
DN 100	556 (21.9)	315 (12.4)	176 (6.9)	186 (7.3)	266 (10.5)	824 (32.4)	628 (24.7)	196 (7.7)
DN 150	891 (35.1)	367 (14.5)	280 (11)	238 (9.4)	320 (12.6)	n/a	n/a	n/a
DN 200	1 335 (52.6)	n/a	219 (8.6)	n/a	n/a	n/a	n/a	n/a

Overall length L1 and weight

The overall length of the sensor depends on the selected process connection (type and size). The following tables list the overall length and weight as functions of the individual process connection.

The weights in the tables are for the remote type. Additional weight for the compact type: up to 3.2 kg (7.1 lb).

L1 dimension and weight with process connections according to ASME B16.5, AISI 316L wetted parts

Process connection size and type	FCS700 sensor nominal size DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 4" class 150, raised face (RF)	1 100 (43.3)	95 (210)	n/a	n/a	n/a	n/a
ASME 4" class 300, raised face (RF)	1 100 (43.3)	103 (227)	n/a	n/a	n/a	n/a
ASME 4" class 600, raised face (RF)	1 100 (43.3)	112 (246)	n/a	n/a	n/a	n/a

Dimensional drawings (continued)

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 4" class 600, ring joint (RJ)	1 100 (43.3)	112 (246)	n/a	n/a	n/a	n/a
ASME 5" class 150, raised face (RF)	1 100 (43.3)	97 (214)	n/a	n/a	n/a	n/a
ASME 5" class 300, raised face (RF)	1 100 (43.3)	109 (239)	n/a	n/a	n/a	n/a
ASME 5" class 600, raised face (RF)	1 160 (45.7)	136 (299)	n/a	n/a	n/a	n/a
ASME 5" class 600, ring joint (RJ)	1 160 (45.7)	136 (299)	n/a	n/a	n/a	n/a
ASME 6" class 150, raised face (RF)	1 100 (43.3)	101 (223)	1 350 (53.1)	290 (639)	n/a	n/a
ASME 6" class 300, raised face (RF)	1 100 (43.3)	118 (259)	1 350 (53.1)	307 (677)	n/a	n/a
ASME 6" class 600, raised face (RF)	1 200 (47.2)	149 (329)	1 390 (54.7)	332 (732)	n/a	n/a
ASME 6" class 600, ring joint (RJ)	1 200 (47.2)	150 (331)	1 390 (54.7)	333 (733)	n/a	n/a
ASME 8" class 150, raised face (RF)	n/a	n/a	1 350 (53.1)	302 (666)	1 030 (40.6)	299 (659)
ASME 8" class 300, raised face (RF)	n/a	n/a	1 350 (53.1)	324 (714)	1 050 (41.3)	323 (712)
ASME 8" class 600, raised face (RF)	n/a	n/a	1 440 (56.7)	371 (818)	1 120 (44.1)	368 (811)
ASME 8" class 600, ring joint (RJ)	n/a	n/a	1 440 (56.7)	372 (821)	1 120 (44.1)	369 (814)
ASME 10" class 150, raised face (RF)	n/a	n/a	n/a	n/a	1 090 (42.9)	318 (701)
ASME 10" class 300, raised face (RF)	n/a	n/a	n/a	n/a	1 140 (44.9)	363 (800)
ASME 10" class 600, raised face (RF)	n/a	n/a	n/a	n/a	1 220 (48)	451 (994)
ASME 10" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	1 220 (48)	453 (999)

L1 dimension and weight with process connections according to ASME B16.5, alloy 22 wetted parts

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 5" class 150, raised face (RF)	1 100 (43.3)	99 (219)	n/a	n/a	n/a	n/a
ASME 5" class 300, raised face (RF)	1 100 (43.3)	111 (245)	n/a	n/a	n/a	n/a
ASME 5" class 600, raised face (RF)	1 110 (43.7)	133 (293)	n/a	n/a	n/a	n/a
ASME 6" class 150, raised face (RF)	1 100 (43.3)	106 (235)	n/a	n/a	n/a	n/a
ASME 6" class 300, raised face (RF)	1 100 (43.3)	123 (270)	n/a	n/a	n/a	n/a

L1 dimension and weight with process connections according to EN 1092-1, AISI 316L wetted parts

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 100 PN 16 type B1, raised face (RF)	1 100 (43.3)	92 (202)	n/a	n/a	n/a	n/a
EN DN 100 PN 16 type D, with groove	1 100 (43.3)	91 (201)	n/a	n/a	n/a	n/a
EN DN 100 PN 16 type E, with spigot	1 100 (43.3)	91 (201)	n/a	n/a	n/a	n/a

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS700

Dimensional drawings (continued)

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 100 PN 16 type F, with recess	1 100 (43.3)	91 (201)	n/a	n/a	n/a	n/a
EN DN 100 PN 40 type B1, raised face (RF)	1 100 (43.3)	95 (210)	n/a	n/a	n/a	n/a
EN DN 100 PN 40 type D, with groove	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
EN DN 100 PN 40 type E, with spigot	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
EN DN 100 PN 40 type F, with recess	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
EN DN 100 PN 63 type B1, raised face (RF)	1 100 (43.3)	100 (220)	n/a	n/a	n/a	n/a
EN DN 100 PN 63 type D, with groove	1 100 (43.3)	99 (219)	n/a	n/a	n/a	n/a
EN DN 100 PN 63 type E, with spigot	1 100 (43.3)	98 (217)	n/a	n/a	n/a	n/a
EN DN 100 PN 63 type F, with recess	1 100 (43.3)	99 (219)	n/a	n/a	n/a	n/a
EN DN 100 PN 100 type B1, raised face (RF)	1 100 (43.3)	106 (233)	n/a	n/a	n/a	n/a
EN DN 100 PN 100 type D, with groove	1 100 (43.3)	105 (232)	n/a	n/a	n/a	n/a
EN DN 100 PN 100 type E, with spigot	1 100 (43.3)	104 (230)	n/a	n/a	n/a	n/a
EN DN 100 PN 100 type F, with recess	1 100 (43.3)	105 (232)	n/a	n/a	n/a	n/a
EN DN 125 PN 16 type B1, raised face (RF)	1 100 (43.3)	95 (209)	n/a	n/a	n/a	n/a
EN DN 125 PN 16 type D, with groove	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
EN DN 125 PN 16 type E, with spigot	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
EN DN 125 PN 16 type F, with recess	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
EN DN 125 PN 40 type B1, raised face (RF)	1 100 (43.3)	99 (218)	n/a	n/a	n/a	n/a
EN DN 125 PN 40 type D, with groove	1 100 (43.3)	99 (218)	n/a	n/a	n/a	n/a
EN DN 125 PN 40 type E, with spigot	1 100 (43.3)	98 (216)	n/a	n/a	n/a	n/a
EN DN 125 PN 40 type F, with recess	1 100 (43.3)	98 (216)	n/a	n/a	n/a	n/a
EN DN 125 PN 63 type B1, raised face (RF)	1 100 (43.3)	109 (240)	n/a	n/a	n/a	n/a
EN DN 125 PN 63 type D, with groove	1 100 (43.3)	108 (239)	n/a	n/a	n/a	n/a
EN DN 125 PN 63 type E, with spigot	1 100 (43.3)	107 (237)	n/a	n/a	n/a	n/a
EN DN 125 PN 63 type F, with recess	1 100 (43.3)	108 (239)	n/a	n/a	n/a	n/a
EN DN 125 PN 100 type B1, raised face (RF)	1 140 (44.9)	121 (267)	n/a	n/a	n/a	n/a
EN DN 125 PN 100 type D, with groove	1 140 (44.9)	121 (267)	n/a	n/a	n/a	n/a

Dimensional drawings (continued)

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100					
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 125 PN 100 type E, with spigot	1 140 (44.9)	119 (263)	n/a	n/a	n/a	n/a
EN DN 125 PN 100 type F, with recess	1 140 (44.9)	120 (265)	n/a	n/a	n/a	n/a
EN DN 150 PN 16 type B1, raised face (RF)	1 100 (43.3)	98 (216)	1 350 (53.1)	288 (634)	n/a	n/a
EN DN 150 PN 16 type D, with groove	1 100 (43.3)	98 (216)	1 350 (53.1)	287 (632)	n/a	n/a
EN DN 150 PN 16 type E, with spigot	1 100 (43.3)	97 (214)	1 350 (53.1)	286 (631)	n/a	n/a
EN DN 150 PN 16 type F, with recess	1 100 (43.3)	97 (214)	1 350 (53.1)	287 (632)	n/a	n/a
EN DN 150 PN 40 type B1, raised face (RF)	1 100 (43.3)	105 (231)	1 350 (53.1)	294 (648)	n/a	n/a
EN DN 150 PN 40 type D, with groove	1 100 (43.3)	104 (230)	1 350 (53.1)	293 (647)	n/a	n/a
EN DN 150 PN 40 type E, with spigot	1 100 (43.3)	103 (228)	1 350 (53.1)	293 (647)	n/a	n/a
EN DN 150 PN 40 type F, with recess	1 100 (43.3)	104 (230)	1 350 (53.1)	293 (647)	n/a	n/a
EN DN 150 PN 63 type B1, raised face (RF)	1 140 (44.9)	124 (274)	1 350 (53.1)	311 (685)	n/a	n/a
EN DN 150 PN 63 type D, with groove	1 140 (44.9)	124 (274)	1 350 (53.1)	310 (684)	n/a	n/a
EN DN 150 PN 63 type E, with spigot	1 140 (44.9)	122 (269)	1 350 (53.1)	309 (681)	n/a	n/a
EN DN 150 PN 63 type F, with recess	1 140 (44.9)	123 (272)	1 350 (53.1)	310 (684)	n/a	n/a
EN DN 150 PN 100 type B1, raised face (RF)	1 180 (46.5)	138 (303)	n/a	n/a	n/a	n/a
EN DN 150 PN 100 type D, with groove	1 180 (46.5)	137 (302)	n/a	n/a	n/a	n/a
EN DN 150 PN 100 type E, with spigot	1 180 (46.5)	136 (299)	n/a	n/a	n/a	n/a
EN DN 150 PN 100 type F, with recess	1 180 (46.5)	137 (301)	n/a	n/a	n/a	n/a
EN DN 200 PN 16 type B1, raised face (RF)	n/a	n/a	1 350 (53.1)	294 (649)	1 010 (39.8)	290 (639)
EN DN 200 PN 16 type D, with groove	n/a	n/a	1 350 (53.1)	294 (649)	n/a	n/a
EN DN 200 PN 16 type E, with spigot	n/a	n/a	1 350 (53.1)	293 (646)	n/a	n/a
EN DN 200 PN 16 type F, with recess	n/a	n/a	1 350 (53.1)	293 (646)	n/a	n/a
EN DN 200 PN 40 type B1, raised face (RF)	n/a	n/a	1 350 (53.1)	311 (685)	1 030 (40.6)	308 (679)
EN DN 200 PN 40 type D, with groove	n/a	n/a	1 350 (53.1)	310 (683)	n/a	n/a
EN DN 200 PN 40 type E, with spigot	n/a	n/a	1 350 (53.1)	308 (680)	n/a	n/a
EN DN 200 PN 40 type F, with recess	n/a	n/a	1 350 (53.1)	309 (682)	n/a	n/a
EN DN 200 PN 63 type B1, raised face (RF)	n/a	n/a	1 350 (53.1)	333 (733)	1 060 (41.7)	332 (732)

Flow Measurement

SITRANS FC (Coriolis)

Sensors / SITRANS FCS700

Dimensional drawings (continued)

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100					
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 200 PN 63 type D, with groove	n/a	n/a	1 350 (53.1)	332 (732)	n/a	n/a
EN DN 200 PN 63 type E, with spigot	n/a	n/a	1 350 (53.1)	330 (728)	n/a	n/a
EN DN 200 PN 63 type F, with recess	n/a	n/a	1 350 (53.1)	331 (730)	n/a	n/a
EN DN 200 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	1 100 (43.3)	362 (798)
EN DN 250 PN 16 type B1, raised face (RF)	n/a	n/a	n/a	n/a	1 080 (42.5)	306 (675)
EN DN 250 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	1 130 (44.5)	343 (756)
EN DN 250 PN 63 type B1, raised face (RF)	n/a	n/a	n/a	n/a	1 150 (45.3)	370 (816)
EN DN 250 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	1 150 (45.3)	433 (955)

L1 dimension and weight with process connections according to EN 1092-1, alloy 22 wetted parts

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100					
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 125 PN 16, type B1, raised face (RF)	1 100 (43.3)	96 (212)	n/a	n/a	n/a	n/a
EN DN 125 PN 40, type B1, raised face (RF)	1 100 (43.3)	101 (222)	n/a	n/a	n/a	n/a
EN DN 150 PN 16, type B1, raised face (RF)	1 100 (43.3)	103 (227)	n/a	n/a	n/a	n/a
EN DN 150 PN 40, type B1, raised face (RF)	1 100 (43.3)	110 (241)	n/a	n/a	n/a	n/a

L1 dimension and weight with process connections according to JIS B 2220, AISI 316L wetted parts

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100					
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS DN 100 10 K	1 100 (43.3)	91 (200)	n/a	n/a	n/a	n/a
JIS DN 100 20 K	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
JIS DN 125 10 K	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
JIS DN 125 20 K	1 100 (43.3)	101 (222)	n/a	n/a	n/a	n/a

L1 dimension and weight with process connections according to JIS B 2220, alloy 22 wetted parts

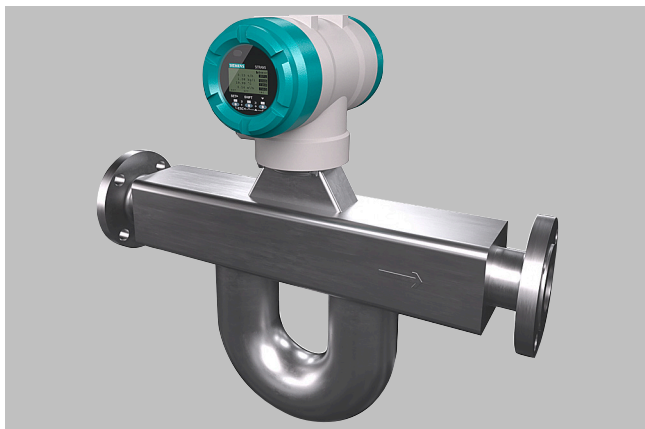
Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100					
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS DN 125 10 K	1 100 (43.3)	97 (213)	n/a	n/a	n/a	n/a
JIS DN 125 20 K	1 100 (43.3)	103 (228)	n/a	n/a	n/a	n/a

Overview

FCT020 is the standard transmitter, suitable for general purpose applications. It delivers accurate and precise measurements of mass flow rate, density, temperature and volume flow rate.

The FCT020 transmitter is available in compact or remote design and can be combined with all SITRANS FC sensors. The selection is made within the complete SITRANS FC ordering code.

Spare transmitters are selected using the SITRANS FC ordering code, but with no sensor selected.



Example of SITRANS FCT transmitter mounted on SITRANS FCS600



FCT transmitter and SITRANS FCS100

Following features are available in the FCT020 transmitter:

- Tube health check

Tube health check

(software functions option code: S12)

Tube health check monitors key diagnostics, including tube stiffness, driver and pickups. Self-verification alerts to potential performance issues due to unplanned process events, for example gas or vapor breakout, or solid deposits building up in the tubes. The user defines verification frequency and alarm behavior. Verification results indicate whether preventive maintenance action is required.

Overview (continued)

Specification overview of SITRANS FCT020

Typical measurement performance	• Mass flow accuracy: $\pm 0.2\%$ (of rate) • Density accuracy: $\pm 4 \text{ kg/m}^3$ (0.25 lb/ft^3)
Features and functions	• Easy setup wizard • microSD card • Tube health check • Self-verification
Available measurements	• Mass flow • Density • Temperature • Volume flow
Digital communication options	• HART • MODBUS

Function

Tube health check

- Order code: S12

Tube health check monitors key diagnostics, including tube stiffness, driver and pickups. Self-verification alerts to potential performance issues due to unplanned process events, for example gas or vapor breakout, or solid deposits building up in the tubes. The user defines verification frequency and alarm behavior. Verification results indicate whether preventive maintenance action is required.

Overview of functions and features

Overview of the main functions and features of FCT020 transmitter

Primary measurements	• Mass flow rate liquids (0.2% accuracy) • Mass flow rate gases (0.75% accuracy) • Density (accuracy 4 kg/m^3 (0.25 lb/ft^3)) • Temperature
Secondary measurements	• Volume flow rate liquids • Actual volume flow rate gases • Normal (standard) volume flow rate gases
Configuration and diagnostics	• microSD card (transmitter with display) • Easy setup wizard • Tube health check (self-verification) • Event management to NAMUR NE107
Inputs and outputs	• Up to 4 combined inputs and outputs
Inputs	• Status input
Outputs	• Analog output • Pulse (frequency) or status output • Status output • Option for internal pull-up resistor
Digital communications	• HART • MODBUS
Enclosure options	• Aluminum alloy with standard powder coating • Aluminum alloy with corrosion resistant coating • Stainless steel CF-8M (remote only)
Power supply	• Universal (AC and DC)

Flow Measurement

SITRANS FC (Coriolis)

Transmitters / SITRANS FCT020

Configuration

Overview of available inputs, outputs and digital communications

The table below provides a matrix of all available combinations for FCT020 transmitters.

Each combination is defined by a blend of two order code options:

- Ch 1 codes in the form "E.." define the required type of digital communication.
- Ch 2-4 codes in the form "F.." define the required combination of conventional inputs and outputs.

Abbreviations used in the table:

- Pulse or status output is abbreviated to "P/S output".
- Status only output is abbreviated to "S output".
- Status input is abbreviated to "S input".

Ch 1 code	Ch 2-4 code	I/O 1 (Channel 1)	I/O 2 (Channel 2)	I/O 3 (Channel 3)	I/O 4 (Channel 4)
E00	F00	none	none	none	none
E07 ¹⁾	F01	passive mA HART output	passive P/S output	passive mA output	none
E07 ¹⁾	F02	passive mA HART output	passive P/S output	passive mA output	passive P/S output
E07 ¹⁾	F03	passive mA HART output	passive P/S output NAMUR	passive mA output	none
E07 ¹⁾	F04	passive mA HART output	passive P/S output NAMUR	passive mA output	passive P/S output NAMUR
E06	F11	active mA HART output	passive P/S output	none	none
E06	F12	active mA HART output	passive P/S output	passive S output	passive P/S output
E06	F13	active mA HART output	passive P/S output	volt free S input	passive P/S output
E06	F20	active mA HART output	passive P/S output	volt free S input	active P/S output
E06	F21	active mA HART output	passive P/S output	volt free S input	active P/S output and pull-up
E06	F22	active mA HART output	passive P/S output	passive P/S output	active mA output
E06	F23	active mA HART output	passive P/S output	volt free S input	active mA output
E14	F31	none	passive P/S output	MODBUS C	MODBUS A & B
E14	F32	passive P/S output	passive P/S output	MODBUS C	MODBUS A & B
E14	F35	active P/S output	passive P/S output	MODBUS C	MODBUS A & B
E14	F36	active P/S output and pull-up	passive P/S output	MODBUS C	MODBUS A & B
E14	F37	active mA output	passive P/S output	MODBUS C	MODBUS A & B

¹⁾ Any combinations with passive mA HART output on Channel are only possible with Ex approval. All outputs in these combinations are intrinsically safe.

Technical specifications

Mechanical specifications

Material specifications			
Housing material options	Coating	Design	Order code position 14
Cast aluminum alloy Al-Si10Mg(Fe)	Standard coating ¹⁾	Remote transmitter	C or D
Cast aluminum alloy Al-Si10Mg(Fe)	Corrosion resistant coating ²⁾	Remote transmitter	E or F
ASTM CF8M stainless steel	None	Remote transmitter	G or H
Display			
Material of the lid window	Glass		
Mounting bracket ³⁾			
Material	AISI 316L stainless steel	Mat. no. 1.4404	
Nameplates ⁴⁾	Process temperature range	Nameplate material	
Transmitter with cast aluminum housing	Not applicable	Foil	
Transmitter with ASTM CF8M stainless steel housing	Not applicable	AISI 316L ss	

¹⁾ Standard coating is urethane cured polyester powder coating.

²⁾ Corrosion protection coating is a three-layer coating with high chemical resistance (polyurethane coating on two layers of epoxy).

³⁾ Only the remote transmitters are supplied with a mounting bracket.

⁴⁾ Nameplate material depends on the materials selected for SITRANS FC sensors.

Electrical specifications

Power supply	
Alternating current voltage (rms)	nominal 24 V AC (-15% ... +10%), or 100 ... 240 V AC (-20% ... +10%)
Frequency	47 ... 63 Hz
Direct current voltage	nominal 24 V DC (-15% ... +20%) or 100 ... 120 V DC (-10% ... +8.3%)
Power consumption	P ≤ 10 W (including sensor)

Notes:

- For DNV approval option supply voltage is limited to 24 V.
- NAMUR NE21 testing specifies the range 24 V DC ±20% under NE21 test conditions.

Power supply failure

In the event of a power failure, the flowmeter data are backed up on a non-volatile internal memory. In case of devices with display, the characteristic sensor values, such as nominal diameter, serial number, calibration constants, zero point and the error history are also stored on a microSD card.

Galvanic isolation

All circuits for inputs, outputs and power supply are galvanically isolated from each other.

Analog inputs and outputs

Analog input

FCT020 transmitters cannot be specified with analog current input.

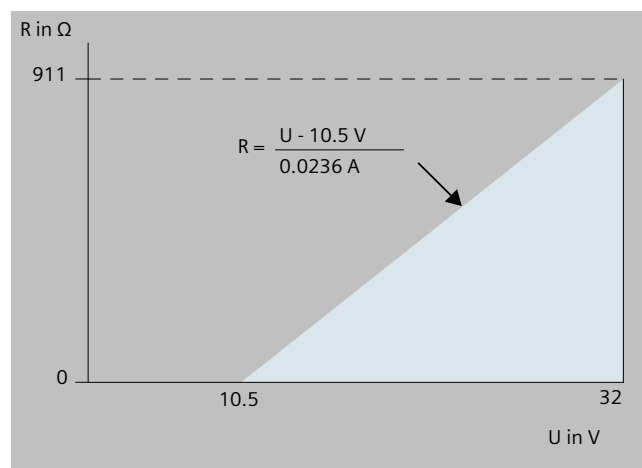
Analog output

Up to 2 analog outputs can be selected at time of ordering. The analog outputs can be configured to represent the following measured values:

- Flow rate (mass, volume, net partial component flow of a mixture)
- Density
- Temperature
- Pressure
- Concentration

HART communication, when selected, is supplied on channel 1 (I/O 1). The current output may be operated in compliance with the NAMUR NE43 standard.

Analog outputs	
Active output	
Nominal output current range	4 ... 20 mA
Maximum output current range	2.4 ... 21.6 mA
Load resistance	≤ 750 Ω
Load resistance for secure HART communication	230 ... 600 Ω
Passive output	
Nominal output current range	4 ... 20 mA
Maximum output current range	2.4 ... 21.6 mA
External power supply	10.5 ... 32 VDC
Load resistance for secure HART communication	230 ... 600 Ω
Load resistance at current output	≤ 911 Ω



Maximum load resistance as a function of an external power supply voltage

Flow Measurement

SITRANS FC (Coriolis)

Transmitters / SITRANS FCT020

Technical specifications (continued)

Digital inputs and outputs

Digital inputs (status)

Do not connect a signal source with electric voltage.

The status input is provided for use of voltage-free contacts with the following specification:

Resistance when closed	< 200 Ω
Resistance when open	> 100 kΩ

Digital outputs

Digital outputs	
Active pulse output available on Pulse/Status output, connection of an electronic counter¹⁾	
Load resistance	> 1 kΩ
Internal power supply	24 V DC ±20%
Maximum pulse rate	10 000 pulses/s
Frequency range	0 ... 12.5 kHz
Active pulse output available on Pulse/Status output, connection of an electromechanical counter	
Maximum current	150 mA
Average current	≤ 30 mA
Internal power supply	24 V DC ±20%
Maximum pulse rate	2 pulses/s
Pulse width	20, 33, 50, or 100 ms
Active pulse output available on Pulse/Status output, with internal pull-up resistor	
Internal power supply	24 V DC ±20%
Internal pull-up resistor	2.2 kΩ
Maximum pulse rate	10 000 pulses/s
Frequency range	0 ... 12.5 kHz
Passive pulse output available on Pulse/Status output¹⁾	
Maximum load current	≤ 200 mA
External power supply	≤ 30 V DC
Maximum pulse rate	10 000 pulses/s
Frequency range	0 to 12.5 kHz
Active status output available on Pulse/Status output²⁾	
Load resistance	> 1 kΩ
Internal power supply	24 V DC ±20%
Active status output available on Pulse/Status output, with internal pull-up resistor³⁾	
Internal pull-up resistor	2.2 kΩ
Internal power supply	24 V DC ±20%
Passive status output available on Pulse/Status output, or Status output	
Output current	≤ 200 mA
External power supply	≤ 30 V DC
Passive pulse or status output available on Pulse/Status output (NAMUR)	
Output signals according to EN 60947-5-6 (previously NAMUR, worksheet NA001)	

¹⁾ Maximum voltage and correct polarity must be observed for wiring.

²⁾ Since this is a transistor contact, maximum allowed current as well as polarity and level of output voltage must be observed during wiring.

³⁾ A relay must be connected in series to switch alternating voltage.

Digital communications

Each transmitter is configured with one default digital communication interface, selectable in the SITRANS FC order code.

HART

- When selected, HART communication is supplied on the output terminal pair I/O 1.
- Up to 3 further input/output options can be configured for output terminal pairs I/O 2, I/O 3, and I/O 4.
- HART is available with either non-intrinsically safe or intrinsically safe outputs.

PROFIBUS PA

- When selected, PROFIBUS PA communication is supplied on the output terminal pair I/O 1.
- PROFIBUS PA interface is available with and without intrinsic safety.
- PROFIBUS PA digital communication signal is in accordance with IEC 61158/61784.
- Maximum voltage and correct polarity must be observed for wiring.
- Power supply: 9 ... 32 V DC
- Current draw: 15 mA (maximum)
- Compliance with PA profile revision 3.02 supporting: Condensed Status (NE107)
- Device identification number (IDENT_NUMBER) adaption

Summary of available function blocks – PROFIBUS PA

Function block	Code	Description
Transducer block	FTB	Flow
	CTB	Concentration
	LTB	LCD Indicator
	MTB	Maintenance
	SDBT	Advanced diagnostics
Analog input block ¹⁾	AI1	Mass flow
	AI2	Density
	AI3	Temperature
	AI4	Volume flow
	AI5	Reference density
	AI6	Corrected (normal/standard) volume flow
Totalizer block ¹⁾	TOT1	Mass
	TOT2	Volume
	TOT3	Corrected (normal/standard) volume
Analog output block ¹⁾	AO	Pressure

¹⁾ Factory default setting. Assignment can be changed by parameter "channel".

Available function blocks are also influenced by the type of device description file (GSD) being used. For further details, please contact your regional Siemens Measurement Intelligence team.

MODBUS

- The MODBUS interface is available with up to two additional input/output options.
- When selected, MODBUS communication is supplied on the terminal pairs I/O 3 and I/O 4.
- The digital MODBUS communication signal is in accordance with EIA-485 standard (RS 485).

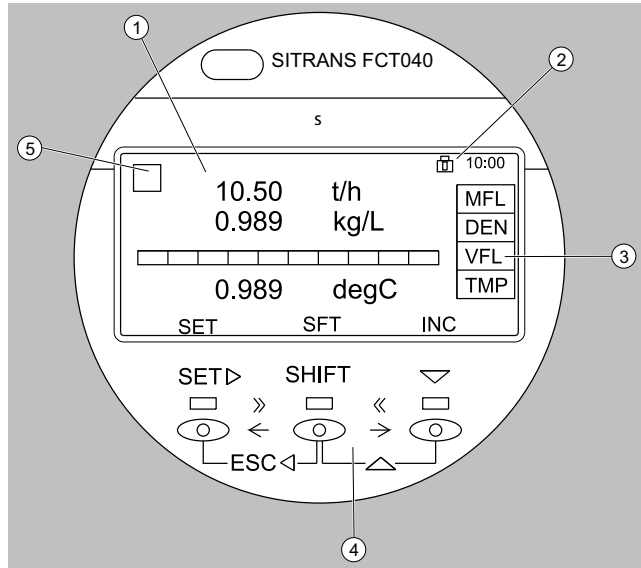
Technical specifications (continued)

PROFINET over Ethernet-APL

Display attributes

Type	4-line dot-matrix display
Resolution	128 × 64 (W × H) dots
Size	64.6 × 31.2 mm (2.54" × 1.23")
Control	via IR switches

Numerical values entered via the display are limited to six digits for process variables and eight digits for totalizer.



Display layout

1	Measured quantities and units
2	Status icon and time
3	Measured quantity abbreviation
4	IR switches
5	Alarm symbol

The controls on the display are IR switches. They respond as soon as an object, such as a finger, is in proximity. It is not necessary to apply pressure to the display surface.

The display unit includes a slot for the microSD card.

microSD card specifications

Type	Industrial Grade microSD card, compliant with SD specification version 2.0
Physical dimension	15 × 11 × 1.0 mm (± 0.1 mm) (0.6 × 0.4 × 0.04 inch (± 0.004 inch))
Capacity	1 GB
Sequential throughput (read)	24.01 MB/s
Sequential throughput (write)	17.96 MB/s

It is recommended to use the microSD card included with the SITRANS FCT transmitter. Functionality of the device cannot be guaranteed if other cards are used.

Cable specifications

For remote type devices, an interconnecting cable must be used to connect the sensor to the transmitter. The device specifications, stated in this document, are valid only if one of the original SITRANS FC interconnecting cables is used.

Standard cable length options are specified up to 30 m are specified in the order code to maintain the stated specifications. Cables longer than 30 m (98 ft) are available but must be ordered as separate items. For further details, please contact your regional Siemens Measurement Intelligence team.

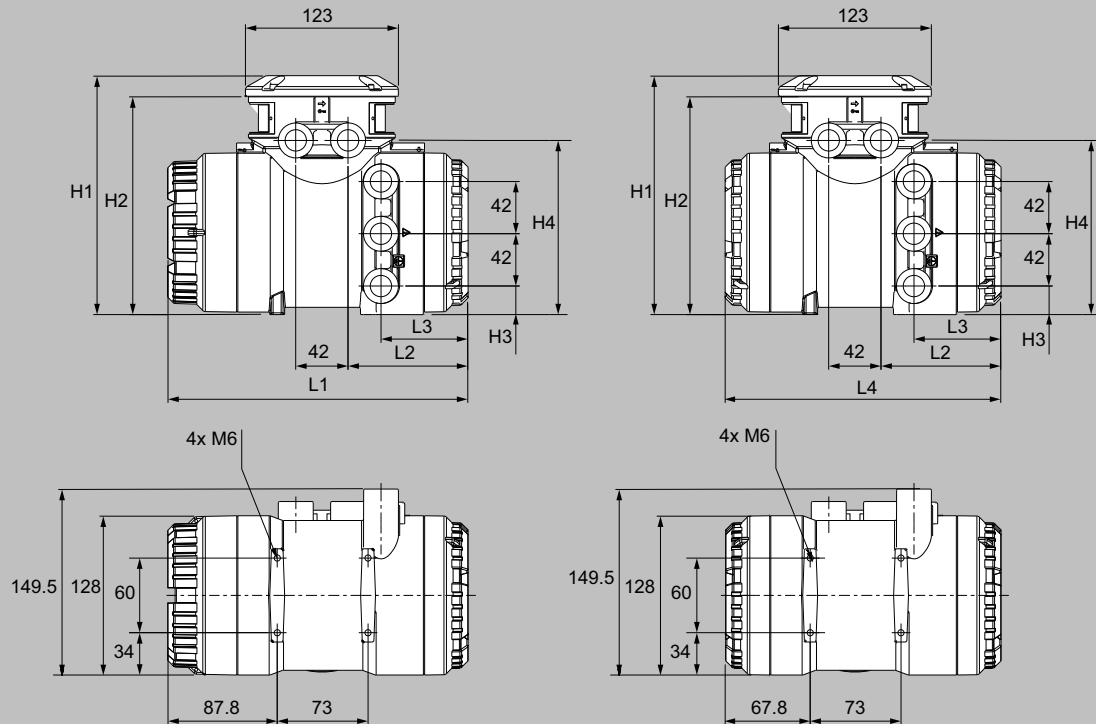
Flow Measurement

SITRANS FC (Coriolis)

Transmitters / SITRANS FCT020

Dimensional drawings

SITRANS FCT020 transmitter dimensions

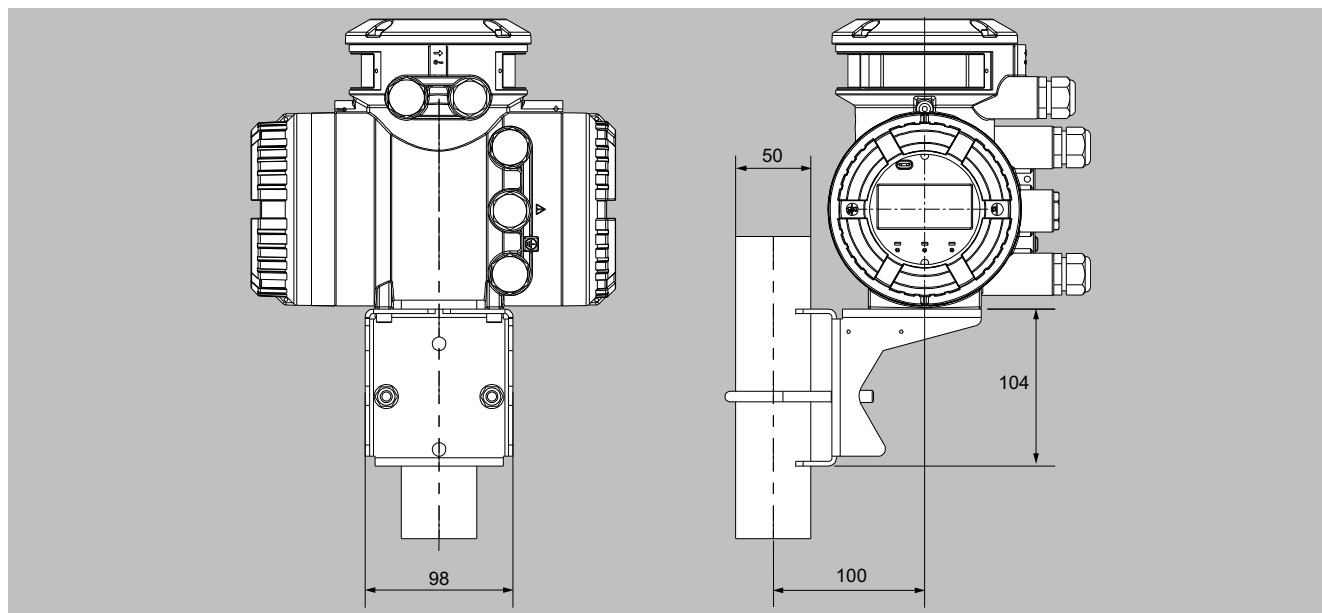


Dimensions of FCT020 transmitter in mm. Transmitter with display shown on the left. Transmitter without display shown on the right.

Dimensions L1 to L4 and H1 to H4 (material options: stainless steel, aluminum)

Material	L1 in mm (inch)	L2 in mm (inch)	L3 in mm (inch)	L4 in mm (inch)	H1 in mm (inch)	H2 in mm (inch)	H3 in mm (inch)	H4 in mm (inch)
Stainless steel	255.5 (10.06)	110.5 (4.35)	69 (2.72)	235 (9.25)	201 (7.91)	184 (7.24)	24 (0.94)	150.5 (5.93)
Aluminum	241.5 (9.51)	96.5 (3.8)	70 (2.76)	221 (8.7)	192 (7.56)	175 (6.89)	23 (0.91)	140 (5.51)

Dimensional drawings (continued)



Dimensions of transmitter in mm, attached to mounting bracket

Transmitter weights

Design type	Transmitter enclosure material	Weight in kg (lb)
Remote	Cast aluminum	4.2 (9.3)
	CF-8M stainless steel	12.5 (27.6)

Flow Measurement

SITRANS FC (Coriolis)

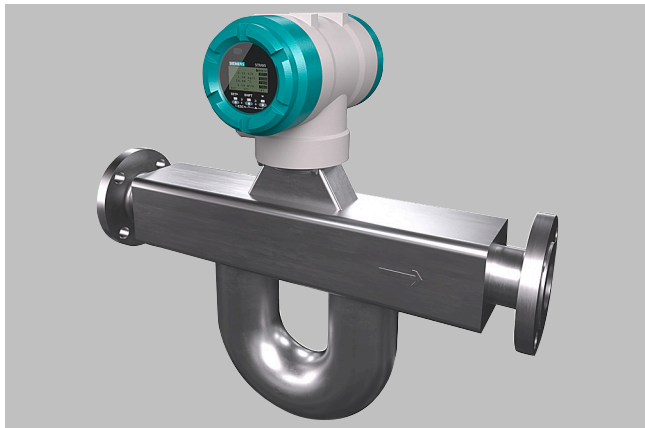
Transmitters / SITRANS FCT040

Overview

FCT040 is the advanced transmitter, offering a wider range of application solutions with improved performance. The user can select additional measurements and functions at time of ordering to include concentration (fraction), viscosity, batch control and heat calculation.

The FCT040 transmitter is available in compact or remote design and can be combined with all SITRANS FC sensors. The selection is made within the complete SITRANS FC ordering code.

Spare transmitters are selected using the SITRANS FC ordering code, but with no sensor selected.



Example of SITRANS FCT transmitter mounted on SITRANS FCS600



FCT transmitter and SITRANS FCS100

Following features are available in the FCT040 transmitter:

- Tube health check
- Standard concentration measurement
- Petroleum measurement function
- Fraction (advanced concentration) measurement
- Viscosity function
- Batching function

Overview (continued)

Specification overview of SITRANS FCT040	
Typical measurement performance	• Mass flow accuracy: $\pm 0.1\%$ (of rate) • Density accuracy: $\pm 0.5 \text{ kg/m}^3$ (0.03 lb/ft^3)
Features and functions	• Easy setup wizard • microSD card • Tube health check • Self-verification • Batch control
Available measurements	• Mass flow • Density • Temperature • Volume flow • Concentration (fraction) • Viscosity • Heat (thermal) energy
Digital communication options	• HART • MODBUS • PROFIBUS PA • PROFINET over Ethernet-APL

Function

Measurement of heat quantity

- Order code: **S11**

This function calculates the total fuel calorific value of the measured fluid. Either a constant value of the calorific value of the fluid can be used, or an additional device like a gas chromatograph can provide the instantaneous calorific value via the analog input of the FCT040 transmitter. Based on the fluid flow, the total calorific energy of the fluid is calculated.

For questions regarding a specific application, contact your regional Siemens Measurement Intelligence team.

Tube health check

- Order code: **S12**

Tube health check monitors key diagnostics, including tube stiffness, driver and pickups. Self-verification alerts to potential performance issues due to unplanned process events, for example gas or vapor breakout, or solid deposits building up in the tubes. The user defines verification frequency and alarm behavior. Verification results indicate whether preventive maintenance action is required.

Petroleum measurement function

- Order code: **S14**

The Net Oil Computing (NOC) function provides real-time measurements of water cut and includes American Petroleum Institute (API) correction according to API MPMS Chapter 11.1.

Oil sometimes contains entrained gas. SITRANS FC flowmeters measure the density of the combined emulsion oil and gas, which is lower

than the oil density. The NOC function includes a Gas Void Fraction (GVF) parameter to be set.

Viscosity function

- Order code: **S15**

Viscosity is sometimes used as reference value to activate other processes like fluid heating systems.

The viscosity estimation is calculated based on a comparison between measured pressure loss and a calculated value between two points of the pipe. A differential pressure transmitter is required to use this function. Its output is connected to the analog input of the FCT040. Based on an iteration process, a viscosity value is determined.

Standard concentration measurement

- Order code: **S16**

Used for concentration measurements of emulsions or suspensions when density of the fluid involved depends only on temperature.

The standard concentration measurement can be used for many low-concentration solutions if there is only minor interaction between the liquids, or if the miscibility is negligible.

Fraction measurement (advanced concentration)

Up to four pre-configured fraction ranges can be selected using the SITRANS FC option order codes from the table below.

Order code	Fraction description	Type	Range	Units	Temperature range
G01	Sugar / water (sucrose solution)	Mass fraction	0 ... 85	°Bx	0 ... 80 °C (32 ... 176 °F)
G02	NaOH / water (sodium hydroxide solution)	Mass fraction	2 ... 50	%	0 ... 100 °C (32 ... 212 °F)
G03	KOH / water (potassium hydroxide solution)	Mass fraction	0 ... 60	%	54 ... 100 °C (129 ... 212 °F)
G04	NH ₄ NO ₃ / water (ammonium nitrate solution)	Mass fraction	1 ... 50	%	0 ... 80 °C (32 ... 176 °F)
G05	NH ₄ NO ₃ / water (ammonium nitrate solution)	Mass fraction	20 ... 70	%	20 ... 100 °C (68 ... 212 °F)
G06	HCl / water (hydrochloric acid)	Mass fraction	22 ... 34	%	20 ... 40 °C (68 ... 104 °F)
G07	HNO ₃ / water (nitric acid)	Mass fraction	50 ... 67	%	10 ... 60 °C (50 ... 140 °F)
G09	H ₂ O ₂ / water (hydrogen peroxide)	Mass fraction	30 ... 75	%	4 ... 44 °C (39 ... 111 °F)
G10	Ethylene glycol / water (homogenous mixture)	Mass fraction	10 ... 50	%	-20 ... +40 °C (-4 ... +104 °F)
G11	Amylum (starch) / water (paste-like suspension)	Mass fraction	33 ... 43	%	35 ... 45 °C (95 ... 113 °F)
G12	Methanol / water (homogenous mixture)	Mass fraction	35 ... 60	%	0 ... 40 °C (32 ... 104 °F)
G20	Alcohol / water (homogenous mixture)	Volume fraction	55 ... 100	%	10 ... 40 °C (50 ... 104 °F)
G21	Sugar / water (sucrose solution)	Mass fraction	40 ... 80	°Bx	75 ... 100 °C (167 ... 212 °F)
G30	Alcohol / water (homogenous mixture)	Mass fraction	66 ... 100	%	15 ... 40 °C (59 ... 104 °F)
G37	Alcohol / water (homogenous mixture)	Mass fraction	66 ... 100	%	10 ... 40 °C (50 ... 104 °F)

The user is responsible to ensure chemical compatibility of the wetted parts material in combination with the measured chemicals. For strong acids or oxidizers, a variant with wetted parts made of alloy 22/2.4602 is advised.

Batching function

Batching and filling processes are found in many industries: food and beverage, cosmetic, pharmaceutical, oil and gas and chemical.

Flow Measurement

SITRANS FC (Coriolis)

Transmitters / SITRANS FCT040

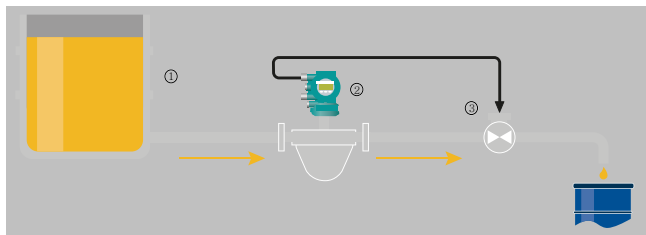
Function (continued)

SITRANS FCT040 transmitters offer an integrated batching function to carry out the task. A self-learning algorithm optimizes the process to provide accurate and reliable results.

The function supports two filling modes:

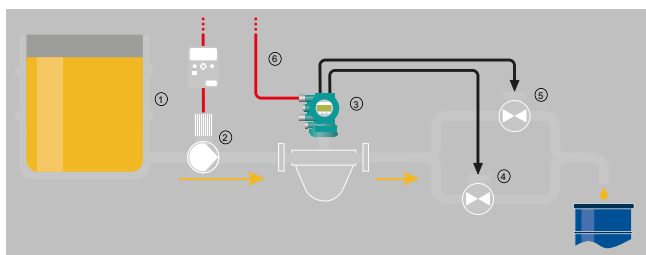
- Single-stage batch control with single valve
- Two-stage batching to control two valves for more accurate filling

The error management function allows the user to set alarms and warnings according to the application.



Example diagram for 1-stage batching

1	Storage tank
2	SITRANS FC
3	Valve



Example diagram for 2-stage batching

1	Storage tank
2	Pump
3	SITRANS FC
4	Valve A
5	Valve B
6	HART

Overview of functions and features

Overview of the main functions and features of FCT040 transmitter	
Primary measurements	• Mass flow rate liquids (0.1% accuracy) • Mass flow rate gases (0.5% accuracy) • Density (accuracy 0.5 kg/m³(0.03 lb/ft³)) • Temperature
Secondary measurements	• Volume flow rate liquids • Actual volume flow rate gases • Normal (standard) volume flow rate gases • Standard concentration • Net oil computing • Fraction (up to 4 default ranges) • Fraction (customer specified) • Fraction A & B net mass flow rate • Fraction A & B net volume flow rate
Additional functions	• Heat (thermal energy) calculation • Viscosity calculation (liquids) • Batching and filling • NTEP custody transfer
Configuration and diagnostics	• microSD card (transmitter with display) • Easy setup wizard • Tube health check (self-verification) • Event management to NAMUR NE107
Inputs and outputs	• Up to 4 combined inputs and outputs
Inputs	• Analog input • Status input
Outputs	• Analog output • Pulse (frequency) or status output • Status output • Option for internal pull-up resistor
Digital communications	• HART • MODBUS • PROFIBUS PA • PROFINET over Ethernet-APL
Enclosure options	• Aluminum alloy with standard powder coating • Aluminum alloy with corrosion resistant coating • Stainless steel CF-8M (remote only)
Power supply	• Universal (AC and DC)

Configuration

Overview of available inputs, outputs and digital communications

The table below provides a matrix of all available combinations for the FCT040 transmitter.

Each combination is defined by a blend of two order code options:

- Ch 1 codes in the form "E.." define the required type of digital communication.
- Ch 2-4 codes in the form "F.." define the required combination of conventional inputs and outputs.

Abbreviations used in the table:

- Pulse or status output is abbreviated to "P/S output".
- Status only output is abbreviated to "S output".
- Status input is abbreviated to "S input".

Ch 1 code	Ch 2-4 code	I/O 1 (Channel 1)	I/O 2 (Channel 2)	I/O 3 (Channel 3)	I/O 4 (Channel 4)
E00	F00	none	none	none	none
E07 ¹⁾	F01	passive mA HART output	passive P/S output	passive mA output	none
E07 ¹⁾	F02	passive mA HART output	passive P/S output	passive mA output	passive P/S output
E07 ¹⁾	F03	passive mA HART output	passive P/S output NAMUR	passive mA output	none
E07 ¹⁾	F04	passive mA HART output	passive P/S output NAMUR	passive mA output	passive P/S output NAMUR
E06	F11	active mA HART output	passive P/S output	none	none
E06	F12	active mA HART output	passive P/S output	passive S output	passive P/S output
E06	F13	active mA HART output	passive P/S output	volt free S input	passive P/S output
E06	F14	active mA HART output	passive P/S output	passive P/S output	active mA input
E06	F15	active mA HART output	passive P/S output	passive P/S output	passive mA input
E06	F16	active mA HART output	passive P/S output	passive mA output	active mA input
E06	F17	active mA HART output	passive P/S output	passive mA output	passive mA input
E06	F18	active mA HART output	passive P/S output	volt free S input	active mA input
E06	F19	active mA HART output	passive P/S output	volt free S input	passive mA input
E06	F20	active mA HART output	passive P/S output	volt free S input	active P/S output
E06	F21	active mA HART output	passive P/S output	volt free S input	active P/S output and pull-up
E06	F22	active mA HART output	passive P/S output	passive P/S output	active mA output
E06	F23	active mA HART output	passive P/S output	volt free S input	active mA output
E14	F31	none	passive P/S output	MODBUS C	MODBUS A & B
E14	F32	passive P/S output	passive P/S output	MODBUS C	MODBUS A & B
E14	F33	active mA input	passive P/S output	MODBUS C	MODBUS A & B
E14	F34	passive mA input	passive P/S output	MODBUS C	MODBUS A & B
E14	F35	active P/S output	passive P/S output	MODBUS C	MODBUS A & B
E14	F36	active P/S output and pull-up	passive P/S output	MODBUS C	MODBUS A & B
E14	F37	active mA output	passive P/S output	MODBUS C	MODBUS A & B
E10	F41	PROFIBUS PA	passive pulse output	none	none
E10	F42	PROFIBUS PA (IS)	passive pulse output (IS)	none	none
E15	F50	PROFINET over Ethernet-APL (IS)	none	1 passive pulse output (IS)	none

¹⁾ Any combinations with passive mA HART output on Channel are only possible with Ex approval. All outputs in these combinations are intrinsically safe.

Flow Measurement

SITRANS FC (Coriolis)

Transmitters / SITRANS FCT040

Technical specifications

Mechanical specifications

Material specifications			
Housing material options	Coating	Design	Order code position 14
Cast aluminum alloy Al-Si10Mg(Fe)	Standard coating ¹⁾	Remote transmitter	C or D
Cast aluminum alloy Al-Si10Mg(Fe)	Corrosion resistant coating ²⁾	Remote transmitter	E or F
ASTM CF8M stainless steel	None	Remote transmitter	G or H
Display			
Material of the lid window	Glass		
Mounting bracket ³⁾			
Material	AISI 316L stainless steel	Mat. no. 1.4404	
Nameplates ⁴⁾	Process temperature range	Nameplate material	
Transmitter with cast aluminum housing	Not applicable	Foil	
Transmitter with ASTM CF8M stainless steel housing	Not applicable	AISI 316L ss	

¹⁾ Standard coating is urethane cured polyester powder coating.

²⁾ Corrosion protection coating is a three-layer coating with high chemical resistance (polyurethane coating on two layers of epoxy).

³⁾ Only the remote transmitters are supplied with a mounting bracket.

⁴⁾ Nameplate material depends on the materials selected for SITRANS FC sensors.

Electrical specifications

Power supply	
Alternating current voltage (rms)	nominal 24 V AC (-15% ... +10%), or 100 ... 240 V AC (-20% ... +10%)
Frequency	47 ... 63 Hz
Direct current voltage	nominal 24 V DC (-15% ... +20%) or 100 ... 120 V DC (-10% ... +8.3%)
Power consumption	P ≤ 10 W (including sensor)

Notes:

- For DNV approval option supply voltage is limited to 24 V.
- NAMUR NE21 testing specifies the range 24 V DC ±20% under NE21 test conditions.

Power supply failure

In the event of a power failure, the flowmeter data are backed up on a non-volatile internal memory. In case of devices with display, the characteristic sensor values, such as nominal diameter, serial number, calibration constants, zero point and the error history are also stored on a microSD card.

Galvanic isolation

All circuits for inputs, outputs and power supply are galvanically isolated from each other.

Analog inputs and outputs

Analog input

Analog inputs	
Active current input ¹⁾	
Nominal input current range	4 ... 20 mA
Maximum input current range	2.4 ... 21.6 mA
Internal power supply	24 V DC ±20%
Internal load resistance	≤ 160 Ω
Passive current input ²⁾	
Nominal input current range	4 ... 20 mA
Maximum input current range	2.4 ... 21.6 mA
External power supply	10.5 ... 32 V DC
Internal load resistance	≤ 160 Ω

¹⁾ The active current input is provided for connecting a two-wire transmitter with an output signal of 4 ... 20 mA.

²⁾ The passive current input is provided for connecting a four-wire transmitter with an active current output signal.

Note: One analog current input is available for external analog devices.

Analog output

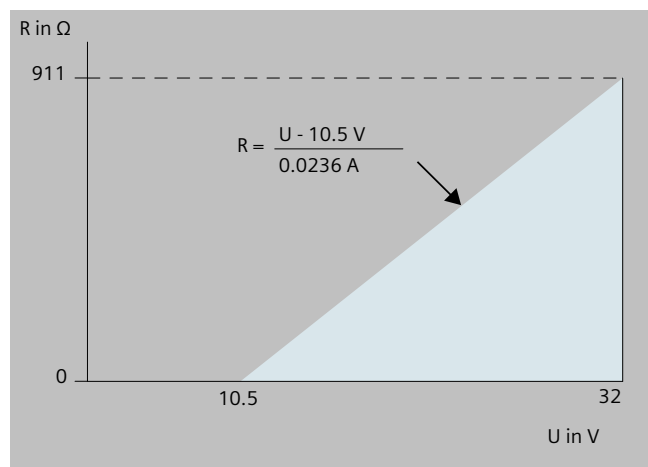
Up to two analog outputs can be selected at time of ordering. The analog outputs can be configured to represent the following measured values:

- Flow rate (mass, volume, net partial component flow of a mixture)
- Density
- Temperature
- Pressure
- Concentration

HART communication, when selected, is supplied on channel 1 (I/O 1). The current output may be operated in compliance with the NAMUR NE43 standard.

Analog outputs	
Active current output	
Nominal output current range	4 ... 20 mA
Maximum output current range	2.4 ... 21.6 mA
Load resistance	≤ 750 Ω
Load resistance for secure HART communication	230 ... 600 Ω
Passive current output	
Nominal output current range	4 ... 20 mA
Maximum output current range	2.4 ... 21.6 mA
External power supply	10.5 ... 32 VDC
Load resistance for secure HART communication	230 ... 600 Ω
Load resistance at current output	≤ 911 Ω

Technical specifications (continued)



Maximum load resistance as a function of an external power supply voltage

- ¹⁾ The active current input is provided for connecting a two-wire transmitter with an output signal of 4 ... 20 mA.
- ²⁾ The passive current input is provided for connecting a four-wire transmitter with an active current output signal.

Digital inputs and outputsDigital inputs (status)

Do not connect a signal source with electric voltage.

The status input is provided for use of voltage-free contacts with the following specification:

Resistance when closed	< 200 Ω
Resistance when open	> 100 kΩ

Digital communications

Each transmitter is configured with one default digital communication interface, selectable in the SITRANS FC order code.

HART

When selected, HART communication is supplied on the output terminal pair I/O 1.

Up to three further Input/Output options can be configured for output terminal pairs I/O 2, I/O 3, and I/O 4.

HART is available with either non-intrinsically safe or intrinsically safe outputs.

PROFIBUS PA

- When selected, PROFIBUS PA communication is supplied on the output terminal pair I/O 1.
- PROFIBUS PA interface is available with and without intrinsic safety.
- PROFIBUS PA digital communication signal is in accordance with IEC 61158/61784.
- Maximum voltage and correct polarity must be observed for wiring.
- Power supply: 9 ... 32 V DC
- Current draw: 15 mA (maximum)
- Compliance with PA profile revision 3.02 supporting: Condensed Status (NE107)
- Device identification number (IDENT_NUMBER) adaption

Digital output

Digital outputs	
Active pulse output available on Pulse/Status output, connection of an electronic counter¹⁾	
Load resistance	> 1 kΩ
Internal power supply	24 V DC ±20%
Maximum pulse rate	10 000 pulses/s
Frequency range	0 ... 12.5 kHz
Active pulse output available on Pulse/Status output, connection of an electromechanical counter	
Maximum current	150 mA
Average current	≤ 30 mA
Internal power supply	24 V DC ±20%
Maximum pulse rate	2 pulses/s
Pulse width	20, 33, 50, or 100 ms
Active pulse output available on Pulse/Status output, with internal pull-up resistor	
Internal power supply	24 V DC ±20%
Internal pull-up resistor	2.2 kΩ
Maximum pulse rate	10 000 pulses/s
Frequency range	0 ... 12.5 kHz
Passive pulse output available on Pulse/Status output¹⁾	
Maximum load current	≤ 200 mA
External power supply	≤ 30 V DC
Maximum pulse rate	10 000 pulses/s
Frequency range	0 ... 12.5 kHz
Active status output available on Pulse/Status output²⁾	
Load resistance	> 1 kΩ
Internal power supply	24 V DC ±20%
Active status output available on Pulse/Status output, with internal pull-up resistor³⁾	
Internal pull-up resistor	2.2 kΩ
Internal power supply	24 V DC ±20%
Passive status output available on Pulse/Status output, or Status output	
Output current	≤ 200 mA
External power supply	≤ 30 V DC
Passive pulse or status output available on Pulse/Status output (NAMUR)	
Output signals according to EN 60947-5-6 (previously NAMUR, worksheet NA001)	

¹⁾ Maximum voltage and correct polarity must be observed for wiring.

²⁾ Since this is a transistor contact, maximum allowed current as well as polarity and level of output voltage must be observed during wiring.

³⁾ A relay must be connected in series to switch alternating voltage.

Summary of available function blocks – PROFIBUS PA

Function block	Code	Description
Transducer block	FTB	Flow
	CTB	Concentration
	LTB	LCD Indicator
	MTB	Maintenance
	SDBT	Advanced diagnostics
Analog input block ¹⁾	AI1	Mass flow
	AI2	Density
	AI3	Temperature
	AI4	Volume flow
	AI5	Reference density
	AI6	Corrected (normal/standard) volume flow

Flow Measurement

SITRANS FC (Coriolis)

Transmitters / SITRANS FCT040

Technical specifications (continued)

Function block	Code	Description
Totalizer block ¹⁾	TOT1	Mass
	TOT2	Volume
	TOT3	Corrected (normal/standard) volume
Analog output block ¹⁾	AO	Pressure

¹⁾ Factory default setting. Assignment can be changed by parameter "channel".

Available function blocks are also influenced by the type of device description file (GSD) being used. For further details, please contact your regional Siemens Measurement Intelligence team.

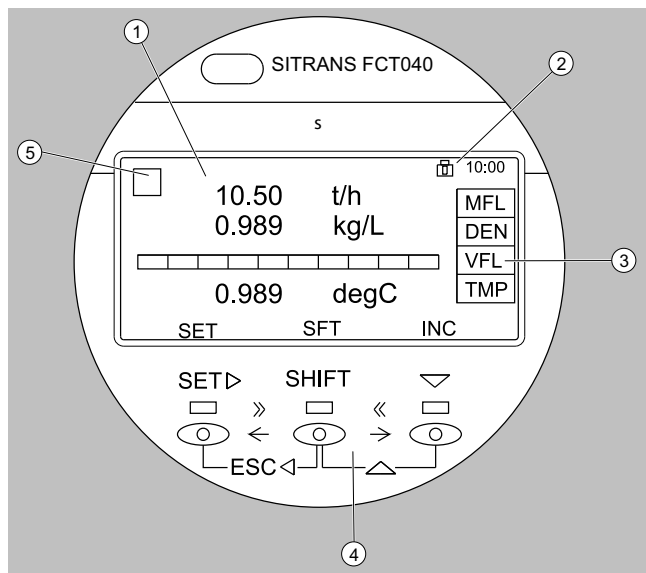
MODBUS

- The MODBUS interface is available with up to two additional Input/Output options.
- When selected, MODBUS communication is supplied on the terminal pairs I/O 3 and I/O 4.
- The digital MODBUS communication signal is in accordance with EIA-485 standard (RS 485).

PROFINET over Ethernet-APL

Display attributes	
Type	4-line dot-matrix display
Resolution	128 × 64 (W × H) dots
Size	64.6 × 31.2 mm (2.54 × 1.23 inch)
Control	via IR switches

Numerical values entered via the display are limited to six digits for process variables and eight digits for totalizer.



Display layout

1	Measured quantities and units
2	Status icon and time
3	Measured quantity abbreviation
4	IR switches
5	Alarm symbol

The controls on the display are IR switches. They respond as soon as an object, such as a finger, is in proximity. It is not necessary to apply pressure to the display surface.

The display unit includes a slot for the microSD card.

microSD card specifications	
Type	Industrial Grade microSD card, compliant with SD specification version 2.0
Physical dimension	15 × 11 × 1.0 mm (± 0.1 mm) (0.6 × 0.4 × 0.04 inch (± 0.004"))
Capacity	1 GB
Sequential throughput (read)	24.01 MB/s
Sequential throughput (write)	17.96 MB/s

It is recommended to use the microSD card included with the SITRANS FCT transmitter. Functionality of the device cannot be guaranteed if other cards are used.

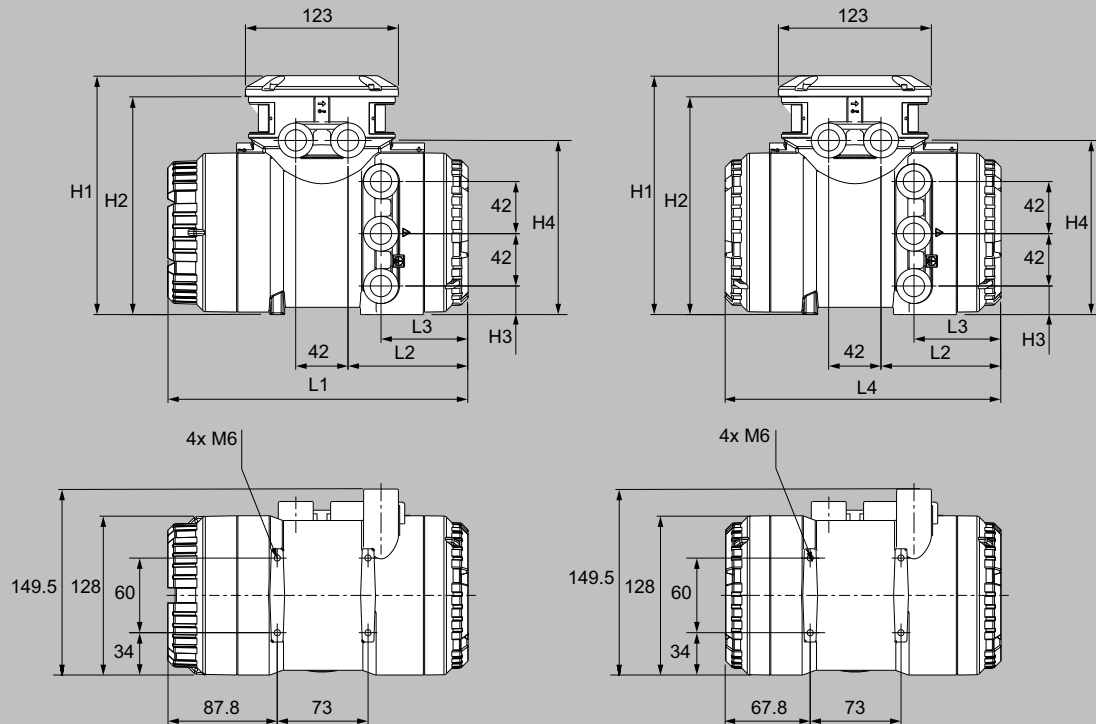
Cable specifications

For remote type devices, an interconnecting cable must be used to connect the sensor to the transmitter. The device specifications, stated in this document, are valid only if one of the original SITRANS FC interconnecting cables is used.

Standard cable length options are specified up to 30 m are specified in the order code to maintain the stated specifications. Cables longer than 30 m (98 ft) are available but must be ordered as separate items. For further details, please contact your regional Siemens Measurement Intelligence team.

Dimensional drawings

SITRANS FCT040 transmitter dimensions



Dimensions of FCT040 transmitter in mm. Transmitter with display shown on the left. Transmitter without display shown on the right.

Dimensions L1 to L4 and H1 to H4 (material options: stainless steel, aluminum)

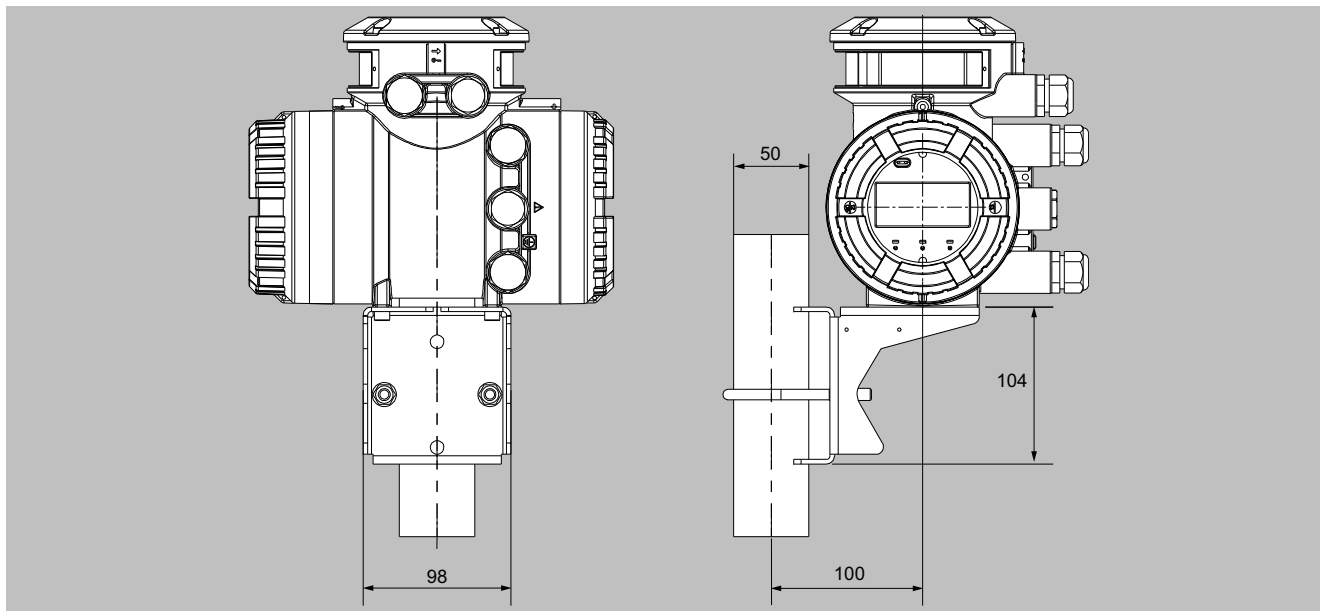
Material	L1 in mm (inch)	L2 in mm (inch)	L3 in mm (inch)	L4 in mm (inch)	H1 in mm (inch)	H2 in mm (inch)	H3 in mm (inch)	H4 in mm (inch)
Stainless steel	255.5 (10.06)	110.5 (4.35)	69 (2.72)	235 (9.25)	201 (7.91)	184 (7.24)	24 (0.94)	150.5 (5.93)
Aluminum	241.5 (9.51)	96.5 (3.8)	70 (2.76)	221 (8.7)	192 (7.56)	175 (6.89)	23 (0.91)	140 (5.51)

Flow Measurement

SITRANS FC (Coriolis)

Transmitters / SITRANS FCT040

Dimensional drawings (continued)



Dimensions of transmitter in mm, attached to mounting bracket

Transmitter weights

Design type	Transmitter enclosure material	Weight in kg (lb)
Remote	Cast aluminum	4.2 (9.3)
	CF-8M stainless steel	12.5 (27.6)

Overview

The flowmeter systems of the SITRANS FC100 series are the precision Coriolis multi-parameter flowmeter for low flow applications. They are formed by one FCS100 sensor and one FCT transmitter:

- SITRANS FC120 is the combination of the FCS100 sensor and the FCT020 transmitter
- SITRANS FC140 is the combination of the FCS100 sensor and the FCT040 transmitter

Features:

- Compact dual curved alloy 22 measuring tubes
- Process connection: flange, thread or hygienic clamp
- Nominal sizes: DN 1 to DN 8
- Connection sizes: DN 6 to DN 40 ($\frac{1}{4}$ " to $1\frac{1}{2}$ ")
- Nominal flow rates: 21 kg/h to 950 kg/h (46 lb/h to 2 094 lb/h)
- FCS100 sensors always combine with a remote transmitter via a connecting cable
- Installation of sensor and transmitter in different locations



FCS100 sensor and FCT020/040 transmitter

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC120/FC140

Benefits

Product features aligned to user value targets

	User value targets	SITRANS FC features and solutions
Engineering and project management	• Reduce engineering investment • Cut specification effort • Minimize project expenditure • Decrease the spending on each measurement point • Eliminate function duplication • Reduce number of suppliers	• Siemens project teams offer complimentary evaluation of customer specifications, provided by regional and HQ experts • Simple product selection using intuitive sizing software • One SITRANS FC device can typically provide three to six individual measurements, all transmitted via digital communication, when planned during pre-project design • Added value functions: batch control, viscosity, thermal energy, concentration measurement (Fraction) of two-component solutions and pressure compensation
Installation	• Reduce footprint and transport outlay of OEM machinery • Lower installation complexity • Avoid costly modifications of existing plant	• Can be installed in horizontal or vertical (self-draining) pipes • Twin tube bend design delivers strong signal to noise characteristic resistant to external influence, so install in tight spaces with no inlet and outlet restrictions • Adaptable to existing pipes: typically, three or four connection sizes for each sensor size • Flexible selection of traditional inputs, outputs and digital communications
Configuration and commissioning	• Shorter commissioning schedules with lower costs • Faster start-up with reduced outgoings	• Easy setup wizard delivers working meters straight after start-up • microSD card stores sensor calibration data and default setup • Simple configuration using Process Device Manager (PDM) • Siemens device-specific faceplates simplify operation in plantwide control systems
Efficient plant operation	• Improve finished product consistency to reduce waste • Keep process performance when scaling production up or down • Optimize process control • Improve finished product quality enabling higher levels of profit • Reduce downtime with fast resolution of process upsets • Improve asset performance	• SITRANS FC meters are calibrated in rigs accredited to EN/ISO 17025 to ensure consistently high performance of flow, density, and concentration measurements • First-class zero-point quality maintains high accuracy into the low flow region • High sensitivity and intelligent dynamic range keeps the measurement active in demanding high fluid damping cases • Designed-in resilience to process extremes • Self-verification alerts to potential performance issues due to unplanned process events, for example gas or vapor breakout or solid deposits building up in the tubes • Diagnostic data via local menu or PDM is backed by Siemens applications experts • Intelligent Siemens SITRANS IQ apps for continuing asset evaluation
Maintenance and asset management	• Optimize technician training • Reduce cost of spare parts • Increase predictive maintenance • Reduce production downtime and associated costs • Decrease unplanned maintenance • Maximize asset value	• Simple product design with interchangeable modular parts • microSD card loads sensor-specific data to deliver fast service exchange • Self-verification: tube health check monitors key diagnostics, including tube stiffness, driver and pickups; the user defines verification frequency and alarm behavior • Verification results indicate whether preventive maintenance action is required • Siemens SIMATIC Maintenance Station uses cyclical acquisition to provide life cycle reports and intelligent preventive maintenance strategies

Benefits (continued)

	User value targets	SITRANS FC features and solutions
Industry compliance	• Cut effort required to comply with Industry-specific demands • Reduce resource needed to maintain regulatory compliance	• Food and beverage sector covered with EHEDG and 3-A approvals, polished tubes • Global hazardous area approvals for international plant duplications • Common and emerging digital networks covered: , or over (IS) • Class-leading safety: SIL2/SIL3, secondary containment, PED,

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC120/FC140

Application

Application examples for SITRANS FC multi-parameter meters across diverse industry sectors

Chemical and petrochemical Bulk chemicals Industrial gases Polymers Agrochemicals Fine chemicals Aroma chemicals	• Transfer, loading and unloading of bulk chemicals • Concentration control of acids and alkalis (process optimization) • Accurate mass or volume flow of feed chemicals to in-line blending systems • Accurate mass flow and density (quality) of reactor fluid feeds catalyst • Chemical recovery • Mass balance optimization • Compressed and cryogenic gases • Lubricating oil blending and dosing • High accuracy measurement of critical fluid components • Low flow control in pilot plants and R&D facilities
Food and beverage Food processing Dairies Breweries Distilleries Confectionary Soft drinks Animal feed plants OEM	• Accurate bulk transfer (mass or volume) of all dairy products: milk, cream, whey and yoghurt • Fat concentration in cream • Flow, density, temperature and concentration (Plato) during all fermentation processes • Flow, density, temperature and sugar concentration (Brix) in soft drink processing • Distilled spirits – % alcohol by volume (ABV), liters of pure alcohol, volume transfer, blending, batch and column still optimization and energy management, cask filling, tanker loading • Flow and density of fruit juices and pulps • Mixing and inventory control of confectionary ingredients, e.g. chocolate, syrup, oils, flavors • Metering pump control • Oils, fats enzymes dosing in animal feed plants • CO₂ dosing • CIP liquids • Bottling of beer, spirits, wine, soft drinks, etc. • Bulk sugar processing – molasses, sugar slurries, density, Brix of finished product
Oil and gas Offshore/onshore Upstream/downstream Pipelines Distribution networks Refineries Skid manufacturers	• Loading/unloading of hydrocarbons (e.g. crude oil, bitumen) from/to ship, road tanker, rail car • High pressure chemical injection • High pressure low flow gas • Net oil computing • Gas void fraction • Filling of gas bottles • Furnace control • Test separators • LPG, natural gas hydration • Well-head water-cut monitoring • All hydrocarbon fluids in refineries • Metrology, custody transfer • Drilling mud • Oil well cementing and hydrofracturing

Application (continued)

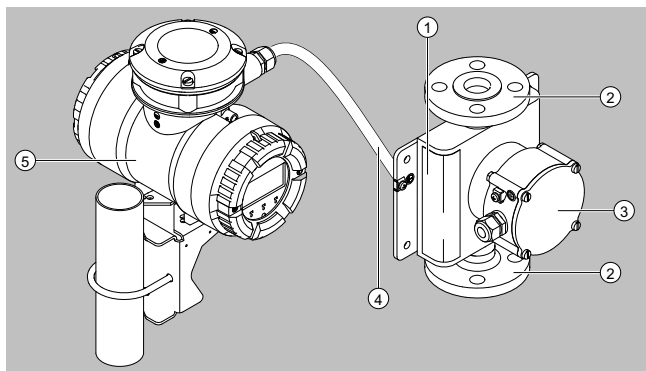
Application examples for SITRANS FC multi-parameter meters across diverse industry sectors

Life sciences Pharmaceutical Bio	• High accuracy flow and batching of bioreactor feeds • Solvent flow rate, density and batching • Flow of demineralized and deionized water • Solvents and fish oils used in high grade omega 3 oils • Precision coatings • Vacuum thin film coating
Household and personal care Detergents Cosmetics	• Blending and batching of detergent ingredients • Tanker loading and unloading • Salt concentration • Reliable measurement of aerated liquids
Automotive and aeronautical Vehicle manufacturing Paint Engine testing OEM	• Fuel injection nozzle and pump testing • Filling of under bonnet fluid reservoirs, air conditioning, coolant • Fuel flow and density measurement in engine test beds • Checking for air in oil using high accuracy density measurement • Paint spray robots – requires accurate and fast measurements • Aircraft fuel loading (kerosene) • High pressure flow used in turbine blade manufacture
Power and energy Renewable Hydrogen	• Boiler fuel flow and burner control • Turbine fuel flow • Glycol flow and concentration • Bioethanol
Marine OEM Shipbuilders	• Fuel consumption management • Boiler control • Bunkering management • Density used to indicate fuel quality
Pulp, paper and textiles	• Accurate dosing of dyes and chemicals
Water and environmental	• Dosing of chemicals for water treatment • Chemical concentration for water quality control

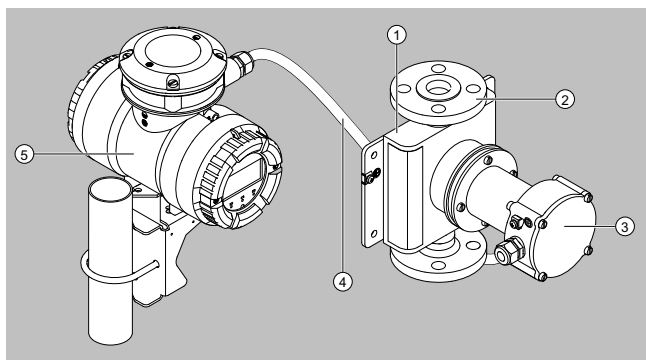
Design

Design options and related temperature range for FC100 series

Design version	Process temperature range
Standard neck	Standard [-50 ... 150 °C (-58 ... 302 °F)]
Long neck	Standard [-50 ... 150 °C (-58 ... 302 °F)] Medium [-50 ... 260 °C (-58 ... 302 °F)]



FCS100 sensor (standard neck version) and remote transmitter



FCS100 sensor (long neck version) and remote transmitter

1	FCS100 sensor
2	Process connection
3	Sensor terminal box
4	Connecting cable
5	Transmitter

Compatible fluids

- Liquids
- Gases
- Mixtures, solutions, emulsions, suspensions and slurries

Primary measured variables

- Mass flow
- Density
- Temperature

Design (continued)

Based on the primary measured quantities, the transmitter also calculates

- Volume flow
- Percent concentration (fraction) of a two-component mixture (FCT040 only)
- Partial component flow rate (net flow) of a mixture consisting of two components (FCT040 only)

The mass flow, volume flow, net flow measurements can be bi-directional.

Measurement variables for NTEP approval

- Mass flow uni-directional
- Volume flow uni-directional

Feature summary

- Possibly the most compact dual curve Coriolis flowmeter for precision measurement, starting at DN 1 nominal size
- Batching function with batch leakage detection and batch control by transmitter for precise dosing
- Accurate density measurement and up to four advanced concentration measurement data sets
- Sizes to suit pilot plants, R&D labs and high value fluid additives
- Wide choice of process connections, starting with DN 6 (¼ inch) for reduced installation efforts

Installation guidelines

FC100 series flow meters can be mounted horizontally, vertically and at an incline. The measuring tubes should be filled with the fluid during flow measurement as entrained gas may result in errors in measurement. Straight pipe runs at inlet or outlet are usually not required.

Avoid the following installation locations and positions:

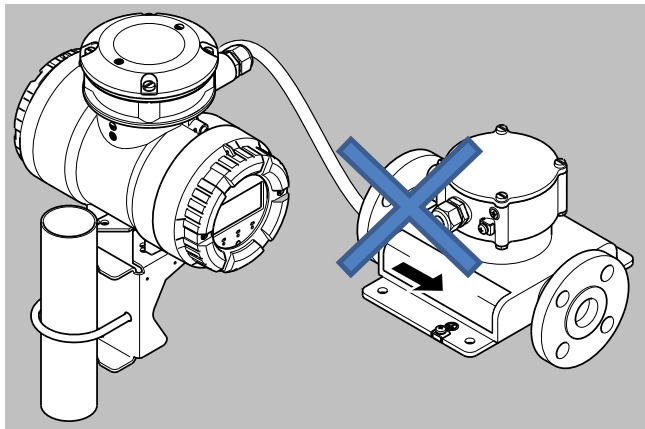
- Measuring tubes as highest point in piping when measuring liquids
- Measuring tubes as lowest point in piping when measuring gases
- Immediately in front of a free pipe outlet in a downpipe
- Lateral positions

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC120/FC140

Design (continued)



Avoid measuring tubes in sideways position resulting in possible non-homogeneous fluid separation

Function

Compatible fluids

- Liquids
- Gases
- Mixtures, solutions, emulsions, suspensions and slurries

Primary measured variables

- Mass flow
- Density
- Temperature

Based on the primary measured quantities, the transmitter also calculates

- Volume flow
- Percent concentration (fraction) of a two-component mixture (FCT040 only)
- Partial component flow rate (net flow) of a mixture consisting of two components (FCT040 only)

The mass flow, volume flow, net flow measurements can be bi-directional.

Measurement variables for NTEP approval

- Mass flow uni-directional
- Volume flow uni-directional

Feature overview

- Possibly the most compact dual curve Coriolis flowmeter for precision measurement, starting at DN 1 nominal size
- Batching function with batch leakage detection and batch control by transmitter for precise dosing
- Accurate density measurement and up to four advanced concentration measurement data sets
- Sizes to suit pilot plants, R&D labs and high value fluid additives
- Wide choice of process connections, starting with DN 6 (1/4 inch) for reduced installation efforts

Selection and ordering data

SITRANS FC120/140 (Low flow)	Article No. 7ME441	● - ● ● ● ● ● - ● ● ● ● - ● ● ●										Order code ● ● ●		
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.														
Transmitter variant														
None (spare sensor)		0												
Coriolis sensor FCS100 with transmitter FCT020		2												
Coriolis sensor FCS100 with transmitter FCT040		4												
SITRANS FC spare part transmitter, no sensor included		9										G	3	Y
Sensor size / Connector size														
No sensor (SITRANS FCT transmitter as spare part)			0	A										
Sensor size DN 1 with connection size 1/4"			1	A										
Sensor size DN 1 with connection size 3/8"			1	B										
Sensor size DN 1 with connection size 1/2" DN 15			1	C										
Sensor size DN 1 with connection size 3/4"			1	D										
Sensor size DN 1 with special connection			1	Y										
Sensor size DN 2 with connection size 1/4"			2	A										
Sensor size DN 2 with connection size 3/8"			2	B										
Sensor size DN 2 with connection size 1/2" DN 15			2	C										
Sensor size DN 2 with connection size 3/4"			2	D										
Sensor size DN 2 with connection size 1" DN 25			2	E										
Sensor size DN 2 with connection size 1 1/2" DN 40			2	F										
Sensor size DN 2 with special connection			2	Y										
Sensor size DN 4 with connection size 1/4"			3	A										
Sensor size DN 4 with connection size 3/8"			3	B										
Sensor size DN 4 with connection size 1/2" DN 15			3	C										
Sensor size DN 4 with connection size 3/4"			3	D										
Sensor size DN 4with connection size 1" DN 25			3	E										
Sensor size DN 4 with connection size 1 1/2" DN 40			3	F										
Sensor size DN 4 with special connection			3	Y										
Sensor size DN 6 with connection size 1/4"			4	A										
Sensor size DN 6 with connection size 3/8"			4	B										
Sensor size DN 6 with connection size 1/2" DN 15			4	C										
Sensor size DN 6 with connection size 3/4"			4	D										
Sensor size DN 6 with connection size 1" DN 25			4	E										
Sensor size DN 6 with connection size 1 1/2" DN 40			4	F										
Sensor size DN 6 with special connection			4	Y										
Sensor size DN 8 with connection size 1/4"			5	A										
Sensor size DN 8 with connection size 3/8"			5	B										
Sensor size DN 8 with connection size 1/2" DN 15			5	C										
Sensor size DN 8 with connection size 3/4"			5	D										
Sensor size DN 8 with connection size 1" DN 25			5	E										
Sensor size DN 8 with connection size 1 1/2" DN 40			5	F										
Sensor size DN 8 with special connection			5	Y										
Process connection														
No connection (SITRANS FCT transmitter as spare part)				A	0									
EN flange PN 40, suitable for EN 1092-1 type B1, raised face (RF)				A	1									
EN flange PN 100, suitable for EN 1092-1 type B1, raised face (RF)				A	3									
EN flange PN 40, suitable for EN 1092-1 type D, groove				A	5									
EN flange PN 100, suitable for EN 1092-1 type D, groove				A	7									
EN flange PN 40, suitable for EN 1092-1 type E, spigot				B	1									
EN flange PN 100, suitable for EN 1092-1 type E, spigot				B	3									
EN flange PN 40, suitable for EN 1092-1 type F, recess				B	5									
EN flange PN 100, suitable for EN 1092-1 type F, recess				B	7									
ASME flange class 600, suitable for ASME B16.5, ring joint (RJ)				C	3									
ASME flange class 900, suitable for ASME B16.5, ring joint (RJ)				C	4									
ASME flange class 1500, suitable for ASME B16.5, ring joint (RJ)				C	5									
ASME flange class 150, suitable for ASME B16.5, raised face (RF)				D	1									
ASME flange class 300, suitable for ASME B16.5, raised face (RF)				D	2									
ASME flange class 600, suitable for ASME B16.5, raised face (RF)				D	3									
ASME flange class 900, suitable for ASME B16.5, raised face (RF)				D	4									
ASME flange class 1500, suitable for ASME B16.5, raised face (RF)				D	5									

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC120/FC140

Selection and ordering data (continued)

SITRANS FC120/140 (Low flow)	Article No. 7ME441	●	-	●	●	●	●	-	●	●	●	●	-	●	●	●	Order code
Process connection with internal thread G									E	1							
Process connection with internal thread NPT									E	3							
Clamp process connection according to DIN 32676 series A									G	2							
Clamp process connection according to DIN 32676 series C (Tri-Clamp)									G	6							
JIS flange 10K, JIS B 2220									L	2							
JIS flange 20K, JIS B 2220									L	4							
Special design request									Y	1							
Tube material (wetted)																	
Process connection material and operational temperature range																	
None (SITRANS FCT transmitter as spare part)										0							
Tube material C22, process connection material 316L, standard: -50 ... 150 °C (-58 ... 302 °F)										1							
Tube material C22, process connection material 316L, mid-range: -50 ... 260 °C (-58 ... 500 °F)										2							
Calibration																	
No calibration											0						
Massflow 0.1%, density 0.5 g/l											1						
Massflow 0.1%, density 1 g/l											2						
Massflow 0.1%, density 4 g/l											3						
Massflow 0.1%, density 8 g/l											4						
Massflow 0.15% density 20 g/l											5						
Massflow 0.2%, density 4 g/l											6						
Massflow 0.2%, density 8 g/l											7						
Massflow 0.2%, density 20 g/l											8						
Accuracy for gas please select below											9						
Massflow gas 0.75%																N 1	A
Massflow gas 0.5%																N 2	A
Mounting style, transmitter housing and material																	
Remote type with "urethane-cured polyester powder coating" coated aluminum transmitter housing and standard neck sensor												C					
Remote type with "urethane-cured polyester powder coating" coated aluminum transmitter housing and long neck sensor												D					
Remote type with "corrosion protection coating" coated aluminum transmitter housing and standard neck sensor												E					
Remote type with "corrosion protection coating" coated aluminum transmitter housing and long neck sensor												F					
Remote type stainless steel transmitter and standard neck sensor												G					
Remote type stainless steel transmitter and long neck sensor												H					
Ex approvals																	
None																A	
ATEX, explosion group IIC and IIIC																B	
ATEX, explosion group IIB and IIIC																C	
IECEX, explosion group IIC and IIIC																D	
IECEX, explosion group IIB and IIIC																E	
EAC Ex, IIC and IIIC																F	
EAC Ex, IIB and IIIC																G	
FM, groups A B C D E F G																H	
FM, groups C D E F G																J	
INMETRO, explosion group IIC and IIIC																K	
INMETRO, explosion group IIB and IIIC																L	
NEPSI, explosion group IIC and IIIC																M	
NEPSI, explosion group IIB and IIIC																N	
Korea Ex, explosion group IIC and IIIC																P	
Korea Ex, explosion group IIB and for integral type also IIIC																Q	
Local user interface																	
Spare sensor without transmitter, no display applied																0	
No display																1	
With display																3	

Selection and ordering data (continued)

	Order code
Further designs Please add "-Z" to Article No. and specify order code(s).	
Cable entries (for customer cable gland holes - no cable glands supplied)	
Metric, no glands (M20)	A10
NPT, no glands (1/2")	A11
Metric, no glands (M20) steel armored cable	A20
NPT, no glands (1/2") steel armored cable	A21
Sensor housing material	
None (SITRANS FCT transmitter as spare part)	B00
Stainless steel 1.4301/304, 1.4404/316L	B01
Stainless steel 1.4404/316L	B02
Certificates	
Declaration of compliance with the order 2.1 according to EN 10204	C11
Certificate of Marking Transfer and Raw Material Certificates (Inspection Certificate 3.1 according to EN 10204), including IGC and conform to NACE MR0175 and MR0103	C13
Positive Material Identification of wetted parts, including certificate (Inspection Certificate 3.1 according to EN 10204)	C15
NTEP approval accuracy class 0.3 acc. NIST	C16
Hydrostatic Pressure Test Certificate (Inspection Certificate 3.1 according to EN 10204)	C18
Functional Safety (IEC 61508) - SIL2/3	C20
X-ray inspection of flange weld seam according to DIN EN ISO 17636-1/B, evaluation according to AD 2000 HP 5/3 and DIN EN ISO 5817/C, including certificate	C33
X-ray test according to ASME V	C34
WPS according to DIN EN ISO 15809-1; WPQR according to DIN EN ISO 15814-1; WQC according to DIN EN 287-1 or DIN EN ISO 8908-4	C36
Welding procedures and certificate according to ASME IX	C37
Dye penetrant test of process connection weld seams according to DIN EN ISO 3452-1, including certificate	C38
Dye penetrant test of flange welding according to ASME V, including certificate	C39
Quality Inspection Certificate (Inspection Certificate 3.1 according to EN 10204)	C40
Ferrite test for flange welding according to DIN EN ISO 8249	C50
Degreasing of wetted surfaces according to ASTM G93-03 (Level C), including test report	C54
Combined certificates	
Certification package (C13, C18, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test and Quality inspection certificate	C80
Certification package (C13, C15, C40) including Marking Transfer and raw material certificate, Positive material identification and Quality inspection certificate	C81

	Order code
Certification package (C13, C18, C38, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test, Dye penetration and Quality inspection certificate	C82
Certification package (C13, C15, C18, C36, C38, C40) including Marking Transfer and raw material certificate, Positive material identification, Hydrostatic pressure test, Welding certificates, Dye penetration and Quality inspection certificate	C83
Certification package (C15, C18, C36) including Positive material identification, Hydrostatic pressure test and Welding certificates	C84
Certification package (C34, C37, C39) including X-ray test according ASME V, Welding procedures and Certificates according ASME IX and Dye penetrant test of flange welding according ASME V	C85
Certification package (C13, C18, C34, C37, C39, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test, X-ray test according ASME V, Welding procedures and Certificates according ASME IX, Dye penetrant test of flange welding according ASME V and Quality inspection certificate	C86
Certification package (C13, C15, C34, C37, C39, C40) including Marking Transfer and raw material certificate, Positive material identification, X-ray test according ASME V, Welding procedures and Certificates according ASME IX, Dye penetrant test of flange welding according ASME V and Quality inspection certificate	C87
I/O Configuration Ch1	
None (SITRANS FCT transmitter as spare part)	E00
4-20 mA HART active	E06
4-20 mA HART passive	E07
PROFIBUS PA	E10
Modbus RTU RS 485	E14
PROFINET over Ethernet-APL (IS)	E15
I/O Configuration Ch2, Ch3 and Ch4	
Spare sensor without transmitter, all communication types and I/Os apply	F00
1 passive current output, 1 passive pulse or status output	F01
1 passive current output, 2 passive pulse or status outputs	F02
1 passive current output, 1 passive pulse or status outputs, 1 passive NAMUR pulse or status output	F03
1 passive current output, 2 passive NAMUR pulse or status outputs	F04
1 passive pulse or status output	F11
2 passive pulse or status outputs, 1 passive status output	F12
2 passive pulse or status outputs, 1 voltage-free status input	F13
2 passive pulse or status outputs, 1 active current input	F14
2 passive pulse or status outputs, 1 passive current input	F15
1 passive pulse or status output, 1 passive current output, 1 active current input	F16
1 passive pulse or status output, 1 passive current output, 1 passive current input	F17
1 passive pulse or status output, 1 voltage-free status input, 1 active current input	F18
1 passive pulse or status output, 1 voltage-free status input, 1 passive current input	F19

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC120/FC140

Selection and ordering data (continued)

	Order code
1 passive pulse or status output, 1 active pulse or status output, 1 voltage-free status input	F20
1 passive pulse or status output, 1 active pulse or status output with pull-up resistor, 1 voltage-free status input	F21
1 active current output, 2 passive pulse or status outputs	F22
1 active current output, 1 passive pulse or status output, 1 voltage-free status input	F23
1 passive pulse or status output	F31
2 passive pulse or status outputs	F32
1 passive pulse or status output, 1 active current input	F33
1 passive pulse or status output, 1 passive current input	F34
1 passive pulse or status output, 1 active pulse or status output	F35
1 passive pulse or status output, 1 active pulse or status output with pull-up resistor	F36
1 passive pulse or status output, 1 active current output	F37
1 passive pulse output	F41
Output CH1 intrinsically safe, 1 passive pulse output	F42
Output CH3 intrinsically safe, 1 passive pulse output	F50
Customer selected fraction PIA: Please select four options	
Sugar / Water 0 ... 85 °Bx, 0 ... 80 °C (32 ... 176 °F)	G01
NaOH / Water 2 ... 50 WT%, 0 ... 100 °C (32 ... 212 °F)	G02
KOH / Water 0 ... 60 WT%, 54 ... 100 °C (129 ... 212 °F)	G03
NH ₄ NO ₃ / Water 1 ... 50 WT%, 0 ... 80 °C (32 ... 176 °F)	G04
NH ₄ NO ₃ / Water 20 ... 70 WT%, 20 ... 100 °C (68 ... 212 °F)	G05
HCl / Water 22 ... 34 WT%, 20 ... 40 °C (68 ... 104 °F)	G06
HNO ₃ / Water 50 ... 67 WT%, 10 ... 60 °C (50 ... 140 °F)	G07
H ₂ O ₂ / Water 30 ... 75 WT%, 4 ... 44 °C (39 ... 111 °F)	G09
Ethylene Glycol / Water 10 ... 50 WT%, -20 ... +40 °C (-4 ... 104 °F)	G10
Amylum = Starch / Water 33 ... 43 WT%, 35 ... 45 °C (95 ... 113 °F)	G11
Methanol / Water 35 ... 60 WT%, 0 ... 40 °C (32 ... 104 °F)	G12
Alcohol / Water 55 ... 100 VOL%, 10 ... 40 °C (50 ... 104 °F)	G20
Sugar / Water 40 ... 80 °Bx, 75 ... 100 °C (167 ... 212 °F)	G21
Alcohol / Water 66 ... 100 WT%, 15 ... 40 °C (59 ... 104 °F)	G30
Alcohol / Water 66 ... 100 WT%, 10 ... 40 °C (50 ... 104 °F)	G37
Insulation	
Insulation	J10
Insulation and heat tracing, ½" ASME class 150, raised face (RF)	J12
Insulation and heat tracing, ½" ASME class 300, raised face (RF)	J13
Insulation and heat tracing, EN DN 15, PN 40	J14
Insulation, heat tracing with ventilation, ½" ASME class 150, raised face (RF)	J16
Insulation heat tracing with ventilation, ½" ASME class 300, raised face (RF)	J17
Insulation heat tracing with ventilation, EN DN 15, PN 40	J18

	Order code
Connecting cable type and length	
without standard connecting cable	L50
5 meter (16.4 ft) remote connecting cable terminated standard gray / Ex blue	L51
10 meter (32.8 ft) remote connecting cable terminated standard gray / Ex blue	L54
15 meter (49.2 ft) remote connecting cable terminated standard gray / Ex blue	L57
20 meter (65.6 ft) remote connecting cable terminated standard gray / Ex blue	L60
30 meter (98.4 ft) remote connecting cable terminated standard gray / Ex blue	L63
without fire retardant connecting cable	L70
5 meter (16.4 ft) remote fire retardant connecting cable not terminated	L71
10 meter (32.8 ft) remote fire retardant connecting cable not terminated	L74
15 meter (49.2 ft) remote fire retardant connecting cable not terminated	L77
20 meter (65.6 ft) remote fire retardant connecting cable not terminated	L80
30 meter (98.4 ft) remote fire retardant connecting cable not terminated	L83
SW functions	
Heat measurement	S11
Tube health check	S12
Batching and filling function	S13
Netoil computing	S14
Viscosity computing function for liquids	S15
Standard concentration measurement	S16
Advanced concentration	S17
Marine approval	
Marine approved DNV, ABS, KR piping class 2	S22
Marine approved DNV, ABS, KR piping class 3	S23
Marine approved LR, MR, TAC piping class 2	S24
Marine approved LR, MR, TAC piping class 3	S25
Marine approved BV piping class 2	S26
Marine approved BV piping class 3	S27
Mounting	
2" pipe mounting bracket for sensor	S30
Country specific delivery	
Delivery to China including China RoHS mark	W21
Delivery to Korea including KC mark	W22
Tag name	
Tag name plate, SS (max. 16 characters)	Y11
HART/MODBUS software tag No. (max. 8 characters)	Y25
HART/MODBUS software tag No. (max. 32 characters)	Y26
PROFIBUS PA NODE ADDRESS (4 characters HEX)	Y28
PROFIBUS PA SOFTWARE TAG (max. 32 characters)	Y29
Calibration	
Predefined 6-Point Accredited Calibration: 10%, 20%, 40%, 60%, 80%, 100% of Q _{nom} . Calibrated Output: Frequency	D62
Special versions	
ID-number of special design	Y99

Technical specifications

Mass flow rate of liquids

The mass flow rate characteristics of SITRANS FC meters are defined by the values of zero stability, Q_{flat} , Q_{nom} and Q_{max} .

Zero stability is the maximum allowable flow rate value that can be displayed at zero flow under reference conditions. It is a good indicator of the meter performance as flow rates reduce and approach zero.

- Q_{flat} is the mass flow rate above which the base accuracy is maintained (0.1% when using FCT040 transmitters).
- Q_{nom} is the nominal mass flow rate of water at reference conditions that would result in a pressure drop of 1 bar (15 psi).
- Q_{max} is the recommended maximum mass flow rate for each sensor size.

For questions regarding expected performance in specific applications, please contact your regional Siemens Measurement Intelligence team.

Flow rate summary by FCS100 sensor size

Nominal size	Zero stability		Q_{flat}		Q_{nom}		Q_{max}	
	kg/h	lb/h	kg/h	lb/min	kg/h	lb/min	kg/h	lb/min
DN 1	0.003	0.007	2.52	0.092	21.0	0.0771	40.0	1.47
DN 2	0.005	0.011	4.50	0.165	45.0	1.65	94.0	3.45
DN 4	0.009	0.020	14.0	0.514	170	6.24	300	11.0
DN 6	0.019	0.042	30.0	1.10	370	13.6	600	22.0
DN 8	0.048	0.106	79.0	2.90	950	34.9	1 500	55.1

Performance summary by FCS100 sensor size and transmitter type

Sensor size			DN 1	DN 2	DN 4	DN 6	DN 8
Mass flow (liquids)							
Accuracy	% (of rate)	FCT020	± 0.2	± 0.2	± 0.2	± 0.2	± 0.2
	% (of rate)	FCT040	± 0.2	± 0.2	± 0.1	± 0.1	± 0.1
Zero stability	kg/h (lb/h)		± 0.003 (0.007)	± 0.005 (0.011)	± 0.009 (0.02)	± 0.019 (0.042)	± 0.048 (0.106)
Density (liquids)							
Accuracy	kg/m ³ (lb/ft ³)	FCT020	± 20 (1.25)	± 8 (0.5)	± 4 (0.25)	± 4 (0.25)	± 4 (0.25)
	kg/m ³ (lb/ft ³)	FCT040	± 20 (1.25)	± 8 (0.5)	± 1 (0.06)	± 0.5 (0.03)	± 0.5 (0.03)
Mass flow (gases)							
Accuracy	% (of rate)	FCT020	± 0.75	± 0.75	± 0.75	± 0.75	± 0.75
	% (of rate)	FCT040	± 0.5	± 0.5	± 0.5	± 0.5	± 0.5
Temperature							
Accuracy	°C (°F)		± 0.5 (0.9)	± 0.5 (0.9)	± 0.5 (0.9)	± 0.5 (0.9)	± 0.5 (0.9)

The accuracy values in the table above are based on reference conditions at the time of calibration and represent the combined measurement uncertainties including sensor, electronic and pulse output interface.

Liquid density calibration is performed when density accuracy of 0.5 kg/m³ (0.03 lb/ft³) is selected in the model code.

Mass flow calibration and density adjustment for liquids

Siemens SITRANS FC Coriolis meters are calibrated in rigs accredited according to the international standard DIN EN ISO/IEC 17025:2018. Each flowmeter comes with a standard calibration certificate.

Mass flow calibration takes place at reference conditions. Specific values are listed in the standard calibration certificate.

Mass flow calibration reference conditions	
Fluid	Water
Density	900 ... 1 100 kg/m ³ (56 ... 69 lb/ft ³)
Fluid temperature	10 ... 35 °C (50 ... 95 °F), average temperature: 22.5 °C (72.5 °F)
Ambient temperature	10 ... 35 °C (50 ... 95 °F)
Process pressure	1 ... 5 bar (15 ... 73 psi)

Density calibration reference conditions	
Flow condition	Fully developed flow profile
Fluid densities used to obtain density calibration constants	700 kg/m ³ (44 lb/ft ³) 1 000 kg/m ³ (62 lb/ft ³) 1 650 kg/m ³ (103 lb/ft ³)
Fluid temperature	20 °C (68 °F)
Determination of temperature compensation coefficients	20 ... 80 °C (68 ... 176 °F)

Analog output performance specification

Typical additional uncertainty when using the analog current output:

± 0.04% at a nominal mid-range current output of 12 mA, which includes the effects of:

Output adjustment, linearity, power supply variation, load resistance variation, short-term and long-term drift for one year and ambient temperature effect on the transmitter in the range 20 °C ± 30 °C (14 ... 122 °F).

Process pressure effect on flow measurement performance

Changes in operating pressure have a small effect on the mass flow measurement performance. When the pressure changes are very large this effect can be corrected by a dynamic pressure input or a fixed process pressure.

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC120/FC140

Technical specifications (continued)

Sensor size	Additional flow measurement errors due to change in operating pressure from reference pressure	
	in % of rate per 1 bar variation	in % of rate per 1 psi variation
DN 1	none	none
DN 2	none	none
DN 4	none	none
DN 6	-0.0011	-0.00008
DN 8	-0.0010	-0.00007

Process temperature effect

For mass flow measurement, process fluid temperature effect is defined as the change in sensor flow accuracy due to process fluid temperature change, away from the 20 °C (68 °F) reference condition. Variation in process temperature influences the measuring tube characteristics and this is compensated for using the built-in PT 1000 temperature sensor.

A small flow uncertainty remains in the compensation circuit defined below.

Uncertainty due to process temperature change: $\pm 0.001\%$ of mass flow rate per °C ($\pm 0.00056\%$ of mass flow rate per °F)

Temperature effect on zero

Temperature effect on the mass flow zero-point quality can be corrected by zeroing at the process fluid temperature.

Process conditions

Process fluid temperature range

Process fluid temperature range	Nominal temperature	Design versions
-50 ... +150 °C (-58 ... +302 °F)	Standard	All process connections except DIN 32676 Class A and C hygienic clamps
-10 ... +140 °C (14 ... 284 °F)	Standard	For process connections DIN 32676 Class A and C hygienic clamps
-50 ... +260 °C (-58 ... +302 °F)	Medium	Only selectable for remote transmitters with long neck sensor: selections D, F, and H in position 14 of the order code

Operating pressure

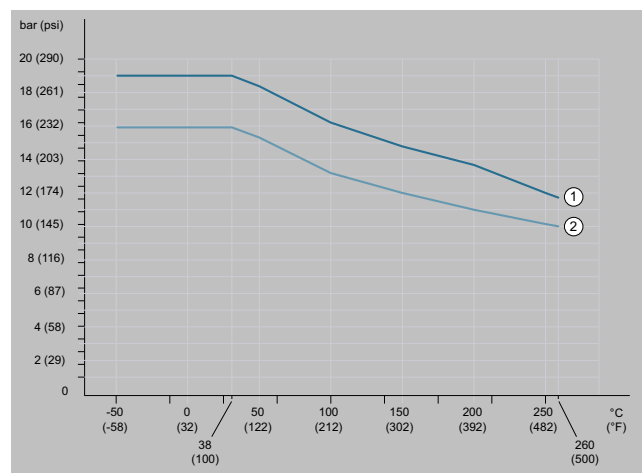
The maximum allowed process pressure depends on the selected process connection and process temperature.

The given process temperature and process pressure ranges are calculated and approved without corrosion or erosion effects.

The following diagrams show the process pressure as a function of process temperature as well as the process connection used (type and size of process connection).

Calculations for ASME flanges are based on ASME B16.5 Material group 2.2 (316/316L dual certified).

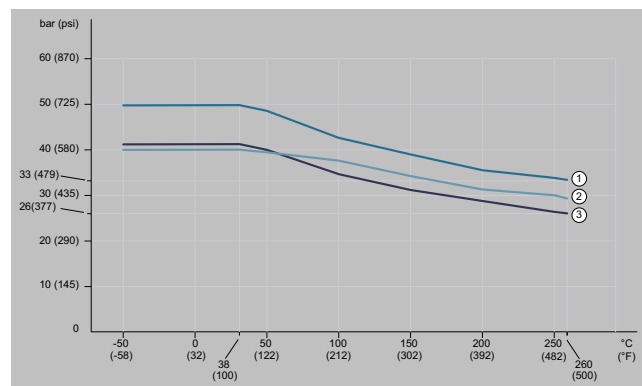
ASME class 150



Allowed process pressure as a function of process connection temperature

- 1 Process connection compatible to ASME B16.5 class 150
- 2 Heat tracing connection compatible to ASME B16.5 class 150

ASME class 300, EN PN 40

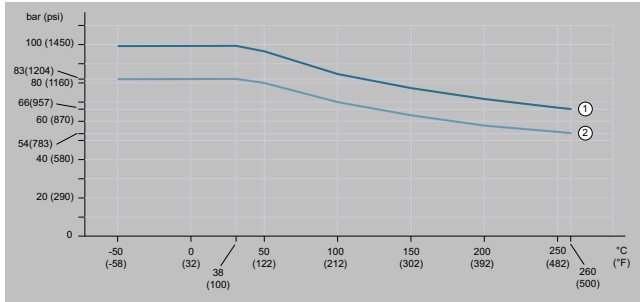


Allowed process pressure as a function of process fluid temperature

- 1 Process connection compatible to ASME B16.5 class 300
- 2 Process and heat tracing connection compatible to EN 1092-1 PN 40
- 3 Heat tracing connection compatible to ASME B16.5 class 300

Technical specifications (continued)

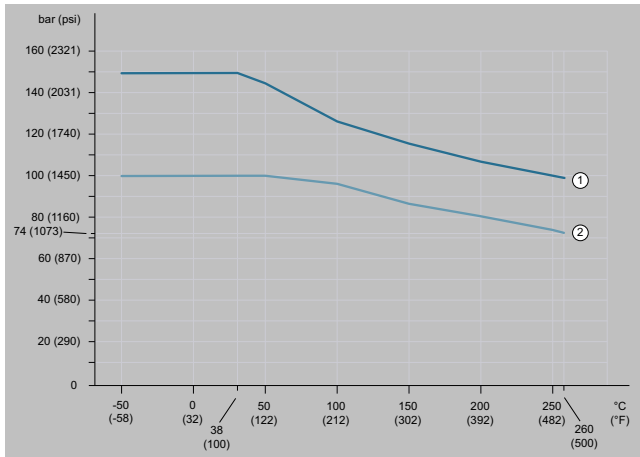
ASME class 600



Allowed process pressure as a function of process connection temperature

- 1 Process connection compatible to ASME B16.5 class 600
- 2 Not used for this product

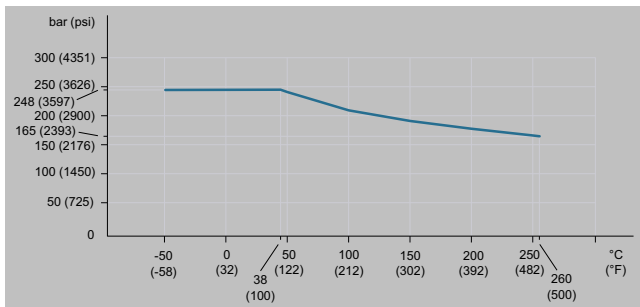
ASME class 900, EN PN100



Allowed process pressure as a function of process connection temperature

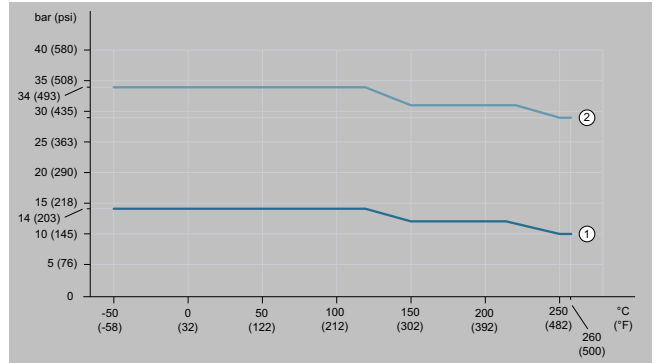
- 1 Process connection compatible to ASME B16.5 class 900
- 2 Process connection compatible to EN 1092-1 PN100

ASME class 1500 compatible to flange ASME B16.5



Allowed process pressure as a function of process connection temperature

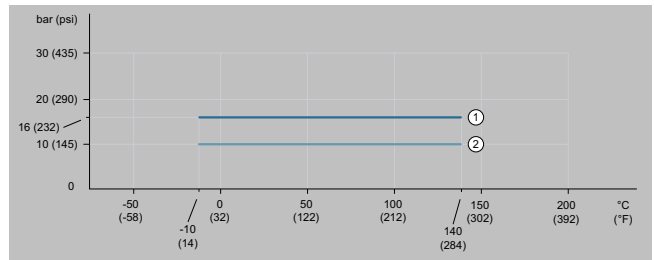
JIS 10K, JIS 20K



Allowed process pressure as a function of process connection temperature

- 1 Process connection compatible to JIS B 2220 10K
- 2 Process connection compatible to JIS B 2220 20K

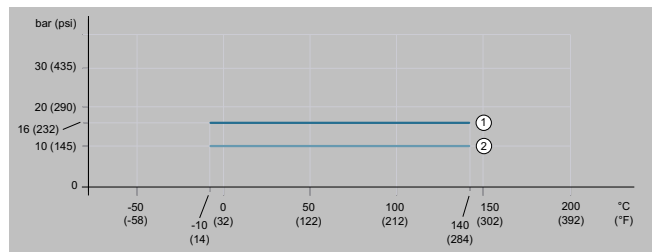
Clamp process connection according to DIN 32676 series A



Allowed process pressure as a function of process fluid temperature

- 1 Clamp connection compatible to DIN 32676 series A up to DN 50
- 2 Clamp connection compatible to DIN 32676 series A above DN 50

Clamp process connection according to DIN 32676 series C (Tri-Clamp)



Allowed process pressure as a function of process fluid temperature

- 1 Clamp connection compatible to DIN 32676 series C up to 2"
- 2 Clamp connection compatible to DIN 32676 series C above 2"

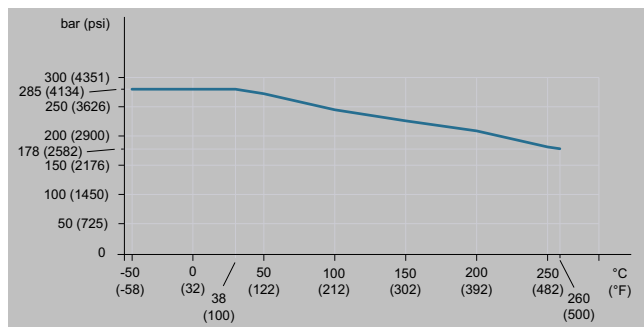
Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC120/FC140

Technical specifications (continued)

Process connection with internal thread G and NPT



Allowed process pressure as a function of process fluid temperature

Ambient conditions

Allowed ambient and storage temperature of SITRANS FC100 series is influenced by the temperature specification of FCS100 sensor, FCT0X0 transmitter and the interconnecting cable.

Ambient temperature

Device-surrounding air temperature is considered as ambient temperature. If the device is operating outdoors make sure that the solar irradiation does not increase the surface temperature of the device higher than the allowed maximum ambient temperature. Transmitter display has limited legibility below -20 °C (-4 °F).

The sensor ambient temperature limits may also be influenced by the process fluid temperature, details shown in the chapter "Sensors" (Technical specifications).

Maximum ambient temperature ranges for FC100 series

Cable type	Device	Ambient temperature range
Standard cable	Sensor	-50 ... +80 °C (-58 ... +176 °F)
	Transmitter	-40 ... +60 °C (-40 ... +140 °F)
Fire retardant cable	Sensor	-35 ... +80 °C (-31 ... +176 °F)
	Transmitter	-35 ... +60 °C (-31 ... +140 °F)

Ambient temperature range for NTEP custody transfer approval

Cable type	Device	Ambient temperature range
Standard cable	Sensor	-50 ... +80 °C (-58 ... +176 °F)
	Transmitter	-40 ... +50 °C (-40 ... +122 °F)
Fire retardant cable	Sensor	-35 ... +80 °C (-31 ... +176 °F)
	Transmitter	-35 ... +50 °C (-31 ... +122 °F)

Maximum storage temperature ranges for FC100 series

Cable type	Device	Ambient temperature range
Standard cable	Sensor	-50 ... +80 °C (-58 ... +176 °F)
	Transmitter	-40 ... +60 °C (-40 ... +140 °F)
Fire retardant cable	Sensor	-35 ... +80 °C (-31 ... +176 °F)
	Transmitter	-35 ... +60 °C (-31 ... +140 °F)

Temperature specification of FC100 series Ex versions located in hazardous areas

Please select appropriate equipment in accordance with the laws and regulations of the relevant country/region, when it is used in a location where explosive atmospheres may be present.

The maximum ambient and process fluid temperatures depending on explosion groups and temperature classes can be determined via the SITRANS FC order code together with the Ex code (see the corresponding explosion proof type manual).

Note: The maximum process fluid temperature could be further restricted due to process connection type, refer to curves above under the heading "Allowed ambient temperature for FCS100 sensors".

FCS100 with standard process temperature

Ex approvals:

ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Maximum ambient temperature Fire retardant cable
T6	65 °C (149 °F)	65 °C (149 °F)	65 °C (149 °F)
T5	90 °C (194 °F)	75 °C (167 °F)	75 °C (167 °F)
T4	130 °C (266 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	72 °C (161 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	72 °C (161 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	72 °C (161 °F)

Ex approvals:

FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Maximum ambient temperature Fire retardant cable
T6	65 °C (149 °F)	65 °C (149 °F)	65 °C (149 °F)
T5	90 °C (194 °F)	75 °C (167 °F)	70 °C (158 °F)
T4	130 °C (266 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Technical specifications (continued)

FC100 with medium process temperature, long neckEx approvals:

ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable without sensor insulation	Fire retardant cable with all sensor insulation and heating options
T6	65 °C (149 °F)	65 °C (149 °F)	65 °C (149 °F)	65 °C (149 °F)
T5	90 °C (194 °F)	75 °C (167 °F)	75 °C (167 °F)	75 °C (167 °F)
T4	130 °C (266 °F)	80 °C (176 °F)	76 °C (168 °F)	75 °C (167 °F)
T3	180 °C (356 °F)	80 °C (176 °F)	75 °C (167 °F)	71 °C (159 °F)
T2	260 °C (500 °F)	80 °C (176 °F)	73 °C (163 °F)	64 °C (147 °F)
T1	260 °C (500 °F)	80 °C (176 °F)	73 °C (163 °F)	64 °C (147 °F)

Ex approvals:

FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable without sensor insulation	Fire retardant cable with all sensor insulation and heating options
T6	65 °C (149 °F)	65 °C (149 °F)	65 °C (149 °F)	65 °C (149 °F)
T5	90 °C (194 °F)	75 °C (167 °F)	70 °C (158 °F)	70 °C (158 °F)
T4	130 °C (266 °F)	80 °C (176 °F)	70 °C (158 °F)	70 °C (158 °F)
T3	180 °C (356 °F)	80 °C (176 °F)	70 °C (158 °F)	70 °C (158 °F)
T2	260 °C (500 °F)	80 °C (176 °F)	70 °C (158 °F)	64 °C (147 °F)
T1	260 °C (500 °F)	80 °C (176 °F)	70 °C (158 °F)	64 °C (147 °F)

Additional ambient and environmental specifications

Specification	Rating/level of compliance
Relative humidity	0 ... 95%
Ingress protection	IP66 or IP67 with suitable cable glands
Environmental pollution	Pollution degree 4 in accordance with EN 61010-1 whilst in operation
Maximum altitude	2 000 m (6 600 ft) above mean sea level (MSL)
Mechanical load	Transmitter: 10 ... 500 Hz, 1g acc. to IEC 60068-2-6
Electromagnetic (EMC) Immunity	- EN IEC 61326-1, Table 2 - EN IEC 61326-2-3 - EN IEC 61326-2-5 - NAMUR NE 21 recommendation - DNV-CG-0339 section 3, chapter 14
Surge Immunity Emission	- EN 61000-4-5 for lightning protection - EN IEC 61000-3-2, Class A (harmonic current emissions) - EN IEC 61000-3-3, Class A (voltage fluctuations) Immunity assessment criterion: output signal fluctuation is within ±1% of the output span
Overvoltage	Category II according to EN IEC 61010-1

Approvals and certificates – summary

Position in code, type	Order code	Description
15, Ex approval	B	ATEX, explosion group IIC and IIIC
15, Ex approval	C	ATEX, explosion group IIB and IIIC
15, Ex approval	D	IECEx, explosion group IIC and IIIC

Position in code, type	Order code	Description
15, Ex approval	E	IECEx, explosion group IIB and IIIC
15, Ex approval	H	FM, groups A, B, C, D, E, F, G
15, Ex approval	J	FM, groups C, D, E, F, G
15, Ex approval	K	INMETRO, explosion group IIC and IIIC
15, Ex approval	L	INMETRO, explosion group IIB and IIIC
15, Ex approval	M	NEPSI, explosion group IIC and dust proof
15, Ex approval	N	NEPSI, explosion group IIB and dust proof
15, Ex approval	F	EAC Ex, explosion group IIC and IIIC
15, Ex approval	G	EAC Ex, explosion group IIB and IIIC
15, Ex approval	P	Korea Ex, explosion group IIC and IIIC
15, Ex approval	Q	Korea Ex, explosion group IIB and IIIC
ZS2, Marine approval	S22	Marine approval according to DNV, ABS and KR piping class 2
ZS2, Marine approval	S23	Marine approval according to DNV, ABS and KR piping class 3
ZS2, Marine approval	S24	Marine approval according to LR MR TAC piping class 2
ZS2, Marine approval	S25	Marine approval according to LR MR TAC piping class 3
ZS2, Marine approval	S26	Marine approved BV piping class 2
ZS2, Marine approval	S27	Marine approved BV piping class 3
ZC1, Certificate	C11	Compliance with the order 2.1 EN 10204
ZC1, Certificate	C13	3.1 EN 10204 + IGC + NACE MR0175, MR0103
ZC1, Certificate	C15	PMI 3.1 according to EN 10204
ZC1, Certificate	C16	NTEP approval, accuracy class 0.3 acc. NIST Handbook 44
ZC1, Certificate	C18	Pressure Test Certificate 3.1 EN 10204
ZC1, Certificate	C20	Functional Safety (IEC 61508) - SIL2/3
ZC1, Certificate	C33	X-ray DIN EN ISO 17636-1/B

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC120/FC140

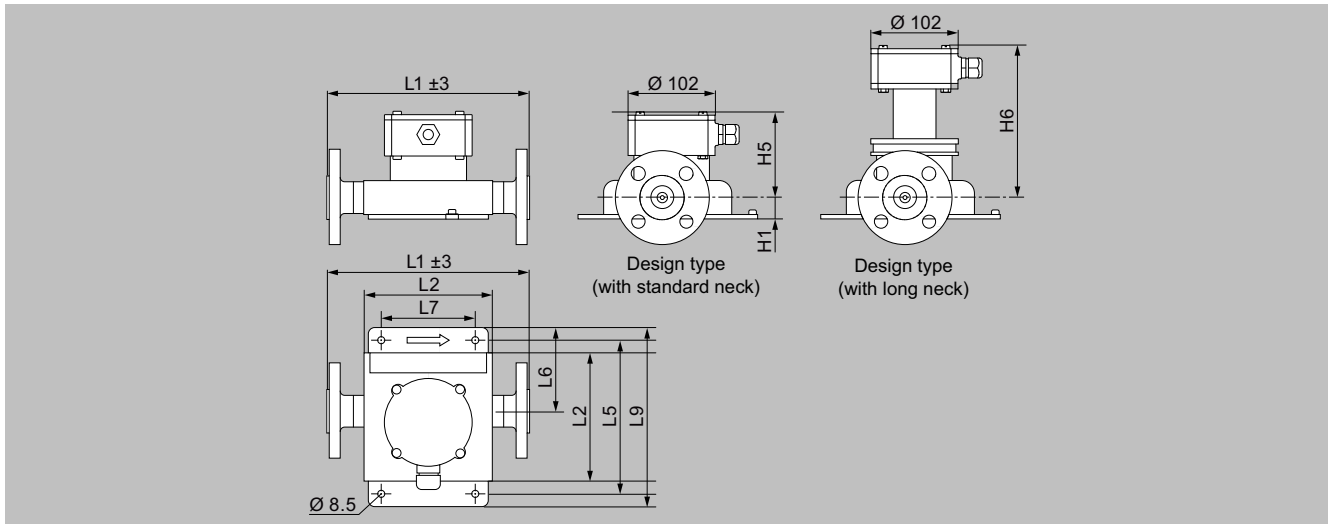
Technical specifications (continued)

Position in code, type	Order code	Description
ZC1, Certificate	C34	X-ray test according to ASME V
ZC1, Certificate	C36	WPS; WPQR; WQC
ZC1, Certificate	C37	Welding procedures and Certificate ASME IX
ZC1, Certificate	C38	Dye penetration DIN EN ISO 3452-1
ZC1, Certificate	C39	Dye penetration ASME V
ZC1, Certificate	C40	Quality Inspection Certificate 3.1 EN 10204
ZC1, Certificate	C54	Degreasing ASTM G93-03, including report
ZC1, Certificate	C80	Certification package (C13, C18, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test and Quality inspection certificate
ZC1, Certificate	C81	Certification package (C13, C15, C40) including Marking Transfer and raw material certificate, Positive material identification and Quality inspection certificate

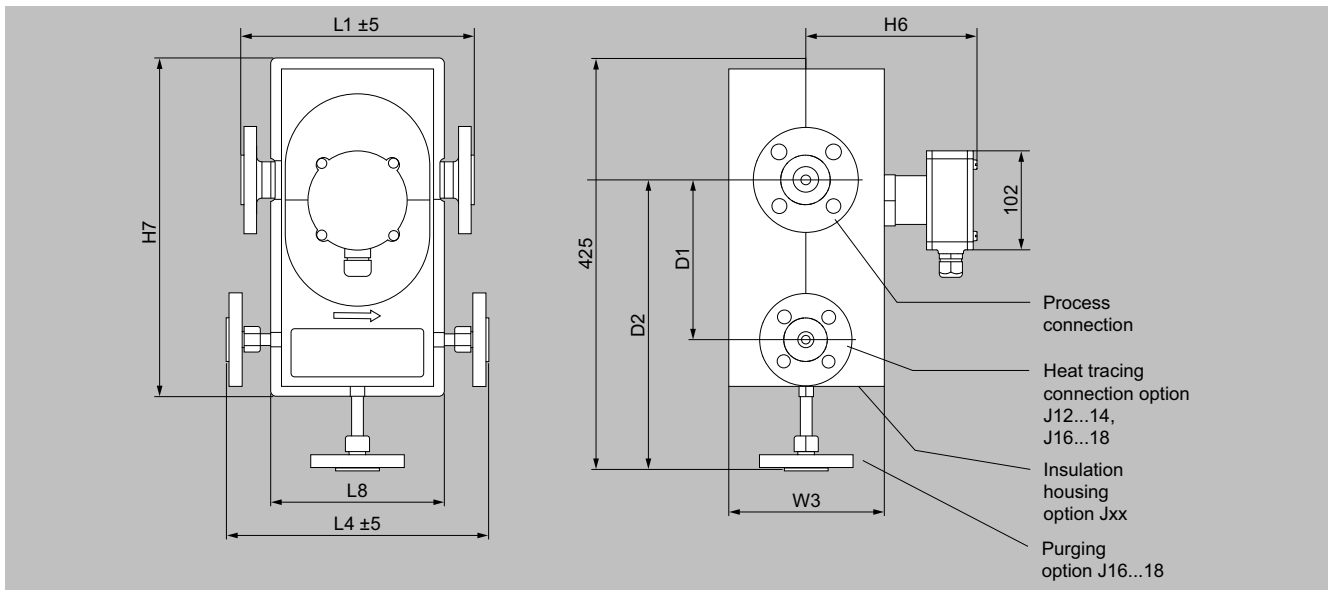
Position in code, type	Order code	Description
ZC1, Certificate	C82	Certification package (C13, C18, C38, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test, Dye penetration and Quality inspection certificate
ZC1, Certificate	C83	Certification package (C13, C15, C18, C36, C38, C40) including Marking Transfer and raw material certificate, Positive material identification, Hydrostatic pressure test, Welding certificates, Dye penetration and Quality inspection certificate
ZC1, Certificate	C84	Certification package (C15, C18, C36) including Positive material identification, Hydrostatic pressure test and Welding certificates
ZC1, Certificate	C85	Certification package (C34, C37, C39) including X-ray test according to ASME V, Welding procedures and Certificates according to ASME IX and Dye penetrant test of flange welding according to ASME V
ZC1, Certificate	C86	Certification package (C13, C18, C34, C37, C39, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test, X-ray test according to ASME V, Welding procedures and Certificates according to ASME IX, Dye penetrant test of flange welding according to ASME V and Quality inspection certificate
ZC1, Certificate	C87	Certification package (C13, C15, C34, C37, C39, C40) including Marking Transfer and raw material certificate, Positive material identification, X-ray test according to ASME V, Welding procedures and Certificates according to ASME IX, Dye penetrant test of flange welding according to ASME V and Quality inspection certificate

Dimensional drawings

Drawings, dimensions and weight for FCS100 sensors



FCS100 sensor, dimensions in mm



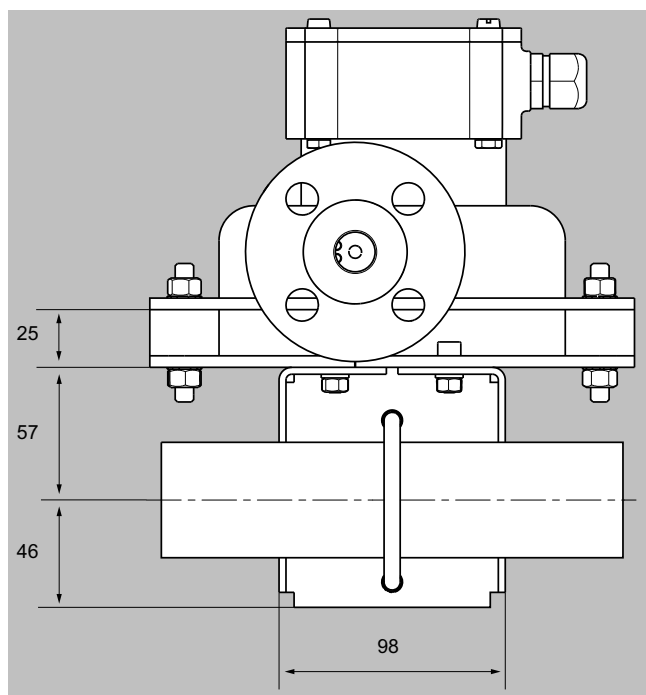
FCS100 with insulation housing, dimensions in mm

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC120/FC140

Dimensional drawings (continued)



FCS100 with optional pipe mounting bracket, dimensions in mm

FCS100 sensor dimensions

Nominal size	L2	L4	L5	L6	L7	L8	L9
	Dimensions in mm (inch)						
DN 1	150 (5.9)	270 (10.6)	180 (7.1)	111 (4.4)	110 (4.3)	180 (7.1)	210 (8.3)
DN 2	150 (5.9)	270 (10.6)	180 (7.1)	111 (4.4)	110 (4.3)	180 (7.1)	210 (8.3)
DN 4	150 (5.9)	270 (10.6)	180 (7.1)	99 (3.9)	110 (4.3)	180 (7.1)	210 (8.3)
DN 6	150 (5.9)	270 (10.6)	180 (7.1)	89 (3.5)	110 (4.3)	180 (7.1)	210 (8.3)
DN 8	150 (5.9)	270 (10.6)	180 (7.1)	55 (2.2)	110 (4.3)	180 (7.1)	210 (8.3)

Nominal size	H1	H3	H5	H6	L7	W3	D1	D2
	Dimensions in mm (inch)							
DN 1	25 (1)	81 (3.2)	101 (4)	176 (6.9)	350 (13.8)	160 (6.3)	165 (6.5)	299 (11.8)
DN 2	25 (1)	81 (3.2)	101 (4)	176 (6.9)	350 (13.8)	160 (6.3)	165 (6.5)	299 (11.8)
DN 4	25 (1)	81 (3.2)	101 (4)	176 (6.9)	350 (13.8)	160 (6.3)	165 (6.5)	299 (11.8)
DN 6	25 (1)	81 (3.2)	101 (4)	176 (6.9)	350 (13.8)	160 (6.3)	165 (6.5)	299 (11.8)
DN 8	25 (1)	81 (3.2)	101 (4)	176 (6.9)	350 (13.8)	160 (6.3)	165 (6.5)	299 (11.8)

L1 dimension and weight with process connections according to ASME B16.5 (AISI 316 / AISI 316L)

Process connection size and type	FCS100 sensor nominal size									
	DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME ½" class 150, raised face (RF)	240 (9.4)	6.2 (14)	240 (9.4)	6.2 (14)	240 (9.4)	6.2 (14)	240 (9.4)	6.2 (14)	240 (9.4)	6.2 (14)
ASME ½" class 300, raised face (RF)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)
ASME ½" class 600, raised face (RF)	250 (9.8)	6.9 (15)	250 (9.8)	6.9 (15)	250 (9.8)	6.9 (15)	250 (9.8)	6.9 (15)	250 (9.8)	6.9 (15)

Dimensional drawings (continued)

Process connection size and type	FCS100 sensor nominal size DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME ½" class 600, ring joint (RJ)	250 (9.8)	6.8 (15)	250 (9.8)	6.8 (15)	250 (9.8)	6.8 (15)	250 (9.8)	6.8 (15)	250 (9.8)	6.8 (15)
ASME ½" class 900, raised face (RF)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)
ASME ½" class 900, ring joint (RJ)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)
ASME ½" class 1500, raised face (RF)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)	270 (10.6)	8.8 (19)
ASME ½" class 1500, ring joint (RJ)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)	270 (10.6)	11.3 (25)
ASME 1" class 150, raised face (RF)	n/a	n/a	240 (9.4)	7.1 (16)	240 (9.4)	7.1 (16)	240 (9.4)	7.1 (16)	240 (9.4)	7.1 (16)
ASME 1" class 300, raised face (RF)	n/a	n/a	240 (9.4)	8.1 (18)	240 (9.4)	8.1 (18)	240 (9.4)	8.1 (18)	240 (9.4)	8.1 (18)
ASME 1" class 600, raised face (RF)	n/a	n/a	260 (10.2)	8.5 (19)	260 (10.2)	8.5 (19)	260 (10.2)	8.5 (19)	260 (10.2)	8.5 (19)
ASME 1" class 600, ring joint (RJ)	n/a	n/a	260 (10.2)	8.6 (19)	260 (10.2)	8.6 (19)	260 (10.2)	8.6 (19)	260 (10.2)	8.6 (19)
ASME 1" class 900, raised face (RF)	n/a	n/a	320 (12.6)	12.7 (28)	320 (12.6)	12.7 (28)	320 (12.6)	12.7 (28)	320 (12.6)	12.7 (28)
ASME 1" class 900, ring joint (RJ)	n/a	n/a	320 (12.6)	12.8 (28)	320 (12.6)	12.8 (28)	320 (12.6)	12.8 (28)	320 (12.6)	12.8 (28)
ASME 1" class 1500, raised face (RF)	n/a	n/a	320 (12.6)	12.7 (28)	320 (12.6)	12.7 (28)	320 (12.6)	12.7 (28)	320 (12.6)	12.7 (28)
ASME 1" class 1500, ring joint (RJ)	n/a	n/a	320 (12.6)	12.8 (28)	320 (12.6)	12.8 (28)	320 (12.6)	12.8 (28)	320 (12.6)	12.8 (28)
ASME 1½" class 150, raised face (RF)	n/a	n/a	250 (9.8)	8 (18)	250 (9.8)	8 (18)	250 (9.8)	8 (18)	250 (9.8)	8 (18)
ASME 1½" class 300, raised face (RF)	n/a	n/a	250 (9.8)	10.3 (23)	250 (9.8)	10.3 (23)	250 (9.8)	10.3 (23)	250 (9.8)	10.3 (23)
ASME 1½" class 600, raised face (RF)	n/a	n/a	270 (10.6)	11.7 (26)	270 (10.6)	11.7 (26)	270 (10.6)	11.7 (26)	270 (10.6)	11.7 (26)
ASME 1½" class 600, ring joint (RJ)	n/a	n/a	270 (10.6)	11.6 (26)	270 (10.6)	11.6 (26)	270 (10.6)	11.6 (26)	270 (10.6)	11.6 (26)
ASME 1½" class 900, raised face (RF)	n/a	n/a	340 (13.4)	17.5 (39)	340 (13.4)	17.5 (39)	340 (13.4)	17.5 (39)	340 (13.4)	17.5 (39)
ASME 1½" class 900, ring joint (RJ)	n/a	n/a	340 (13.4)	17.7 (39)	340 (13.4)	17.7 (39)	340 (13.4)	17.7 (39)	340 (13.4)	17.7 (39)
ASME 1½" class 1500, raised face (RF)	n/a	n/a	340 (13.4)	17.5 (39)	340 (13.4)	17.5 (39)	340 (13.4)	17.5 (39)	340 (13.4)	17.5 (39)
ASME 1½" class 1500, ring joint (RJ)	n/a	n/a	340 (13.4)	17.7 (39)	340 (13.4)	17.7 (39)	340 (13.4)	17.7 (39)	340 (13.4)	17.7 (39)

L1 dimension and weight with process connections according to EN 1092-1 (AISI 316L)

Process connection size and type	FCS100 sensor nominal size DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 15 PN 40 type B1, raised face (RF)	240 (9.4)	6.8 (15)	240 (9.4)	6.8 (15)	240 (9.4)	6.8 (15)	240 (9.4)	6.8 (15)	240 (9.4)	6.8 (15)
EN DN 15 PN 40 type D, with groove	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)	240 (9.4)	6.6 (15)
EN DN 15 PN 40 type E, with spigot	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)
EN DN 15 PN 40 type F, with recess	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)
EN DN 15 PN 100 type B1, raised face (RF)	250 (9.8)	7.6 (17)	250 (9.8)	7.6 (17)	250 (9.8)	7.6 (17)	250 (9.8)	7.6 (17)	250 (9.8)	7.6 (17)
EN DN 15 PN 100 type D, with groove	250 (9.8)	13.6 (30)	250 (9.8)	13.6 (30)	250 (9.8)	13.6 (30)	250 (9.8)	13.6 (30)	250 (9.8)	13.6 (30)
EN DN 15 PN 100 type E, with spigot	250 (9.8)	7.3 (16)	250 (9.8)	7.3 (16)	250 (9.8)	7.3 (16)	250 (9.8)	7.3 (16)	250 (9.8)	7.3 (16)
EN DN 15 PN 100 type F, with recess	250 (9.8)	7.5 (17)	250 (9.8)	7.5 (17)	250 (9.8)	7.5 (17)	250 (9.8)	7.5 (17)	250 (9.8)	7.5 (17)
EN DN 25 PN 40 type B1, raised face (RF)	n/a	n/a	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC120/FC140

Dimensional drawings (continued)

Process connection size and type	FCS100 sensor nominal size DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 25 PN 40 type D, with groove	n/a	n/a	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)
EN DN 25 PN 40 type E, with spigot	n/a	n/a	240 (9.4)	7.4 (16)	240 (9.4)	7.4 (16)	240 (9.4)	7.4 (16)	240 (9.4)	7.4 (16)
EN DN 25 PN 40 type F, with recess	n/a	n/a	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)
EN DN 25 PN 40 type B1, raised face (RF)	n/a	n/a	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)
EN DN 25 PN 40 type D, with groove	n/a	n/a	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)	240 (9.4)	7.7 (17)
EN DN 25 PN 40 type E, with spigot	n/a	n/a	240 (9.4)	7.4 (16)	240 (9.4)	7.4 (16)	240 (9.4)	7.4 (16)	240 (9.4)	7.4 (16)
EN DN 25 PN 40 type F, with recess	n/a	n/a	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)
EN DN 25 PN 100 type B1, raised face (RF)	n/a	n/a	260 (10.2)	10.3 (23)	260 (10.2)	10.3 (23)	260 (10.2)	10.3 (23)	260 (10.2)	10.3 (23)
EN DN 25 PN 100 type D, with groove	n/a	n/a	260 (10.2)	10.2 (22)	260 (10.2)	10.2 (22)	260 (10.2)	10.2 (22)	260 (10.2)	10.2 (22)
EN DN 25 PN 100 type E, with spigot	n/a	n/a	260 (10.2)	9.7 (21)	260 (10.2)	9.7 (21)	260 (10.2)	9.7 (21)	260 (10.2)	9.7 (21)
EN DN 25 PN 100 type F, with recess	n/a	n/a	260 (10.2)	10.1 (22)	260 (10.2)	10.1 (22)	260 (10.2)	10.1 (22)	260 (10.2)	10.1 (22)
EN DN 40 PN 40 type B1, raised face (RF)	n/a	n/a	240 (9.4)	9.2 (20)	240 (9.4)	9.2 (20)	240 (9.4)	9.2 (20)	240 (9.4)	9.2 (20)
EN DN 40 PN 40 type D, with groove	n/a	n/a	240 (9.4)	9.1 (20)	240 (9.4)	9.1 (20)	240 (9.4)	9.1 (20)	240 (9.4)	9.1 (20)
EN DN 40 PN 40 type E, with spigot	n/a	n/a	240 (9.4)	8.8 (19)	240 (9.4)	8.8 (19)	240 (9.4)	8.8 (19)	240 (9.4)	8.8 (19)
EN DN 40 PN 40 type F, with recess	n/a	n/a	240 (9.4)	9.0 (20)	240 (9.4)	9.0 (20)	240 (9.4)	9.0 (20)	240 (9.4)	9.0 (20)
EN DN 40 PN 100 type B1, raised face (RF)	n/a	n/a	320 (12.6)	13.7 (30)	320 (12.6)	13.7 (30)	320 (12.6)	13.7 (30)	320 (12.6)	13.7 (30)
EN DN 40 PN 100 type D, with groove	n/a	n/a	320 (12.6)	13.6 (30)	320 (12.6)	13.6 (30)	320 (12.6)	13.6 (30)	320 (12.6)	13.6 (30)
EN DN 40 PN 100 type E, with spigot	n/a	n/a	320 (12.6)	13.2 (29)	320 (12.6)	13.2 (29)	320 (12.6)	13.2 (29)	320 (12.6)	13.2 (29)
EN DN 40 PN 100 type F, with recess	n/a	n/a	320 (12.6)	13.5 (30)	320 (12.6)	13.5 (30)	320 (12.6)	13.5 (30)	320 (12.6)	13.5 (30)

L1 dimension and weight with process connections according to JIS B 2220 (AISI 316 / AISI 316L)

Process connection size and type	FCS100 sensor nominal size DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS DN 15 10K	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)	240 (9.4)	6.5 (14)
JIS DN 15 20K	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)	240 (9.4)	6.7 (15)
JIS DN 25 10K	n/a	n/a	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)	240 (9.4)	7.6 (17)
JIS DN 25 20K	n/a	n/a	240 (9.4)	8 (18)	240 (9.4)	8 (18)	240 (9.4)	8 (18)	240 (9.4)	8 (18)
JIS DN 40 10K	n/a	n/a	240 (9.4)	8.4 (19)	240 (9.4)	8.4 (19)	240 (9.4)	8.4 (19)	240 (9.4)	8.4 (19)
JIS DN 40 20K	n/a	n/a	240 (9.4)	8.8 (19)	240 (9.4)	8.8 (19)	240 (9.4)	8.8 (19)	240 (9.4)	8.8 (19)

L1 dimension and weight with process connections according to NPT internal thread

Process connection size and type	FCS100 sensor nominal size DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
¼" NPT	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)
⅜" NPT	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)
½" NPT	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)
¾" NPT	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)

Dimensional drawings (continued)

L1 dimension and weight with process connections according to G internal thread

Process connection size and type	FCS100 sensor nominal size DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
G ¼ inch	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)
G ½ inch	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)
G ¾ inch	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)	260 (10.2)	5.6 (12)
G 1 inch	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)	260 (10.2)	5.5 (12)

L1 dimension and weight with hygienic clamp process connections according to DIN 32676 series A

Process connection size and type	FCS100 sensor nominal size DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 32676 series A DN 15	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)
DIN 32676 series A DN 25	n/a	n/a	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)
DIN 32676 series A DN 40	n/a	n/a	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)

L1 dimension and weight with hygienic clamp process connections according to DIN 32676 series C (Tri-clamp)

Process connection size and type	FCS100 sensor nominal size DN 1		DN 2		DN 4		DN 6		DN 8	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 32676 series C ½ inch	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)	240 (9.4)	5.3 (12)
DIN 32676 series C 1 inch	n/a	n/a	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)
DIN 32676 series C 1½ inch	n/a	n/a	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)	240 (9.4)	5.4 (12)

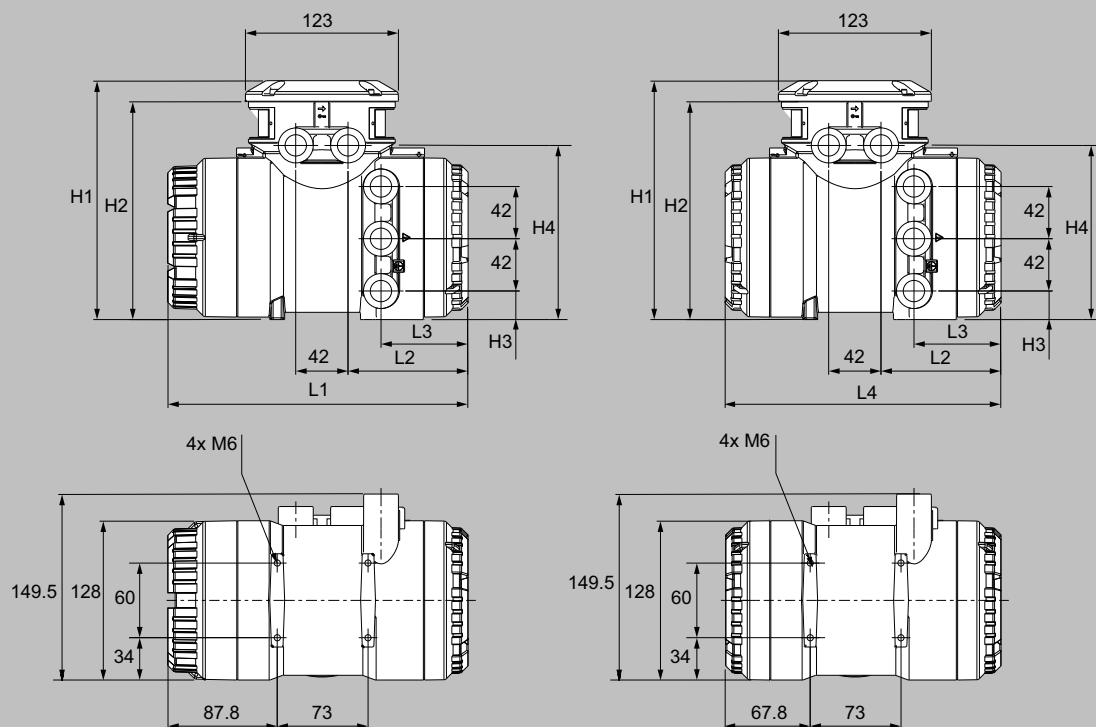
Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC120/FC140

Dimensional drawings (continued)

Drawings, dimensions and weight for FCT020 and FCT040 transmitters

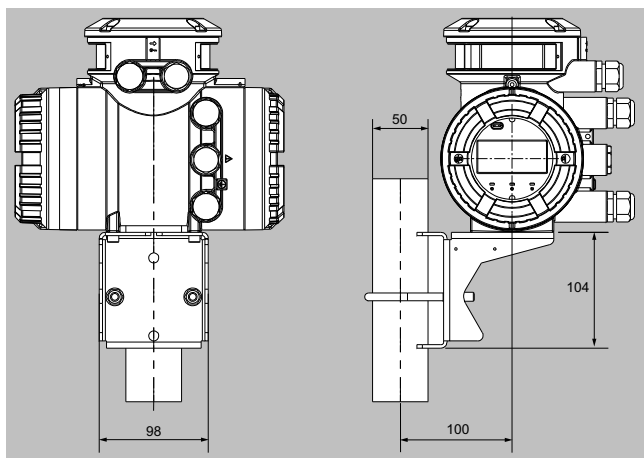


Dimensions of FCT020 or FCT040 transmitter in mm. Transmitter with display shown on the left. Transmitter without display shown on the right.

Dimensions L1 to L4 and H1 to H4 (material options: stainless steel, aluminum)

Material	L1 in mm (inch)	L2 in mm (inch)	L3 in mm (inch)	L4 in mm (inch)	H1 in mm (inch)	H2 in mm (inch)	H3 in mm (inch)	H4 in mm (inch)
Stainless steel	255.5 (10.06)	110.5 (4.35)	69 (2.72)	235 (9.25)	201 (7.91)	184 (7.24)	24 (0.94)	150.5 (5.93)
Aluminum	241.5 (9.51)	96.5 (3.8)	70 (2.76)	221 (8.7)	192 (7.56)	175 (6.89)	23 (0.91)	140 (5.51)

Dimensional drawings (continued)



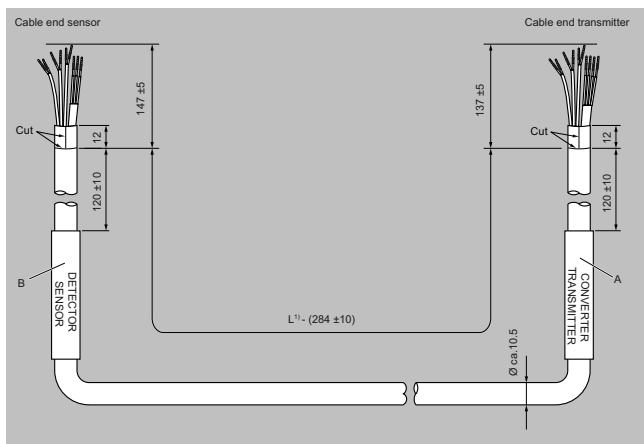
Dimensions of transmitter in mm, attached to mounting bracket.

Transmitter weights

Design type	Transmitter enclosure material	Weight in kg (lb)
Remote	Cast aluminum	4.2 (9.3)
	CF-8M stainless steel	12.5 (27.6)

Connecting cable dimensions and weights

Standard cable

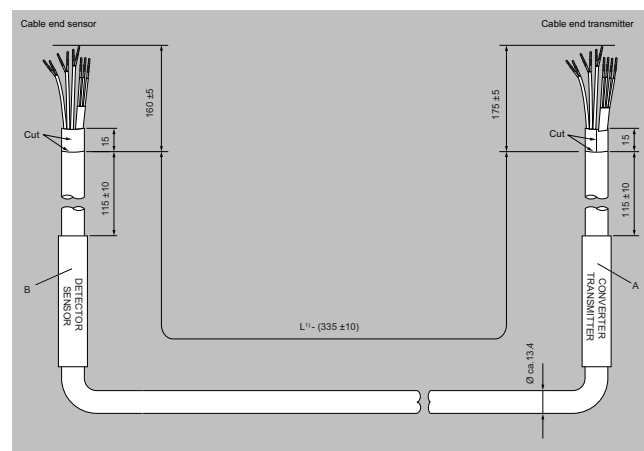


Dimensions in mm. Standard terminated cable. A and B are factory fitted labels.

Option code	Cable length, L	Cable color
L51	5 m (16.4 ft)	Non-Ex: gray / Ex: blue
L54	10 m (32.8 ft)	
L57	15 m (49.2 ft)	
L60	20 m (65.6 ft)	
L63	30 m (98.4 ft)	

Weight of cable ≤ 0.200 kg/m (0.134 lb/ft)

Standard cable with steel armored option

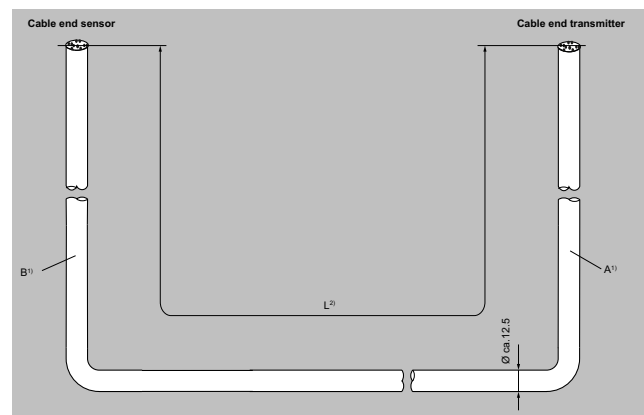


Dimensions in mm. Steel armored terminated cable. A and B are factory fitted labels.

Option code	Cable length, L	Cable color
L51 + A20/A21	5 m (16.4 ft)	Blue
L54 + A20/A21	10 m (32.8 ft)	
L57 + A20/A21	15 m (49.2 ft)	
L60 + A20/A21	20 m (65.6 ft)	
L63 + A20/A21	30 m (98.4 ft)	

Weight of cable ≤ 0.300 kg/m (0.202 lb/ft)

Fire retardant cable



Dimensions in mm. Fire retardant unterminated cable. Labels A and B are supplied loose with termination kit.

Option code	Cable length, L	Cable color
L71	5 m (16.4 ft)	Gray
L74	10 m (32.8 ft)	
L77	15 m (49.2 ft)	
L80	20 m (65.6 ft)	
L83	30 m (98.4 ft)	

Weight of cable ≤ 0.270 kg/m (0.181 lb/ft)

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC520/FC540

Overview

The flowmeter systems of the SITRANS FC500 series are the universal Coriolis multi-parameter flowmeter for routine and hygienic applications.

They are formed by one FCS500 sensor and one FCT transmitter:

- SITRANS FC520 is the combination of the FCS500 sensor and the FCT020 transmitter
- SITRANS FC540 is the combination of the FCS500 sensor and the FCT040 transmitter

Features:

- Dual curved AISI 316L stainless steel measuring tubes
- Process connection: flange, thread, or a selection of hygienic fittings
- Nominal sizes: DN 10 to DN 80
- Connection sizes: DN 8 to DN 125 ($\frac{3}{8}$ " to 5")
- Nominal flow rates: 1 600 to 170 000 kg/h (3 527 to 374 786 lb/h)
- FCS500 sensors can be combined with compact or remote transmitters
- Versatility with superior turndown and low pressure loss
- Hygienic specification for food and beverage, biotechnological and pharmaceutical applications



FC520/540 Coriolis flowmeter

Benefits

Product features aligned to user value targets

	User value targets	SITRANS FC features and solutions
Engineering and project management	• Reduce engineering investment • Cut specification effort • Minimize project expenditure • Decrease the spending on each measurement point • Eliminate function duplication • Reduce number of suppliers	• Siemens project teams offer complimentary evaluation of customer specifications, provided by regional and HQ experts • Simple product selection using intuitive sizing software • One SITRANS FC device can typically provide 3 to 6 individual measurements, all transmitted via digital communication, when planned during pre-project design • Added value functions: batch control, viscosity, thermal energy, concentration measurement (Fraction) of two-component solutions, and pressure compensation
Installation	• Reduce footprint and transport outlay of OEM machinery • Lower installation complexity • Avoid costly modifications of existing plant	• Can be installed in horizontal or vertical (self-draining) pipes • Twin tube bend design delivers strong signal to noise characteristic resistant to external influence, so install in tight spaces with no inlet and outlet restrictions • Adaptable to existing pipes: typically, 3 or 4 connection sizes for each sensor size • Flexible selection of traditional inputs, outputs, and digital communications
Configuration and commissioning	• Shorter commissioning schedules with lower costs • Faster start-up with reduced outgoings	• Easy setup wizard delivers working meters straight after start-up • microSD card stores sensor calibration data and default setup • Simple configuration using Process Device Manager (PDM) • Siemens device-specific faceplates simplify operation in plantwide control systems
Efficient plant operation	• Improve finished product consistency to reduce waste • Keep process performance when scaling production up or down • Optimize process control • Improve finished product quality enabling higher levels of profit • Reduce downtime with fast resolution of process upsets • Improve asset performance	• SITRANS FC meters are calibrated in rigs accredited to EN/ISO 17025 to ensure consistently high performance of flow, density, and concentration measurements • First-class zero-point quality maintains high accuracy into the low flow region • High sensitivity and intelligent dynamic range keeps the measurement active in demanding high fluid damping cases • Designed-in resilience to process extremes • Self-verification alerts to potential performance issues due to unplanned process events, for example gas or vapor breakout or solid deposits building up in the tubes • Diagnostic data via local menu or PDM is backed by Siemens application experts • Intelligent Siemens SITRANS IQ apps for continuing asset evaluation
Maintenance and asset management	• Optimize technician training • Reduce cost of spare parts • Increase predictive maintenance • Reduce production downtime and associated costs • Decrease unplanned maintenance • Maximize asset value	• Simple product design with interchangeable modular parts • microSD card loads sensor-specific data to deliver fast service exchange • Self-verification: tube health check monitors key diagnostics, including tube stiffness, driver and pickups; the user defines verification frequency and alarm behavior • Verification results indicate whether preventive maintenance action is required • Siemens SIMATIC Maintenance Station uses cyclical acquisition to provide life cycle reports and intelligent preventive maintenance strategies

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC520/FC540

Benefits (continued)

	User value targets	SITRANS FC features and solutions
Industry compliance	• Cut effort required to comply with Industry-specific demands • Reduce resources needed to maintain regulatory compliance	• Food and beverage sector covered with EHEDG and 3-A approvals, polished tubes • Global hazardous area approvals for international plant duplications • Common and emerging digital networks covered: HART, , or over • Class-leading safety: SIL2/SIL3, secondary containment, PED,

Application

Application examples for SITRANS FC multi-parameter meters across diverse industry sectors

Chemical and petrochemical Bulk chemicals Industrial gases Polymers Agrochemicals Fine chemicals Aroma chemicals	• Transfer, loading and unloading of bulk chemicals • Concentration control of acids and alkalis (process optimization) • Accurate mass or volume flow of feed chemicals to in-line blending systems • Accurate mass flow and density (quality) of reactor fluid feeds catalyst • Chemical recovery • Mass balance optimization • Compressed and cryogenic gases • Lubricating oil blending and dosing • High accuracy measurement of critical fluid components • Low flow control in pilot plants and R&D facilities
Food and beverage Food processing Dairies Breweries Distilleries Confectionary Soft drinks Animal feed plants OEM	• Accurate bulk transfer (mass or volume) of all dairy products: milk, cream, whey and yoghurt • Fat concentration in cream • Flow, density, temperature and concentration (Plato) during all fermentation processes • Flow, density, temperature and sugar concentration (Brix) in soft drink processing • Distilled spirits – % alcohol by volume (ABV), liters of pure alcohol, volume transfer, blending, batch and column still optimization and energy management, cask filling, tanker loading • Flow and density of fruit juices and pulps • Mixing and inventory control of confectionary ingredients, e.g. chocolate, syrup, oils, flavors • Metering pump control • Oils, fats enzymes dosing in animal feed plants • CO₂ dosing • CIP liquids • Bottling of beer, spirits, wine, soft drinks, etc. • Bulk sugar processing – molasses, sugar slurries, density, Brix of finished product
Oil and gas Offshore/onshore Upstream/downstream Pipelines Distribution networks Refineries Skid manufacturers	• Loading/unloading of hydrocarbons (e.g. crude oil, bitumen) from/to ship, road tanker, rail car • High pressure chemical injection • High pressure low flow gas • Net oil computing • Gas void fraction • Filling of gas bottles • Furnace control • Test separators • LPG, natural gas hydration • Well-head water-cut monitoring • All hydrocarbon fluids in refineries • Metrology, custody transfer • Drilling mud • Oil well cementing and hydrofracturing

Application (continued)

Application examples for SITRANS FC multi-parameter meters across diverse industry sectors

Life sciences Pharmaceutical Bio	• High accuracy flow and batching of bioreactor feeds • Solvent flow rate, density and batching • Flow of demineralized and deionized water • Solvents and fish oils used in high grade omega 3 oils • Precision coatings • Vacuum thin film coating
Household and personal care Detergents Cosmetics	• Blending and batching of detergent ingredients • Tanker loading and unloading • Salt concentration • Reliable measurement of aerated liquids
Automotive and aeronautical Vehicle manufacturing Paint Engine testing OEM	• Fuel injection nozzle and pump testing • Filling of under bonnet fluid reservoirs, air conditioning, coolant • Fuel flow and density measurement in engine test beds • Checking for air in oil using high accuracy density measurement • Paint spray robots – requires accurate and fast measurements • Aircraft fuel loading (kerosene) • High pressure flow used in turbine blade manufacture
Power and energy Renewable Hydrogen	• Boiler fuel flow and burner control • Turbine fuel flow • Glycol flow and concentration • Bioethanol
Marine OEM Shipbuilders	• Fuel consumption management • Boiler control • Bunkering management • Density used to indicate fuel quality
Pulp, paper and textiles	• Accurate dosing of dyes and chemicals
Water and environmental	• Dosing of chemicals for water treatment • Chemical concentration for water quality control

Flow Measurement

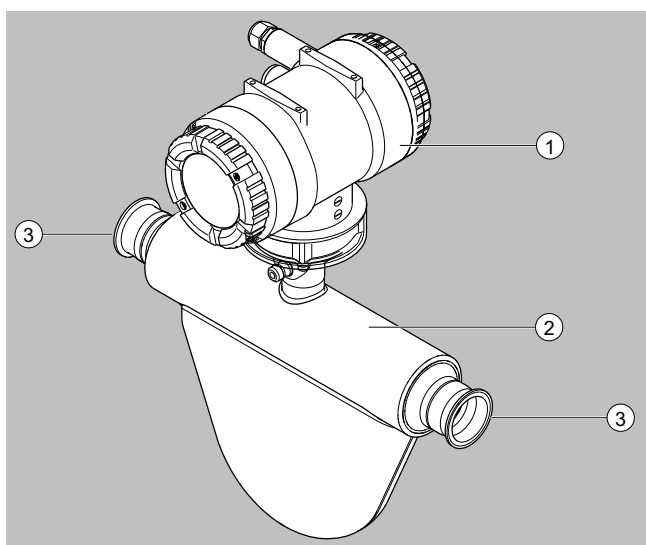
SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC520/FC540

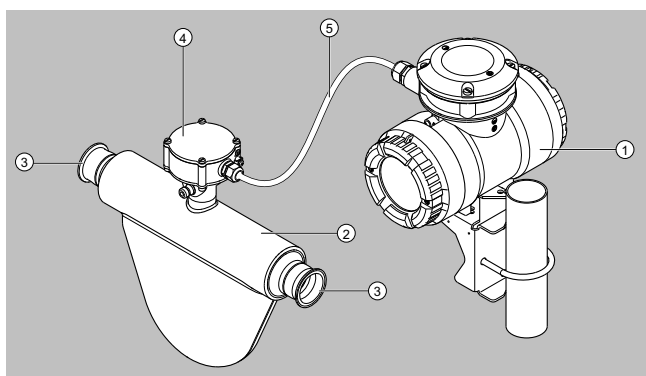
Design

Design options and related temperature range for FC500 series

Design version	Transmitter style	Process fluid temperature range
Non-hygienic, flange or thread, standard neck	Compact	Standard [-50 ... +150 °C (-58 ... +302 °F)]
	Remote	Standard [-70 ... +200 °C (-94 ... +392 °F)]
Hygienic, thread, polished wetted parts, standard neck	Compact	Standard [-40 ... +140 °C (-58 ... +284 °F)]
	Remote	Standard [-70 ... +140 °C (-94 ... +284 °F)]
Hygienic, clamp, polished wetted parts, standard neck	Compact	Standard [-10 ... +140 °C (14 ... 284 °F)]
	Remote	Standard [-10 ... +140 °C (14 ... 284 °F)]



FC5500 sensor with compact transmitter (hygienic version)



FC5500 sensor with remote transmitter (hygienic version)

- 1 Transmitter
- 2 FCS500 sensor
- 3 Process connection
- 4 Sensor terminal box
- 5 Connecting cable

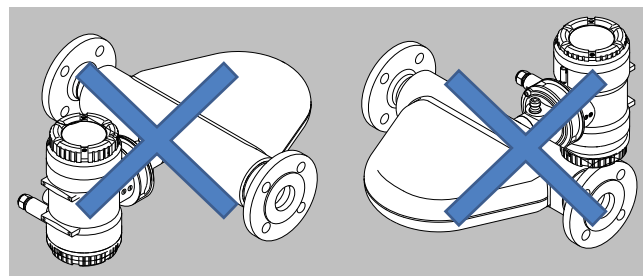
Design (continued)

Installation guidelines

FC500 series flowmeters can be mounted horizontally, vertically and at an incline. The measuring tubes should be filled with the fluid during flow measurement as entrained gas may result in errors in measurement. Straight pipe runs at inlet or outlet are usually not required.

Avoid the following installation locations and positions:

- Measuring tubes as highest point in piping when measuring liquids
- Measuring tubes as lowest point in piping when measuring gases
- Immediately in front of a free pipe outlet in a downpipe
- Lateral positions



Avoid measuring tubes in sideways position resulting in possible non-homogeneous fluid separation

Function

Compatible fluids

- Liquids
- Gases
- Mixtures, solutions, emulsions, suspensions, and slurries

Primary measured variables

- Mass flow
- Density
- Temperature

Based on the primary measured quantities, the transmitter also calculates

- Volume flow
- Percent concentration (fraction) of a two-component mixture (FCT040 only)
- Partial component flow rate (net flow) of a mixture consisting of two components (FCT040 only)

Bi-directional operation

The mass flow, volume flow, and net flow measurements can be bi-directional.

Measurement variables for NTEP approval

- Mass flow uni-directional
- Volume flow uni-directional

Feature overview

- Energy-efficient low pressure loss design with short tube paths and large tube diameter
- Cost-effective short face-to-face length or customized installation length options
- Batching function with batch leakage detection and batch control by transmitter for precise dosing
- Accurate density measurement and up to four advanced Concentration Measurement data sets
- Benefit from Viscosity function and capability to handle high viscous process fluids
- Hygienic design, self-draining in vertical installation, with hygienic approval options

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC520/FC540

Selection and ordering data

SITRANS FC520/540 (Standard and Hygienic)	Article No. 7ME445	●	-	●	●	●	●	●	-	●	●	●	●	-	●	●	●	Order code
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.																		
Transmitter variant																		
None (spare sensor)		0																
Coriolis sensor FCS500 with transmitter FCT020		2																
Coriolis sensor FCS500 with transmitter FCT040		4																
SITRANS FC spare part transmitter, no sensor included		9														G	3	Y
Sensor size / Connector size																		
No sensor (SITRANS FCT transmitter as spare part)			0	A														
Sensor size DN 10 with connection size 3/8"			1	B														
Sensor size DN 10 with connection size ½" DN 15			1	C														
Sensor size DN 10 with connection size 3/4"			1	D														
Sensor size DN 10 with connection size 1" DN 25			1	E														
Sensor size DN 10 with connection size 1 ½" DN 40			1	F														
Sensor size DN 10 with special connection			1	Y														
Sensor size DN 15 with connection size ½" DN 15			2	C														
Sensor size DN 15 with connection size 3/4"			2	D														
Sensor size DN 15 with connection size 1" DN 25			2	E														
Sensor size DN 15 with connection size 1 ½" DN 40			2	F														
Sensor size DN 15 with special connection			2	Y														
Sensor size DN 25 with connection size 1" DN 25			3	E														
Sensor size DN 25 with connection size 1 ½" DN 40			3	F														
Sensor size DN 25 with connection size 2" DN 50			3	G														
Sensor size DN 25 with special connection			3	Y														
Sensor size DN 50 with connection size 1 ½" DN 40			4	F														
Sensor size DN 50 with connection size 2" DN 50			4	G														
Sensor size DN 50 with connection size 2 ½" DN 65			4	H														
Sensor size DN 50 with connection size 3" DN 80			4	J														
Sensor size DN 50 with special connection			4	Y														
Sensor size DN 80 with connection size 3" DN 80			5	J														
Sensor size DN 80 with connection size 4" DN 100			5	K														
Sensor size DN 80 with connection size 5" DN 125			5	L														
Sensor size DN 80 with special connection			5	Y														
Process connection																		
No connection (SITRANS FCT transmitter as spare part)				A	0													
EN flange PN 40, suitable for EN 1092-1 type B1, raised face (RF)				A	1													
EN flange PN 100, suitable for EN 1092-1 type B1, raised face (RF)				A	3													
EN flange PN 40, suitable for EN 1092-1 type D, groove				A	5													
EN flange PN 100, suitable for EN 1092-1 type D, groove				A	7													
EN flange PN 40, suitable for EN 1092-1 type E, spigot				B	1													
EN flange PN 100, suitable for EN 1092-1 type E, spigot				B	3													
EN flange PN 40, suitable for EN 1092-1 type F, recess				B	5													
EN flange PN 100, suitable for EN 1092-1 type F, recess				B	7													
ASME flange class 600, suitable for ASME B16.5, ring joint (RJ)				C	3													
ASME flange class 150, suitable for ASME B16.5, raised face (RF)				D	1													
ASME flange class 300, suitable for ASME B16.5, raised face (RF)				D	2													
ASME flange class 600, suitable for ASME B16.5, raised face (RF)				D	3													
Process connection with internal thread G				E	1													
Process connection with internal thread NPT				E	3													
DIN 11851 threaded connection				F	1													
Clamp process connection according to DIN 32676 series A				G	2													
Clamp process connection according to DIN 32676 series C (Tri-clamp)				G	6													
DIN 11864-2 Form A				H	2													
JIS G3447 and ISO 2852 clamp				J	1													
JIS flange 10K, JIS B 2220				L	2													
JIS flange 20K, JIS B 2220				L	4													
Special design request				Y	1													
Tube material (wetted) and max operational temperature																		
None (SITRANS FCT transmitter as spare part)					0													
316L, 1.4404 media temperature -50 ... 150 °C (-58 ... 302 °F)					1													

Selection and ordering data (continued)

SITRANS FC520/540 (Standard and Hygienic)	Article No. 7ME445	Order code											
316L, 1.4404 media temperature -50 ... 140 °C (-58 ... 284 °F), polished Ra ≤ 0.8 µm							2						
316L, 1.4404 media temperature -70 ... 200 °C (-94 ... 392 °F)							3						
316L, 1.4404 media temperature -70 ... 140 °C (-94 ... 284 °F), polished Ra ≤ 0.8 µm							4						
Calibration													
No calibration								0					
Massflow 0.1%, density 0.5 g/l								1					
Massflow 0.1%, density 1 g/l								2					
Massflow 0.1%, density 4 g/l								5					
Massflow 0.2%, density 4 g/l								6					
Accuracy for gas please select below								9					
Massflow gas 0.75%											N	1	A
Massflow gas 0.5%											N	2	A
Massflow gas 0.35%											N	3	A
Mounting style, transmitter housing and material													
Compact type with "urethane-cured polyester powder coating" coated aluminum transmitter housing									A				
Compact type with "corrosion protection coating" coated aluminum transmitter housing									B				
Remote type with "urethane-cured polyester powder coating" coated aluminum transmitter housing and standard neck sensor									C				
Remote type with "corrosion protection coating" coated aluminum transmitter housing and standard neck sensor									E				
Remote type stainless steel transmitter and standard neck sensor									G				
Ex approvals													
None										A			
ATEX, explosion group IIC and IIIC										B			
ATEX, explosion group IIB and IIIC										C			
IECEX, explosion group IIC and IIIC										D			
IECEX, explosion group IIB and IIIC										E			
EAC Ex, IIC and IIIC										F			
EAC Ex, IIB and IIIC										G			
FM, groups A B C D E F G										H			
FM, groups C D E F G										J			
INMETRO, explosion group IIC and IIIC										K			
INMETRO, explosion group IIB and IIIC										L			
NEPSI, explosion group IIC and IIIC										M			
NEPSI, explosion group IIB and IIIC										N			
Korea Ex, explosion group IIC and IIIC										P			
Korea Ex, explosion group IIB and for integral type also IIIC										Q			
Local User Interface													
Spare sensor without transmitter, no display applied										0			
No display										1			
With display										3			

	Order code
Further designs	
Please add "-Z" to Article No. and specify order code(s).	
Cable glands	
Metric, no glands (M20)	A10
NPT, no glands (1/2")	A11
Armored cable setup (NPT threads supplied)	A20
NPT, no glands (1/2") steel armored cable	A21
Sensor housing material	
None (SITRANS FCT transmitter as spare part)	B00
Stainless steel 1.4301/304, 1.4404/316L	B01
I/O Configuration Ch1	
None	E00
4-20 mA HART active	E06

	Order code
4-20 mA HART passive	E07
PROFIBUS PA	E10
Modbus RTU RS 485	E14
PROFINET over Ethernet-APL (IS)	E15
I/O Configuration Ch2, Ch3 and Ch4	
Spare sensor without transmitter, all communication types and I/Os apply	F00
1 passive current output, 1 passive pulse or status output	F01
1 passive current output, 2 passive pulse or status outputs	F02
1 passive current output, 1 passive pulse or status outputs, 1 passive NAMUR pulse or status output	F03
1 passive current output, 2 passive NAMUR pulse or status outputs	F04

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC520/FC540

Selection and ordering data (continued)

	Order code
1 passive pulse or status output	F11
2 passive pulse or status outputs, 1 passive status output	F12
2 passive pulse or status outputs, 1 voltage-free status input	F13
2 passive pulse or status outputs, 1 active current input	F14
2 passive pulse or status outputs, 1 passive current input	F15
1 passive pulse or status output, 1 passive current output, 1 active current input	F16
1 passive pulse or status output, 1 passive current output, 1 passive current input	F17
1 passive pulse or status output, 1 voltage-free status input, 1 active current input	F18
1 passive pulse or status output, 1 voltage-free status input, 1 passive current input	F19
1 passive pulse or status output, 1 active pulse or status output, 1 voltage-free status input	F20
1 passive pulse or status output, 1 active pulse or status output with pull-up resistor, 1 voltage-free status input	F21
1 active current output, 2 passive pulse or status outputs	F22
1 active current output, 1 passive pulse or status output, 1 voltage-free status input	F23
1 passive pulse or status output	F31
2 passive pulse or status outputs	F32
1 passive pulse or status output, 1 active current input	F33
1 passive pulse or status output, 1 passive current input	F34
1 passive pulse or status output, 1 active pulse or status output	F35
1 passive pulse or status output, 1 active pulse or status output with pull-up resistor	F36
1 passive pulse or status output, 1 active current output	F37
1 passive pulse output	F41
Output CH1 intrinsically safe, 1 passive pulse output	F42
Output CH3 intrinsically safe, 1 passive pulse output	F50
Certificates	
Declaration of compliance with the order 2.1 according to EN 10204	C11
Certificate of Marking Transfer and Raw Material Certificates (Inspection Certificate 3.1 according to EN 10204), including IGC and conform to NACE MR0175 and MR0103	C13
Positive Material Identification of wetted parts, including certificate (Inspection Certificate 3.1 according to EN 10204)	C15
NTEP approval accuracy class 0.3 acc. NIST	C16
Hydrostatic Pressure Test Certificate (Inspection Certificate 3.1 according to EN 10204)	C18
Functional Safety (IEC 61508) - SIL2/3	C20
X-ray inspection of flange weld seam according to DIN EN ISO 17636-1/B, evaluation according to AD 2000 HP 5/3 and DIN EN ISO 5817/C, including certificate	C33
X-ray test according to ASME V	C34

	Order code
WPS according to DIN EN ISO 15809-1; WPQR according to DIN EN ISO 15814-1; WQC according to DIN EN 287-1 or DIN EN ISO 8908-4	C36
Welding procedures and certificate ASME IX	C37
Dye penetrant test of process connection weld seams according to EN ISO 3452-1, including certificate	C38
Dye penetrant test of flange welding according to ASME V, including certificate	C39
Quality Inspection Certificate (Inspection Certificate 3.1 according to EN 10204)	C40
Ferrite test for flange welding acc. DIN EN ISO 8249	C50
Degreasing of wetted surfaces according to ASTM G93-03 (Level C), including test report	C54
3-A product conformity with 3-A certificate and marking, including Surface Roughness wetted parts $Ra \leq 0.8 \mu m$ and Surface Roughness Inspection Certificate	C62
EHEDG product conformity with EHEDG Certificate and marking, including Surface Roughness wetted parts $Ra \leq 0.8 \mu m$ and Surface Roughness Inspection Certificate	C63
Surface Roughness wetted parts $Ra \leq 0.8 \mu m$ and Surface Roughness Inspection Certificate	C61
Combined certificates	
Certification package (C13, C18, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test and Quality inspection certificate	C80
Certification package (C13, C15, C40) including Marking Transfer and raw material certificate, Positive material identification and Quality inspection certificate	C81
Certification package (C13, C18, C38, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test, Dye penetration and Quality inspection certificate	C82
Certification package (C13, C15, C18, C36, C38, C40) including Marking Transfer and raw material certificate, Positive material identification, Hydrostatic pressure test, Welding certificates, Dye penetration and Quality inspection certificate	C83
Certification package (C15, C18, C36) including Positive material identification, Hydrostatic pressure test and Welding certificates	C84
Certification package (C34, C37, C39) including X-ray test according to ASME V, Welding procedures and Certificates according to ASME IX and Dye penetrant test of flange welding according to ASME V	C85
Certification package (C13, C18, C34, C37, C39, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test, X-ray test according to ASME V, Welding procedures and Certificates according to ASME IX, Dye penetrant test of flange welding according to ASME V and Quality inspection certificate	C86
Certification package (C13, C15, C34, C37, C39, C40) including Marking Transfer and raw material certificate, Positive material identification, X-ray test according to ASME V, Welding procedures and Certificates according to ASME IX, Dye penetrant test of flange welding according to ASME V and Quality inspection certificate	C87
Connecting cable type and length	
Without standard connecting cable	L50
5 meter (16.4 ft) remote connecting cable terminated standard gray / Ex blue	L51

Selection and ordering data (continued)

	Order code
10 meter (32.8 ft) remote connecting cable terminated standard gray / Ex blue	L54
15 meter (49.2 ft) remote connecting cable terminated standard gray / Ex blue	L57
20 meter (65.6 ft) remote connecting cable terminated standard gray / Ex blue	L60
30 meter (98.4 ft) remote connecting cable terminated standard gray / Ex blue	L63
without fire retardant connecting cable	L70
5 meter (16.4 ft) remote fire retardant connecting cable not terminated	L71
10 meter (32.8 ft) remote fire retardant connecting cable not terminated	L74
15 meter (49.2 ft) remote fire retardant connecting cable not terminated	L77
20 meter (65.6 ft) remote fire retardant connecting cable not terminated	L80
30 meter (98.4 ft) remote fire retardant connecting cable not terminated	L83
SW functions	
Heat measurement	S11
Tube health check	S12
Batching and filling function	S13
Netoil computing	S14
Viscosity computing function for liquids	S15
Standard concentration measurement	S16
Advanced concentration	S17
Marine approval	
Marine approved DNV, ABS, KR piping class 2	S22
Marine approved DNV, ABS, KR piping class 3	S23
Marine approved LR, MR, TAC piping class 2	S24
Marine approved LR, MR, TAC piping class 3	S25
Marine approved BV piping class 2	S26
Marine approved BV piping class 3	S27
Mounting	
Namur built-in length according to NE132	S31
Country-specific delivery	
Delivery to China including China RoHS mark	W21
Delivery to Korea including KC mark	W22
Delivery to Canada including CRN mark	W26

	Order code
Fraction setup	
PIA: Please select four options	
Sugar / Water 0 ... 85 °Bx, 0 ... 80 °C (32 ... 176 °F)	G01
NaOH / Water 2 ... 50 WT%, 0 ... 100 °C (32 ... 212 °F)	G02
KOH / Water 0 ... 60 WT%, 54 ... 100 °C (129 ... 212 °F)	G03
NH ₄ NO ₃ / Water 1 ... 50 WT%, 0 ... 80 °C (32 ... 176 °F)	G04
NH ₄ NO ₃ / Water 20 ... 70 WT%, 20 ... 100 °C (68 ... 212 °F)	G05
HCl / Water 22 ... 34 WT%, 20 ... 40 °C (68 ... 104 °F)	G06
HNO ₃ / Water 50 ... 67 WT%, 10 ... 60 °C (50 ... 140 °F)	G07
H ₂ O ₂ / Water 30 ... 75 WT%, 4 ... 44 °C (39 ... 111 °F)	G09
Ethylene Glycol / Water 10 ... 50 WT%, -20 ... 40 °C (-4 ... 104 °F)	G10
Amylum = Starch / Water 33 ... 43 WT%, 35 ... 45 °C (95 ... 113 °F)	G11
Methanol / Water 35 ... 60 WT%, 0 ... 40 °C (32 ... 104 °F)	G12
Alcohol / Water 55 ... 100 VOL%, 10 ... 40 °C (50 ... 104 °F)	G20
Sugar / Water 40 ... 80 °Bx, 75 ... 100 °C (167 ... 212 °F)	G21
Alcohol / Water 66 ... 100 WT%, 15 ... 40 °C (59 ... 104 °F)	G30
Alcohol / Water 66 ... 100 WT%, 10 ... 40 °C (50 ... 104 °F)	G37
Tag name	
Tag name plate, SS (max. 16 characters)	Y11
HART/MODBUS software tag No. (max. 8 characters)	Y25
HART/MODBUS software tag No. (max. 32 characters)	Y26
PROFIBUS PA NODE ADDRESS (4 characters HEX)	Y28
PROFIBUS PA SOFTWARE TAG (max. 32 characters)	Y29
Customer installation length	
Customer installation length (mm)	Y30
Calibration	
Predefined 6-Point Accredited Calibration: 10%, 20%, 40%, 60%, 80%, 100% of Q _{nom} . Calibrated Output: Frequency	D62
Special versions	
ID-Number of special design	Y99

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC520/FC540

Technical specifications

Mass flow rate of liquids

The mass flow rate characteristics of SITRANS FC meters are defined by the values of zero stability, Q_{flat} , Q_{nom} and Q_{max} .

Zero stability is the maximum allowable flow rate value that can be displayed at zero flow under reference conditions. It is a good indicator of the meter performance as flow rates reduce, and approach zero.

- Q_{flat} is the mass flow rate above which the base accuracy is maintained (0.1% when using FCT040 transmitters).
- Q_{nom} is the nominal mass flow rate of water at reference conditions that would result in a pressure drop of 1 bar (15 psi).
- Q_{max} is the recommended maximum mass flow rate for each sensor size.

For questions regarding expected performance in specific applications, please contact your regional Siemens Measurement Intelligence team.

Flow rate summary by FCS500 sensor size

Nominal size	Zero stability		Q_{flat}		Q_{nom}		Q_{max}	
	kg/h	lb/h	kg/h	lb/min	kg/h	lb/min	kg/h	lb/min
DN 10	0.032	0.070	80.0	2.94	1 600	58.7	2 300	84.4
DN 15	0.090	0.198	235	8.62	4 700	172	7 000	257
DN 25	0.400	0.880	1 000	36.7	20 000	734	29 000	1 064
DN 50	2.55	5.61	2 550	93.6	51 000	1 872	76 000	2 789
DN 80	8.50	18.7	8 500	312	170 000	6 239	255 000	9 359

Performance summary by FCS500 sensor size and transmitter type

Sensor size			DN 10	DN 15	DN 25	DN 50	DN 80
Mass flow (liquids)							
Accuracy	% (of rate)	FCT020	± 0.2	± 0.2	± 0.2	± 0.2	± 0.2
	% (of rate)	FCT040	± 0.1	± 0.1	± 0.1	± 0.1	± 0.1
Zero stability	kg/h (lb/h)		± 0.032 (0.07)	± 0.09 (0.198)	± 0.4 (0.88)	± 2.55 (5.61)	± 8.5 (18.7)
Density (liquids)							
Accuracy	kg/m³ (lb/ft³)	FCT020/FCT040	± 4 (0.25)	± 4 (0.25)	± 4 (0.25)	± 4 (0.25)	± 4 (0.25)
	kg/m3 (lb/ft³)	FCT040	± 0.5 (0.03)	± 0.5 (0.03)	± 0.5 (0.03)	± 0.5 (0.03)	± 1 (0.06)
Mass flow (gases)							
Accuracy	% (of rate)	FCT020	± 0.75	± 0.75	± 0.75	± 0.75	± 0.75
	% (of rate)	FCT040					
	% (of rate)	FCT040	± 0.35	± 0.35	± 0.35	± 0.35	± 0.35
Temperature							
Accuracy	°C (°F)		± 1 (1.8)	± 1 (1.8)	± 1 (1.8)	± 1 (1.8)	± 1 (1.8)

Note:

The accuracy values in the table above are based on reference conditions at the time of calibration and represent the combined measurement uncertainties including sensor, electronic and pulse output interface.

Liquid density calibration is performed when density accuracy of 0.5 kg/m³ (0.03 lb/ft³) is selected in the model code.

Mass flow calibration and density adjustment for liquids

Siemens SITRANS FC Coriolis meters are calibrated in rigs accredited according to the international standard DIN EN ISO/IEC 17025:2018. Each flowmeter comes with a standard calibration certificate.

Mass flow calibration takes place at reference conditions. Specific values are listed in the standard calibration certificate.

Mass flow calibration reference conditions

Fluid	Water
Density	900 ... 1 100 kg/m ³ (56 ... 69 lb/ft ³)
Fluid temperature	10 ... 35 °C (50 ... 95 °F), average temperature: 22.5 °C (72.5 °F)
Ambient temperature	10 ... 35 °C (50 ... 95 °F)
Process pressure	1 ... 5 bar (15 ... 73 psi)

Density calibration reference conditions

Flow condition	Fully developed flow profile
Fluid densities used to obtain density calibration constants	700 kg/m ³ (44 lb/ft ³) 1 000 kg/m ³ (62 lb/ft ³) 1 650 kg/m ³ (103 lb/ft ³)
Fluid temperature	20 °C (68 °F)
Determination of temperature compensation coefficients	20 ... 80 °C (68 ... 176 °F)

Analog output performance specification

Typical additional uncertainty when using the analog current output:

± 0.04% at a nominal mid-range current output of 12 mA, which includes the effects of: Output adjustment, linearity, power supply variation, load resistance variation, short-term and long-term drift for one year, and ambient temperature effect on the transmitter in the range 20 °C ± 30 °C (14 ... 122 °F).

Process pressure effect on flow measurement performance

Changes in operating pressure have a small effect on the mass flow measurement performance. When the pressure changes are very large this effect can be corrected by a dynamic pressure input or a fixed process pressure.

Technical specifications (continued)

Sensor size	Additional flow measurement errors due to change in operating pressure from reference pressure	
	in % of rate per 1 bar variation	in % of rate per 1 psi variation
DN 10	-0.0020	-0.00014
DN 15	-0.0084	-0.00058
DN 25	-0.0109	-0.00075
DN 50	-0.0130	-0.0009
DN 80	-0.0233	-0.0016

Process temperature effect

For mass flow measurement, process fluid temperature effect is defined as the change in sensor flow accuracy due to process fluid temperature change, away from the 20 °C (68 °F) reference condition. Variation in process temperature influences the measuring tube characteristics and this is compensated for using the built-in PT 1000 temperature sensor.

A small flow uncertainty remains in the compensation circuit, defined below.

Uncertainty due to process temperature change: $\pm 0.0009\%$ of mass flow rate per °C ($\pm 0.0005\%$ of mass flow rate per °F)

Temperature effect on zero

Temperature effect on the mass flow zero-point quality can be corrected by zeroing at the process fluid temperature.

Process conditions**Process fluid temperature range**

Design version	Transmitter	Process fluid temperature range
Non-hygienic, flange or thread, standard neck	Compact	Standard [-50 ... +150 °C (-58 ... +302 °F)]
	Remote	Standard [-70 ... +200 °C (-94 ... +392 °F)]
Hygienic, thread, polished wetted parts, standard neck	Compact	Standard [-40 ... +140 °C (-58 ... +284 °F)]
	Remote	Standard [-70 ... +140 °C (-94 ... +284 °F)]
Hygienic, clamp, polished wetted parts, standard neck	Compact	Standard [-10 ... +140 °C (14 ... 284 °F)]
	Remote	Standard [-10 ... +140 °C (14 ... 284 °F)]

Operating pressure

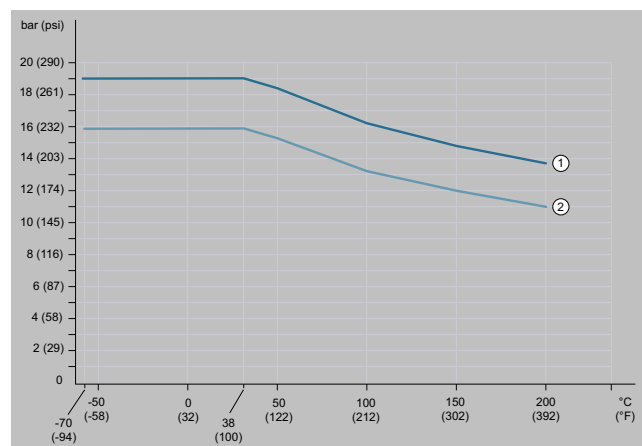
The maximum allowed process pressure depends on the selected process connection and process temperature.

The given process temperature and process pressure ranges are calculated and approved without corrosion or erosion effects.

Pressure versus temperature relationship depending on selected process connection

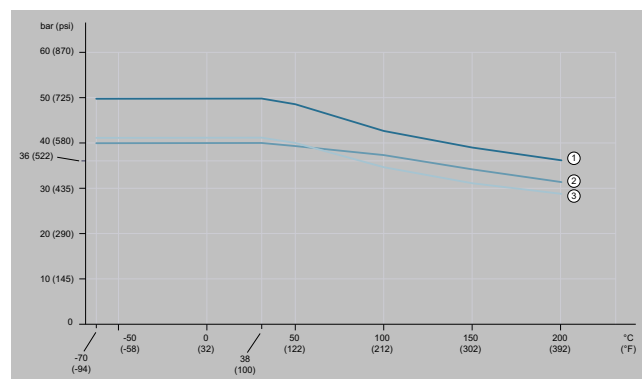
The following diagrams show the process pressure as a function of process temperature as well as the process connection used (type and size of process connection).

Calculations for ASME flanges are based on ASME B16.5 Material group 2.2 (316/316L dual certified).

ASME class 150

Allowed process pressure as a function of process fluid temperature

- 1 Process connection compatible to ASME B16.5 class 150
- 2 Not used for this product

ASME class 300, EN PN 40

Allowed process pressure as a function of process fluid temperature

- 1 Process connection compatible to ASME B16.5 class 300
- 2 Process and heat tracing connection compatible to EN 1092-1 PN 40
- 3 Not used for this product

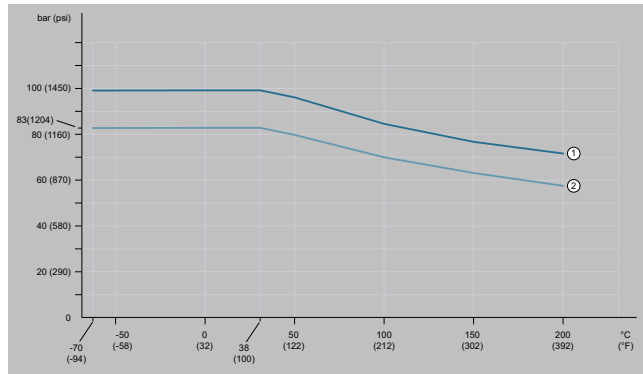
Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC520/FC540

Technical specifications (continued)

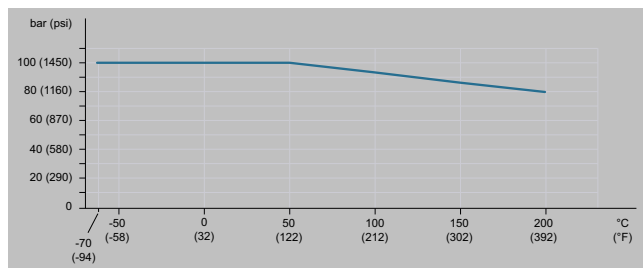
ASME class 600



Allowed process pressure as a function of process fluid temperature

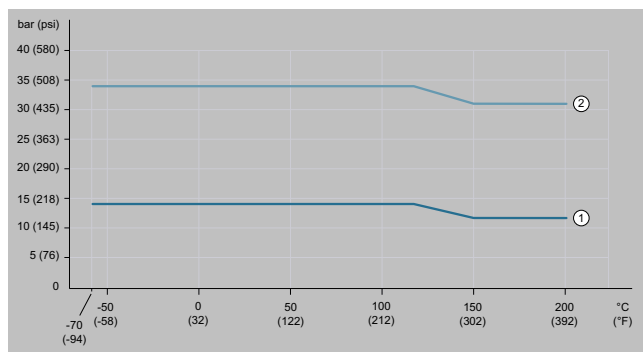
- 1 Process connection compatible to ASME B16.5 class 600
- 2 Not used for this product

EN PN100



Allowed process pressure as a function of process fluid temperature, compatible to EN 1092-1 PN 100

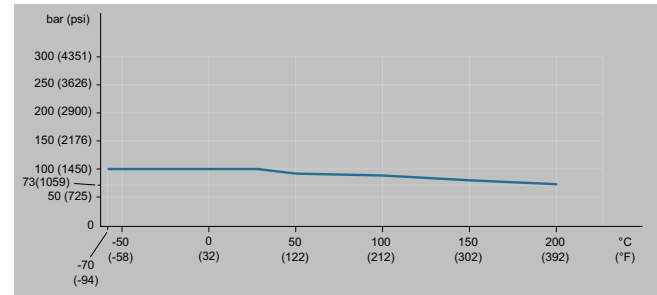
JIS 10K, JIS 20K



Allowed process pressure as a function of process connection temperature

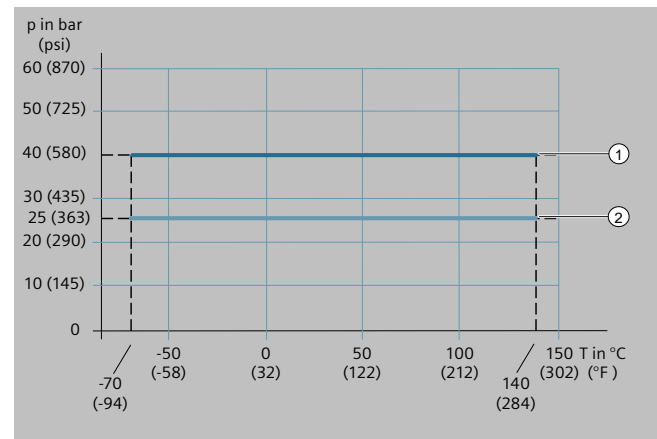
- 1 Process connection compatible to JIS B 2220 10K
- 2 Process connection compatible to JIS B 2220 20K

Process connection with internal thread G and NPT



Allowed process pressure as a function of process fluid temperature

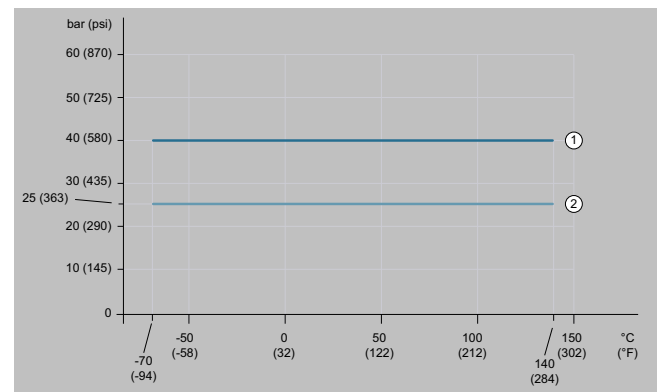
Threaded connection according to DIN 11851



Allowed process pressure as a function of process connection temperature

- 1 Threaded connection compatible to DIN 11851 up to DN 40
- 2 Threaded connection compatible to DIN 11851 from DN 50 to DN 100

Threaded connection according to SMS 1145

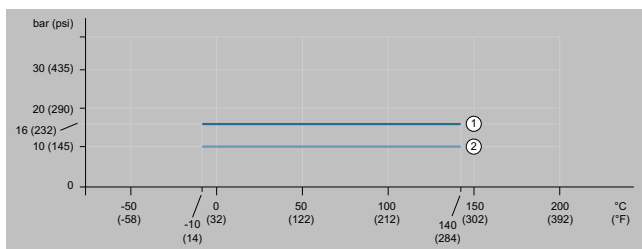


Allowed process pressure as a function of process connection temperature

Technical specifications (continued)

- 1 Threaded sanitary connection for SMS 1145 up to DN 40
- 2 Threaded sanitary connection for SMS 1145 from DN 50 up to DN 80

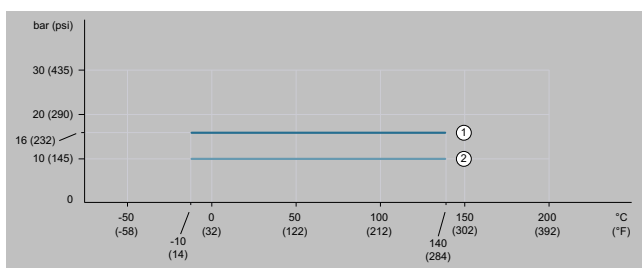
Clamp process connection according to DIN 32676 series A



Allowed process pressure as a function of process fluid temperature

- 1 Clamp connection compatible to DIN 32676 series A up to DN 50
- 2 Clamp connection compatible to DIN 32676 series A above DN 50

Clamp process connection according to DIN 32676 series C (Tri-Clamp)



Allowed process pressure as a function of process fluid temperature

Maximum ambient temperature ranges for FC500 series

Cable type	Transmitter style	Device	Ambient temperature range
None	Compact	Sensor and transmitter	-40 ... +60 °C (-40 ... +140 °F)
Standard cable	Remote	Sensor	-50 ... +80 °C (-58 ... +176 °F)
		Transmitter	-40 ... +60 °C (-40 ... +140 °F)
Fire retardant cable	Remote	Sensor	-35 ... +80 °C (-31 ... +176 °F)
		Transmitter	-35 ... +60 °C (-31 ... +140 °F)

Ambient temperature range for NTEP custody transfer approval

Cable type	Transmitter style	Device	Ambient temperature range
None	Compact	Sensor and transmitter	-40 ... +50 °C (-40 ... +122 °F)
Standard cable	Remote	Sensor	-50 ... +80 °C (-58 ... +176 °F)
		Transmitter	-40 ... +50 °C (-40 ... +122 °F)
Fire retardant cable	Remote	Sensor	-35 ... +80 °C (-31 ... +176 °F)
		Transmitter	-35 ... +50 °C (-31 ... +122 °F)

- 1 Clamp connection compatible to DIN 32676 series C up to 2"
- 2 Clamp connection compatible to DIN 32676 series C above 2"

Ambient conditions

Allowed ambient and storage temperature of SITRANS FC500 series is influenced by the temperature specification of FCS500 sensor, FCTOX0 transmitter and the interconnecting cable.

Ambient temperature

Device surrounding air temperature is considered as ambient temperature. If the device is operating outdoors make sure that the solar irradiation does not increase the surface temperature of the device higher than the allowed maximum ambient temperature. Transmitter display has limited legibility below -20 °C (-4 °F).

The sensor ambient temperature limits may also be influenced by the process fluid temperature, details shown in the chapter "Sensors" (Technical specifications).

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC520/FC540

Technical specifications (continued)

Maximum storage temperature ranges for FC500 series

Cable type	Transmitter style	Device	Storage temperature range
None	Compact	Sensor and transmitter	-40 ... +60 °C (-40 ... +140 °F)
Standard cable	Remote	Sensor	-50 ... +80 °C (-58 ... +176 °F)
		Transmitter	-40 ... +60 °C (-40 ... +140 °F)
Fire retardant cable	Remote	Sensor	-35 ... +80 °C (-31 ... +176 °F)
		Transmitter	-35 ... +60 °C (-31 ... +140 °F)

Temperature specification of FC500 series Ex versions located in hazardous areas

Please select appropriate equipment in accordance with the laws and regulations of the relevant country/region, when it is used in a location where explosive atmospheres may be present.

The maximum ambient and process fluid temperatures depending on explosion groups and temperature classes can be determined via the SITRANS FC order code together with the Ex code (see the corresponding explosion proof type manual).

Note:

The maximum process fluid temperature could be further restricted due to process connection type. Refer to curves above under the heading, "Allowed ambient temperature for FCS500 sensors".

FCS500 nominal sizes DN 10 and DN 15, compact transmitter

Ex approvals:

All gas groups: ATEX, IEC Ex, FM, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature
T6	47 °C (116 °F)	43 °C (109 °F)
T5	62 °C (143 °F)	58 °C (136 °F)
T4	99 °C (210 °F)	60 °C (140 °F)
T3	150 °C (302 °F)	60 °C (140 °F)
T2	150 °C (302 °F)	60 °C (140 °F)
T1	150 °C (302 °F)	60 °C (140 °F)

FCS500 nominal size DN 25, compact transmitter

Ex approvals:

All gas groups: ATEX, IEC Ex, FM, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature
T6	54 °C (129 °F)	54 °C (129 °F)
T5	68 °C (154 °F)	60 °C (140 °F)
T4	107 °C (224 °F)	60 °C (140 °F)
T3	150 °C (302 °F)	60 °C (140 °F)
T2	150 °C (302 °F)	60 °C (140 °F)
T1	150 °C (302 °F)	60 °C (140 °F)

FCS500 nominal size DN 50, compact transmitter

Ex approvals:

- Gas groups IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO
- Gas groups A, B, C, D, E, F & G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature
T6	64 °C (147 °F)	40 °C (104 °F)
T5	80 °C (176 °F)	55 °C (131 °F)
T4	117 °C (224 °F)	60 °C (140 °F)
T3	150 °C (302 °F)	60 °C (140 °F)
T2	150 °C (302 °F)	60 °C (140 °F)
T1	150 °C (302 °F)	60 °C (140 °F)

Technical specifications (continued)Ex approvals:

- Gas groups IIB and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO
- Gas groups C, D, E, F & G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature
T6	64 °C (147 °F)	44 °C (111 °F)
T5	80 °C (176 °F)	59 °C (138 °F)
T4	117 °C (242 °F)	60 °C (140 °F)
T3	150 °C (302 °F)	60 °C (140 °F)
T2	150 °C (302 °F)	60 °C (140 °F)
T1	150 °C (302 °F)	60 °C (140 °F)

FCS500 nominal size DN 80, compact transmitterEx approvals:

All gas groups: ATEX, IEC Ex, FM, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature
T6	68 °C (154 °F)	39 °C (102 °F)
T5	83 °C (181 °F)	54 °C (129 °F)
T4	119 °C (246 °F)	60 °C (140 °F)
T3	150 °C (302 °F)	60 °C (140 °F)
T2	150 °C (302 °F)	60 °C (140 °F)
T1	150 °C (302 °F)	60 °C (140 °F)

FCS500 nominal sizes DN 10 and DN 15, remote transmitterEx approvals:

All gas groups: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature	
		Standard cable	Fire retardant cable
T6	47 °C (116 °F)	46 °C (114 °F)	46 °C (114 °F)
T5	62 °C (143 °F)	61 °C (141 °F)	61 °C (141 °F)
T4	99 °C (210 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	162 °C (323 °F)	74 °C (165 °F)	56 °C (132 °F)
T2	200 °C (392 °F)	60 °C (140 °F)	46 °C (114 °F)
T1	200 °C (392 °F)	60 °C (140 °F)	46 °C (114 °F)

Ex approvals:

All gas groups: FM

Temperature class	Maximum process temperature	Maximum ambient temperature	
		Standard cable	Fire retardant cable
T6	47 °C (116 °F)	46 °C (114 °F)	46 °C (114 °F)
T5	62 °C (143 °F)	61 °C (141 °F)	61 °C (141 °F)
T4	99 °C (210 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	162 °C (323 °F)	74 °C (165 °F)	56 °C (132 °F)
T2	200 °C (392 °F)	60 °C (140 °F)	46 °C (114 °F)
T1	200 °C (392 °F)	60 °C (140 °F)	46 °C (114 °F)

FCS500 nominal size DN 25, remote transmitterEx approvals:

All gas groups: ATEX, IEC Ex, FM, EAC Ex, NEPSI, Korea Ex, INMETRO

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC520/FC540

Technical specifications (continued)

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	54 °C (129 °F)	54 °C (129 °F)	54 °C (129 °F)
T5	68 °C (154 °F)	68 °C (154 °F)	68 °C (154 °F)
T4	107 °C (224 °F)	80 °C (176 °F)	66 °C (150 °F)
T3	176 °C (348 °F)	68 °C (154 °F)	51 °C (123 °F)
T2	200 °C (392 °F)	60 °C (140 °F)	46 °C (114 °F)
T1	200 °C (392 °F)	60 °C (140 °F)	46 °C (114 °F)

FCS500 nominal size DN 50, remote transmitter

Ex approvals:

- Gas groups IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO
- Gas groups A, B, C, D, E, F & G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	64 °C (147 °F)	42 °C (107 °F)	42 °C (107 °F)
T5	80 °C (176 °F)	57 °C (134 °F)	57 °C (134 °F)
T4	117 °C (242 °F)	80 °C (176 °F)	66 °C (150 °F)
T3	185 °C (365 °F)	68 °C (154 °F)	50 °C (122 °F)
T2	200 °C (392 °F)	60 °C (140 °F)	46 °C (114 °F)
T1	200 °C (392 °F)	60 °C (140 °F)	46 °C (114 °F)

Ex approvals:

- Gas groups IIB and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO
- Gas groups C, D, E, F & G: F

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	64 °C (147 °F)	46 °C (114 °F)	46 °C (114 °F)
T5	80 °C (176 °F)	61 °C (141 °F)	61 °C (141 °F)
T4	117 °C (242 °F)	80 °C (176 °F)	66 °C (150 °F)
T3	185 °C (365 °F)	66 °C (150 °F)	50 °C (122 °F)
T2	200 °C (392 °F)	60 °C (140 °F)	46 °C (114 °F)
T1	200 °C (392 °F)	60 °C (140 °F)	46 °C (114 °F)

FCS500 nominal size DN 80, remote transmitter

Ex approvals:

- All gas groups: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	68 °C (154 °F)	40 °C (104 °F)	40 °C (104 °F)
T5	83 °C (181 °F)	55 °C (131 °F)	55 °C (131 °F)
T4	119 °C (246 °F)	80 °C (176 °F)	66 °C (150 °F)
T3	185 °C (365 °F)	66 °C (150 °F)	50 °C (122 °F)
T2	200 °C (392 °F)	60 °C (140 °F)	46 °C (114 °F)
T1	200 °C (392 °F)	60 °C (140 °F)	46 °C (114 °F)

Technical specifications (continued)

Additional ambient and environmental specifications

Specification	Rating/level of compliance
Relative humidity	0 ... 95%
Ingress protection	IP66 or IP67 with suitable cable glands
Environmental pollution	Pollution degree 4 in accordance with EN 61010-1 whilst in operation
Maximum altitude	2 000 m (6 600 ft) above mean sea level (MSL)
Mechanical load	• Transmitter: 10 ... 500 Hz, 1g • Sensor: 10 ... 500 Hz, 1g according to IEC 60068-2-6

Specification	Rating/level of compliance
Electromagnetic (EMC) Immunity	• EN IEC 61326-1, Table 2 • EN IEC61326-2-3 • EN IEC 61326-2-5 • NAMUR NE 21 recommendation • DNV-CG-0339 section 3, chapter 14
Surge Immunity Emission	• EN 61000-4-5 for lightning protection • EN IEC 61000-3-2, Class A (harmonic current emissions) • EN IEC 61000-3-3, Class A (voltage fluctuations) • Immunity assessment criterion: output signal fluctuation is within $\pm 1\%$ of the output span
Overvoltage	Category II according to EN IEC 61010-1

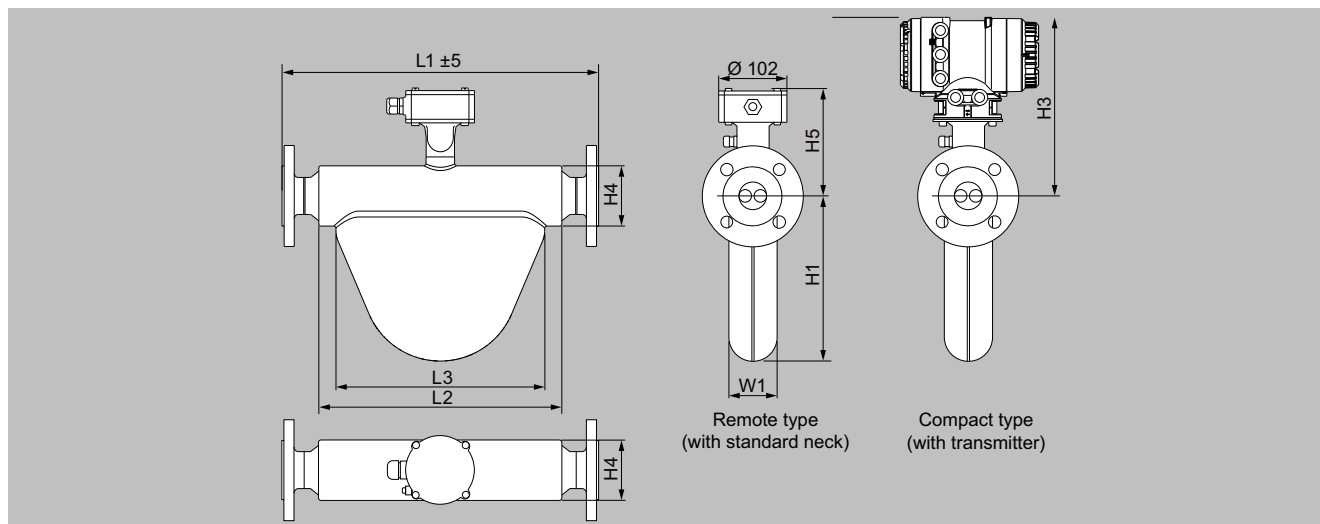
Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC520/FC540

Dimensional drawings

Drawings, dimensions and weight for FCS500 sensors (non-hygienic versions)



FCS500 sensor non hygienic, dimensions in mm

FCS500 sensor dimensions (non-hygienic versions)

Nominal size	L2	L3	H1	H3	H4	H5	W1
	Dimensions in mm (inch)						
DN 10	190 (7.5)	165 (6.5)	117 (4.6)	268 (10.6)	56 (2.2)	138 (5.4)	42 (1.7)
DN 15	227 (8.9)	195 (7.7)	145 (5.7)	277 (10.9)	71 (2.8)	148 (5.8)	50 (2)
DN 25	361 (14.2)	310 (12.2)	245 (9.6)	289 (11.4)	90 (3.5)	159 (6.3)	72 (2.8)
DN 50	455 (17.9)	400 (15.7)	333 (13.1)	296 (11.7)	102 (4)	167 (6.6)	96 (3.8)
DN 80	682 (26.9)	620 (24.4)	482 (19)	330 (13)	168 (6.6)	201 (7.9)	150 (5.9)

Overall length L1 and weight

The overall length of the sensor depends on the selected process connection (type and size). The following tables list the overall length and weight as functions of the individual process connection.

The weights in the tables are for the remote type. Additional weight for the compact type: up to 3.2 kg (7.1 lb)

L1 dimension and weight with process connections according to ASME B16.5 (AISI 316/AISI 316L)

Process connection size and type	FCS500 sensor nominal size									
	DN 10		DN 15		DN 25		DN 50		DN 80	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME ½" class 150, raised face (RF)	280 (11)	6 (13)	320 (12.6)	8 (18)	n/a	n/a	n/a	n/a	n/a	n/a
ASME ½" class 300, raised face (RF)	280 (11)	6.4 (14)	320 (12.6)	8.4 (18)	n/a	n/a	n/a	n/a	n/a	n/a
ASME ½" class 600, raised face (RF)	290 (11.4)	6.7 (15)	330 (13)	8.7 (19)	n/a	n/a	n/a	n/a	n/a	n/a
ASME ½" class 600, ring joint (RJ)	290 (11.4)	6.6 (15)	330 (13)	8.6 (19)	n/a	n/a	n/a	n/a	n/a	n/a
ASME 1" class 150, raised face (RF)	280 (11)	6.9 (15)	320 (12.6)	8.9 (20)	490 (19.3)	15.7 (35)	n/a	n/a	n/a	n/a
ASME 1" class 300, raised face (RF)	280 (11)	7.9 (17)	320 (12.6)	9.9 (22)	490 (19.3)	16.7 (37)	n/a	n/a	n/a	n/a
ASME 1" class 600, raised face (RF)	300 (11.8)	8.3 (18)	340 (13.4)	10.3 (23)	500 (19.7)	17 (38)	n/a	n/a	n/a	n/a
ASME 1" class 600, ring joint (RJ)	300 (11.8)	8.4 (19)	340 (13.4)	10.4 (23)	500 (19.7)	17.2 (38)	n/a	n/a	n/a	n/a
ASME 1½" class 150, raised face (RF)	290 (11.4)	7.8 (17)	330 (13)	9.8 (22)	470 (18.5)	16.5 (36)	620 (24.4)	25.7 (57)	n/a	n/a

Dimensional drawings (continued)

Process connection size and type	FCS500 sensor nominal size									
	DN 10 L1 in mm (inch)	Weight in kg (lb)	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 50 L1 in mm (inch)	Weight in kg (lb)	DN 80 L1 in mm (inch)	Weight in kg (lb)
ASME 1½" class 300, raised face (RF)	290 (11.4)	10.1 (22)	330 (13)	12.1 (27)	480 (18.9)	19 (42)	620 (24.4)	28.1 (62)	n/a	n/a
ASME 1½" class 600, raised face (RF)	310 (12.2)	11.5 (25)	350 (13.8)	13.5 (30)	500 (19.7)	20 (44)	630 (24.8)	28.9 (64)	n/a	n/a
ASME 1½" class 600, ring joint (RJ)	310 (12.2)	11.4 (25)	350 (13.8)	13.4 (30)	500 (19.7)	20 (44)	630 (24.8)	29.1 (64)	n/a	n/a
ASME 2" class 150, raised face (RF)	n/a	n/a	n/a	n/a	480 (18.9)	18.1 (40)	580 (22.8)	26.8 (59)	n/a	n/a
ASME 2" class 300, raised face (RF)	n/a	n/a	n/a	n/a	480 (18.9)	19.7 (43)	580 (22.8)	28.3 (62)	n/a	n/a
ASME 2" class 600, raised face (RF)	n/a	n/a	n/a	n/a	510 (20.1)	21.3 (47)	610 (24)	30.5 (67)	n/a	n/a
ASME 2" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	510 (20.1)	21.8 (48)	610 (24)	30.3 (67)	n/a	n/a
ASME 2½" class 150, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	29.8 (66)	n/a	n/a
ASME 2½" class 300, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	31.3 (69)	n/a	n/a
ASME 2½" class 600, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	610 (24)	33.4 (74)	n/a	n/a
ASME 2½" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	n/a	n/a	610 (24)	33.8 (74)	n/a	n/a
ASME 3" class 150, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	580 (23.3)	30.9 (68)	870 (34.3)	71.2 (157)
ASME 3" class 300, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	590 (22.8)	34.5 (76)	880 (34.6)	75 (165)
ASME 3" class 600, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	630 (24.8)	37.8 (83)	900 (35.4)	77.7 (171)
ASME 3" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	n/a	n/a	610 (24)	38.4 (85)	900 (35.4)	78.3 (173)
ASME 4" class 150, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	74.4 (164)
ASME 4" class 300, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	81.8 (180)
ASME 4" class 600, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	920 (36.2)	94 (207)
ASME 4" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	920 (36.2)	94.6 (209)
ASME 5" class 150, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	870 (34.3)	77 (170)
ASME 5" class 300, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	890 (35)	89.4 (197)
ASME 5" class 600, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	920 (36.2)	114.2 (252)
ASME 5" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	920 (36.2)	114.9 (253)

L1 dimension and weight with process connections according to EN 1092-1 (AISI 316L)

Process connection size and type	FCS500 sensor nominal size									
	DN 10 L1 in mm (inch)	Weight in kg (lb)	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 50 L1 in mm (inch)	Weight in kg (lb)	DN 80 L1 in mm (inch)	Weight in kg (lb)
EN DN 15 PN 40 type B1, raised face (RF)	280 (11)	6.6 (14)	320 (12.6)	8.6 (19)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 40 type D, with groove	280 (11)	6.4 (14)	320 (12.6)	8.4 (18)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 40 type E, with spigot	280 (11)	6.3 (14)	320 (12.6)	8.3 (18)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 40 type F, with recess	280 (11)	6.5 (14)	320 (12.6)	8.5 (19)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type B1, raised face (RF)	290 (11.4)	7.4 (16)	330 (13)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type D, with groove	290 (11.4)	7.4 (16)	330 (13)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC520/FC540

Dimensional drawings (continued)

Process connection size and type	FCS500 sensor nominal size									
	DN 10 L1 in mm (inch)	Weight in kg (lb)	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 50 L1 in mm (inch)	Weight in kg (lb)	DN 80 L1 in mm (inch)	Weight in kg (lb)
EN DN 15 PN 100 type E, with spigot	290 (11.4)	7.1 (16)	330 (13)	9.1 (20)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type F, with recess	290 (11.4)	7.3 (16)	330 (13)	9.3 (21)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type B1, raised face (RF)	280 (11)	7.5 (17)	320 (12.6)	9.5 (21)	490 (19.3)	16.4 (36)	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type D, with groove	280 (11)	7.5 (17)	320 (12.6)	9.5 (21)	490 (19.3)	16.3 (36)	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type E, with spigot	280 (11)	7.2 (16)	320 (12.6)	9.2 (20)	490 (19.3)	16.1 (35)	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type F, with recess	280 (11)	7.4 (67)	320 (12.6)	9.4 (21)	490 (19.3)	16.3 (36)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type B1, raised face (RF)	300 (10.1)	10.1 (22)	340 (13.4)	12.1 (27)	490 (19.3)	18.8 (41)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type D, with groove	300 (10.1)	10 (22)	340 (13.4)	12 (26)	490 (19.3)	18.7 (41)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type E, with spigot	300 (10.1)	9.5 (21)	340 (13.4)	11.5 (25)	490 (19.3)	18.3 (40)	n/a	n/a	n/a	n/a
EN DN 25 PN100 type F, with recess	300 (10.1)	9.9 (22)	340 (13.4)	11.9 (26)	490 (19.3)	18.7 (41)	n/a	n/a	n/a	n/a
EN DN 40 PN40 type B1, raised face (RF)	280 (11)	9.1 (20)	320 (12.6)	11.1 (24)	470 (18.5)	17.7 (39)	610 (24)	26.9 (59)	n/a	n/a
EN DN 40 PN 40 type D, with groove	280 (11)	8.9 (20)	320 (12.6)	10.9 (24)	470 (18.5)	17.6 (39)	610 (24)	26.8 (59)	n/a	n/a
EN DN 40 PN 40 type E, with spigot	280 (11)	8.6 (19)	320 (12.6)	10.6 (23)	470 (18.5)	17.4 (38)	610 (24)	26.5 (58)	n/a	n/a
EN DN 40 PN 40 type F, with recess	280 (11)	8.8 (19)	320 (12.6)	10.8 (24)	470 (18.5)	17.5 (39)	610 (24)	26.7 (59)	n/a	n/a
EN DN 40 PN 100 type B1, raised face (RF)	360 (14.2)	13.5 (30)	400 (15.7)	15.5 (34)	500 (19.7)	21.5 (47)	610 (24)	30.5 (67)	n/a	n/a
EN DN 40 PN 100 type D, with groove	360 (14.2)	13.4 (30)	400 (15.7)	15.4 (34)	500 (19.7)	21.4 (47)	610 (24)	30.4 (67)	n/a	n/a
EN DN 40 PN 100 type E, with spigot	360 (14.2)	13 (29)	400 (15.7)	15 (33)	500 (19.7)	21.1 (46)	610 (24)	30 (66)	n/a	n/a
EN DN 40 PN 100 type F, with recess	360 (14.2)	13.3 (29)	400 (15.7)	15.3 (34)	500 (19.7)	21.3 (47)	610 (24)	30.3 (67)	n/a	n/a
EN DN 50 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	470 (18.5)	19.1 (42)	580 (22.8)	27.8 (61)	n/a	n/a
EN DN 50 PN 40 type D, with groove	n/a	n/a	n/a	n/a	470 (18.5)	18.9 (42)	580 (22.8)	27.7 (61)	n/a	n/a
EN DN 50 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	470 (18.5)	18.6 (41)	580 (22.8)	27.4 (60)	n/a	n/a
EN DN 50 PN 40 type F, with recess	n/a	n/a	n/a	n/a	470 (18.5)	18.8 (41)	580 (22.8)	27.6 (61)	n/a	n/a
EN DN 50 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	540 (21.3)	25.4 (56)	610 (24)	33.5 (74)	n/a	n/a
EN DN 50 PN 100 type D, with groove	n/a	n/a	n/a	n/a	540 (21.3)	25.3 (56)	610 (24)	33.4 (74)	n/a	n/a
EN DN 50 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	540 (21.3)	24.8 (55)	610 (24)	32.9 (72)	n/a	n/a
EN DN 50 PN 100 type F, with recess	n/a	n/a	n/a	n/a	540 (21.3)	25.2 (56)	610 (24)	33.2 (73)	n/a	n/a
EN DN 80 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	31.5 (69)	870 (34.2)	71.6 (158)
EN DN 80 PN 40 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	31.3 (69)	870 (34.2)	71.1 (157)
EN DN 80 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	30.9 (68)	870 (34.2)	70.7 (156)
EN DN 80 PN 40 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	31.1 (69)	870 (34.2)	70.9 (156)
EN DN 80 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	650 (25.6)	40 (88)	890 (35)	79.1 (174)
EN DN 80 PN 100 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	650 (25.6)	39.8 (88)	890 (35)	78.9 (174)
EN DN 80 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	650 (25.6)	39.2 (86)	890 (35)	78.3 (173)

Dimensional drawings (continued)

Process connection size and type	FCS500 sensor nominal size DN 10		DN 15		DN 25		DN 50		DN 80	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 80 PN 100 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	650 (25.6)	39.6 (87)	890 (35)	78.7 (173)
EN DN 100 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	73.8 (163)
EN DN 100 PN 40 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	73.6 (162)
EN DN 100 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	73 (161)
EN DN 100 PN 40 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	73.3 (162)
EN DN 100 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	870 (34.3)	85.2 (188)
EN DN 100 PN 100 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	870 (34.3)	84.8 (187)
EN DN 100 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	870 (34.3)	84 (185)
EN DN 100 PN 100 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	870 (34.3)	84.5 (186)
EN DN125 PN40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	860 (33.9)	78.5 (173)
EN DN 135 PN 40 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	860 (33.9)	78.1 (172)
EN DN 125 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	860 (33.9)	77.4 (171)
EN DN 125 PN 40 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	860 (33.9)	77.7 (171)
EN DN 125 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	880 (34.6)	98 (216)
EN DN 125 PN 100 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	880 (34.6)	97.6 (215)
EN DN 125 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	880 (34.6)	96.3 (212)
EN DN 125 PN 100 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	880 (34.6)	97.1 (214)

L1 dimension and weight with process connections according to JIS B 2220 (AISI 316/AISI 316L)

Process connection size and type	FCS500 sensor nominal size DN 10		DN 15		DN 25		DN 50		DN 80	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS DN 15 10 K	280 (11)	6.3 (14)	320 (12.6)	8.3 (18)	n/a	n/a	n/a	n/a	n/a	n/a
JIS DN 15 20 K	280 (11)	6.5 (14)	320 (12.6)	8.5 (19)	n/a	n/a	n/a	n/a	n/a	n/a
JIS DN 25 10 K	280 (11)	7.4 (16)	320 (12.6)	9.4 (21)	490 (19.3)	16.3 (36)	n/a	n/a	n/a	n/a
JIS DN 25 20 K	280 (11)	7.8 (17)	320 (12.6)	9.8 (22)	490 (19.3)	16.6 (37)	n/a	n/a	n/a	n/a
JIS DN 40 10 K	280 (11)	8.2 (18)	320 (12.6)	10.2 (23)	470 (18.5)	16.9 (37)	620 (24.4)	26.1 (58)	n/a	n/a
JIS DN 40 20 K	280 (11)	8.6 (19)	320 (12.6)	10.6 (23)	470 (18.5)	17.3 (38)	620 (24.4)	26.5 (58)	n/a	n/a
JIS DN 50 10 K	n/a	n/a	n/a	n/a	470 (18.5)	17.5 (39)	600 (23.6)	26.6 (59)	n/a	n/a
JIS DN 50 20 K	n/a	n/a	n/a	n/a	470 (18.5)	17.7 (39)	600 (23.6)	26.7 (59)	n/a	n/a
JIS DN 80 10 K	n/a	n/a	n/a	n/a	n/a	n/a	570 (22.4)	27.9 (62)	880 (34.6)	68.7 (151)
JIS DN 80 20 K	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	30.4 (67)	880 (34.6)	71 (156)
JIS DN 100 10 K	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	69.8 (154)
JIS DN 100 20 K	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	73.4 (162)
JIS DN 125 10 K	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	73.5 (162)
JIS DN 125 20 K	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	850 (33.5)	79.7 (176)

L1 dimension and weight with process connections according to NPT internal thread

Process connection size and type	FCS500 sensor nominal size DN 10		DN 15		DN 25		DN 50		DN 80	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
3/8" NPT	300 (11.8)	5.4 (12)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1/2" NPT	300 (11.8)	5.4 (12)	340 (13.4)	7.4 (16)	n/a	n/a	n/a	n/a	n/a	n/a
3/4" NPT	300 (11.8)	5.3 (12)	340 (13.4)	7.3 (16)	n/a	n/a	n/a	n/a	n/a	n/a

Flow Measurement

SITRANS FC (Coriolis)

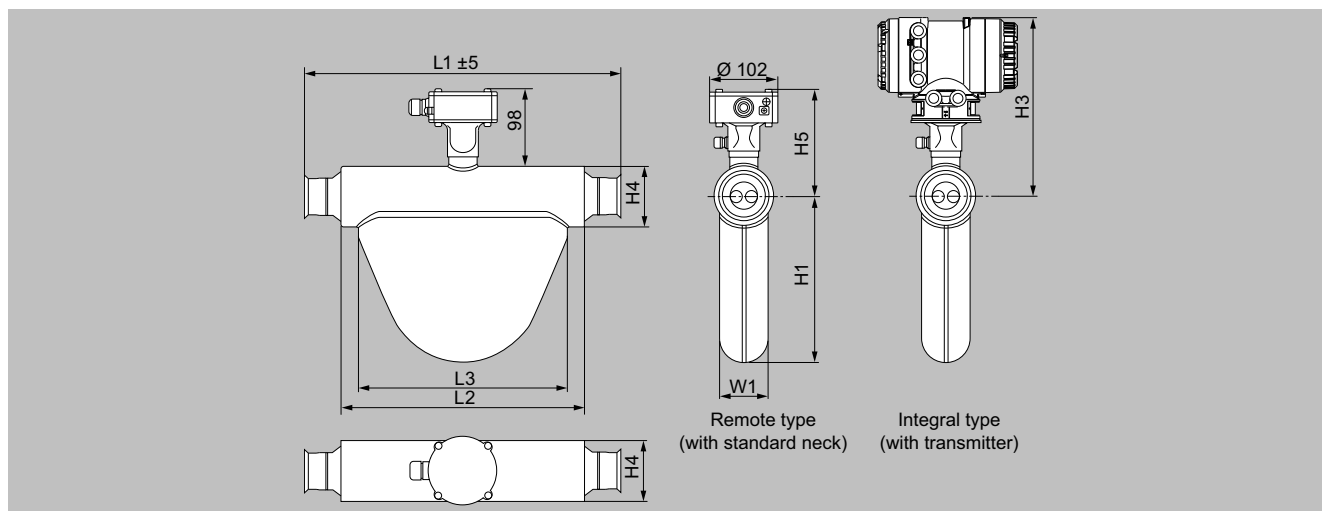
Flowmeter systems / SITRANS FC520/FC540

Dimensional drawings (continued)

L1 dimension and weight with process connections according to G internal thread

Process connection size and type	FCS500 sensor nominal size DN 10		DN 15		DN 25		DN 50		DN 80	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
G 3/8"	300 (11.8)	5.4 (12)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
G 1/2"	300 (11.8)	5.4 (12)	340 (13.4)	7.4 (16)	n/a	n/a	n/a	n/a	n/a	n/a
G 3/4"	300 (11.8)	5.3 (12)	340 (13.4)	7.3 (16)	n/a	n/a	n/a	n/a	n/a	n/a

Drawings, dimensions and weight for FCS500 sensors (hygienic versions)



Dimensions in mm

FCS500 sensor dimensions (hygienic versions)

Nominal size	L2	L3	H1	H3	H4	H5	W1
Dimensions in mm (inch)							
DN 10	190 (7.5)	165 (6.5)	117 (4.6)	268 (10.6)	56 (2.2)	138 (5.4)	42 (1.7)
DN 15	227 (8.9)	195 (7.7)	145 (5.7)	277 (10.9)	71 (2.8)	148 (5.8)	50 (2)
DN 25	361 (14.2)	310 (12.2)	245 (9.6)	289 (11.4)	90 (3.5)	159 (6.3)	72 (2.8)
DN 50	455 (17.9)	400 (15.7)	333 (13.1)	296 (11.7)	102 (4)	167 (6.6)	96 (3.8)

Overall length L1 and weight

The overall length of the sensor depends on the selected process connection (type and size). The following tables list the overall length and weight as functions of the individual process connection.

The weights in the tables are for the remote type. Additional weight for the compact type: up to 3.2 kg (7.1 lb)

L1 dimension and weight with threaded hygienic process connections according to DIN 11851

Process connection size and type	FCS500 sensor nominal size DN 10		DN 15		DN 25		DN 50	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 11851, DN 25	280 (11)	5.4 (12)	320 (12.6)	7.4 (16)	n/a	n/a	n/a	n/a
DIN 11851, DN 40	290 (11.4)	5.5 (12)	330 (13)	7.5 (17)	490 (19.3)	14.3 (32)	n/a	n/a
DIN 11851, DN 50	n/a	n/a	n/a	n/a	480 (18.9)	14.4 (32)	610 (24)	23.4 (52)
DIN 11851, DN 65	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	23.4 (52)
DIN 11851, DN 80	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	23.8 (52)

Dimensional drawings (continued)

L1 dimension and weight with hygienic clamp process connections according to DIN 32676 Series A

Process connection size and type	FCS500 sensor nominal size		DN 15		DN 25		DN 50	
	DN 10 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 32676 series A, DN 25	280 (11)	5.2 (11)	320 (12.6)	7.2 (16)	n/a	n/a	n/a	n/a
DIN 32676 series A, DN 40	280 (11)	5.2 (11)	320 (12.6)	7.2 (16)	470 (18.5)	14 (31)	n/a	n/a
DIN 32676 series A, DN 50	n/a	n/a	n/a	n/a	470 (18.5)	14 (31)	600 (23.6)	22.9 (50)
DIN 32676 series A, DN 65	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	23 (51)
DIN 32676 series A, DN 80	n/a	n/a	n/a	n/a	n/a	n/a	590 (23.2)	23.1 (51)

L1 dimension and weight with hygienic clamp process connections according to DIN 32676 Series C (Tri-clamp)

Process connection size and type	FCS500 sensor nominal size		DN 15		DN 25		DN 50	
	DN 10 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 32676 series C, 1"	280 (11)	5.2 (11)	320 (12.6)	7.2 (16)	n/a	n/a	n/a	n/a
DIN 32676 series C, 1½"	280 (11)	5.2 (11)	320 (12.6)	7.2 (16)	480 (18.9)	14 (31)	n/a	n/a
DIN 32676 series C, 2"	n/a	n/a	n/a	n/a	470 (18.5)	14 (31)	600 (23.6)	22.9 (50)
DIN 32676 series C, 2½"	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	22.8 (50)
DIN 32676 series C, 3"	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	22.9 (50)

L1 dimension and weight with hygienic clamp process connections according to JIS/ISO 2852

Process connection size and type	FCS500 sensor nominal size		DN 15		DN 25		DN 50	
	DN 10 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS/ISO 2852, 1"	280 (11)	5.2 (11)	320 (12.6)	7.2 (16)	n/a	n/a	n/a	n/a
JIS/ISO 2852, 1½"	280 (11)	5.2 (11)	320 (12.6)	7.2 (16)	480 (18.9)	14 (31)	n/a	n/a
JIS/ISO 2852, 2"	n/a	n/a	n/a	n/a	470 (18.5)	14 (31)	600 (23.6)	22.9 (50)
JIS/ISO 2852, 2½"	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	22.8 (50)
JIS/ISO 2852, 3"	n/a	n/a	n/a	n/a	n/a	n/a	580 (22.8)	22.9 (50)

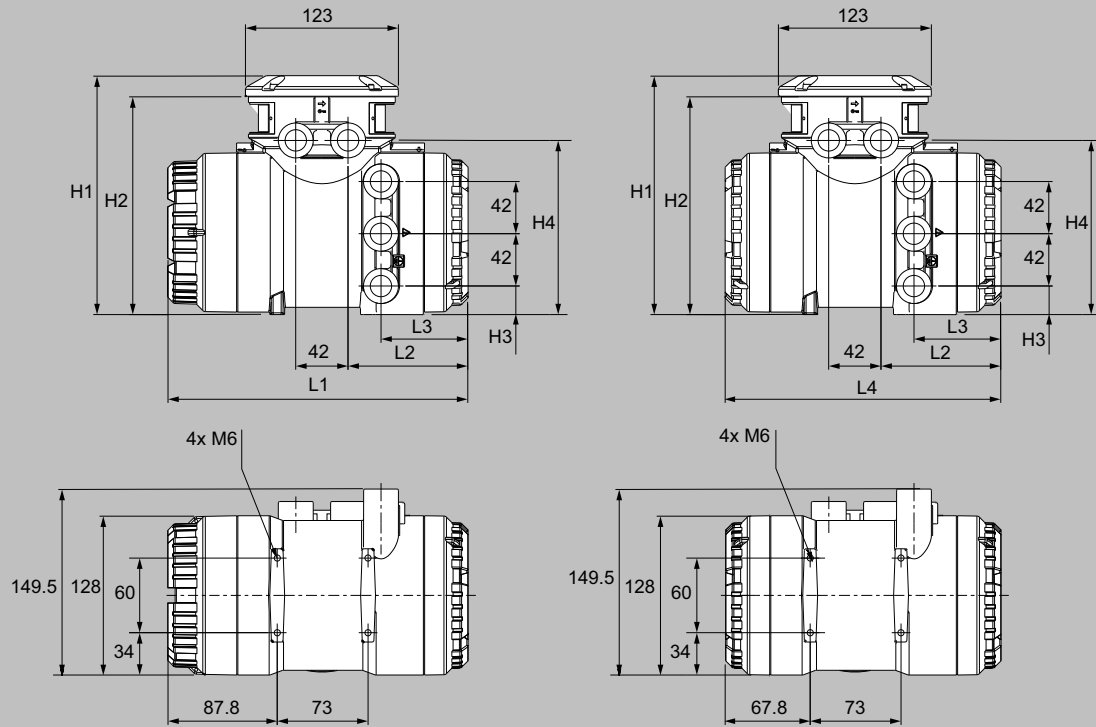
Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC520/FC540

Dimensional drawings (continued)

Drawings, dimensions and weight for FCT020 and FCT040 transmitters

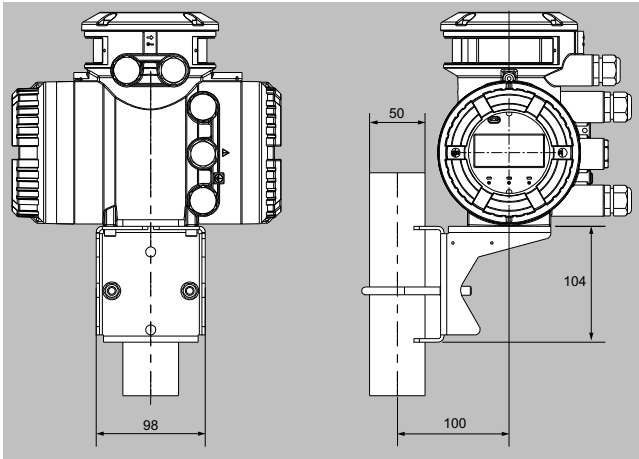


Dimensions of FCT020 or FCT040 transmitter in mm. Transmitter with display shown on the left. Transmitter without display shown on the right.

Dimensions L1 to L4 and H1 to H4 (material options: stainless steel, aluminum)

Material	L1 in mm (inch)	L2 in mm (inch)	L3 in mm (inch)	L4 in mm (inch)	H1 in mm (inch)	H2 in mm (inch)	H3 in mm (inch)	H4 in mm (inch)
Stainless steel	255.5 (10.06)	110.5 (4.35)	69 (2.72)	235 (9.25)	201 (7.91)	184 (7.24)	24 (0.94)	150.5 (5.93)
Aluminum	241.5 (9.51)	96.5 (3.8)	70 (2.76)	221 (8.7)	192 (7.56)	175 (6.89)	23 (0.91)	140 (5.51)

Dimensional drawings (continued)



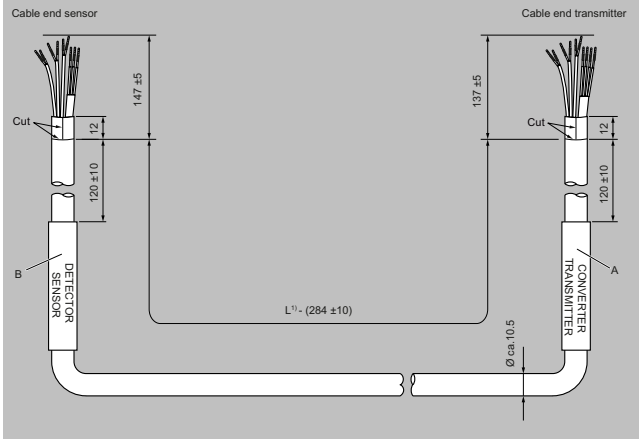
Dimensions of transmitter in mm, attached to mounting bracket.

Transmitter weights

Design type	Transmitter enclosure material	Weight in kg (lb)
Remote	Cast aluminum	4.2 (9.3)
	CF-8M stainless steel	12.5 (27.6)

Connecting cable dimensions and weights

Standard cable

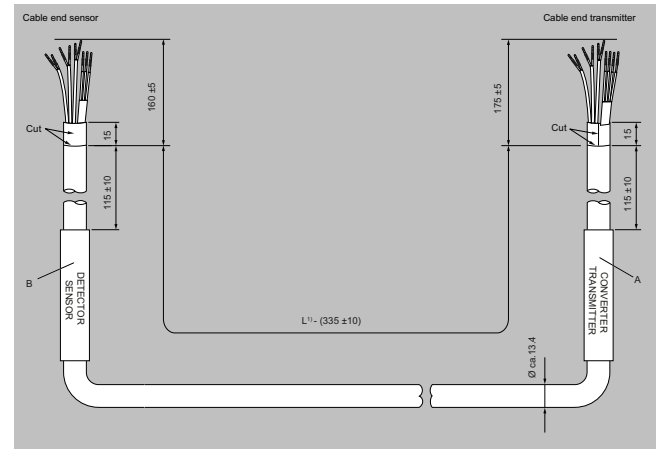


Dimensions in mm. Standard terminated cable. A and B are factory-fitted labels.

Option code	Cable length, L	Cable color
L51	5 m (16.4 ft)	Non-Ex: gray / Ex: blue
L54	10 m (32.8 ft)	
L57	15 m (49.2 ft)	
L60	20 m (65.6 ft)	
L63	30 m (98.4 ft)	

Weight of cable ≤ 0.200 kg/m (0.134 lb/ft)

Standard cable with steel armored option

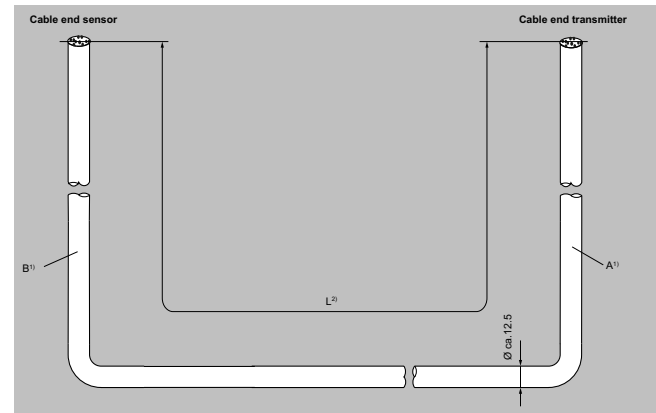


Dimensions in mm. Steel armored terminated cable. A and B are factory-fitted labels.

Option code	Cable length, L	Cable colour
L51 + A20/A21	5 m (16.4 ft)	Blue
L54 + A20/A21	10 m (32.8 ft)	
L57 + A20/A21	15 m (49.2 ft)	
L60 + A20/A21	20 m (65.6 ft)	
L63 + A20/A21	30 m (98.4 ft)	

Weight of cable ≤ 0.300 kg/m (0.202 lb/ft)

Fire retardant cable



Dimensions in mm. Fire retardant unterminated cable. Labels A and B are supplied loose with termination kit.

Option code	Cable length, L	Cable colour
L71	5 m (16.4 ft)	Gray
L74	10 m (32.8 ft)	
L77	15 m (49.2 ft)	
L80	20 m (65.6 ft)	
L83	30 m (98.4 ft)	

Weight of cable ≤ 0.270 kg/m (0.181 lb/ft)

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Overview

The flowmeter systems of the SITRANS FC600 series are the resistant Coriolis multi-parameter flowmeter for extreme conditions.

The Coriolis flowmeters of this serie are rugged with superior performance under very tough operating conditions.

They are formed by one FCS600 sensor and one FCT transmitter:

- SITRANS FC620 is the combination of the FCS600 sensor and the FCT020 transmitter
- SITRANS FC640 is the combination of the FCS600 sensor and the FCT040 transmitter

Features:

- Resistant to high temperature up to 350 °C (662 °F)
- Resistant to high pressure up to 700 bar (10 153 psi) (gauge)
- Resistant to corrosive fluids
- Dual curved measuring tubes with optimum decoupling from external stresses and vibrations
- Wetted parts: stainless steel 316L or alloy 22
- Process connection: flange or thread
- Nominal sizes: DN 2, DN 4, DN 15, DN 25, DN 40, DN 65
- Connection sizes: DN 8 to DN 125 ($\frac{3}{8}$ " to 5")
- Nominal flow: 45 to 100 000 kg/h (99 to 220 462 lb/h)
- FCS600 sensors can be combined with compact or remote transmitters
- Thick measuring tubes and optional alloy 22 wetted parts for long-term durability
- Superior aeration handling and advanced diagnostic functionality

Note: FC600 sizes DN 2 and DN 4 are only available with standard neck and remote transmitter



FC620/640 Coriolis flowmeter

Benefits

Product features aligned to user value targets

	User value targets	SITRANS FC features and solutions
Engineering and project management	• Reduce engineering investment • Cut specification effort • Minimize project expenditure • Decrease the spending on each measurement point • Eliminate function duplication • Reduce number of suppliers	• Siemens project teams offer complimentary evaluation of customer specifications, provided by regional and HQ experts • Simple product selection using intuitive sizing software • One SITRANS FC device can typically provide three to six individual measurements, all transmitted via digital communication, when planned during pre-project design • Added value functions: batch control, viscosity, thermal energy, concentration measurement (Fraction) of two component solutions and pressure compensation
Installation	• Reduce footprint and transport outlay of OEM machinery • Lower installation complexity • Avoid costly modifications of existing plant	• Can be installed in horizontal or vertical (self-draining) pipes • Twin tube bend design delivers strong signal to noise characteristic resistant to external influence, so install in tight spaces with no inlet and outlet restrictions • Adaptable to existing pipes: typically, three or four connection sizes for each sensor size • Flexible selection of traditional inputs, outputs, and digital communications
Configuration and commissioning	• Shorter commissioning schedules with lower costs • Faster start-up with reduced outgoings	• Easy setup wizard delivers working meters straight after start-up • microSD card stores sensor calibration data and default setup • Simple configuration using Process Device Manager (PDM) • Siemens device-specific faceplates simplify operation in plantwide control systems
Efficient plant operation	• Improve finished product consistency to reduce waste • Keep process performance when scaling production up or down • Optimize process control • Improve finished product quality enabling higher levels of profit • Reduce downtime with fast resolution of process upsets • Improve asset performance	• SITRANS FC meters are calibrated in rigs accredited to EN/ISO 17025 to ensure consistently high performance of flow, density and concentration measurements • First-class zero-point quality maintains high accuracy into the low flow region • High sensitivity and intelligent dynamic range keeps the measurement active in demanding high fluid damping cases • Designed-in resilience to process extremes • Self-verification alerts to potential performance issues due to unplanned process events, for example gas or vapor breakout or solid deposits building up in the tubes • Diagnostic data via local menu or PDM is backed by Siemens applications experts • Intelligent Siemens SITRANS IQ apps for continuing asset evaluation
Maintenance and asset management	• Optimize technician training • Reduce cost of spare parts • Increase predictive maintenance • Reduce production downtime and associated costs • Decrease unplanned maintenance • Maximize asset value	• Simple product design with interchangeable modular parts • microSD card loads sensor-specific data to deliver fast service exchange • Self-verification: tube health check monitors key diagnostics, including tube stiffness, driver and pickups; the user defines verification frequency and alarm behavior • Verification results indicate whether preventive maintenance action is required • Siemens SIMATIC Maintenance Station uses cyclical acquisition to provide life cycle reports and intelligent preventive maintenance strategies

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Benefits (continued)

	User value targets	SITRANS FC features and solutions
Industry compliance	• Cut effort required to comply with Industry-specific demands • Reduce resource needed to maintain regulatory compliance	• Food and beverage sector covered with EHEDG and 3-A approvals, polished tubes • Global hazardous area approvals for international plant duplications • Common and emerging digital networks covered: HART, , or over (IS) • Class-leading safety: SIL2/SIL3, secondary containment, PED,

Application

Application examples for SITRANS FC multi-parameter meters across diverse industry sectors

Chemical and petrochemical Bulk chemicals Industrial gases Polymers Agrochemicals Fine chemicals Aroma chemicals	• Transfer, loading and unloading of bulk chemicals • Concentration control of acids and alkalis (process optimization) • Accurate mass or volume flow of feed chemicals to in-line blending systems • Accurate mass flow and density (quality) of reactor fluid feeds catalyst • Chemical recovery • Mass balance optimization • Compressed and cryogenic gases • Lubricating oil blending and dosing • High accuracy measurement of critical fluid components • Low flow control in pilot plants and R&D facilities
Food and beverage Food processing Dairies Breweries Distilleries Confectionary Soft drinks Animal feed plants OEM	• Accurate bulk transfer (mass or volume) of all dairy products: milk, cream, whey and yoghurt • Fat concentration in cream • Flow, density, temperature and concentration (Plato) during all fermentation processes • Flow, density, temperature and sugar concentration (Brix) in soft drink processing • Distilled spirits – % alcohol by volume (ABV), liters of pure alcohol, volume transfer, blending, batch and column still optimization and energy management, cask filling, tanker loading • Flow and density of fruit juices and pulps • Mixing and inventory control of confectionary ingredients, e.g. chocolate, syrup, oils, flavors • Metering pump control • Oils, fat enzymes dosing in animal feed plants • CO₂ dosing • CIP liquids • Bottling of beer, spirits, wine, soft drinks, etc. • Bulk sugar processing – molasses, sugar slurries, density, Brix of finished product
Oil and gas Offshore/onshore Upstream/downstream Pipelines Distribution networks Refineries Skid manufacturers	• Loading/unloading of hydrocarbons (e.g. crude oil, bitumen) from/to ship, road tanker, rail car • High pressure chemical injection • High pressure low flow gas • Net oil computing • Gas void fraction • Filling of gas bottles • Furnace control • Test separators • LPG, natural gas hydration • Well-head water-cut monitoring • All hydrocarbon fluids in refineries • Metrology, custody transfer • Drilling mud • Oil well cementing and hydrofracturing

Application (continued)

Application examples for SITRANS FC multi-parameter meters across diverse industry sectors

Life sciences Pharmaceutical Bio	• High accuracy flow and batching of bioreactor feeds • Solvent flow rate, density and batching • Flow of demineralized and deionized water • Solvents and fish oils used in high grade omega 3 oils • Precision coatings • Vacuum thin film coating
Household and personal care Detergents Cosmetics	• Blending and batching of detergent ingredients • Tanker loading and unloading • Salt concentration • Reliable measurement of aerated liquids
Automotive and aeronautical Vehicle manufacturing Paint Engine testing OEM	• Fuel injection nozzle and pump testing • Filling of under bonnet fluid reservoirs, air conditioning, coolant • Fuel flow and density measurement in engine test beds • Checking for air in oil using high accuracy density measurement • Paint spray robots – requires accurate and fast measurements • Aircraft fuel loading (kerosene) • High pressure flow used in turbine blade manufacture
Power and energy Renewable Hydrogen	• Boiler fuel flow and burner control • Turbine fuel flow • Glycol flow and concentration • Bioethanol
Marine OEM Shipbuilders	• Fuel consumption management • Boiler control • Bunkering management • Density used to indicate fuel quality
Pulp, paper and textiles	• Accurate dosing of dyes and chemicals
Water and environmental	• Dosing of chemicals for water treatment • Chemical concentration for water quality control

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

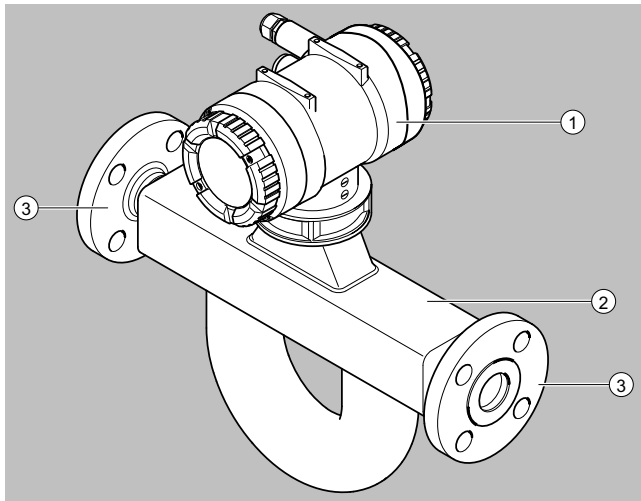
Design

Design options and related temperature range for FC600 series

Design version	Transmitter	Process fluid temperature range
Compact, standard neck	Aluminum	Standard [-50 ... +150 °C (-58 ... +302 °F)]
Compact, standard neck, hygienic clamps	Aluminum	Standard [-10 ... +140 °C (-14 ... +284 °F)]
Remote, standard neck or long neck	Aluminum or stainless steel	Standard [-70 ... +150 °C (-94 ... +302 °F)]
Remote, standard neck or long neck, hygienic clamps	Aluminum or stainless steel	Standard [-10 ... +140 °C (-14 ... +284 °F)]
Remote only, long neck only	Aluminum or stainless steel	Low [-196 ... +150 °C (-321 ... +302 °F)] Medium [-70 ... +230 °C (-94 ... +446 °F)] High [0 ... 350 °C (32 ... 662 °F)]

FCS600 in sizes DN 2 and DN 4 only available with:

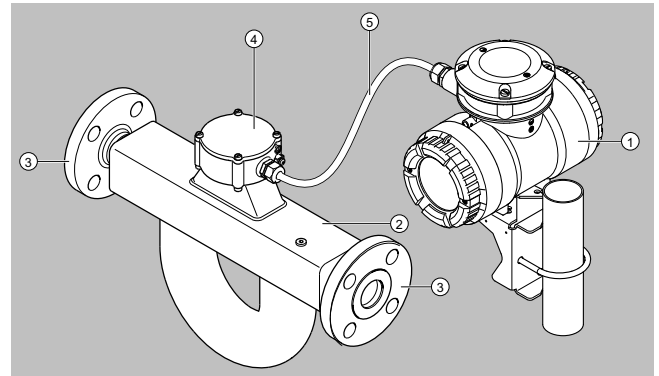
- High pressure autoclave adaptors
- Standard temperature range
- Standard sensor neck (pedestal)
- Remote mounted transmitters



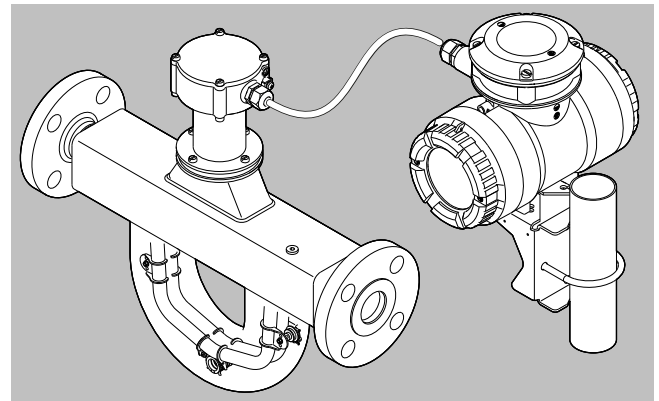
FCS600 sensor with compact, close mounted transmitter. Only sizes DN 15, DN 25, DN 40, and DN 65.

- | | |
|---|--------------------|
| 1 | Transmitter |
| 2 | FCS600 sensor |
| 3 | Process connection |

Design (continued)

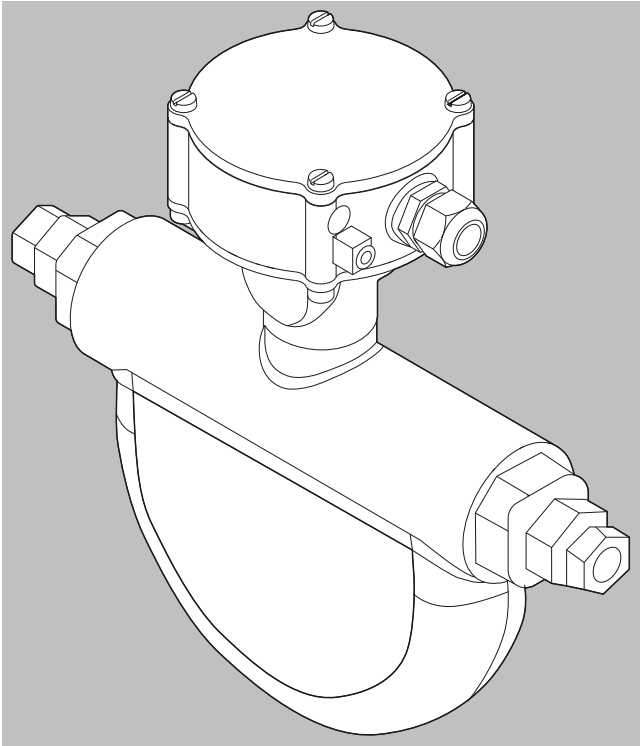


FCS600 sensor with remote transmitter, standard sensor neck



FCS600 sensor with remote transmitter, long sensor neck

- | | |
|---|---------------------|
| 1 | Transmitter |
| 2 | FCS600 sensor |
| 3 | Process connection |
| 4 | Sensor terminal box |
| 5 | Connecting cable |

Design (continued)

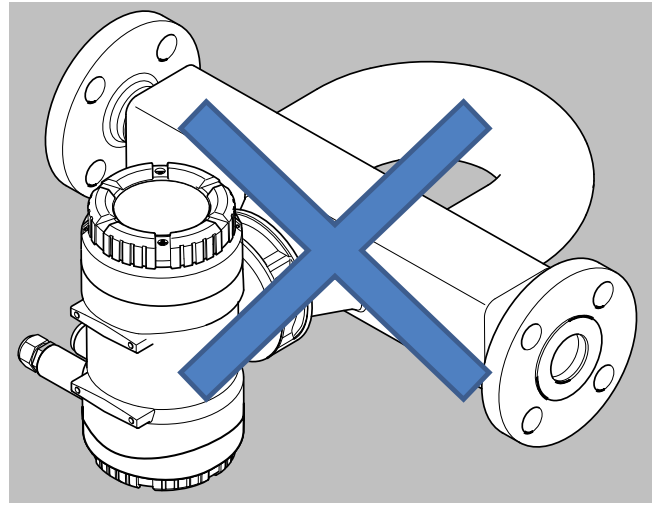
FCS600 sensors (remote transmitter only) in sizes DN 2 and DN 4 standard neck

Installation guidelines

FCS600 series flowmeters can be mounted horizontally, vertically and at an incline. The measuring tubes should be filled with the fluid during flow measurement as entrained gas may result in errors in measurement. Straight pipe runs at inlet or outlet are usually not required.

Avoid the following installation locations and positions:

- Measuring tubes as highest point in piping when measuring liquids
- Measuring tubes as lowest point in piping when measuring gases
- Immediately in front of a free pipe outlet in a downpipe
- Lateral positions

Design (continued)

Avoid measuring tubes in sideways position resulting in possible non-homogeneous fluid separation

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Function

Compatible fluids

FC600 series flowmeters can be used to measure the following liquids:

- Liquids
- Gases
- Mixtures, solutions, emulsions, suspensions and slurries

Primary measured variables

- Mass flow
- Density
- Temperature

Based on the primary measured quantities, the transmitter also calculates

- Volume flow
- Percent concentration (fraction) of a two-component mixture (FCT040 only)
- Partial component flow rate (net flow) of a mixture consisting of two components (FCT040 only)

Bi-directional operation

The mass flow, volume flow, and net flow measurements can be bi-directional.

Measurement variables for NTEP approval

- Mass flow uni-directional
- Volume flow uni-directional

Feature overview

- Designed to meet the highest safety requirements when operating at high pressures
- Temperatures from -196 °C (-321 °F), for cryogenic fluids, up to +350 °C (+662 °F)
- Insulation and heat tracing options for viscous and molten liquids
- Gas Void Fraction and Net Oil Computing functions combine to deliver in multi-phase applications
- Dynamic pressure compensation for accurate measurement under changing process pressure
- Accurate density measurement and up to four advanced concentration measurement data sets

Selection and ordering data

SITRANS FC620/640 (High pressure and temperature)		Article No. 7ME446										Order code			
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.															
Transmitter variant															
None (spare sensor)		0													
Coriolis sensor FCS600 with transmitter FCT020		2													
Coriolis sensor FCS600 with transmitter FCT040		4													
SITRANS FC spare part transmitter, no sensor included		9											G	3	Y
Sensor size, tube material (wetted), process connection material and size															
Sensor size DN 2 tube material C22, process connection 316L, connection size 9/16"		0	A												
Sensor size DN 2 tube material C22, process connection 316L, connection size ¾"		0	D												
Sensor size DN 2, tube material C22, Process connection 316L, with special connection		0	Y												
Sensor size DN 4 tube material C22, process connection 316L, connection size 9/16"		1	A												
Sensor size DN 4 tube material C22, process connection 316L, connection size ¾"		1	D												
Sensor size DN 4, tube material C22, Process connection 316L, with special connection		1	Y												
Sensor size DN 15 tube material 316L, process connection 316L, connection size 3/8"		2	B												
Sensor size DN 15 tube material 316L, process connection 316L, connection size ½" DN 15		2	C												
Sensor size DN 15 tube material 316L, process connection 316L, connection size ¾"		2	D												
Sensor size DN 15 tube material 316L, process connection 316L, connection size 1" DN 25		2	E												
Sensor size DN 15 tube material 316L, process connection 316L, connection size 1 ½" DN 40		2	F												
Sensor size DN 15, tube material 316L, Process connection 316L, with special connection		2	Y												
Sensor size DN 25 tube material 316L, process connection 316L, connection size 1" DN 25		3	E												
Sensor size DN 25 tube material 316L, process connection 316L, connection size 1 ½" DN 40		3	F												
Sensor size DN 25 tube material 316L, process connection 316L, connection size 2" DN 50		3	G												
Sensor size DN 25, tube material 316L, Process connection 316L, with special connection		3	Y												
Sensor size DN 40 tube material 316L, process connection 316L, connection size 1 ½" DN 40		4	F												
Sensor size DN 40 tube material 316L, process connection 316L, connection size 2" DN 50		4	G												
Sensor size DN 40 tube material 316L, process connection 316L, connection size 2 ½" DN 65		4	H												
Sensor size DN 40 tube material 316L, process connection 316L, connection size 3" DN 80		4	J												
Sensor size DN 40, tube material 316L, Process connection 316L, with special connection		4	Y												
Sensor size DN 65 tube material 316L, process connection 316L, connection size 3" DN 80		5	J												
Sensor size DN 65 tube material 316L, process connection 316L, connection size 4" DN 100		5	K												
Sensor size DN 65 tube material 316L, process connection 316L, connection size 5" DN 125		5	L												
Sensor size DN 65, tube material 316L, Process connection 316L, with special connection		5	Y												
Sensor size DN 15 tube material C22, process connection C22, connection size 1" DN 25		6	E												
Sensor size DN 15 tube material C22, process connection C22, connection size 1 ½" DN 40		6	F												
Sensor size DN 15 tube material C22, process connection C22, connection size 2" DN 50		6	G												
Sensor size DN 15, tube material C22, Process connection C22, with special connection		6	Y												
Sensor size DN 25 tube material C22, process connection C22, connection size 1" DN 25		7	E												
Sensor size DN 25 tube material C22, process connection C22, connection size 1 ½" DN 40		7	F												
Sensor size DN 25 tube material C22, process connection C22, connection size 2" DN 50		7	G												
Sensor size DN 25, tube material C22, Process connection C22, with special connection		7	Y												
Sensor size DN 40 tube material C22, process connection C22, connection size 2" DN 50		8	G												
Sensor size DN 40 tube material C22, process connection C22, connection size 2 ½" DN 65		8	H												
Sensor size DN 40 tube material C22, process connection C22, connection size 3" DN 80		8	J												
Sensor size DN 40, tube material C22, Process connection C22, with special connection		8	L												
Sensor size DN 65, tube material C22, Process connection C22, with special connection		8	Y												
No sensor (SITRANS FCT transmitter as spare part)		9	A										H	1	A
Process connection															
No connections (SITRANS FCT transmitter as spare part)			A	0											
EN flange PN 40, suitable for EN 1092-1 type B1, raised face (RF)			A	1											
EN flange PN 63, suitable for EN 1092-1 type B1, raised face (RF)			A	2											
EN flange PN 100, suitable for EN 1092-1 type B1, raised face (RF)			A	3											
EN flange PN 40, suitable for EN 1092-1 type D, groove			A	5											
EN flange PN 63, suitable for EN 1092-1 type D, groove			A	6											
EN flange PN 100, suitable for EN 1092-1 type D, groove			A	7											
EN flange PN 40, suitable for EN 1092-1 type E, spigot			B	1											
EN flange PN 63, suitable for EN 1092-1 type E, spigot			B	2											
EN flange PN 100, suitable for EN 1092-1 type E, spigot			B	3											
EN flange PN 40, suitable for EN 1092-1 type F, recess			B	5											

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Selection and ordering data (continued)

SITRANS FC620/640 (High pressure and temperature)	Article No. 7ME446	●	-	●	●	●	●	-	●	●	●	●	-	●	●	●	Order code
EN flange PN 63, suitable for EN 1092-1 type F, recess																	B 6
EN flange PN 100, suitable for EN 1092-1 type F, recess																	B 7
ASME flange class 600, suitable for ASME B16.5, ring joint (RJ)																	C 3
ASME flange class 900, suitable for ASME B16.5, ring joint (RJ)																	C 4
ASME flange class 1500, suitable for ASME B16.5, ring joint (RJ)																	C 5
ASME flange class 150, suitable for ASME B16.5, raised face (RF)																	D 1
ASME flange class 300, suitable for ASME B16.5, raised face (RF)																	D 2
ASME flange class 600, suitable for ASME B16.5, raised face (RF)																	D 3
ASME flange class 900, suitable for ASME B16.5, raised face (RF)																	D 4
ASME flange class 1500, suitable for ASME B16.5, raised face (RF)																	D 5
Process connection with internal thread G																	E 1
Process connection with internal thread NPT																	E 3
DIN 11851 threaded																	F 1
Clamp process connection according to DIN 32676 series A																	G 2
Clamp process connection according to DIN 32676 series C (Tri-Clamp)																	G 6
DIN 11864-2 BF Form A																	H 2
JIS G3447 / ISO2852 Clamp																	J 1
Autoclave adapter																	K 1
JIS flange 10K, JIS B 2220																	L 2
JIS flange 20K, JIS B 2220																	L 4
Special design request																	Y 1
Max operational temperature																	
None (SITRANS FCT transmitter as spare part)																	0
Media temperature -70 °C (-94 °F) Remote, -50 °C (-58 °F) Compact, max temperature 150 °C (302 °F)																	1
Media temperature -196 ... 150 °C (-321 ... 302 °F)																	2
Media temperature -70 ... 230 °C (-94 ... 446 °F)																	3
Media temperature 0 ... 350 °C (32 ... 662 °F)																	4
Media temperature -70 °C (-94 °F) Remote, -50 °C (-58 °F) Compact, max. temperature 150 °C (302 °F), high pressure																	6
Media temperature -70 ... 230 °C (-94 ... 446 °F), high pressure																	7
Media temperature 0 ... 350 °C (32 ... 662 °F), high pressure																	8
Calibration																	
No calibration																	0
Massflow 0.1%, density 0.5 g/l																	1
Massflow 0.1%, density 1 g/l																	2
Massflow 0.1%, density 2 g/l																	3
Massflow 0.1%, density 3 g/l																	4
Massflow 0.1%, density 4 g/l																	5
Massflow 0.1%, density 8 g/l																	6
Massflow 0.2%, density 4 g/l																	7
Massflow 0.2%, density 8 g/l																	8
Accuracy for gas please select below																	9
Massflow gas 0.75%																	N 1 A
Massflow gas 0.5%																	N 2 A
Massflow gas 0.35%																	N 3 A
Mounting style, transmitter housing and material																	
Compact type with "urethane-cured polyester powder coating" coated aluminum transmitter housing																	A
Compact type with "corrosion protection coating" coated aluminum transmitter housing																	B
Remote type with "urethane-cured polyester powder coating" coated aluminum transmitter housing and standard neck sensor																	C
Remote type with "urethane-cured polyester powder coating" coated aluminum transmitter housing and long neck sensor																	D
Remote type with "corrosion protection coating" coated aluminum transmitter housing and standard neck sensor																	E
Remote type with "corrosion protection coating" coated aluminum transmitter housing and long neck sensor																	F
Remote type stainless steel transmitter and standard neck sensor																	G
Remote type stainless steel transmitter and long neck sensor																	H

Selection and ordering data (continued)

SITRANS FC620/640 (High pressure and temperature)	Article No. 7ME446	Order code									
Ex approvals											
None										A	
ATEX, explosion group IIC and IIIC										B	
ATEX, explosion group IIB and IIIC										C	
IECEX, explosion group IIC and IIIC										D	
IECEX, explosion group IIB and IIIC										E	
EAC Ex, IIC and IIIC										F	
EAC Ex, IIB and IIIC										G	
FM, groups A B C D E F G										H	
FM, groups C D E F G										J	
INMETRO, explosion group IIC and IIIC										K	
INMETRO, explosion group IIB and IIIC										L	
NEPSI, explosion group IIC and IIIC										M	
NEPSI, explosion group IIB and IIIC										N	
Korea Ex, explosion group IIC and IIIC										P	
Korea Ex, explosion group IIB and for integral type also IIIC										Q	
Local user interface											
Spare sensor without transmitter, no display applied										0	
No display										1	
With display										3	

Order code	
Further designs	
Please add "-Z" to Article No. and specify order code(s).	
Cable glands	
Metric, no glands (M20)	A10
NPT, no glands (1/2")	A11
Metric, no glands (M20) steel armored cable	A20
NPT, no glands (1/2") steel armored cable	A21
Sensor housing material	
None (SITRANS FCT transmitter as spare part)	B00
Stainless steel 1.4301/304, 1.4404/316L	B01
Stainless steel 1.4404/316L DN 15	B02
Stainless steel 1.4404/316L DN 25	B03
Stainless steel 1.4404/316L DN 40	B04
Stainless steel 1.4404/316L DN 65	B05
Stainless steel 1.4404/316L DN 2/DN 4	B06
I/O Configuration Ch1	
None	E00
4-20 mA HART active	E06
4-20 mA HART passive	E07
PROFIBUS PA	E10
Modbus RTU RS 485	E14
PROFINET over Ethernet-APL (IS)	E15
I/O Configuration Ch2, Ch3 and Ch4	
Spare sensor without transmitter, all communication types and I/Os apply	F00
1 passive current output, 1 passive pulse or status output	F01
1 passive current output, 2 passive pulse or status outputs	F02
1 passive current output, 1 passive pulse or status outputs, 1 passive NAMUR pulse or status output	F03
1 passive current output, 2 passive NAMUR pulse or status outputs	F04

Order code	
1 passive pulse or status output	F11
2 passive pulse or status outputs, 1 passive status output	F12
2 passive pulse or status outputs, 1 voltage-free status input	F13
2 passive pulse or status outputs, 1 active current input	F14
2 passive pulse or status outputs, 1 passive current input	F15
1 passive pulse or status output, 1 passive current output, 1 active current input	F16
1 passive pulse or status output, 1 passive current output, 1 passive current input	F17
1 passive pulse or status output, 1 voltage-free status input, 1 active current input	F18
1 passive pulse or status output, 1 voltage-free status input, 1 passive current input	F19
1 passive pulse or status output, 1 active pulse or status output, 1 voltage-free status input	F20
1 passive pulse or status output, 1 active pulse or status output with pull-up resistor, 1 voltage-free status input	F21
1 active current output, 2 passive pulse or status outputs	F22
1 active current output, 1 passive pulse or status output, 1 voltage-free status input	F23
1 passive pulse or status output	F31
2 passive pulse or status outputs	F32
1 passive pulse or status output, 1 active current input	F33
1 passive pulse or status output, 1 passive current input	F34
1 passive pulse or status output, 1 active pulse or status output	F35
1 passive pulse or status output, 1 active pulse or status output with pull-up resistor	F36
1 passive pulse or status output, 1 active current output	F37
1 passive pulse output	F41

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Selection and ordering data (continued)

	Order code
Output CH1 intrinsically safe, 1 passive pulse output	F42
Output CH3 intrinsically safe, 1 passive pulse output	F50
Certificates	
Declaration of compliance with the order 2.1 according to EN 10204	C11
Certificate of Marking Transfer and Raw Material Certificates (Inspection Certificate 3.1 according to EN 10204), including IGC and conform to NACE MR0175 and MR0103	C13
Positive Material Identification of wetted parts, including certificate (Inspection Certificate 3.1 according to EN 10204)	C15
NTEP approval accuracy class 0.3 according to NIST	C16
Hydrostatic Pressure Test Certificate (Inspection Certificate 3.1 according to EN 10204)	C18
Functional Safety (IEC 61508) - SIL2/3	C20
X-ray inspection of flange weld seam according to DIN EN ISO 17636-1/B, evaluation according to AD 2000 HP 5/3 and DIN EN ISO 5817/C, including certificate	C33
X-ray test according to ASME V	C34
WPS according to DIN EN ISO 15809-1; WPQR according to DIN EN ISO 15814-1; WQC according to DIN EN 287-1 or DIN EN ISO 8908-4	C36
Welding procedures and certificate according to ASME IX	C37
Dye penetrant test of process connection weld seams according to DIN EN ISO 3452-1, including certificate	C38
Dye penetrant test of flange welding according to ASME V, including certificate	C39
Quality Inspection Certificate (Inspection Certificate 3.1 according to EN 10204)	C40
Ferrite test for flange welding according to DIN EN ISO 8249	C50
Degreasing of wetted surfaces according to ASTM G93-03 (Level C), including test report	C54
Surface Roughness wetted parts $Ra \leq 0.8 \mu m$	C60
Surface Roughness wetted parts $Ra \leq 0.8 \mu m$ and Surface Roughness Inspection Certificate	C61
3-A product conformity with 3-A certificate and marking, including Surface Roughness wetted parts $Ra \leq 0.8 \mu m$ and Surface Roughness Inspection Certificate	C62
EHEDG product conformity with EHEDG certificate and marking, including Surface Roughness wetted parts $Ra \leq 0.8 \mu m$ and Surface Roughness Inspection Certificate	C63
ASME B31.3 compliance NORMAL FLUID SERVICE	C70
Combined certificates	
Certification package (C13, C18, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test and Quality inspection certificate	C80
Certification package (C13, C15, C40) including Marking Transfer and raw material certificate, Positive material identification and Quality inspection certificate	C81

	Order code
Certification package (C13, C18, C38, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test, Dye penetration and Quality inspection certificate	C82
Certification package (C13, C15, C18, C36, C38, C40) including Marking Transfer and raw material certificate, Positive material identification, Hydrostatic pressure test, Welding certificates, Dye penetration and Quality inspection certificate	C83
Certification package (C15, C18, C36) including Positive material identification, Hydrostatic pressure test and Welding certificates	C84
Certification package (C34, C37, C39) including X-ray test according ASME V, Welding procedures and Certificates according ASME IX and Dye penetrant test of flange welding according ASME V	C85
Certification package (C13, C18, C34, C37, C39, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test, X-ray test according ASME V, Welding procedures and Certificates according ASME IX, Dye penetrant test of flange welding according ASME V and Quality inspection certificate	C86
Certification package (C13, C15, C34, C37, C39, C40) including Marking Transfer and raw material certificate, Positive material identification, X-ray test according ASME V, Welding procedures and Certificates according ASME IX, Dye penetrant test of flange welding according ASME V and Quality inspection certificate	C87
Connecting cable type and length	
Without standard connecting cable	L50
5 meter (16.4 ft) remote connecting cable terminated standard gray / Ex blue	L51
10 meter (32.8 ft) remote connecting cable terminated standard gray / Ex blue	L54
15 meter (49.2 ft) remote connecting cable terminated standard gray / Ex blue	L57
20 meter (65.6 ft) remote connecting cable terminated standard gray / Ex blue	L60
30 meter (98.4 ft) remote connecting cable terminated standard gray / Ex blue	L63
without fire retardant connecting cable	L70
5 meter (16.4 ft) remote fire retardant connecting cable not terminated	L71
10 meter (32.8 ft) remote fire retardant connecting cable not terminated	L74
15 meter (49.2 ft) remote fire retardant connecting cable not terminated	L77
20 meter (65.6 ft) remote fire retardant connecting cable not terminated	L80
30 meter (98.4 ft) remote fire retardant connecting cable not terminated	L83
SW functions	
Heat measurement	S11
Tube health check	S12
Batching and filling function	S13
Netoil computing	S14
Viscosity computing function for liquids	S15
Standard concentration measurement	S16
Advanced concentration	S17
Marine approval	
Marine approved DNV, ABS, KR piping class 2	S22
Marine approved DNV, ABS, KR piping class 3	S23

Selection and ordering data (continued)

	Order code
Marine approved LR, MR, TAC piping class 2	S24
Marine approved LR, MR, TAC piping class 3	S25
Marine approved BV piping class 2	S26
Marine approved BV piping class 3	S27
Mounting	
Namur built-in length according to NE132	S31
Rupture Disk	S32
Insulation DN 15	
Insulation	J10
Insulation and heat tracing, ½" ASME class 150, raised face (RF)	J12
Insulation and heat tracing, ½" ASME class 300, raised face (RF)	J13
Insulation and heat tracing, EN DN 15, PN 40	J14
Insulation, heat tracing with ventilation, ½" ASME class 150, raised face (RF)	J16
Insulation, heat tracing with ventilation, ½" ASME class 300, raised face (RF)	J17
Insulation, heat tracing with ventilation, EN DN 15, PN 40	J18
Insulation DN 25	
Insulation	J20
Insulation and heat tracing, ½" ASME class 150, raised face (RF)	J22
Insulation and heat tracing, ½" ASME class 300, raised face (RF)	J23
Insulation and heat tracing, EN DN 15, PN 40	J24
Insulation, heat tracing with ventilation, ½" ASME class 150, raised face (RF)	J26
Insulation, heat tracing with ventilation, ½" ASME class 300, raised face (RF)	J27
Insulation, heat tracing with ventilation, EN DN 15, PN 40	J28
Insulation DN 40	
Insulation	J30
Insulation and heat tracing, ½" ASME class 150, raised face (RF)	J32
Insulation and heat tracing, ½" ASME class 300, raised face (RF)	J33
Insulation and heat tracing, EN DN 15, PN 40	J34
Insulation, heat tracing with ventilation, ½" ASME class 150, raised face (RF)	J36
Insulation, heat tracing with ventilation, ½" ASME class 300, raised face (RF)	J37
Insulation, heat tracing with ventilation, EN DN 15, PN 40	J38
Insulation DN 65	
Insulation	J40
Insulation and heat tracing, ½" ASME class 150, raised face (RF)	J42
Insulation and heat tracing, ½" ASME class 300, raised face (RF)	J43
Insulation and heat tracing, EN DN 15, PN 40	J44
Insulation, heat tracing with ventilation, ½" ASME class 150, raised face (RF)	J46

	Order code
Insulation, heat tracing with ventilation, ½" ASME class 300, raised face (RF)	J47
Insulation, heat tracing with ventilation, EN DN 15, PN 40	J48
Country specific delivery	
Delivery to China including China RoHS mark	W21
Delivery to Korea including KC mark	W22
Delivery to Canada including CRN mark	W26
Fraction setup	
PIA: Please select four options	
Sugar / Water 0 ... 85 °Bx, 0 ... 80 °C (32 ... 176 °F)	G01
NaOH / Water 2 ... 50 WT%, 0 ... 100 °C (32 ... 212 °F)	G02
KOH / Water 0 ... 60 WT%, 54 ... 100 °C (129 ... 212 °F)	G03
NH ₄ NO ₃ / Water 1 ... 50 WT%, 0 ... 80 °C (32 ... 176 °F)	G04
NH ₄ NO ₃ / Water 20 ... 70 WT%, 20 ... 100 °C (68 ... 212 °F)	G05
HCl / Water 22 ... 34 WT%, 20 ... 40 °C (68 ... 104 °F)	G06
HNO ₃ / Water 50 ... 67 WT%, 10 ... 60 °C (50 ... 140 °F)	G07
H ₂ O ₂ / Water 30 ... 75 WT%, 4 ... 44 °C (39 ... 111 °F)	G09
Ethylene Glycol / Water 10 ... 50 WT%, -20 ... 40 °C (-4 ... 104 °F)	G10
Amylum = Starch / Water 33 ... 43 WT%, 35 ... 45 °C (95 ... 113 °F)	G11
Methanol / Water 35 ... 60 WT%, 0 ... 40 °C (32 ... 104 °F)	G12
Alcohol / Water 55 ... 100 VOL%, 10 ... 40 °C (50 ... 104 °F)	G20
Sugar / Water 40 ... 80 °Bx, 75 ... 100 °C (167 ... 212 °F)	G21
Alcohol / Water 66 ... 100 WT%, 15 ... 40 °C (59 ... 104 °F)	G30
Alcohol / Water 66 ... 100 WT%, 10 ... 40 °C (50 ... 104 °F)	G37
Tag name	
Tag name plate, SS (max. 16 characters)	Y11
HART/MODBUS software tag No. (max. 8 characters)	Y25
HART/MODBUS software tag No. (max. 32 characters)	Y26
PROFIBUS PA NODE ADDRESS (4 characters HEX)	Y28
PROFIBUS PA SOFTWARE TAG (max. 32 characters)	Y29
Customer installation length	
Customer installation length (mm)	Y30
Calibration	
Predefined 6-Point Accredited Calibration: 10%, 20%, 40%, 60%, 80%, 100% of Q_{nom} . Calibrated Output: Frequency	D62
Special versions	
ID-Number of special design	Y99

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Technical specifications

Mass flow rate of liquids

The mass flow rate characteristics of SITRANS FC meters are defined by the values of zero stability, Q_{flat} , Q_{nom} and Q_{max} .

Zero stability is the maximum allowable flow rate value that can be displayed at zero flow under reference conditions. It is a good indicator of the meter performance as flow rates reduce and approach zero.

- Q_{flat} is the mass flow rate above which the base accuracy is maintained (0.1% when using FCT040 transmitters).
- Q_{nom} is the nominal mass flow rate of water at reference conditions that would result in a pressure drop of 1 bar (15 psi).
- Q_{max} is the recommended maximum mass flow rate for each sensor size.

For questions regarding expected performance in specific applications, please contact your regional Siemens Measurement Intelligence team.

Flow rate summary by FCS600 sensor size

Nominal size	Zero stability		Q_{flat}		Q_{nom}		Q_{max}	
	kg/h	lb/h	kg/h	lb/min	kg/h	lb/min	kg/h	lb/min
DN 2	0.005	0.011	4.00	0.147	45.0	1.65	94.0	3.45
DN 4	0.018	0.040	14.0	0.514	170	6.24	300	11.0
DN 15	0.150	0.330	250	9.18	3 000	110	5 000	184
DN 25	0.500	1.10	830	30.5	10 000	367	17 000	624
DN 40	1.60	3.52	2 670	98.0	32 000	1 174	50 000	1 835
DN 65	5.00	11.0	8 330	306	100 000	3 670	170 000	6 239

Performance summary by FCS600 sensor size and transmitter type

Sensor size			DN 2	DN 4	DN 15	DN 25	DN 40	DN 65
Mass flow (liquids)								
Accuracy	% (of rate)	FCT020	± 0.2	± 0.2	± 0.2	± 0.2	± 0.2	± 0.2
	% (of rate)	FCT040	± 0.1	± 0.1	± 0.1	± 0.1	± 0.1	± 0.1
Zero stability	kg/h (lb/h)		± 0.005 (0.011)	± 0.018 (0.44)	± 0.15 (0.33)	± 0.5 (1.1)	± 1.6 (3.52)	± 5 (11)
Density (liquids)								
Accuracy	kg/m ³ (lb/ft ³)	FCT020/FCT040	± 8 (0.5)	± 4 (0.25)	± 4 (0.25)	± 4 (0.25)	± 4 (0.25)	± 4 (0.25)
	kg/m ³ (lb/ft ³)	FCT040	± 8 (0.5)	± 1 (0.06)	± 0.5 (0.03)	± 0.5 (0.03)	± 0.5 (0.03)	± 0.5 (0.03)
Mass flow (gases)								
Accuracy	% (of rate)	FCT020	± 0.75	± 0.75	± 0.75	± 0.75	± 0.75	± 0.75
	% (of rate)	FCT040	± 0.5	± 0.5	± 0.35	± 0.35	± 0.35	± 0.35
Temperature								
Accuracy	°C (°F)		± 0.5 (0.9)	± 0.5 (0.9)	± 0.5 (0.9)	± 0.5 (0.9)	± 0.5 (0.9)	± 0.5 (0.9)

Note:

The accuracy values in the table above are based on reference conditions at the time of calibration and represent the combined measurement uncertainties including sensor, electronic and pulse output interface.

Liquid density calibration is performed when density accuracy of 0.5 kg/m³ (0.03 lb/ft³) is selected in the model code.

Mass flow calibration and density adjustment for liquids

Siemens SITRANS FC Coriolis meters are calibrated in rigs accredited according to the international standard EN ISO/IEC 17025:2018. Each flowmeter comes with a standard calibration certificate.

Mass flow calibration takes place at reference conditions. Specific values are listed in the standard calibration certificate.

Mass flow calibration reference conditions

Fluid	Water
Density	900 ... 1 100 kg/m ³ (56 ... 69 lb/ft ³)
Fluid temperature	10 ... 35 °C (50 ... 95 °F), average temperature: 22.5 °C (72.5 °F)
Ambient temperature	10 ... 35 °C (50 ... 95 °F)
Process pressure	1 ... 5 bar (15 ... 73 psi)

Density calibration reference conditions

Flow condition	Fully developed flow profile
Fluid densities used to obtain density calibration constants	700 kg/m ³ (44 lb/ft ³) 1 000 kg/m ³ (62 lb/ft ³) 1 650 kg/m ³ (103 lb/ft ³)
Fluid temperature	20 °C (68 °F)
Determination of temperature compensation coefficients	20 ... 80 °C (68 ... 176 °F)

Analog output performance specification

Typical additional uncertainty when using the analog current output:

± 0.04% at a nominal mid-range current output of 12 mA, which includes the effects of: output adjustment, linearity, power supply variation, load resistance variation, short-term and long-term drift for one year and ambient temperature effect on the transmitter in the range 20 °C ± 30 °C (14 ... 122 °F).

Process pressure effect on flow measurement performance

Changes in operating pressure have a small effect on the mass flow measurement performance. When the pressure changes are very large this effect can be corrected by a dynamic pressure input or a fixed process pressure.

Technical specifications (continued)

Sensor size	Sensor wetted parts	Additional flow measurement errors due to change in operating pressure from reference pressure	
		in % of rate per 1 bar variation	in % of rate per 1 psi variation
DN 2	Alloy 22 / AISI 316L stainless steel	-0.0001	-0.000007
DN 4	Alloy 22 / AISI 316L stainless steel	-0.0001	-0.000007
DN 15	AISI 316L stainless steel or alloy 22	-0.0005	-0.00003
DN 25	AISI 316L stainless steel	-0.0024	-0.00017
	Alloy 22	-0.0023	-0.00016
DN 40	AISI 316L stainless steel	-0.0034	-0.00023
	Alloy 22	-0.0035	-0.00024
DN 65	AISI 316L stainless steel	-0.0084	-0.00058
	Alloy 22	-0.0074	-0.00051

Process temperature effect

For mass flow measurement, process fluid temperature effect is defined as the change in sensor flow accuracy due to process fluid temperature change, away from the 20 °C (68 °F) reference condition. Variation in process temperature influences the measuring tube characteristics and this is compensated for using the built-in PT 1000 temperature sensor.

A small flow uncertainty remains in the compensation circuit defined below.

Uncertainty due to process temperature change: $\pm 0.001\%$ of mass flow rate per °C ($\pm 0.0006\%$ of mass flow rate per °F)

Temperature effect on zero

Temperature effect on the mass flow zero-point quality can be corrected by zeroing at the process fluid temperature.

Process conditions**Process fluid temperature range**

Note: Some design combinations may not be available in all sizes.

Design version	Transmitter	Process fluid temperature range
Compact, standard neck	Aluminum	Standard [-50 ... +50 °C (-58 ... +302 °F)]
Compact, standard neck, hygienic clamps	Aluminum	Standard [-10 ... +140 °C (-14 ... +284 °F)]
Remote, standard neck or long neck	Aluminum or stainless steel	Standard [-70 ... +150 °C (-94 ... +302 °F)]
Remote, standard neck or long neck, hygienic clamps	Aluminum or stainless steel	Standard [-10 ... +140 °C (-14 ... +284 °F)]
Remote only, long neck only	Aluminum or stainless steel	Low [-196 ... +150 °C (-321 ... +302 °F)]
Remote only, long neck only		Medium [-70 ... +230 °C (-94 ... +446 °F)]
Remote only, long neck only		High [0 ... 350 °C (32 ... 662 °F)]

Operating pressure

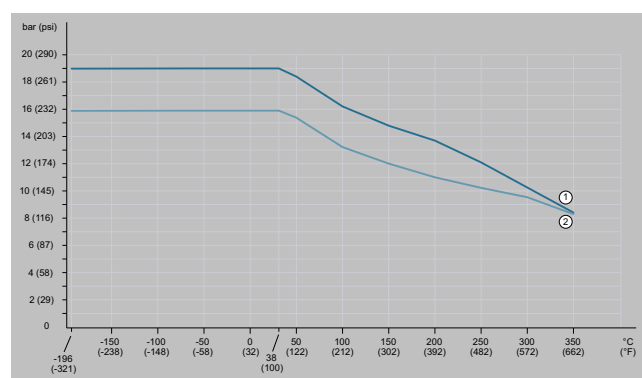
The maximum allowed process pressure depends on the selected process connection and process temperature.

The given process temperature and process pressure ranges are calculated and approved without corrosion or erosion effects.

Pressure versus temperature relationship depending on selected process connection

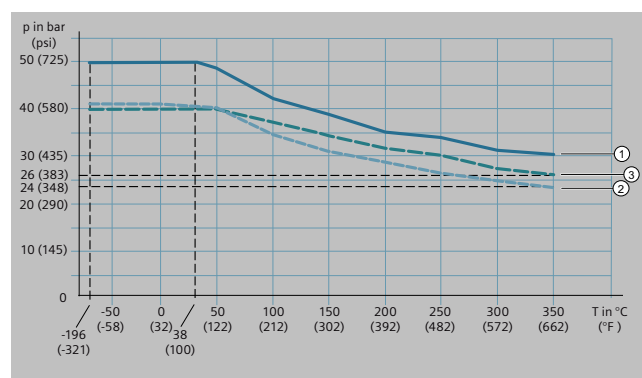
The following diagrams show the process pressure as a function of process temperature as well as the process connection used (type and size of process connection).

Calculations for ASME flanges are based on ASME B16.5 Material group 2.2 (316/316L dual certified).

ASME class 150

Allowed process pressure as a function of process fluid temperature

- 1 Process connection compatible to ASME B16.5 class 150
- 2 Heat tracing connection compatible to ASME B16.5 class 150

ASME class 300, EN PN 40

Allowed process pressure as a function of process fluid temperature

- 1 Process connection compatible to ASME B16.5 class 300
- 2 Process and heat tracing connection compatible to EN 1092-1 PN 40
- 3 Process and heat tracing connection for ASME B16.5 class 300

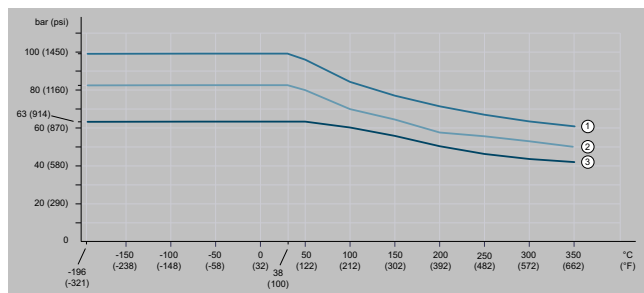
Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Technical specifications (continued)

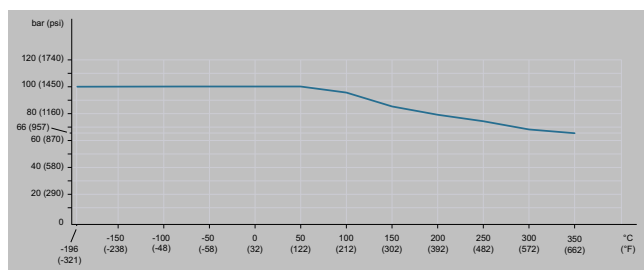
ASME class 600, EN PN63



Allowed process pressure as a function of process fluid temperature

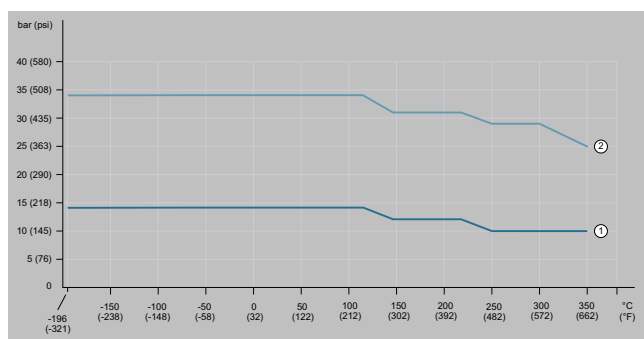
- | | |
|---|---|
| 1 | Process connection compatible to ASME B16.5 class 600 |
| 2 | Not used for this product |
| 3 | Process connection compatible to EN 1092-1 PN 63 |

EN PN 100



Allowed process pressure as a function of process fluid temperature, compatible to EN 1092-1 PN 100

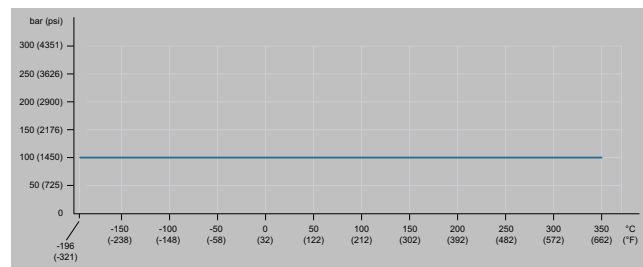
JIS 10K, JIS 20K



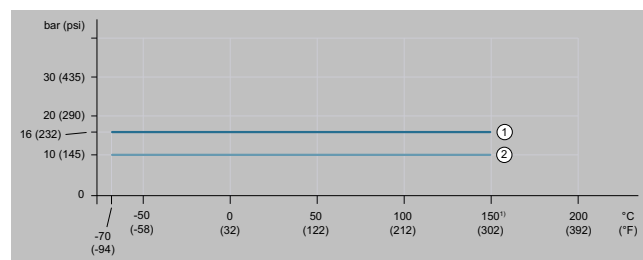
Allowed process pressure as a function of process connection temperature

- | | |
|---|---|
| 1 | Process connection compatible to JIS B 2220 10K |
| 2 | Process connection compatible to JIS B 2220 20K |

Process connection with internal thread G and NPT (standard pressure)



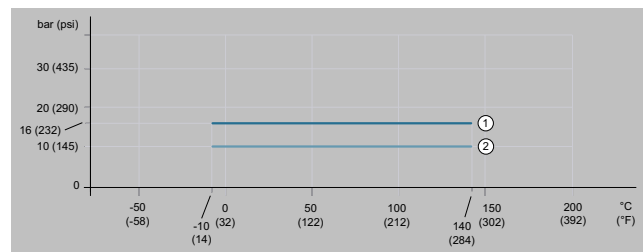
Clamp process connection according to JIS/ISO 2852



Allowed process pressure as a function of process connection temperature

- | | |
|---|--|
| 1 | Clamp connection for JIS/ISO 2852 up to 2" |
| 2 | Clamp connection for JIS/ISO 2852 above 2" |

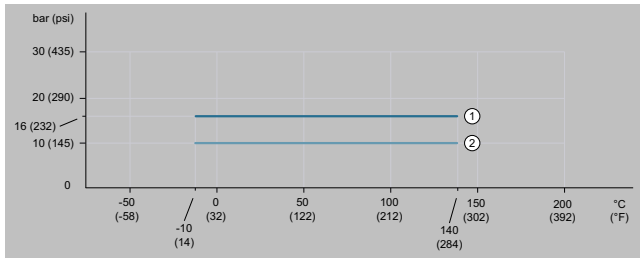
Clamp process connection according to DIN 32676 series A



Allowed process pressure as a function of process fluid temperature

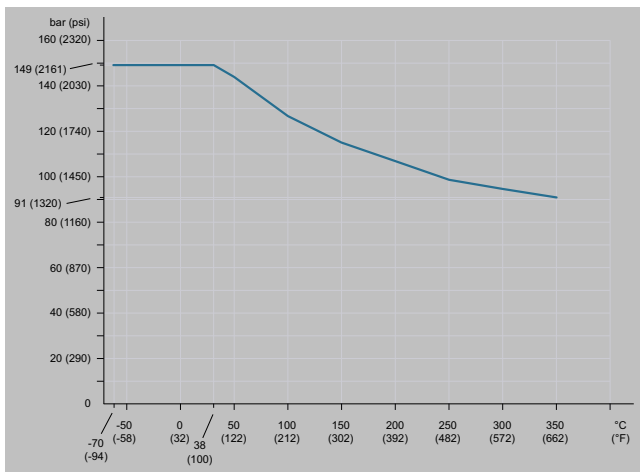
- | | |
|---|---|
| 1 | Clamp connection compatible to DIN 32676 series A up to DN 50 |
| 2 | Clamp connection compatible to DIN 32676 series A above DN 50 |

Technical specifications (continued)

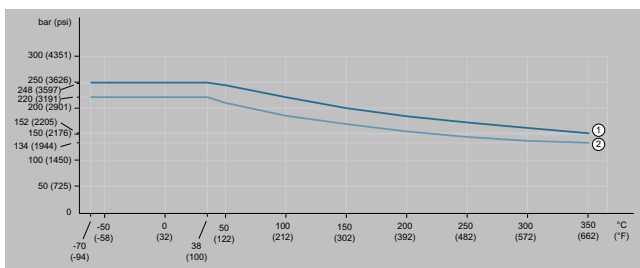
Clamp process connection according to DIN 32676 series C (Tri-Clamp)

Allowed process pressure as a function of process fluid temperature

- | | |
|---|--|
| 1 | Clamp connection compatible to DIN 32676 series C up to 2" |
| 2 | Clamp connection compatible to DIN 32676 series C above 2" |

ASME class 900

Allowed process pressure as a function of process fluid temperature, compatible to ASME B16.5 class 900

ASME class 1500

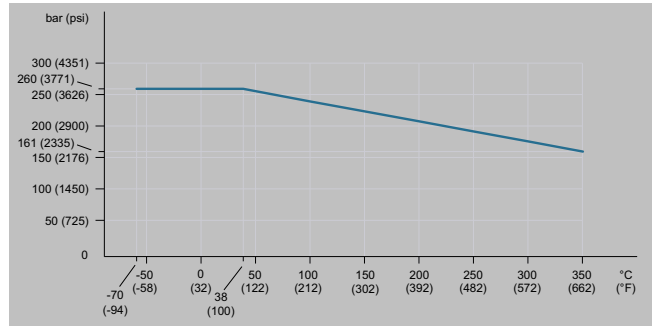
Allowed process pressure as a function of process connection temperature

- | | |
|---|---|
| 1 | Process connection compatible to ASME B16.5 class 1500: |
| | <ul style="list-style-type: none"> With alloy 22 wetted parts (without ASME compliance) With 316L wetted parts in size DN 15 (without ASME compliance) With alloy 22 wetted parts in size DN 15 (requires option code C70, compliant with ASME B31.3 normal fluid service) |

- | | |
|---|--|
| 2 | Process connection compatible to ASME B16.5 class 1500: |
| | <ul style="list-style-type: none"> With 316L wetted parts in size DN 25 (without ASME compliance) With 316L wetted parts in size DN 15 (requires option code C70, compliant with ASME B31.3 normal fluid service) With alloy 22 wetted parts in size DN 25 (requires option code C70, compliant with ASME B31.3 normal fluid service) |

Process connection with internal thread G and NPT (high pressure)

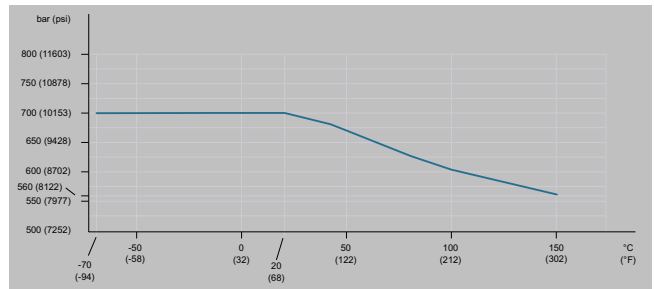
Note: Only available with FCS600 size DN 15 with 316L wetted parts



Allowed process pressure as a function of process connection temperature

Process connection compatible to medium pressure autoclave

Note: Only available with FCS600 sizes DN 2 and DN 4



Allowed process pressure as a function of process connection temperature

Rupture disc

The rupture disc is located on the sensor housing. It is available with some FC600 specification combinations (selectable using order option code S32).

Its bursting pressure is 20 bar (291 psi), the nominal diameter is 8 mm (0.315 in.). In the case of larger nominal diameters and high pressures, the entire process pressure may not be released across the rupture disc. In such case it is possible to request a customized design from your local Siemens sales organization.

In the event of a burst pipe, the rupture disc provides an acoustic signal in applications with gases.

Ambient conditions

Allowed ambient and storage temperature of SITRANS FC600 series is influenced by the temperature specification of FCS600 sensor, FCTOX0 transmitter and the interconnecting cable.

Ambient temperature

Device surrounding air temperature is considered as ambient temperature. If the device is operating outdoors make sure that the sol-

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Technical specifications (continued)

ar irradiation does not increase the surface temperature of the device higher than the allowed maximum ambient temperature. Transmitter display has limited legibility below -20 °C (-4 °F).

The sensor ambient temperature limits may also be influenced by the process fluid temperature, details shown in the chapter "Sensors" (Technical specifications).

Maximum ambient temperature ranges for FC600 series

Cable type	Transmitter style	Device	Ambient temperature range
None	Compact	Sensor and transmitter	-40 ... +60 °C (-40 ... +140 °F)
Standard cable	Remote	Sensor	-50 ... +80 °C (-58 ... +176 °F)
		Transmitter	-40 ... +60 °C (-40 ... +140 °F)
Fire retardant cable	Remote	Sensor	-35 ... +80 °C (-31 ... +176 °F)
		Transmitter	-35 ... +60 °C (-31 ... +140 °F)

Ambient temperature range for NTEP custody transfer approval

Cable type	Transmitter style	Device	Ambient temperature range
None	Compact	Sensor and transmitter	-40 ... +50 °C (-40 ... +122 °F)
Standard cable	Remote	Sensor	-50 ... +80 °C (-58 ... +176 °F)
		Transmitter	-40 ... +50 °C (-40 ... +122 °F)
Fire retardant cable	Remote	Sensor	-35 ... +80 °C (-31 ... +176 °F)
		Transmitter	-35 ... +50 °C (-31 ... +122 °F)

Maximum storage temperature ranges for FC600 series

Cable type	Transmitter style	Device	Storage temperature range
None	Compact	Sensor and transmitter	-40 ... +60 °C (-40 ... +140 °F)
Standard cable	Remote	Sensor	-50 ... +80 °C (-58 ... +176 °F)
		Transmitter	-40 ... +60 °C (-40 ... +140 °F)
Fire retardant cable	Remote	Sensor	-35 ... +80 °C (-31 ... +176 °F)
		Transmitter	-35 ... +60 °C (-31 ... +140 °F)

Temperature specification of FC600 series Ex versions located in hazardous areas

Please select appropriate equipment in accordance with the laws and regulations of the relevant country/region when it is used in a location where explosive atmospheres may be present.

The maximum ambient and process fluid temperatures depending on explosion groups and temperature classes can be determined via the SITRANS FC order code together with the Ex code (see the corresponding explosion proof type manual).

Note: The maximum process fluid temperature could be further restricted due to process connection type, refer to curves above under the heading "Allowed ambient temperature for FCS600 sensors".

FCS600 nominal sizes DN 2 and DN 4, remote transmitter

Ex approvals:

All gas groups: ATEX, IEC Ex, FM, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature	
		Standard cable	Fire retardant cable
T6	75 °C (167 °F)	43 °C (109 °F)	43 °C (109 °F)
T5	90 °C (194 °F)	58 °C (136 °F)	58 °C (136 °F)
T4	125 °C (257 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	60 °C (140 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	60 °C (140 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	60 °C (140 °F)

FCS600 nominal sizes DN 15, DN 25, DN 40 and DN 65, compact transmitter

Standard temperature

Ex approvals:

- Gas groups IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO
- Gas groups A, B, C, D, E, F and G: FM

Technical specifications (continued)

Temperature class	Maximum process temperature	Maximum ambient temperature
T6	66 °C (150 °F)	43 °C (109 °F)
T5	82 °C (179 °F)	58 °C (136 °F)
T4	118 °C (244 °F)	60 °C (140 °F)
T3	150 °C (302 °F)	60 °C (140 °F)
T2	150 °C (302 °F)	60 °C (140 °F)
T1	150 °C (302 °F)	60 °C (140 °F)

Ex approvals:

- Gas groups IIB and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO
- Gas groups C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature
T6	59 °C (138 °F)	59 °C (138 °F)
T5	75 °C (167 °F)	60 °C (140 °F)
T4	112 °C (233 °F)	60 °C (140 °F)
T3	150 °C (302 °F)	60 °C (140 °F)
T2	150 °C (302 °F)	60 °C (140 °F)
T1	150 °C (302 °F)	60 °C (140 °F)

FCS600 nominal sizes DN 15, DN 25, DN 40 and DN 65, remote transmitter**Standard temperature, standard neck**Ex approvals:

- Gas groups IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO
- Gas groups A, B, C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature	
		Standard cable	Fire retardant cable
T6	66 °C (150 °F)	41 °C (105 °F)	41 °C (105 °F)
T5	82 °C (179 °F)	56 °C (132 °F)	56 °C (132 °F)
T4	118 °C (244 °F)	80 °C (176 °F)	62 °C (143 °F)
T3	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)
T2	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)
T1	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)

Ex approvals:

Gas groups IIB and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature	
		Standard cable	Fire retardant cable
T6	59 °C (138 °F)	59 °C (138 °F)	59 °C (138 °F)
T5	75 °C (167 °F)	75 °C (167 °F)	75 °C (167 °F)
T4	112 °C (233 °F)	80 °C (176 °F)	65 °C (149 °F)
T3	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)
T2	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)
T1	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)

Ex approvals:

Gas groups C, D, E, F and G: FM

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Technical specifications (continued)

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	59 °C (138 °F)	59 °C (138 °F)	59 °C (138 °F)
T5	75 °C (167 °F)	75 °C (167 °F)	70 °C (158 °F)
T4	112 °C (233 °F)	80 °C (176 °F)	65 °C (149 °F)
T3	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)
T2	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)
T1	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)

Standard temperature, long neck

Ex approvals:

Gas groups IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	66 °C (150 °F)	47 °C (116 °F)	47 °C (116 °F)
T5	82 °C (179 °F)	62 °C (143 °F)	62 °C (143 °F)
T4	118 °C (244 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Ex approvals:

Gas groups A, B, C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	66 °C (150 °F)	47 °C (116 °F)	47 °C (116 °F)
T5	82 °C (179 °F)	62 °C (143 °F)	62 °C (143 °F)
T4	118 °C (244 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Ex approvals:

Gas groups IIB and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	59 °C (138 °F)	59 °C (138 °F)	59 °C (138 °F)
T5	75 °C (167 °F)	75 °C (167 °F)	75 °C (167 °F)
T4	112 °C (233 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Ex approvals:

Gas groups C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	59 °C (138 °F)	59 °C (138 °F)	59 °C (138 °F)
T5	75 °C (167 °F)	75 °C (167 °F)	70 °C (158 °F)
T4	112 °C (233 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Technical specifications (continued)**Low temperature, long neck**Ex approvals:

Gas groups IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	60 °C (140 °F)	60 °C (140 °F)	60 °C (140 °F)
T5	76 °C (168 °F)	76 °C (168 °F)	76 °C (168 °F)
T4	113 °C (235 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Ex approvals:

Gas groups A, B, C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	60 °C (140 °F)	60 °C (140 °F)	60 °C (140 °F)
T5	76 °C (168 °F)	76 °C (168 °F)	70 °C (158 °F)
T4	113 °C (235 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Ex approvals:

Gas groups IIB and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	58 °C (136 °F)	58 °C (136 °F)	58 °C (136 °F)
T5	74 °C (165 °F)	74 °C (165 °F)	74 °C (165 °F)
T4	111 °C (232 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Ex approvals:

Gas groups C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	58 °C (136 °F)	58 °C (136 °F)	58 °C (136 °F)
T5	74 °C (165 °F)	74 °C (165 °F)	70 °C (158 °F)
T4	111 °C (232 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Medium temperature, long neckEx approvals:

Gas groups IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Technical specifications (continued)

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	66 °C (150 °F)	47 °C (116 °F)	47 °C (116 °F)
T5	82 °C (179 °F)	62 °C (143 °F)	62 °C (143 °F)
T4	118 °C (244 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	185 °C (365 °F)	80 °C (176 °F)	64 °C (147 °F)
T2	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)
T1	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)

Ex approvals:

Gas groups A, B, C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	66 °C (150 °F)	47 °C (116 °F)	47 °C (116 °F)
T5	82 °C (179 °F)	62 °C (143 °F)	62 °C (143 °F)
T4	118 °C (244 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	185 °C (365 °F)	80 °C (176 °F)	64 °C (147 °F)
T2	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)
T1	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)

Ex approvals:

Gas groups IIB and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	59 °C (138 °F)	59 °C (138 °F)	59 °C (138 °F)
T5	75 °C (167 °F)	75 °C (167 °F)	75 °C (167 °F)
T4	112 °C (233 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	181 °C (357 °F)	80 °C (176 °F)	64 °C (147 °F)
T2	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)
T1	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)

Ex approvals:

Gas groups C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	59 °C (138 °F)	59 °C (138 °F)	59 °C (138 °F)
T5	75 °C (167 °F)	75 °C (167 °F)	70 °C (158 °F)
T4	112 °C (233 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	181 °C (357 °F)	80 °C (176 °F)	64 °C (147 °F)
T2	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)
T1	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)

High temperature, long neck

Ex approvals:

All gas groups: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	65 °C (149 °F)	62 °C (143 °F)	62 °C (143 °F)
T5	80 °C (176 °F)	77 °C (170 °F)	77 °C (170 °F)
T4	115 °C (239 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	180 °C (356 °F)	80 °C (176 °F)	65 °C (149 °F)
T2	275 °C (527 °F)	73 °C (163 °F)	50 °C (122 °F)
T1	350 °C (662 °F)	60 °C (140 °F)	40 °C (104 °F)

Technical specifications (continued)Ex approvals:

All gas groups: FM

Temperature class	Maximum process temperature	Maximum ambient temperature	
		Standard cable	Fire retardant cable
T6	65 °C (149 °F)	62 °C (143 °F)	62 °C (143 °F)
T5	80 °C (176 °F)	77 °C (170 °F)	70 °C (158 °F)
T4	115 °C (239 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	180 °C (356 °F)	80 °C (176 °F)	65 °C (149 °F)
T2	275 °C (527 °F)	73 °C (163 °F)	50 °C (122 °F)
T1	350 °C (662 °F)	60 °C (140 °F)	40 °C (104 °F)

Additional ambient and environmental specifications

Specification	Rating/level of compliance
Relative humidity	0 ... 95%
Ingress protection	IP66 or IP67 with suitable cable glands
Environmental pollution	Pollution degree 4 in accordance with EN 61010-1 whilst in operation
Maximum altitude	2 000 m (6 600 ft) above mean sea level (MSL)
Mechanical load	- Transmitter: 10 ... 500 Hz, 1g - Sensor: 10 ... 500 Hz, 1g according to IEC 60068-2-6

Specification	Rating/level of compliance
Electromagnetic (EMC) Immunity	- EN IEC 61326-1, Table 2 - EN IEC 61326-2-3 - EN IEC 61326-2-5 - NAMUR NE 21 recommendation - DNV-CG-0339 section 3, chapter 14
Surge Immunity Emission	- EN 61000-4-5 for lightning protection - EN IEC 61000-3-2, Class A (harmonic current emissions) - EN IEC 61000-3-3, Class A (voltage fluctuations) - Immunity assessment criterion: output signal fluctuation is within $\pm 1\%$ of the output span
Overvoltage	Category II according to EN IEC 61010-1

Flow Measurement

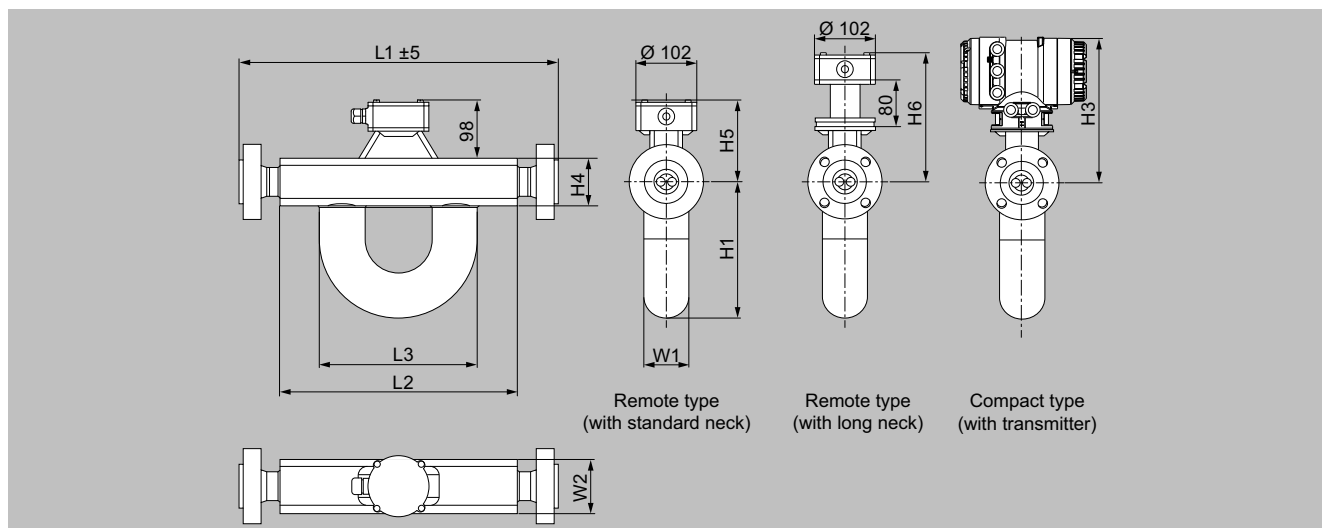
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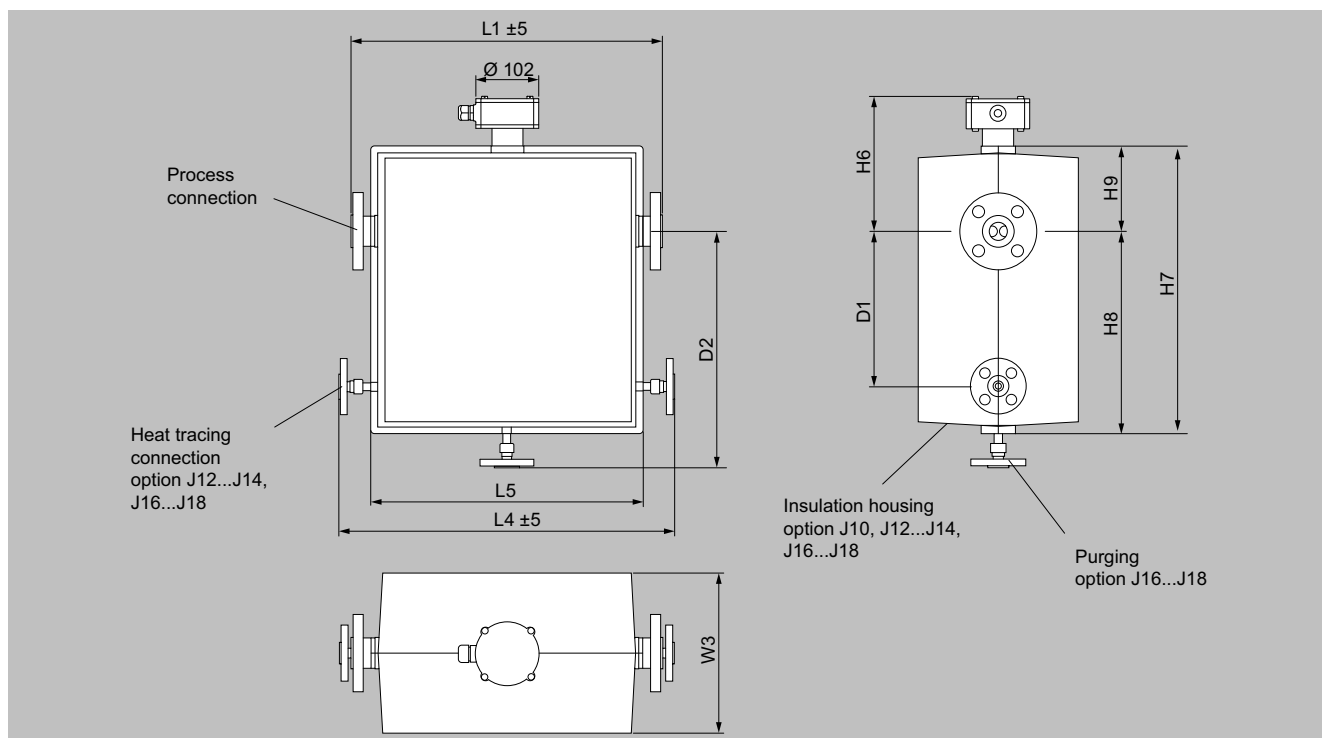
Dimensional drawings

Drawings, dimensions and weight for FCS600 sensors

FCS dimensions and weight (excluding high pressure versions)



Dimensions in mm



Dimensions in mm (with insulation and heating options)

Dimensional drawings (continued)

FCS600 sensor dimensions without L1

Nominal size	L2	L3	L4	L5	W1	W2	W3	D1	D2
	Dimensions in mm (inch)								
DN 15	272 (10.7)	212 (8.3)	420 (16.5)	310 (12.2)	60 (2.4)	80 (3.1)	240 (9.4)	200 (7.9)	330 (13)
DN 25	400 (15.7)	266 (10.5)	540 (21.3)	439 (17.3)	76 (3)	90 (3.5)	260 (10.2)	250 (9.8)	380 (15)
DN 40	490 (19.3)	267 (10.5)	640 (25.2)	530 (20.9)	89 (3.5)	110 (4.3)	260 (10.2)	250 (9.8)	430 (16.9)
DN 65	850 (33.5)	379 (14.9)	1000 (39.4)	894 (35.2)	129 (5.1)	160 (6.3)	302 (11.9)	350 (13.8)	545 (21.5)

Nominal size	H1	H3	H4	H5	H6	H7	H8	H9
	Dimensions in mm (inch)							
DN 15	177 (7)	267 (10.5)	80 (3.1)	138 (5.4)	218 (8.6)	411 (16.2)	273 (10.7)	138 (5.4)
DN 25	230 (9.1)	267 (10.5)	80 (3.1)	138 (5.4)	218 (8.6)	464 (18.3)	326 (12.8)	138 (5.4)
DN 40	268 (10.6)	277 (10.9)	100 (3.9)	148 (5.8)	228 (9)	524 (20.6)	376 (14.8)	148 (5.8)
DN 65	370 (14.6)	294.5 (11.6)	135 (5.3)	165 (6.5)	246 (9.7)	668 (26.3)	503 (19.8)	165 (6.5)

Overall length L1 and weight

The overall length of the sensor depends on the selected process connection (type and size). The following tables list the overall length and weight as functions of the individual process connection.

The weights in the tables are for the remote type. Additional weight for the compact type: up to 3.2 kg (7.1 lb).

L1 dimension and weight with process connections according to ASME B16.5, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size							
	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 40 L1 in mm (inch)	Weight in kg (lb)	DN 65 L1 in mm (inch)	Weight in kg (lb)
ASME ½" class 150, raised face (RF)	370 (14.6)	10 (22)	n/a	n/a	n/a	n/a	n/a	n/a
ASME ½" class 300, raised face (RF)	370 (14.6)	10.4 (23)	n/a	n/a	n/a	n/a	n/a	n/a
ASME ½" class 600, raised face (RF)	380 (15)	10.6 (23)	n/a	n/a	n/a	n/a	n/a	n/a
ASME ½" class 600, ring joint (RJ)	380 (15)	10.6 (23)	n/a	n/a	n/a	n/a	n/a	n/a
ASME 1" class 150, raised face (RF)	370 (14.6)	10.8 (24)	500 (19.7)	14.8 (33)	n/a	n/a	n/a	n/a
ASME 1" class 300, raised face (RF)	370 (14.6)	11.8 (26)	500 (19.7)	15.8 (35)	n/a	n/a	n/a	n/a
ASME 1" class 600, raised face (RF)	390 (15.4)	12.2 (27)	520 (20.5)	16.2 (36)	n/a	n/a	n/a	n/a
ASME 1" class 600, ring joint (RJ)	390 (15.4)	12.4 (27)	520 (20.5)	16.2 (36)	n/a	n/a	n/a	n/a
ASME 1½" class 150, raised face (RF)	380 (15)	11.8 (26)	500 (19.7)	15.8 (35)	600 (23.6)	25 (56)	n/a	n/a
ASME 1½" class 300, raised face (RF)	380 (15)	14.2 (31)	510 (20.1)	18.2 (40)	600 (23.6)	27.2 (60)	n/a	n/a
ASME 1½" class 600, raised face (RF)	400 (15.7)	15.4 (34)	530 (20.9)	19.2 (42)	620 (24.4)	28.2 (62)	n/a	n/a
ASME 1½" class 600, ring joint (RJ)	400 (15.7)	15.4 (34)	530 (20.9)	19.4 (43)	620 (24.4)	28.2 (62)	n/a	n/a
ASME 2" class 150, raised face (RF)	n/a	n/a	510 (20.1)	17.4 (38)	600 (23.6)	26.4 (58)	n/a	n/a
ASME 2" class 300, raised face (RF)	n/a	n/a	510 (20.1)	19 (42)	600 (23.6)	28 (62)	n/a	n/a
ASME 2" class 600, raised face (RF)	n/a	n/a	540 (21.3)	20.8 (46)	630 (24.8)	29.8 (66)	n/a	n/a
ASME 2" class 600, ring joint (RJ)	n/a	n/a	540 (21.3)	21.2 (47)	630 (24.8)	29.8 (66)	n/a	n/a
ASME 2½" class 150, raised face (RF)	n/a	n/a	n/a	n/a	610 (24)	29.6 (65)	n/a	n/a
ASME 2½" class 300, raised face (RF)	n/a	n/a	n/a	n/a	610 (24)	31 (68)	n/a	n/a
ASME 2½" class 600, raised face (RF)	n/a	n/a	n/a	n/a	640 (25.2)	33.4 (74)	n/a	n/a
ASME 2½" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	640 (25.2)	34.4 (76)	n/a	n/a
ASME 3" class 150, raised face (RF)	n/a	n/a	n/a	n/a	610 (24)	30.6 (67)	1 000 (39.4)	60.2 (133)

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Dimensional drawings (continued)

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 3" class 300, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	34.6 (76)	1 000 (39.4)	63.4 (140)
ASME 3" class 600, raised face (RF)	n/a	n/a	n/a	n/a	640 (25.2)	38 (84)	1 000 (39.4)	65.8 (145)
ASME 3" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	640 (25.2)	38.6 (85)	1 000 (39.4)	65.8 (145)
ASME 4" class 150, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	64 (141)
ASME 4" class 300, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	71.4 (157)
ASME 4" class 600, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 030 (40.6)	82.6 (182)
ASME 4" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	n/a	n/a	1 030 (40.6)	82.8 (183)
ASME 5" class 150, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	66 (146)
ASME 5" class 300, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	78.4 (173)
ASME 5" class 600, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 030 (40.6)	102.8 (227)
ASME 5" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	n/a	n/a	1 030 (40.6)	103.6 (228)

L1 dimension and weight with process connections according to ASME B16.5, alloy 22 wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 1" class 150, raised face (RF)	390 (15.4)	11.4 (25)	n/a	n/a	n/a	n/a
ASME 1" class 300, raised face (RF)	390 (15.4)	12.6 (28)	n/a	n/a	n/a	n/a
ASME 1" class 600, raised face (RF)	390 (15.4)	12.4 (27)	n/a	n/a	n/a	n/a
ASME 1½" class 150, raised face (RF)	390 (15.4)	12.6 (28)	520 (20.5)	16.5 (35)	n/a	n/a
ASME 1½" class 300, raised face (RF)	390 (15.4)	15.4 (34)	520 (20.5)	19.1 (42)	n/a	n/a
ASME 1½" class 600, raised face (RF)	400 (15.7)	15.6 (34)	530 (20.9)	19.6 (43)	n/a	n/a
ASME 2" class 150, raised face (RF)	390 (15.4)	14.8 (33)	520 (20.5)	18.5 (41)	620 (24.4)	27.3 (60)
ASME 2" class 300, raised face (RF)	390 (15.4)	16 (35)	520 (20.5)	20.5 (45)	620 (24.4)	29.1 (64)
ASME 2" class 600, raised face (RF)	410 (16.1)	17.6 (39)	540 (21.3)	21.6 (48)	630 (24.8)	29.7 (66)
ASME 2½" class 150, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	30.9 (68)
ASME 2½" class 300, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	32.5 (72)
ASME 2½" class 600, raised face (RF)	n/a	n/a	n/a	n/a	640 (25.2)	33.9 (75)
ASME 3" class 150, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	32.8 (72)
ASME 3" class 300, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	36.6 (81)
ASME 3" class 600, raised face (RF)	n/a	n/a	n/a	n/a	640 (25.2)	38.9 (86)

Dimensional drawings (continued)

L1 dimension and weight with process connections according to EN 1092-1, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size							
	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 40 L1 in mm (inch)	Weight in kg (lb)	DN 65 L1 in mm (inch)	Weight in kg (lb)
EN DN 15 PN 40 type B1, raised face (RF)	370 (14.6)	10.6 (23)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 40 type D, with groove	370 (14.6)	10.4 (23)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 40 type E, with spigot	370 (14.6)	10.4 (23)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 40 type F, with recess	370 (14.6)	10.4 (23)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type B1, raised face (RF)	380 (15)	11.4 (25)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type D, with groove	380 (15)	11.4 (25)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type E, with spigot	380 (15)	11.2 (25)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 15 PN 100 type F, with recess	380 (15)	11.4 (25)	n/a	n/a	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type B1, raised face (RF)	370 (14.6)	11.6 (26)	500 (19.7)	15.6 (34)	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type D, with groove	370 (14.6)	11.4 (25)	500 (19.7)	15.4 (34)	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type E, with spigot	370 (14.6)	11.2 (25)	500 (19.7)	15.2 (34)	n/a	n/a	n/a	n/a
EN DN 25 PN 40 type F, with recess	370 (14.6)	11.4 (25)	500 (19.7)	15.4 (34)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type B1, raised face (RF)	390 (15.4)	14 (31)	520 (20.5)	18.2 (40)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type D, with groove	390 (15.4)	14 (31)	520 (20.5)	18 (40)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type E, with spigot	390 (15.4)	13.6 (30)	520 (20.5)	17.6 (39)	n/a	n/a	n/a	n/a
EN DN 25 PN 100 type F, with recess	390 (15.4)	14 (31)	520 (20.5)	18 (40)	n/a	n/a	n/a	n/a
EN DN 40 PN 40 type B1, raised face (RF)	370 (14.6)	13 (29)	500 (19.7)	17 (37)	600 (23.6)	26.2 (58)	n/a	n/a
EN DN 40 PN 40 type D, with groove	370 (14.6)	13 (29)	500 (19.7)	17 (37)	600 (23.6)	26 (57)	n/a	n/a
EN DN 40 PN 40 type E, with spigot	370 (14.6)	12.6 (28)	500 (19.7)	16.6 (37)	600 (23.6)	25.8 (57)	n/a	n/a
EN DN 40 PN 40 type F, with recess	370 (14.6)	12.8 (29)	500 (19.7)	16.8 (37)	600 (23.6)	26 (57)	n/a	n/a
EN DN 40 PN 100 type B1, raised face (RF)	450 (17.7)	17.6 (39)	560 (22)	21.2 (47)	620 (24.4)	29.8 (66)	n/a	n/a
EN DN 40 PN 100 type D, with groove	450 (17.7)	17.4 (38)	560 (22)	21.2 (47)	620 (24.4)	29.6 (65)	n/a	n/a
EN DN 40 PN 100 type E, with spigot	450 (17.7)	17 (37)	560 (22)	20.8 (46)	620 (24.4)	29.2 (64)	n/a	n/a
EN DN 40 PN 100 type F, with recess	450 (17.7)	17.4 (38)	560 (22)	21 (46)	620 (24.4)	29.6 (65)	n/a	n/a
EN DN 50 PN 40 type B1, raised face (RF)	n/a	n/a	500 (19.7)	18.4 (41)	600 (23.6)	27.4 (60)	n/a	n/a
EN DN 50 PN 40 type D, with groove	n/a	n/a	500 (19.7)	18.2 (40)	600 (23.6)	27.4 (60)	n/a	n/a
EN DN 50 PN 40 type E, with spigot	n/a	n/a	500 (19.7)	18 (40)	600 (23.6)	27 (60)	n/a	n/a
EN DN 50 PN 40 type F, with recess	n/a	n/a	500 (19.7)	18.2 (40)	600 (23.6)	27.2 (60)	n/a	n/a
EN DN 50 PN 63 type B1, raised face (RF)	n/a	n/a	520 (20.5)	21.6 (48)	620 (24.4)	30.6 (67)	n/a	n/a
EN DN 50 PN 63 type D, with groove	n/a	n/a	520 (20.5)	21.4 (47)	620 (24.4)	30.4 (67)	n/a	n/a
EN DN 50 PN 63 type E, with spigot	n/a	n/a	520 (20.5)	21 (46)	620 (24.4)	30 (66)	n/a	n/a
EN DN 50 PN 63 type F, with recess	n/a	n/a	520 (20.5)	21.2 (47)	620 (24.4)	30.2 (67)	n/a	n/a
EN DN 50 PN 100 type B1, raised face (RF)	n/a	n/a	590 (23.2)	25.2 (56)	660 (26)	33.6 (74)	n/a	n/a

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Dimensional drawings (continued)

Process connection size and type	FCS600 sensor nominal size							
	DN 15 L1 in mm (inch)	Weight in kg (lb)	DN 25 L1 in mm (inch)	Weight in kg (lb)	DN 40 L1 in mm (inch)	Weight in kg (lb)	DN 65 L1 in mm (inch)	Weight in kg (lb)
EN DN 50 PN 100 type D, with groove	n/a	n/a	590 (23.2)	25 (55)	660 (26)	33.4 (74)	n/a	n/a
EN DN 50 PN 100 type E, with spigot	n/a	n/a	590 (23.2)	24.4 (54)	660 (26)	33 (73)	n/a	n/a
EN DN 50 PN 100 type F, with recess	n/a	n/a	590 (23.2)	24.8 (56)	660 (26)	33.4 (74)	n/a	n/a
EN DN 80 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	610 (24)	31 (68)	1 000 (39.4)	60.4 (133)
EN DN 80 PN 40 type D, with groove	n/a	n/a	n/a	n/a	610 (24)	30.8 (68)	1 000 (39.4)	60.2 (133)
EN DN 80 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	610 (24)	30.4 (67)	1 000 (39.4)	59.8 (132)
EN DN 80 PN 40 type F, with recess	n/a	n/a	n/a	n/a	610 (24)	30.6 (67)	1 000 (39.4)	60 (132)
EN DN 80 PN 63 type B1, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	34.4 (76)	1 000 (39.4)	63.4 (140)
EN DN 80 PN 63 type D, with groove	n/a	n/a	n/a	n/a	620 (24.4)	34.2 (75)	1 000 (39.4)	63.2 (139)
EN DN 80 PN 63 type E, with spigot	n/a	n/a	n/a	n/a	620 (24.4)	33.6 (74)	1 000 (39.4)	62.8 (138)
EN DN 80 PN 63 type F, with recess	n/a	n/a	n/a	n/a	620 (24.4)	33.8 (75)	1 000 (39.4)	63 (139)
EN DN 80 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	730 (28.7)	41.8 (92)	1 000 (39.4)	67.2 (148)
EN DN 80 PN 100 type D, with groove	n/a	n/a	n/a	n/a	730 (28.7)	41.6 (92)	1 000 (39.4)	67 (148)
EN DN 80 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	730 (28.7)	41 (90)	1 000 (39.4)	66.4 (146)
EN DN 80 PN 100 type F, with recess	n/a	n/a	n/a	n/a	730 (28.7)	41.4 (91)	1 000 (39.4)	66.6 (147)
EN DN 100 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	63.6 (140)
EN DN 100 PN 40 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	63.2 (139)
EN DN 100 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	62.4 (138)
EN DN 100 PN 40 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	62.6 (138)
EN DN 100 PN 63 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	68 (150)
EN DN 100 PN 63 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	67.8 (149)
EN DN 100 PN 63 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	67 (148)
EN DN 100 PN 63 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	67.4 (149)
EN DN 100 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 050 (41.3)	76.6 (169)
EN DN 100 PN 100 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	1 050 (41.3)	76.2 (168)
EN DN 100 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	1 050 (41.3)	75.4 (166)
EN DN 100 PN 100 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	1 050 (41.3)	75.8 (167)
EN DN 125 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	67.6 (149)
EN DN 125 PN 40 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	67.2 (148)
EN DN 125 PN 40 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	66.4 (146)
EN DN 125 PN 40 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	66.6 (147)
EN DN 125 PN 63 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	77.8 (172)
EN DN 125 PN 63 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	77.4 (171)

Dimensional drawings (continued)

Process connection size and type	FCS600 sensor nominal size		DN 25		DN 40		DN 65	
	DN 15 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 125 PN 63 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	76.4 (168)
EN DN 125 PN 63 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	76.8 (169)
EN DN 125 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	n/a	n/a	1 100 (43.3)	93.2 (205)
EN DN 125 PN 100 type D, with groove	n/a	n/a	n/a	n/a	n/a	n/a	1 100 (43.3)	92.8 (205)
EN DN 125 PN 100 type E, with spigot	n/a	n/a	n/a	n/a	n/a	n/a	1 100 (43.3)	91.4 (202)
EN DN 125 PN 100 type F, with recess	n/a	n/a	n/a	n/a	n/a	n/a	1 100 (43.3)	92.4 (204)

L1 dimension and weight with process connections according to EN 1092-1, alloy 22 wetted parts

Process connection size and type	FCS600 sensor nominal size		DN 25		DN 40	
	DN 15 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 25 PN 40, type B1, raised face (RF)	390 (15.4)	11.7 (26)	520 (20.5)	15.7 (35)	n/a	n/a
EN DN 40 PN 40, type B1, raised face (RF)	390 (15.4)	13.7 (30)	520 (20.5)	17.5 (39)	n/a	n/a
EN DN 50 PN 40, type B1, raised face (RF)	n/a	n/a	520 (20.5)	19.3 (43)	620 (24.4)	28 (62)
EN DN 80 PN 40, type B1, raised face (RF)	n/a	n/a	n/a	n/a	620 (24.4)	32.6 (72)

L1 dimension and weight with process connections according to JIS B 2220, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size		DN 25		DN 40		DN 65	
	DN 15 L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS DN 15 10 K	370 (14.6)	10.4 (23)	n/a	n/a	n/a	n/a	n/a	n/a
JIS DN 15 20 K	370 (14.6)	10.4 (23)	n/a	n/a	n/a	n/a	n/a	n/a
JIS DN 25 10 K	370 (14.6)	11.4 (25)	500 (19.7)	15.6 (34)	n/a	n/a	n/a	n/a
JIS DN 25 20 K	370 (14.6)	11.8 (26)	500 (19.7)	15.8 (35)	n/a	n/a	n/a	n/a
JIS DN 40 10 K	370 (14.6)	12.2 (27)	500 (19.7)	16.2 (36)	600 (23.6)	25.4 (56)	n/a	n/a
JIS DN 40 20 K	370 (14.6)	12.6 (28)	500 (19.7)	16.6 (37)	600 (23.6)	25.8 (57)	n/a	n/a
JIS DN 50 10 K	n/a	n/a	500 (19.7)	17 (37)	600 (23.6)	26 (57)	n/a	n/a
JIS DN 50 20 K	n/a	n/a	500 (19.7)	17.2 (38)	600 (23.6)	26.2 (58)	n/a	n/a
JIS DN 80 10 K	n/a	n/a	n/a	n/a	600 (23.6)	27.8 (61)	1 000 (40.2)	57.8 (127)
JIS DN 80 20 K	n/a	n/a	n/a	n/a	610 (24)	30.4 (67)	1 000 (40.2)	60 (132)
JIS DN 100 10 K	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (40.2)	59 (130)
JIS DN 100 20 K	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (40.2)	63 (139)
JIS DN 125 10 K	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (40.2)	62.8 (138)
JIS DN 125 20 K	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (40.2)	69 (152)

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Dimensional drawings (continued)

L1 dimension and weight with process connections according to JIS B 2220, alloy 22 wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS DN 25 10 K	390 (15.4)	12.1 (27)	n/a	n/a	n/a	n/a
JIS DN 25 20 K	390 (15.4)	12.5 (28)	n/a	n/a	n/a	n/a
JIS DN 40 10 K	390 (15.4)	13.6 (30)	520 (20.5)	17.4 (38)	n/a	n/a
JIS DN 40 20 K	390 (15.4)	14 (31)	520 (20.5)	17.6 (39)	n/a	n/a
JIS DN 50 10 K	n/a	n/a	520 (20.5)	18.6 (41)	620 (24.4)	27.3 (60)
JIS DN 50 20 K	n/a	n/a	520 (20.5)	18.8 (41)	620 (24.4)	27.3 (60)
JIS DN 80 10 K	n/a	n/a	n/a	n/a	620 (24.4)	30.8 (68)
JIS DN 80 20 K	n/a	n/a	n/a	n/a	620 (24.4)	33.3 (73)

L1 dimension and weight with G threaded process connections, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
G ¾"	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a
G ½"	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a
G ¾"	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a

L1 dimension and weight with NPT threaded process connections, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
¾" NPT	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a
½" NPT	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a
¾" NPT	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a	n/a	n/a

L1 dimension and weight with hygienic clamp process connections to DIN 32676 Series A, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 32676 series A, DN 25	370 (14.8)	9.2 (20)	n/a	n/a	n/a	n/a	n/a	n/a
DIN 32676 series A, DN 40	370 (14.8)	9.2 (20)	500 (19.7)	13.2 (29)	n/a	n/a	n/a	n/a
DIN 32676 series A, DN 50	n/a	n/a	500 (19.7)	13.2 (29)	600 (23.6)	22.4 (49)	n/a	n/a
DIN 32676 series A, DN 65	n/a	n/a	n/a	n/a	600 (23.6)	22.5 (50)	n/a	n/a
DIN 32676 series A, DN 100	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	52.1 (115)

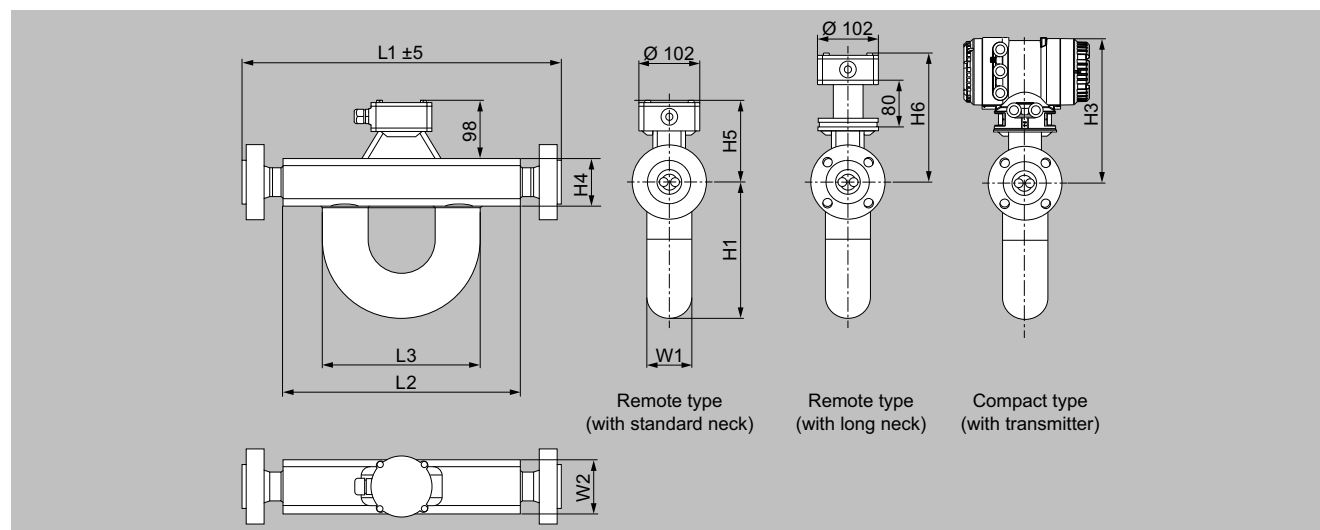
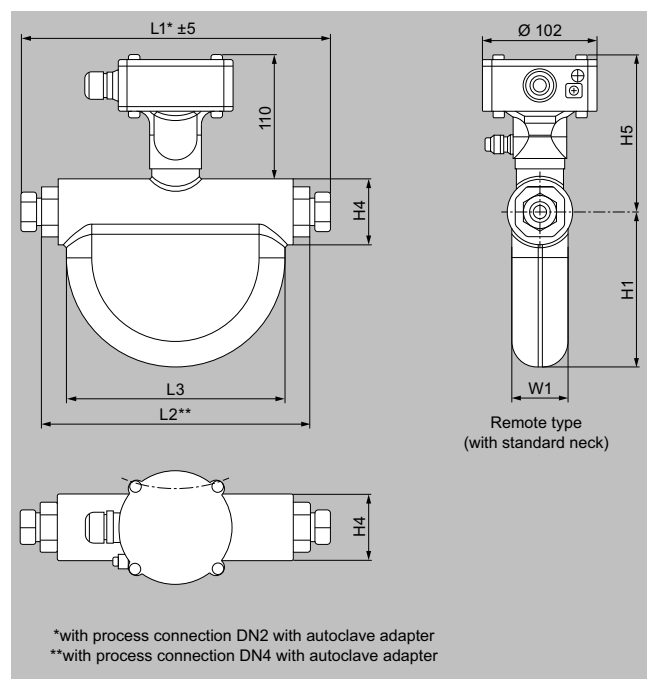
L1 dimension and weight with hygienic clamp process connections to DIN 32676 Series C (Tri-clamp), AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
DIN 32676 series C, 1"	370 (14.8)	9.2 (20)	n/a	n/a	n/a	n/a	n/a	n/a
DIN 32676 series C, 1½"	370 (14.8)	9.2 (20)	500 (19.7)	13.2 (29)	n/a	n/a	n/a	n/a
DIN 32676 series C, 2"	n/a	n/a	500 (19.7)	13.2 (29)	600 (23.6)	22.4 (49)	n/a	n/a
DIN 32676 series C, 3"	n/a	n/a	n/a	n/a	600 (23.6)	22.5 (50)	n/a	n/a
DIN 32676 series C, 4"	n/a	n/a	n/a	n/a	n/a	n/a	1 000 (39.4)	52.2 (115)

Dimensional drawings (continued)

L1 dimension and weight with hygienic clamp process connections to JIS/ISO 2852, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40		DN 65	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS/ISO 2852, 1"	370 (14.8)	9.2 (20)	n/a	n/a	n/a	n/a	n/a	n/a
JIS/ISO 2852, 1½"	370 (14.8)	9.2 (20)	500 (19.7)	13.2 (29)	n/a	n/a	n/a	n/a
JIS/ISO 2852, 2"	n/a	n/a	500 (19.7)	13.3 (29)	600 (23.6)	22.4 (49)	n/a	n/a
JIS/ISO 2852, 3"	n/a	n/a	n/a	n/a	600 (23.6)	22.5 (50)	n/a	n/a

FCS600 dimensions and weight (high pressure versions)

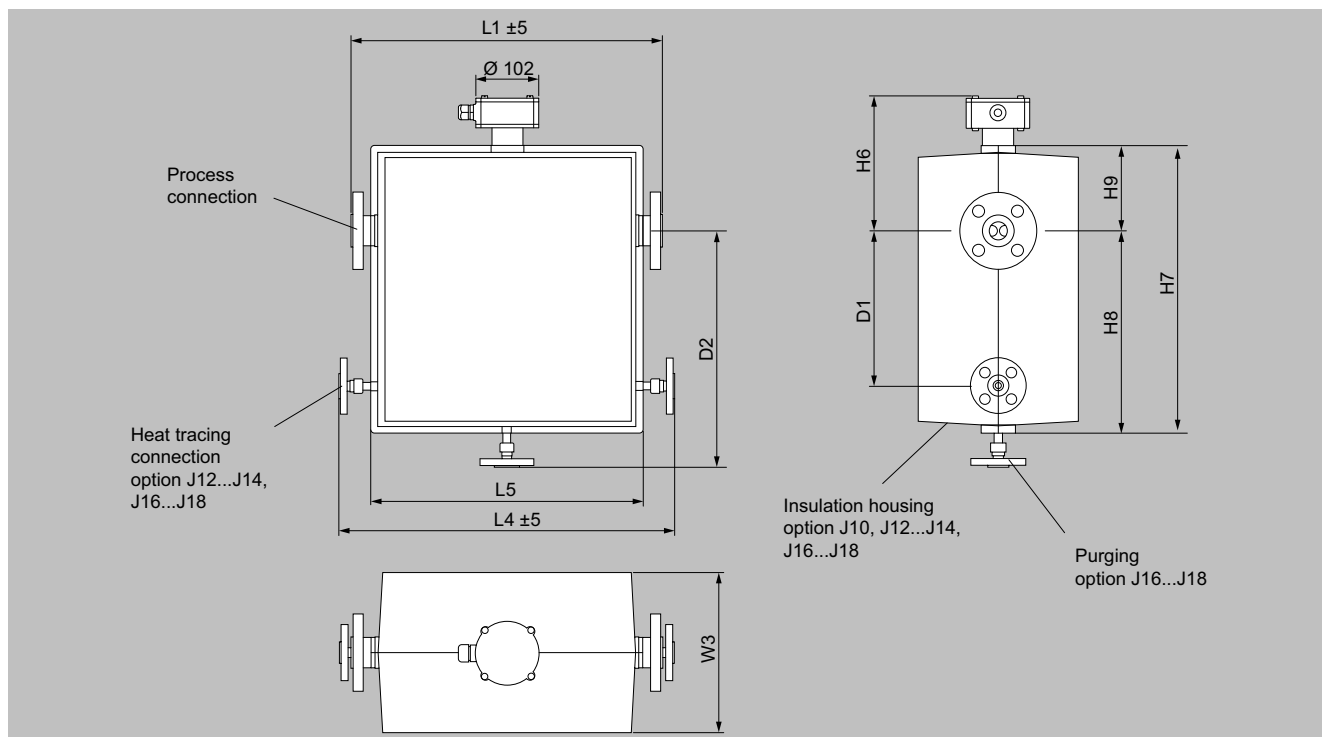
Dimensions in mm for sizes DN 15, DN 25 and DN 40

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Dimensional drawings (continued)



Dimensions in mm, version with insulation housing for sizes DN 15, DN 25 and DN 40 only

Dimensions without length L1

Nominal size	L2	L3	L4	L5	W1	W2	W3	D1	D2
Dimensions in mm (inch)									
DN 2	240 (9.5)	195 (7.7)			50 (2.0)				
DN 4	240 (9.5)	195 (7.7)			50 (2.0)				
DN 15	272 (10.7)	212 (8.3)	420 (16.5)	310 (12.2)	60 (2.4)	80 (3.1)	240 (9.4)	200 (7.9)	330 (13)
DN 25	400 (15.7)	266 (10.5)	540 (21.3)	439 (17.3)	76 (3)	90 (3.5)	260 (10.2)	250 (9.8)	380 (15)
DN 40	490 (19.3)	267 (10.5)	640 (25.2)	530 (20.9)	89 (3.5)	110 (4.3)	260 (10.2)	250 (9.8)	430 (16.9)

Nominal size	H1	H3	H4	H5	H6	H7	H8	H9
Dimensions in mm (inch)								
DN 2	138 (5.4)		59 (2.3)	140 (5.5)				
DN 4	138 (5.4)		59 (2.3)	140 (5.5)				
DN 15	177 (7)	267 (10.5)	80 (3.1)	138 (5.4)	218 (8.6)	411 (16.2)	273 (10.7)	138 (5.4)
DN 25	230 (9.1)	267 (10.5)	80 (3.1)	138 (5.4)	218 (8.6)	464 (18.3)	326 (12.8)	138 (5.4)
DN 40	268 (10.6)	277 (10.9)	100 (3.9)	148 (5.8)	228 (9)	524 (20.6)	376 (14.8)	148 (5.8)

Overall length L1 and weight

The overall length of the sensor depends on the selected process connection (type and size). The following tables list the overall length and weight as functions of the individual process connection.

The weights in the tables are for the remote type. Additional weight for the compact type: up to 3.2 kg (7.1 lb).

Dimensional drawings (continued)

L1 dimension and weight for medium pressure autoclave process connections

Wetted parts AISI 316L stainless steel and alloy 22

Process connection size and type	FCS600 sensor nominal size		DN 4	
	DN 2		L1 in mm (inch)	Weight in kg (lb)
Autoclave 9/16" adapter	275 (10.8)	7 (15.4)	275 (10.8)	7 (15.4)
Autoclave 3/4"	240 (9.5)	7 (15.4)	240 (9.5)	7 (15.4)

L1 dimension and weight for process connections compatible to ASME B16.5, AISI 316L wetted parts

Process connection size and type	FCS600 sensor nominal size		DN 25		DN 40	
	DN 15		L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 1/2" class 900, raised face (RF)	400 (15.7)	12.6 (28)	n/a	n/a	n/a	n/a
ASME 1/2" class 900, ring joint (RJ)	400 (15.7)	13 (29)	n/a	n/a	n/a	n/a
ASME 1/2" class 1 500, raised face (RF)	400 (15.7)	12.6 (28)	n/a	n/a	n/a	n/a
ASME 1/2" class 1 500, ring joint (RJ)	400 (15.7)	13 (29)	n/a	n/a	n/a	n/a
ASME 1" class 900, raised face (RF)	450 (17.7)	16.4 (36)	540 (21.3)	20.6 (45)	n/a	n/a
ASME 1" class 900, ring joint (RJ)	450 (17.7)	16.6 (37)	540 (21.3)	20.4 (45)	n/a	n/a
ASME 1" class 1500, raised face (RF)	450 (17.7)	16.4 (36)	n/a	n/a	n/a	n/a
ASME 1" class 1500, ring joint (RJ)	450 (17.7)	16.6 (37)	n/a	n/a	n/a	n/a
ASME 2" class 900, raised face (RF)	n/a	n/a	660 (26)	35.2 (78)	720 (28.3)	43 (95)
ASME 2" class 900, ring joint (RJ)	n/a	n/a	660 (26)	35.6 (78)	720 (28.3)	43.4 (96)

L1 dimension and weight for process connections compatible to ASME B16.5, alloy 22 wetted parts

Process connection size and type	FCS600 sensor nominal size		DN 25		DN 40	
	DN 15		L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 1" class 900, raised face (RF)	400 (15.7)	16.4 (36)	n/a	n/a	n/a	n/a
ASME 1" class 900, ring joint (RJ)	n/a	n/a	580 (23)	21 (46)	n/a	n/a
ASME 1" class 1 500, raised face (RF)	400 (15.7)	16.4 (36)	n/a	n/a	n/a	n/a
ASME 1" class 1 500, ring joint (RJ)	n/a	n/a	580 (23)	21 (46)	n/a	n/a
ASME 2" class 900, raised face (RF)	n/a	n/a	580 (23)	34 (75)	710 (28)	44 (97)
ASME 2" class 900, ring joint (RJ)	n/a	n/a	580 (23)	36 (80)	710 (28)	44 (97)
ASME 2" class 1 500, ring joint (RJ)	n/a	n/a	580 (23)	36 (80)	710 (28)	44 (97)
ASME 3" class 900, raised face (RF)	n/a	n/a	n/a	n/a	710 (28)	50 (110)
ASME 3" class 900, ring joint (RJ)	n/a	n/a	n/a	n/a	710 (28)	52 (115)

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC620/FC640

Dimensional drawings (continued)

L1 dimension and weight for process connections with internal thread G

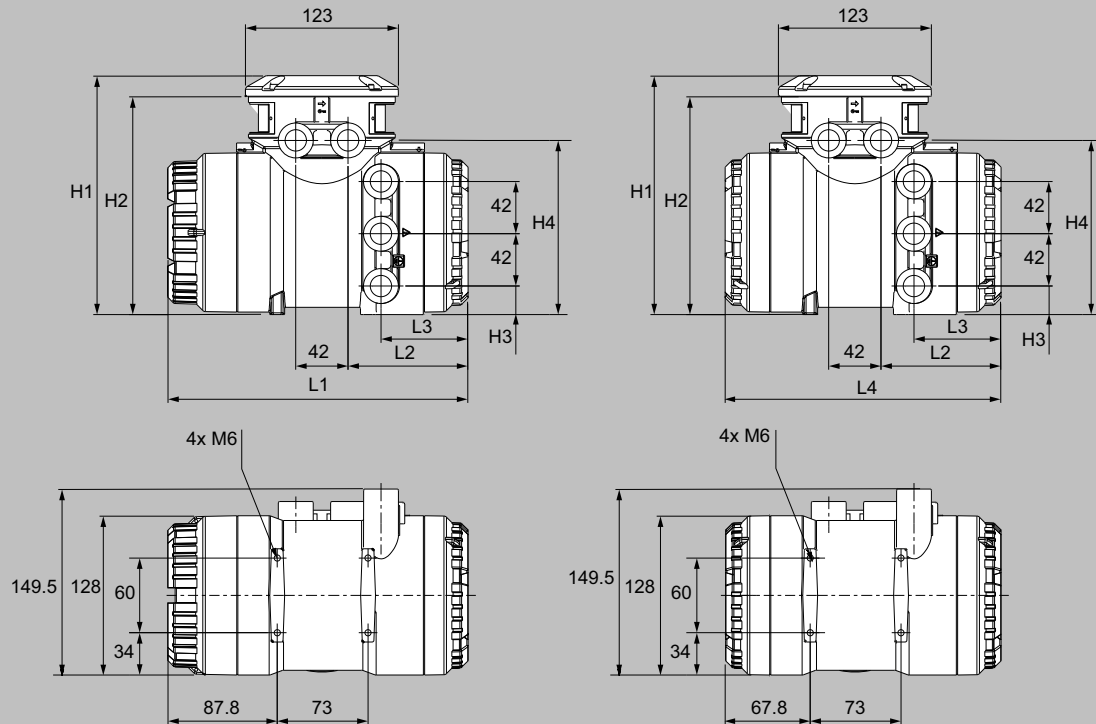
Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
G 3/8"	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a
G 1/2"	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a
G 3/4"	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a

L1 dimension and weight for process connections with internal thread NPT

Process connection size and type	FCS600 sensor nominal size DN 15		DN 25		DN 40	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
3/8" NPT	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a
1/2" NPT	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a
3/4" NPT	390 (15.4)	9.4 (21)	n/a	n/a	n/a	n/a

Dimensional drawings (continued)

Drawings, dimensions and weight for FCT020 and FCT040 transmitters



Dimensions of FCT020 or FCT040 transmitter in mm. Transmitter with display shown on the left. Transmitter without display shown on the right.

Dimensions L1 to L4 and H1 to H4 (material options: stainless steel, aluminum)

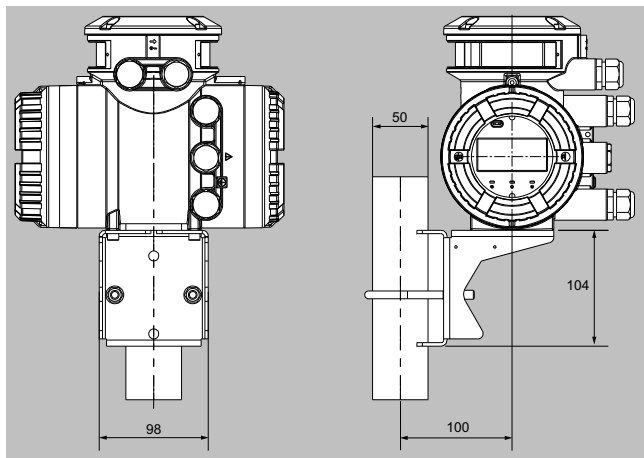
Material	L1 in mm (inch)	L2 in mm (inch)	L3 in mm (inch)	L4 in mm (inch)	H1 in mm (inch)	H2 in mm (inch)	H3 in mm (inch)	H4 in mm (inch)
Stainless steel	255.5 (10.06)	110.5 (4.35)	69 (2.72)	235 (9.25)	201 (7.91)	184 (7.24)	24 (0.94)	150.5 (5.93)
Aluminum	241.5 (9.51)	96.5 (3.8)	70 (2.76)	221 (8.7)	192 (7.56)	175 (6.89)	23 (0.91)	140 (5.51)

Flow Measurement

SITRANS FC (Coriolis)

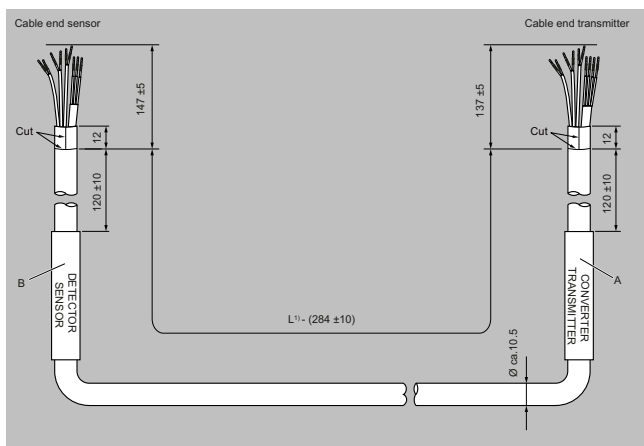
Flowmeter systems / SITRANS FC620/FC640

Dimensional drawings (continued)



Connecting cable dimensions and weights

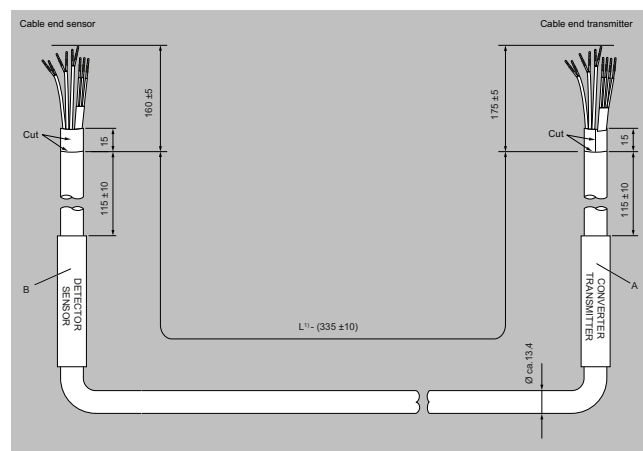
Standard cable



Dimensions in mm. Standard terminated cable. A and B are factory-fitted labels.

Option code	Cable length, L	Cable colour
L51	5 m (16.4 ft)	Non-Ex: gray / Ex: blue
L54	10 m (32.8 ft)	
L57	15 m (49.2 ft)	
L60	20 m (65.6 ft)	
L63	30 m (98.4 ft)	

Standard cable with steel-armored option

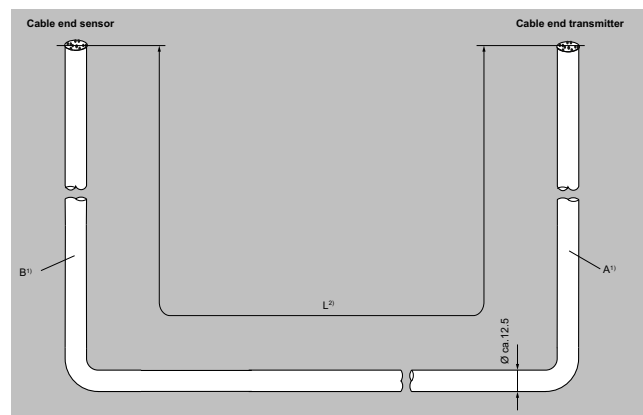


Dimensions in mm. Steel-armored terminated cable. A and B are factory-fitted labels.

Option code	Cable length, L	Cable colour
L51 + A20/A21	5 m (16.4 ft)	Blue
L54 + A20/A21	10 m (32.8 ft)	
L57 + A20/A21	15 m (49.2 ft)	
L60 + A20/A21	20 m (65.6 ft)	
L63 + A20/A21	30 m (98.4 ft)	

Weight of cable ≤ 0.300 kg/m (0.202 lb/ft)

Fire retardant cable



Dimensions in mm. Fire retardant unterminated cable. Labels A and B are supplied loose with termination kit.

Option code	Cable length, L	Cable colour
L71	5 m (16.4 ft)	Gray
L74	10 m (32.8 ft)	
L77	15 m (49.2 ft)	
L80	20 m (65.6 ft)	
L83	30 m (98.4 ft)	

Weight of cable ≤ 0.270 kg/m (0.181 lb/ft)

Overview

The flowmeter systems of the SITRANS FC500 series are the grande Coriolis multi-parameter flowmeter for large pipes and high flows.

They are formed by one FCS700 sensor and one FCT transmitter:

- SITRANS FC720 is the combination of the FCS700 sensor and the FCT020 transmitter
- SITRANS FC740 is the combination of the FCS700 sensor and the FCT040 transmitter

Features:

- Dual curved AISI 316L stainless steel or alloy 22 measuring tubes
- Process connection: flanges
- Nominal sizes: DN 100 to DN 200
- Connection sizes DN 100 to DN 250 (4" to 10")
- Nominal flow rates: 250 000 kg/h to 900 000 kg/h (551 156 to 1 984 160 lb/h)
- FCS700 sensors can be combined with compact or remote transmitters
- Versatility with superior turndown and modest pressure loss
- Durability and the performance required in large-scale processes



FC720/740 Coriolis flowmeter

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC720/FC740

Benefits

Product features aligned to user value targets

	Customer value targets	SITRANS FC features and solutions
Engineering and project management	• Reduce engineering investment • Cut specification effort • Minimize project expenditure • Decrease the spending on each measurement point • Eliminate function duplication • Reduce number of suppliers	• Siemens project teams offer complimentary evaluation of customer specifications, provided by regional and HQ experts • Simple product selection using intuitive sizing software • One SITRANS FC device can typically provide 3 to 6 individual measurements, all transmitted via digital communication, when planned during pre-project design • Added value functions: batch control, viscosity, thermal energy, concentration measurement (Fraction) of two-component solutions, and pressure compensation
Installation	• Reduce footprint and transport outlay of OEM machinery • Lower installation complexity • Avoid costly modifications of existing plant	• Can be installed in horizontal or vertical (self-draining) pipes • Twin tube bend design delivers strong signal to noise characteristic resistant to external influence, so install in tight spaces with no inlet and outlet restrictions • Adaptable to existing pipes: typically, 3 or 4 connection sizes for each sensor size • Flexible selection of traditional inputs, outputs, and digital communications
Configuration and commissioning	• Shorter commissioning schedules with lower costs • Faster start-up with reduced outgoings	• Easy setup wizard delivers working meters straight after start-up • microSD card stores sensor calibration data and default setup • Simple configuration using Process Device Manager (PDM) • Siemens device-specific faceplates simplify operation in plantwide control systems
Efficient plant operation	• Improve finished product consistency to reduce waste • Keep process performance when scaling production up or down • Optimize process control • Improve finished product quality enabling higher levels of profit • Reduce downtime with fast resolution of process upsets • Improve asset performance	• SITRANS FC meters are calibrated in rigs accredited to EN/ISO 17025 to ensure consistently high performance of flow, density, and concentration measurements • First-class zero-point quality maintains high accuracy into the low flow region • High sensitivity and intelligent dynamic range keeps the measurement active in demanding high fluid damping cases • Designed-in resilience to process extremes • Self-verification alerts to potential performance issues due to unplanned process events, for example gas or vapor breakout or solid deposits building up in the tubes • Diagnostic data via local menu or PDM is backed by Siemens applications experts • Intelligent Siemens SITRANS IQ apps for continuing asset evaluation
Maintenance and asset management	• Optimize technician training • Reduce cost of spare parts • Increase predictive maintenance • Reduce production downtime and associated costs • Decrease unplanned maintenance • Maximize asset value	• Simple product design with interchangeable modular parts • Micro SD card loads sensor specific data to deliver fast service exchange • Self-verification: tube health check monitors key diagnostics, including tube stiffness, driver and pickups; the user defines verification frequency and alarm behavior • Verification results indicate whether preventive maintenance action is required • Siemens SIMATIC Maintenance Station uses cyclical acquisition to provide life cycle reports and intelligent preventive maintenance strategies

Benefits (continued)

	Customer value targets	SITRANS FC features and solutions
Industry compliance	• Cut effort required to comply with Industry-specific demands • Reduce resource needed to maintain regulatory compliance	• Food and beverage sector covered with EHEDG and 3-A approvals, polished tubes • Global hazardous area approvals for international plant duplications • Common and emerging digital networks covered: HART, , or over • Class leading safety: SIL2/SIL3, secondary containment, PED,

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC720/FC740

Application

Application examples for SITRANS FC multi-parameter meters across diverse industry sectors

Chemical and petrochemical Bulk chemicals Industrial gases Polymers Agrochemicals Fine chemicals Aroma chemicals	• Transfer, loading and unloading of bulk chemicals • Concentration control of acids and alkalis (process optimization) • Accurate mass or volume flow of feed chemicals to in-line blending systems • Accurate mass flow and density (quality) of reactor fluid feeds catalyst • Chemical recovery • Mass balance optimization • Compressed and cryogenic gases • Lubricating oil blending and dosing • High accuracy measurement of critical fluid components • Low flow control in pilot plants and R&D facilities
Food and beverage Food processing Dairies Breweries Distilleries Confectionary Soft drinks Animal feed plants OEM	• Accurate bulk transfer (mass or volume) of all dairy products: milk, cream, whey and yoghurt • Fat concentration in cream • Flow, density, temperature, and concentration (Plato) during all fermentation processes • Flow, density, temperature, and sugar concentration (Brix) in soft drink processing • Distilled spirits: % alcohol by volume (ABV), liters of pure alcohol, volume transfer, blending, batch and column still optimization and energy management, cask filling, tanker loading • Flow and density of fruit juices and pulps • Mixing and inventory control of confectionary ingredients, e.g., chocolate, syrup, oils, flavors • Metering pump control • Oils, Fats enzymes dosing in animal feed plants • CO₂ dosing • CIP liquids • Bottling of beer, spirits, wine, soft drinks, etc. • Bulk sugar processing: molasses, sugar slurries, density, Brix of finished product
Oil and gas Offshore/onshore Upstream/downstream Pipelines Distribution networks Refineries Skid manufacturers	• Loading/unloading of hydrocarbons (e.g., crude oil, bitumen) from/to ship, road tanker, rail car • High pressure chemical injection • High pressure low flow gas • Net oil computing • Gas void fraction • Filling of gas bottles • Furnace control • Test separators • LPG, natural gas hydration • Well-head water-cut monitoring • All hydrocarbon fluids in refineries • Metrology, custody transfer • Drilling mud • Oil well cementing and hydrofracturing

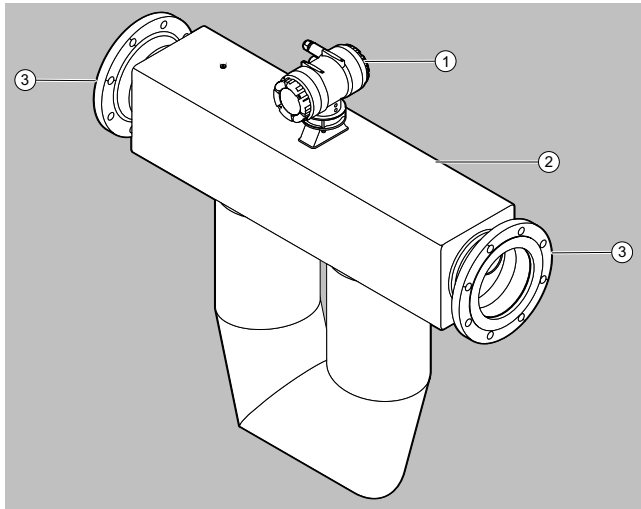
Application (continued)

Application examples for SITRANS FC multi-parameter meters across diverse industry sectors

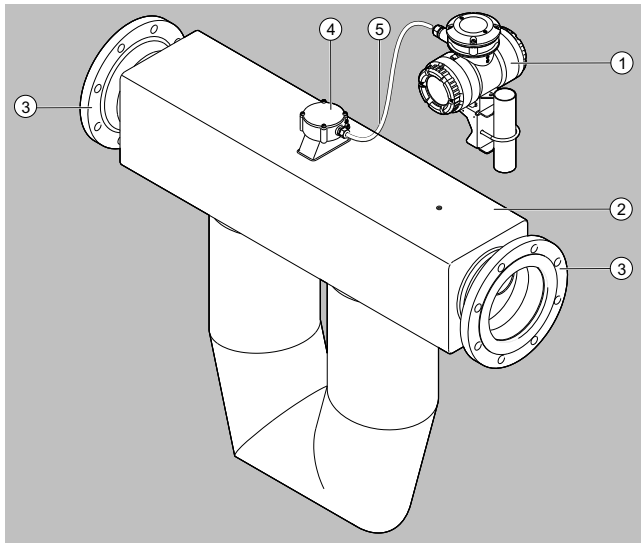
Life sciences Pharmaceutical Bio	• High accuracy flow and batching of bioreactor feeds • Solvent flow rate, density and batching • Flow of demineralized and deionized water • Solvents and fish oils used in high grade omega 3 oils • Precision coatings • Vacuum thin film coating
Household and personal care Detergents Cosmetics	• Blending and batching of detergent ingredients • Tanker loading and unloading • Salt concentration • Reliable measurement of aerated liquids
Automotive and aeronautical Vehicle manufacturing Paint Engine testing OEM	• Fuel injection nozzle and pump testing • Filling of under bonnet fluid reservoirs, air conditioning, coolant • Fuel flow and density measurement in engine test beds • Checking for air in oil using high accuracy density measurement • Paint spray robots – requires accurate and fast measurements • Aircraft fuel loading (kerosene) • High pressure flow used in turbine blade manufacture
Power and energy Renewable Hydrogen	• Boiler fuel flow and burner control • Turbine fuel flow • Glycol flow and concentration • Bioethanol
Marine OEM Shipbuilders	• Fuel consumption management • Boiler control • Bunkering management • Density used to indicate fuel quality
Pulp, paper and textiles	• Accurate dosing of dyes and chemicals
Water and environmental	• Dosing of chemicals for water treatment • Chemical concentration for water quality control

Design**Design options and related temperature range for FC700 series**

Design version	Transmitter	Process fluid temperature range
Compact, standard neck	Aluminum	Standard [-50 ... 150 °C (-58 ... 302 °F)]
Remote, standard neck, or long neck	Aluminum or stainless steel	Standard [-70 ... 150 °C (-94 ... 302 °F)]
Remote only, long neck only	Aluminum or stainless steel	Medium [-70 ... 230 °C (-94 ... 446 °F)] High [0 ... 350 °C (32 ... 662 °F)]



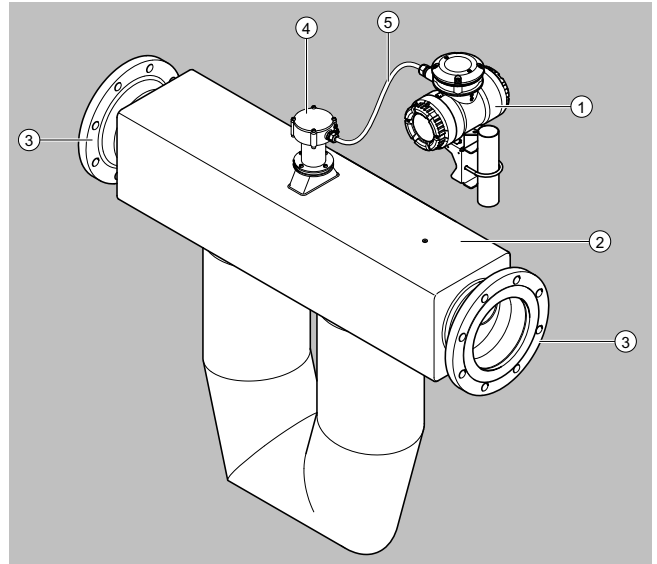
FCS700 sensor with compact transmitter



FCS700 sensor with remote transmitter

Design (continued)

- 1 Transmitter
- 2 FCS700 sensor
- 3 Process connection
- 4 Sensor terminal box
- 5 Connecting cable



FCS700 sensor with long neck (pedestal) and remote transmitter.

- 1 Transmitter
- 2 FCS700 sensor
- 3 Process connection
- 4 Sensor terminal box
- 5 Connecting cable

Installation guidelines

FCS700 series flowmeters can be mounted horizontally, vertically and at an incline. The measuring tubes should be filled with the fluid during flow measurement as entrained gas may result in errors in measurement. Straight pipe runs at inlet or outlet are usually not required.

Avoid the following installation locations and positions:

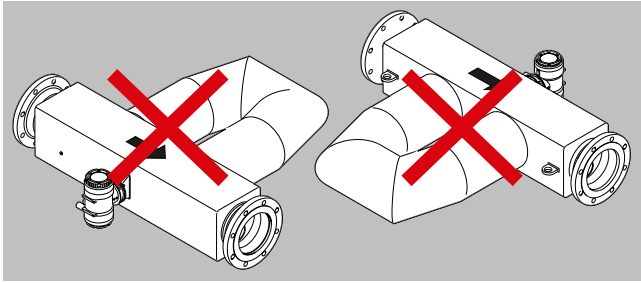
- Measuring tubes as highest point in piping when measuring liquids
- Measuring tubes as lowest point in piping when measuring gases
- Immediately in front of a free pipe outlet in a downpipe
- Lateral positions

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC720/FC740

Design (continued)



Avoid installation position above: measuring tubes in sideways position resulting in possible non-homogeneous fluid separation

Function

Compatible fluids

FC700 series flowmeters can be used to measure the following fluids:

- Liquids
- Gases
- Mixtures, solutions, emulsions, suspensions, and slurries

Primary measured variables

- Mass flow
- Density
- Temperature

Based on the primary measured quantities, the transmitter also calculates:

- Volume flow
- Percent concentration (fraction) of a two-component mixture (FCT040 only)
- Partial component flow rate (net flow) of a mixture consisting of two components (FCT040 only)

Bi-directional operation

The mass flow, volume flow, and net flow measurements can be bi-directional.

Measurement variables for NTEP approval

- Mass flow uni-directional
- Volume flow uni-directional

Feature overview

- Energy-efficient low pressure loss design with short tube paths and large tube diameter
- Optimal decoupling of the dual tube measuring element from external stress and vibration
- Accurate density measurement and up to four advanced concentration measurement data sets
- Benefit from viscosity function and capability to handle high viscous process fluids
- High power tube driver to detect gas content to maintain dependable measurements with entrained gas

Selection and ordering data

SITRANS FC720/740 (High flow)	Article No. 7ME447	●	-	●	●	●	●	●	-	●	●	●	●	-	●	●	●	Order code
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.																		
Transmitter variant																		
None (spare sensor)		0																
Coriolis sensor FCS700 with transmitter FCT020		2																
Coriolis sensor FCS700 with transmitter FCT040		4																
SITRANS FC spare part transmitter, no sensor included		9														G	3	Y
Sensor size / Connector size																		
No sensor (SITRANS FCT transmitter as spare part)				0	A													
Sensor size DN 100 with connection size 4" DN 100				1	B													
Sensor size DN 100 with connection size 5" DN 125				1	C													
Sensor size DN 100 with connection size 6" DN 150				1	D													
Sensor size DN 100 with special connection				1	Y													
Sensor size DN 150 with connection size 6" DN 150				2	D													
Sensor size DN 150 with connection size 8" DN 200				2	E													
Sensor size DN 150 with special connection				2	Y													
Sensor size DN 200 with connection size 8" DN 200				3	E													
Sensor size DN 200 with connection size 10" DN 250				3	F													
Sensor size DN 200 with special connection				3	Y													
Process connection																		
No connection (SITRANS FCT transmitter as spare part)					A	0												
EN flange PN 16, suitable for EN 1092-1 type B1, raised face (RF)					A	8												
EN flange PN 40, suitable for EN 1092-1 type B1, raised face (RF)					A	1												
EN flange PN 63, suitable for EN 1092-1 type B1, raised face (RF)					A	2												
EN flange PN 100, suitable for EN 1092-1 type B1, raised face (RF)					A	3												
EN flange PN 16, suitable for EN 1092-1 type D, groove					A	4												
EN flange PN 40, suitable for EN 1092-1 type D, groove					A	5												
EN flange PN 63, suitable for EN 1092-1 type D, groove					A	6												
EN flange PN 100, suitable for EN 1092-1 type D, groove					A	7												
EN flange PN 16, suitable for EN 1092-1 type E, spigot					B	0												
EN flange PN 40, suitable for EN 1092-1 type E, spigot					B	1												
EN flange PN 63, suitable for EN 1092-1 type E, spigot					B	2												
EN flange PN 100, suitable for EN 1092-1 type E, spigot					B	3												
EN flange PN 16, suitable for EN 1092-1 type F, recess					B	4												
EN flange PN 40, suitable for EN 1092-1 type F, recess					B	5												
EN flange PN 63, suitable for EN 1092-1 type F, recess					B	6												
EN flange PN 100, suitable for EN 1092-1 type F, recess					B	7												
ASME flange class 600, suitable for ASME B16.5, ring joint (RJ)					C	3												
ASME flange class 150, suitable for ASME B16.5, raised face (RF)					D	1												
ASME flange class 300, suitable for ASME B16.5, raised face (RF)					D	2												
ASME flange class 600, suitable for ASME B16.5, raised face (RF)					D	3												
JIS flange 10K, JIS B 2220					L	2												
JIS flange 20K, JIS B 2220					L	4												
Special design request					Y	1												
Tube material (wetted)																		
Process connection material and max operational temperature																		
None (SITRANS FCT transmitter as spare part)									0									
316L, 316L, max. temperature 150 °C (302 °F)									1									
316L, 316L, max. temperature 230 °C (446 °F)									2									
316L, 316L, max. temperature 350 °C (662 °F)									3									
C22, C22, max. temperature 150 °C (302 °F)									4									
C22, C22, max. temperature 230 °C (446 °F)									5									
C22, C22, max. temperature 350 °C (662 °F)									6									
Calibration																		
No calibration									0									
Massflow 0.1%, density 2 g/l									3									
Massflow 0.2%, density 4 g/l									6									
Accuracy for gas please select below									9									
Massflow gas 0.75%																N	1	A
Massflow gas 0.5%																N	2	A
Massflow gas 0.35%																N	3	A

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC720/FC740

Selection and ordering data (continued)

SITRANS FC720/740 (High flow)	Article No. 7ME447	Order code											
Mounting style, transmitter housing and material													
Compact type with "urethane-cured polyester powder coating" coated aluminum transmitter housing												A	
Compact type with "corrosion protection coating" coated aluminum transmitter housing												B	
Remote type with "urethane-cured polyester powder coating" coated aluminum transmitter housing and standard neck sensor												C	
Remote type with "urethane-cured polyester powder coating" coated aluminum transmitter housing and long neck sensor												D	
Remote type with "corrosion protection coating" coated aluminum transmitter housing and standard neck sensor												E	
Remote type with "corrosion protection coating" coated aluminum transmitter housing and long neck sensor												F	
Remote type stainless steel transmitter and standard neck sensor												G	
Remote type stainless steel transmitter and long neck sensor												H	
Ex approvals													
None												A	
ATEX, explosion group IIC and IIIC												B	
ATEX, explosion group IIB and IIIC												C	
IECEx, explosion group IIC and IIIC												D	
IECEx, explosion group IIB and IIIC												E	
EAC Ex, IIC and IIIC												F	
EAC Ex, IIB and IIIC												G	
FM, groups A B C D E F G												H	
FM, groups C D E F G												J	
INMETRO, explosion group IIC and IIIC												K	
INMETRO, explosion group IIB and IIIC												L	
NEPSI, explosion group IIC and IIIC												M	
NEPSI, explosion group IIB and IIIC												N	
Korea Ex, explosion group IIC and IIIC												P	
Korea Ex, explosion group IIB and for integral type also IIIC												Q	
Local user interface													
Spare sensor without transmitter, no display applied												0	
No display												1	
With display												3	

	Order code
Further designs	
Please add "-Z" to Article No. and specify order code(s).	
Cable glands	
Metric, no glands (M20)	A10
NPT, no glands (1/2")	A11
Metric, no glands (M20) steel armored cable	A20
NPT, no glands (1/2") steel armored cable	A21
Sensor housing material	
None (SITRANS FCT transmitter as spare part)	B00
Stainless steel 1, 4301/304, 1.4404/316L	B01
Stainless steel 1, 4404/316L DN 100	B02
Stainless steel 1, 4404/316L DN 150	B03
Stainless steel 1, 4404/316L DN 200	B04
I/O Configuration Ch1	
None	E00
4-20 mA HART active	E06
4-20 mA HART passive	E07
PROFIBUS PA	E10
PROFINET over Ethernet-APL (IS)	E15

	Order code
I/O Configuration Ch2, Ch3 and Ch4	
Spare sensor without transmitter, all communication types and I/Os apply	F00
1 passive current output, 1 passive pulse or status output	F01
1 passive current output, 2 passive pulse or status outputs	F02
1 passive current output, 1 passive pulse or status outputs, 1 passive NAMUR pulse or status output	F03
1 passive current output, 2 passive NAMUR pulse or status outputs	F04
1 passive pulse or status output	F11
2 passive pulse or status outputs, 1 passive status output	F12
2 passive pulse or status outputs, 1 voltage-free status input	F13
2 passive pulse or status outputs, 1 active current input	F14
2 passive pulse or status outputs, 1 passive current input	F15
1 passive pulse or status output, 1 passive current output, 1 active current input	F16

Selection and ordering data (continued)

	Order code
1 passive pulse or status output, 1 passive current output, 1 passive current input	F17
1 passive pulse or status output, 1 voltage-free status input, 1 active current input	F18
1 passive pulse or status output, 1 voltage-free status input, 1 passive current input	F19
1 passive pulse or status output, 1 active pulse or status output, 1 voltage-free status input	F20
1 passive pulse or status output, 1 active pulse or status output with pull-up resistor, 1 voltage-free status input	F21
1 active current output, 2 passive pulse or status outputs	F22
1 active current output, 1 passive pulse or status output, 1 voltage-free status input	F23
1 passive pulse or status output	F31
2 passive pulse or status outputs	F32
1 passive pulse or status output, 1 active current input	F33
1 passive pulse or status output, 1 passive current input	F34
1 passive pulse or status output, 1 active pulse or status output	F35
1 passive pulse or status output, 1 active pulse or status output with pull-up resistor	F36
1 passive pulse or status output, 1 active current output	F37
1 passive pulse output	F41
Output CH1 intrinsically safe, 1 passive pulse output	F42
Output CH3 intrinsically safe, 1 passive pulse output	F50
Certificates	
Declaration of compliance with the order 2.1 according to EN 10204	C11
Certificate of Marking Transfer and Raw Material Certificates (Inspection Certificate 3.1 according to EN 10204), including IGC and conform to NACE MR0175 and MR0103	C13
Positive Material Identification of wetted parts, including certificate (Inspection Certificate 3.1 according to EN 10204)	C15
NTEP accuracy class 0.3 acc. NIST for heated products	C17
Hydrostatic Pressure Test Certificate (Inspection Certificate 3.1 according to EN 10204)	C18
Functional Safety (IEC 61508) - SIL2/3	C20
X-ray inspection of flange weld seam according to DIN EN ISO 17636-1/B, evaluation according to AD 2000 HP 5/3 and DIN EN ISO 5817/C, including certificate	C33
X-ray test according to ASME V	C34
WPS according to DIN EN ISO 15809-1; WPQR according to DIN EN ISO 15814-1; WQC according to DIN EN 287-1 or DIN EN ISO 8908-4	C36
Welding procedures and certificate according to ASME IX	C37
Dye penetrant test of process connection weld seams according to DIN EN ISO 3452-1, including certificate	C38
Dye penetrant test of flange welding according to ASME V, including certificate	C39
Quality Inspection Certificate (Inspection Certificate 3.1 according to EN 10204)	C40
Traceable calibration to national standards, including a list of working standards used for calibration. Language: English/Japanese	C41

	Order code
Traceable calibration to national standards, including a list of primary standards to which the delivered product is traceable. Language: English/Japanese	C42
Ferrite test for flange welding according to DIN EN ISO 8249	C50
Degreasing of wetted surfaces according to ASTM G93-03 (Level C), including test report	C54
ASME B31.3 compliance NORMAL FLUID SERVICE	C70
Combined certificates	
Certification package (C13, C18, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test and Quality inspection certificate	C80
Certification package (C13, C15, C40) including Marking Transfer and raw material certificate, Positive material identification and Quality inspection certificate	C81
Certification package (C13, C18, C38, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test, Dye penetration and Quality inspection certificate	C82
Certification package (C13, C15, C18, C36, C38, C40) including Marking Transfer and raw material certificate, Positive material identification, Hydrostatic pressure test, Welding certificates, Dye penetration and Quality inspection certificate	C83
Certification package (C15, C18, C36) including Positive material identification, Hydrostatic pressure test and Welding certificates	C84
Certification package (C34, C37, C39) including X-ray test according to ASME V, Welding procedures and Certificates according to ASME IX and Dye penetrant test of flange welding according to ASME V	C85
Certification package (C13, C18, C34, C37, C39, C40) including Marking Transfer and raw material certificate, Hydrostatic pressure test, X-ray test according to ASME V, Welding procedures and Certificates according to ASME IX, Dye penetrant test of flange welding according to ASME V and Quality inspection certificate	C86
Certification package (C13, C15, C34, C37, C39, C40) including Marking Transfer and raw material certificate, Positive material identification, X-ray test according to ASME V, Welding procedures and Certificates according to ASME IX, Dye penetrant test of flange welding according to ASME V and Quality inspection certificate	C87
Connecting cable type and length	
without standard connecting cable	L50
5 meter (16.4 ft) remote connecting cable terminated standard gray / Ex blue	L51
10 meter (32.8 ft) remote connecting cable terminated standard gray / Ex blue	L54
15 meter (49.2 ft) remote connecting cable terminated standard gray / Ex blue	L57
20 meter (65.6 ft) remote connecting cable terminated standard gray / Ex blue	L60
30 meter (98.4 ft) remote connecting cable terminated standard gray / Ex blue	L63
without fire retardant connecting cable	L70
5 meter (16.4 ft) remote fire retardant connecting cable not terminated	L71
10 meter (32.8 ft) remote fire retardant connecting cable not terminated	L74
15 meter (49.2 ft) remote fire retardant connecting cable not terminated	L77
20 meter (65.6 ft) remote fire retardant connecting cable not terminated	L80

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC720/FC740

Selection and ordering data (continued)

	Order code
30 meter (98.4 ft) remote fire retardant connecting cable not terminated	L83
SW functions	
Heat measurement	S11
Tube health check	S12
Batching and filling function	S13
Netoil computing	S14
Viscosity computing function for liquids	S15
Standard concentration measurement	S16
Advanced concentration	S17
Marine approval	
Marine approved DNV, ABS, KR piping class 2	S22
Marine approved DNV, ABS, KR piping class 3	S23
Marine approved LR, MR, TAC piping class 2	S24
Marine approved LR, MR, TAC piping class 3	S25
Marine approved BV piping class 2	S26
Marine approved BV piping class 3	S27
Rupture Disk	
Namur built-in length according to NE132	S31
Rupture Disk	S32
Insulation	
Insulation	J10
Insulation and heat tracing, ½" ASME class 150, raised face (RF)	J12
Insulation and heat tracing, ½" ASME class 300, raised face (RF)	J13
Insulation and heat tracing, EN DN 15, PN 40	J14
Insulation, heat tracing with ventilation, ½" ASME class 150, raised face (RF)	J16
Insulation, heat tracing with ventilation, ½" ASME class 300, raised face (RF)	J17
Insulation, heat tracing with ventilation, EN DN 15, PN 40	J18
Country specific delivery	
Delivery to China including China RoHS mark	W21
Delivery to Korea including KC mark	W22
Delivery to Canada including CRN mark	W26

	Order code
Fraction setup	
PIA: Please select four options	
Sugar / Water 0 ... 85 °Bx, 0 ... 80 °C (32 ... 176 °F)	G01
NaOH / Water 2 ... 50 WT%, 0 ... 100 °C (32 ... 212 °F)	G02
KOH / Water 0 ... 60 WT%, 54 ... 100 °C (129 ... 212 °F)	G03
NH ₄ NO ₃ / Water 1 ... 50 WT%, 0 ... 80 °C (32 ... 176 °F)	G04
NH ₄ NO ₃ / Water 20 ... 70 WT%, 20 ... 100 °C (68 ... 212 °F)	G05
HCl / Water 22 ... 34 WT%, 20 ... 40 °C (68 ... 104 °F)	G06
HNO ₃ / Water 50 ... 67 WT%, 10 ... 60 °C (50 ... 140 °F)	G07
H ₂ O ₂ / Water 30 ... 75 WT%, 4 ... 44 °C (39 ... 111 °F)	G09
Ethylene Glycol / Water 10 ... 50 WT%, -20 ... 40 °C (-4 ... 104 °F)	G10
Amylum = Starch / Water 33 ... 43 WT%, 35 ... 45 °C (95 ... 113 °F)	G11
Methanol / Water 35 ... 60 WT%, 0 ... 40 °C (32 ... 104 °F)	G12
Alcohol / Water 55 ... 100 VOL%, 10 ... 40 °C (50 ... 104 °F)	G20
Sugar / Water 40 ... 80 °Bx, 75 ... 100 °C (167 ... 212 °F)	G21
Alcohol / Water 66 ... 100 WT%, 15 ... 40 °C (59 ... 104 °F)	G30
Alcohol / Water 66 ... 100 WT%, 10 ... 40 °C (50 ... 104 °F)	G37
Tag name	
Tag name plate, SS (max. 16 characters)	Y11
HART/MODBUS software tag No. (max. 8 characters)	Y25
HART/MODBUS software tag No. (max. 32 characters)	Y26
PROFIBUS PA NODE ADDRESS (4 characters HEX)	Y28
PROFIBUS PA SOFTWARE TAG (max. 32 characters)	Y29
Customer installation length	
Customer installation length (mm)	Y30
Calibration	
Predefined 6-Point Accredited Calibration: 10%, 20%, 40%, 60%, 80%, 100% of Q _{nom} . Calibrated Output: Frequency	D62
Special versions	
ID-Number of special design	Y99

Technical specifications

Mass flow rate of liquids

The mass flow rate characteristics of SITRANS FC meters are defined by the values of zero stability, Q_{flat} , Q_{nom} and Q_{max} .

Zero stability is the maximum allowable flow rate value that can be displayed at zero flow under reference conditions. It is a good indicator of the meter performance as flow rates reduce, and approach zero.

- Q_{flat} is the mass flow rate above which the base accuracy is maintained (0.1% when using FCT040 transmitters).
- Q_{nom} is the nominal mass flow rate of water at reference conditions that would result in a pressure drop of 1 bar (15 psi).
- Q_{max} is the recommended maximum mass flow rate for each sensor size.

For questions regarding expected performance in specific applications, please contact your regional Siemens Measurement Intelligence team.

Flow rate summary by FCS700 sensor size

Nominal size	Zero stability		Q_{flat}		Q_{nom}		Q_{max}	
	kg/h	lb/h	kg/h	lb/min	kg/h	lb/min	kg/h	lb/min
DN 100	13.0	28.6	20 000	734	250 000	9 175	300 000	11 010
DN 150	25.0	55.0	38 000	1395	500 000	18 350	600 000	22 020
DN 200	27.0	59.4	45 000	1652	900 000	33 030	1 100 000	40 370

Performance summary by FCS700 sensor size and transmitter type

Sensor size			DN 100	DN 150	DN 200
Mass flow (liquids)					
Accuracy	% (of rate)	FCT020	± 0.2	± 0.2	± 0.2
	% (of rate)	FCT040	± 0.1	± 0.1	± 0.1
Zero stability	kg/h (lb/h)		± 13 (28.6)	± 25 (55)	± 27 (59.4)
Density (liquids)					
Accuracy	kg/m ³ (lb/ft ³)	FCT020/FCT040	± 4 (0.25)	± 4 (0.25)	± 4 (0.25)
	kg/m ³ (lb/ft)	FCT040	± 2 (0.12)	± 2 (0.12)	± 2 (0.12)
Mass flow (gases)					
Accuracy	% (of rate)	FCT020	± 0.75	± 0.75	± 0.75
	% (of rate)	FCT040	± 0.35	± 0.35	± 0.5
Temperature					
Accuracy	°C (°F)		± 1 (1.8)	± 1 (1.8)	± 1 (1.8)

Note:

The accuracy values in the table above are based on reference conditions at the time of calibration and represent the combined measurement uncertainties including sensor, electronic and pulse output interface.

Liquid density calibration is performed when density accuracy of 0.5 kg/m³ (0.03 lb/ft³) is selected in the model code.

Mass flow calibration and density adjustment for liquids

Siemens SITRANS FC Coriolis meters are calibrated in rigs accredited according to the international standard DIN EN ISO/IEC 17025:2018. Each flowmeter comes with a standard calibration certificate.

Mass flow calibration takes place at reference conditions. Specific values are listed in the standard calibration certificate.

Mass flow calibration reference conditions

Fluid	Water
Density	900 ... 1 100 kg/m ³ (56 ... 69 lb/ft ³)
Fluid temperature	10 ... 35 °C (50 ... 95 °F), average temperature: 22.5 °C (72.5 °F)
Ambient temperature	10 ... 35 °C (50 ... 95 °F)
Process pressure	1 ... 5 bar (15 ... 73 psi)

Density calibration reference conditions

Flow condition	Fully developed flow profile
Fluid densities used to obtain density calibration constants	700 kg/m ³ (44 lb/ft ³) 1 000 kg/m ³ (62 lb/ft ³) 1 650 kg/m ³ (103 lb/ft ³)
Fluid temperature	20 °C (68 °F)
Determination of temperature compensation coefficients	20 ... 80 °C (68 ... 176 °F)

Analog output performance specification

Typical additional uncertainty when using the analog current output:

± 0.04 % at a nominal mid-range current output of 12 mA, which includes the effects of: output adjustment, linearity, power supply variation, load resistance variation, short-term and long-term drift for one year, and ambient temperature effect on the transmitter in the range 20 °C ± 30 °C (14 ... 122 °F).

Process pressure effect on flow measurement performance

Changes in operating pressure have a small effect on the mass flow measurement performance. When the pressure changes are very large, this effect can be corrected by a dynamic pressure input or a fixed process pressure.

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC720/FC740

Technical specifications (continued)

Sensor size, material	Additional flow measurement errors due to change in operating pressure from reference pressure	
	in % of rate per 1 bar variation	in % of rate per 1 psi variation
DN 100, AISI 316L	-0.0298	-0.00199
DN 100, alloy 22	-0.0313	-0.00216
DN 150, AISI 316L	-0.0484	-0.00334
DN 200, AISI 316L	-0.0183	-0.00126

Process temperature effect

For mass flow measurement, process fluid temperature effect is defined as the change in sensor flow accuracy due to process fluid temperature change, away from the 20 °C (68 °F) reference condition. Variation in process temperature influences the measuring tube characteristics and this is compensated for using the built-in PT 1000 temperature sensor.

A small flow uncertainty remains in the compensation circuit, defined below.

Uncertainty due to process temperature change: $\pm 0.001\%$ of mass flow rate per °C ($\pm 0.0006\%$ of mass flow rate per °F)

Temperature effect on zero

Temperature effect on the mass flow zero-point quality can be corrected by zeroing at the process fluid temperature.

Process conditions

Process fluid temperature range

Design version	Transmitter	Process fluid temperature range
Compact, standard neck	Aluminum	Standard [-50 ... +150 °C (-58 ... +302 °F)]
Remote, standard neck, or long neck	Aluminum or stainless steel	Standard [-70 ... +150 °C (-94 ... +302 °F)]
Remote only, long neck only	Aluminum or stainless steel	Medium [-70 ... +230 °C (-94 ... +446 °F)] High [0 ... 350 °C (32 ... 662 °F)]

Operating pressure

The maximum allowed process pressure depends on the selected process connection and process temperature.

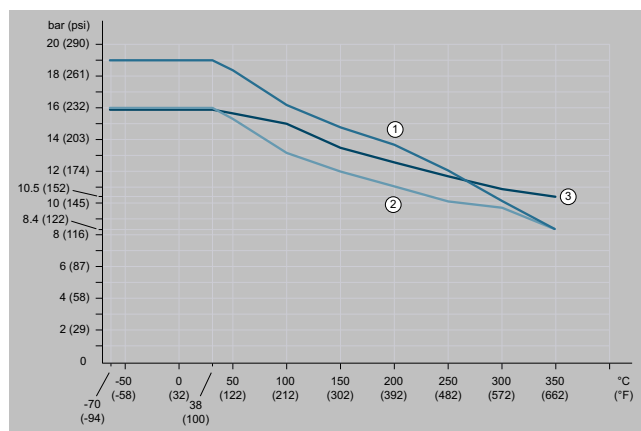
The given process temperature and process pressure ranges are calculated and approved without corrosion or erosion effects.

Pressure versus temperature relationship depending on selected process connection

The following diagrams show the process pressure as a function of process temperature, as well as the process connection used (type and size of process connection).

Calculations for ASME flanges are based on ASME B16.5 Material group 2.2 (316/316L dual certified).

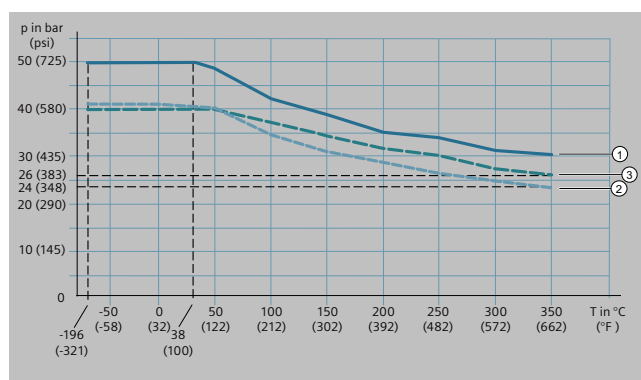
ASME class 150, EN PN 16



Allowed process pressure as a function of process fluid temperature

- 1 Process connection compatible to ASME B16.5 class 150
- 2 Heat tracing connection compatible to ASME B16.5 class 150
- 3 Process connection compatible to EN 1092-1 PN 16

ASME class 300, EN PN 40

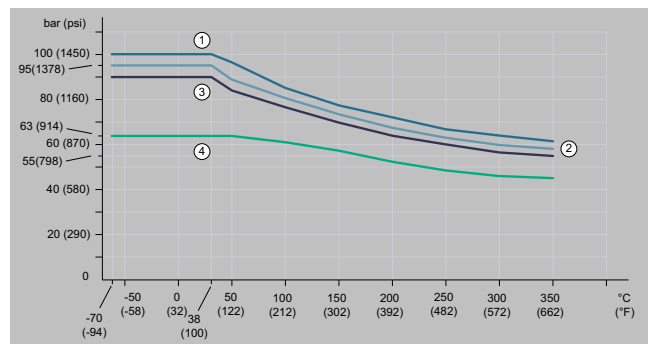


Allowed process pressure as a function of process fluid temperature

- 1 Process connection compatible to ASME B16.5 class 300
- 2 Heat tracing connection for ASME B16.5 class 300
- 3 Process and heat tracing connection compatible to EN 1092-1 PN 40

Technical specifications (continued)

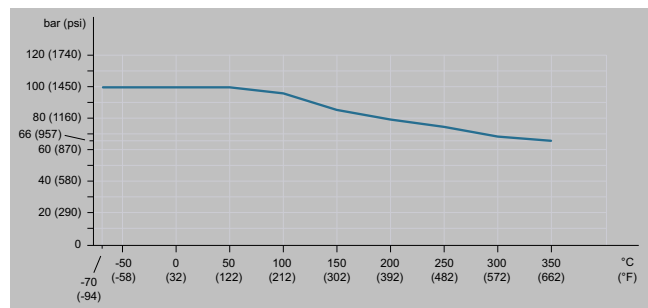
ASME class 600, EN PN63



Allowed process pressure as a function of process fluid temperature

1	Process connection compatible to ASME B16.5 class 600: - FCS700 size DN 100, AISI 316L or alloy 22 wetted parts (without ASME B31.3 compliance) - FCS700 size DN 100, alloy 22 wetted parts and ASME B31.3 compliance (requires option C70) - FCS700 size DN 200, AISI 316L wetted parts (without ASME B31.3 compliance)
2	Process connection compatible to ASME B16.5 class 600: - FCS700 size DN 100, AISI 316L wetted parts and ASME B31.3 compliance (requires option C70) - FCS700 size DN 200, AISI 316L wetted parts and ASME B31.3 compliance (requires option C70)
3	Process connection compatible to ASME B16.5 class 600: FCS700 size DN 150
4	Process connection compatible to EN 1092-1 PN 63

EN PN 100

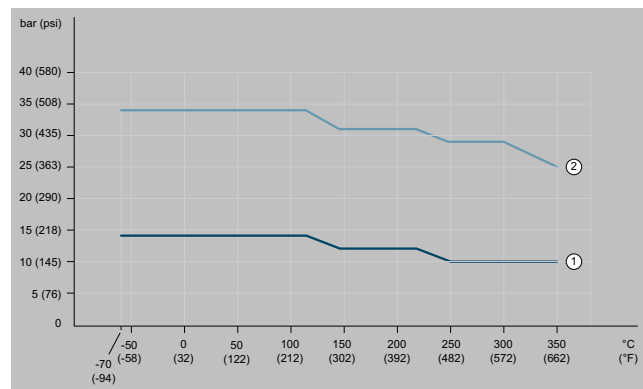


Allowed process pressure as a function of process fluid temperature, compatible to EN 1092-1 PN 100

Maximum ambient temperature ranges for FC700 series

Cable type	Transmitter style	Device	Ambient temperature range
None	Compact	Sensor and transmitter	-40 ... +60 °C (-40 ... +140 °F)
Standard cable	Remote	Sensor	-50 ... +80 °C (-58 ... +176 °F)
		Transmitter	-40 ... +60 °C (-40 ... +140 °F)
Fire retardant cable	Remote	Sensor	-35 ... +80 °C (-31 ... +176 °F)
		Transmitter	-35 ... +60 °C (-31 ... +140 °F)

JIS 10 K, JIS 20 K



Allowed process pressure as a function of process connection temperature

1	Process connection compatible to JIS B 2220 10 K
2	Process connection compatible to JIS B 2220 20 K

Rupture disc

The rupture disc is located on the sensor housing. It is available with some FC700 specification combinations (selectable using order option code S32).

Its bursting pressure is 20 bar (291 psi), the nominal diameter is 8 mm (0.315"). In the case of larger nominal diameters and high pressures, the entire process pressure may not be released across the rupture disc. In such case it is possible to request a customized design from your local Siemens sales organization.

In the event of a burst pipe, the rupture disc provides an acoustic signal in applications with gases.

Ambient conditions

Allowed ambient and storage temperature of SITRANS FC700 series is influenced by the temperature specification of FCS700 sensor, FCTOX0 transmitter and the interconnecting cable.

Ambient temperature

Device-surrounding air temperature is considered as ambient temperature. If the device is operating outdoors make sure that the solar irradiation does not increase the surface temperature of the device higher than the allowed maximum ambient temperature. Transmitter display has limited legibility below -20 °C (-4 °F).

The sensor ambient temperature limits may also be influenced by the process fluid temperature, details shown in the chapter "Sensors" (Technical specifications).

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC720/FC740

Technical specifications (continued)

Ambient temperature range for NTEP custody transfer approval

Cable type	Transmitter style	Device	Ambient temperature range
None	Compact	Sensor and transmitter	-40 ... +50 °C (-40 ... +122 °F)
Standard cable	Remote	Sensor	-50 ... +80 °C (-58 ... +176 °F)
		Transmitter	-40 ... +50 °C (-40 ... +122 °F)
Fire retardant cable	Remote	Sensor	-35 ... +80 °C (-31 ... +176 °F)
		Transmitter	-35 ... +50 °C (-31 ... +122 °F)

Maximum storage temperature ranges for FC700 series

Cable type	Transmitter style	Device	Storage temperature range
None	Compact	Sensor and transmitter	-40 ... +60 °C (-40 ... +140 °F)
Standard cable	Remote	Sensor	-50 ... +80 °C (-58 ... +176 °F)
		Transmitter	-40 ... +60 °C (-40 ... +140 °F)
Fire retardant cable	Remote	Sensor	-35 ... +80 °C (-31 ... +176 °F)
		Transmitter	-35 ... +60 °C (-31 ... +140 °F)

Temperature specification of FC700 series Ex versions located in hazardous areas

Please select appropriate equipment in accordance with the laws and regulations of the relevant country/region, when it is used in a location where explosive atmospheres may be present.

The maximum ambient and process fluid temperatures depending on explosion groups and temperature classes can be determined via the SITRANS FC order code together with the Ex code (see the corresponding explosion proof type manual).

Note: The maximum process fluid temperature could be further restricted due to process connection type. Refer to curves above

under the heading, "Allowed ambient temperature for FCS700 sensors".

FCS700 all sizes, compact transmitter

Standard temperature specification

Ex approvals:

- Gas group IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO
- Gas group A, B, C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature
T6	70 °C (158 °F)	39 °C (102 °F)
T5	85 °C (185 °F)	54 °C (129 °F)
T4	121 °C (249 °F)	60 °C (140 °F)
T3	150 °C (302 °F)	60 °C (140 °F)
T2	150 °C (302 °F)	60 °C (140 °F)
T1	150 °C (302 °F)	60 °C (140 °F)

Ex approvals:

- Gas group IIB and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO
- Gas group C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature
T6	65 °C (149 °F)	41 °C (105 °F)
T5	80 °C (176 °F)	56 °C (132 °F)
T4	117 °C (242 °F)	60 °C (140 °F)
T3	150 °C (302 °F)	60 °C (140 °F)
T2	150 °C (302 °F)	60 °C (140 °F)
T1	150 °C (302 °F)	60 °C (140 °F)

Technical specifications (continued)***FCS700 all sizes, remote transmitter******Standard temperature, standard neck***Ex approvals:

- Gas group IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO
- Gas group A, B, C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	70 °C (158 °F)	37 °C (98 °F)	37 °C (98 °F)
T5	85 °C (185 °F)	52 °C (125 °F)	52 °C (125 °F)
T4	121 °C (249 °F)	80 °C (176 °F)	60 °C (140 °F)
T3	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)
T2	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)
T1	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)

Ex approvals:

- Gas group IIB and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO
- Gas group C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	65 °C (149 °F)	39 °C (54 °F)	39 °C (54 °F)
T5	80 °C (176 °F)	54 °C (129 °F)	54 °C (129 °F)
T4	117 °C (242 °F)	80 °C (176 °F)	49 °C (120 °F)
T3	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)
T2	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)
T1	150 °C (302 °F)	78 °C (172 °F)	49 °C (120 °F)

Standard temperature, long neckEx approvals:

Gas group IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	70 °C (158 °F)	44 °C (111 °F)	44 °C (111 °F)
T5	85 °C (185 °F)	59 °C (138 °F)	59 °C (138 °F)
T4	121 °C (249 °F)	80 °C (176 °F)	73 °C (163 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Ex approvals:

Gas group A, B, C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	70 °C (158 °F)	44 °C (111 °F)	44 °C (111 °F)
T5	85 °C (185 °F)	59 °C (138 °F)	59 °C (138 °F)
T4	121 °C (249 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC720/FC740

Technical specifications (continued)

Ex approvals:

Gas group IIB and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	65 °C (149 °F)	44 °C (111 °F)	44 °C (111 °F)
T5	80 °C (176 °F)	59 °C (138 °F)	59 °C (138 °F)
T4	117 °C (242 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Ex approvals:

Gas group C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	65 °C (149 °F)	44 °C (111 °F)	44 °C (111 °F)
T5	80 °C (176 °F)	59 °C (138 °F)	59 °C (138 °F)
T4	117 °C (242 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T2	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)
T1	150 °C (302 °F)	80 °C (176 °F)	70 °C (158 °F)

Medium temperature, long neck

Ex approvals:

Gas group IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	70 °C (158 °F)	44 °C (111 °F)	44 °C (111 °F)
T5	85 °C (185 °F)	59 °C (138 °F)	59 °C (138 °F)
T4	121 °C (249 °F)	80 °C (176 °F)	73 °C (163 °F)
T3	186 °C (366 °F)	80 °C (176 °F)	64 °C (147 °F)
T2	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)
T1	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)

Ex approvals:

Gas group A, B, C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	70 °C (158 °F)	44 °C (111 °F)	44 °C (111 °F)
T5	85 °C (185 °F)	59 °C (138 °F)	59 °C (138 °F)
T4	121 °C (249 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	186 °C (366 °F)	80 °C (176 °F)	64 °C (147 °F)
T2	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)
T1	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)

Ex approvals:

Gas group IIB and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Technical specifications (continued)

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	65 °C (149 °F)	44 °C (111 °F)	44 °C (111 °F)
T5	80 °C (176 °F)	59 °C (138 °F)	59 °C (138 °F)
T4	117 °C (242 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	183 °C (361 °F)	80 °C (176 °F)	64 °C (147 °F)
T2	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)
T1	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)

Ex approvals:

Gas group C, D, E, F and G: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	65 °C (149 °F)	44 °C (111 °F)	44 °C (111 °F)
T5	80 °C (176 °F)	59 °C (138 °F)	59 °C (138 °F)
T4	117 °C (242 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	183 °C (361 °F)	80 °C (176 °F)	64 °C (147 °F)
T2	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)
T1	220 °C (428 °F)	80 °C (176 °F)	59 °C (138 °F)

High temperature, long neck

Ex approvals:

- All gas groups: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, INMETRO

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	65 °C (149 °F)	62 °C (143 °F)	62 °C (143 °F)
T5	80 °C (176 °F)	77 °C (170 °F)	77 °C (170 °F)
T4	115 °C (239 °F)	80 °C (176 °F)	74 °C (165 °F)
T3	180 °C (356 °F)	80 °C (176 °F)	65 °C (149 °F)
T2	275 °C (527 °F)	73 °C (163 °F)	50 °C (122 °F)
T1	350 °C (662 °F)	60 °C (140 °F)	40 °C (104 °F)

Ex approvals:

- All gas groups: FM

Temperature class	Maximum process temperature	Maximum ambient temperature Standard cable	Fire retardant cable
T6	65 °C (149 °F)	62 °C (143 °F)	62 °C (143 °F)
T5	80 °C (176 °F)	77 °C (170 °F)	70 °C (158 °F)
T4	115 °C (239 °F)	80 °C (176 °F)	70 °C (158 °F)
T3	180 °C (356 °F)	80 °C (176 °F)	65 °C (149 °F)
T2	275 °C (527 °F)	73 °C (163 °F)	50 °C (122 °F)
T1	350 °C (662 °F)	60 °C (140 °F)	40 °C (104 °F)

Additional ambient and environmental specifications

Specification	Rating/level of compliance
Relative humidity	0 ... 95
Ingress protection	IP66 or IP67 with suitable cable glands
Environmental pollution	Pollution degree 4 in accordance with EN 61010-1 whilst in operation
Maximum altitude	2 000 m (6 600 ft) above mean sea level (MSL)

Specification	Rating/level of compliance
Mechanical load	• Transmitter: 10 ... 500 Hz, 1g • Sensor: 10 ... 500 Hz, 1g according to IEC 60068-2-6
Electromagnetic (EMC) Immunity	• EN IEC 61326-1, Table 2 • EN IEC 61326-2-3 • EN IEC 61326-2-5 • NAMUR NE21 recommendation • DNV-CG-0339 section 3, chapter 14

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC720/FC740

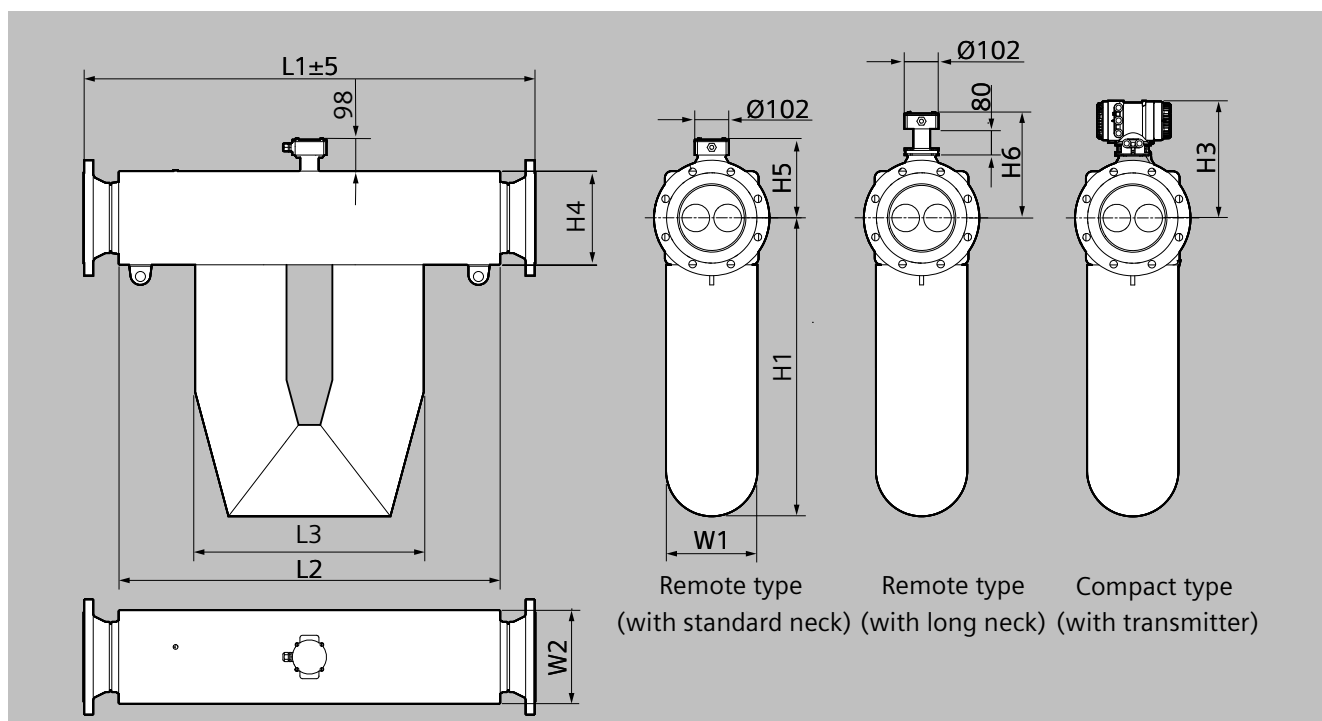
Technical specifications (continued)

Specification	Rating/level of compliance
Surge Immunity Emission	• EN 61000-4-5 for lightning protection • EN IEC 61000-3-2, Class A (harmonic current emissions) • EN IEC 61000-3-3, Class A (voltage fluctuations) • Immunity assessment criterion: output signal fluctuation is within $\pm 1\%$ of the output span.

Specification	Rating/level of compliance
Overvoltage	Category II according to EN IEC 61010-1

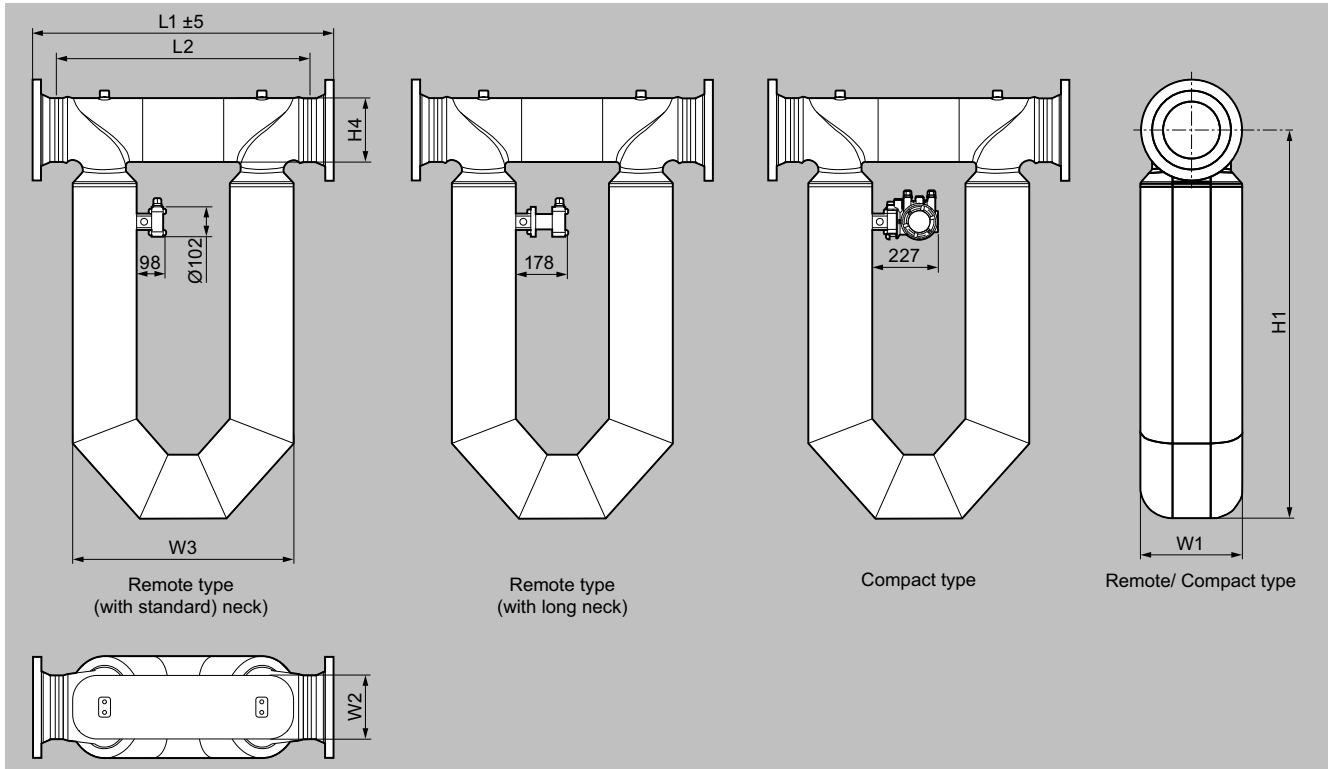
Dimensional drawings

Drawings, dimensions and weight for FCS700 sensors

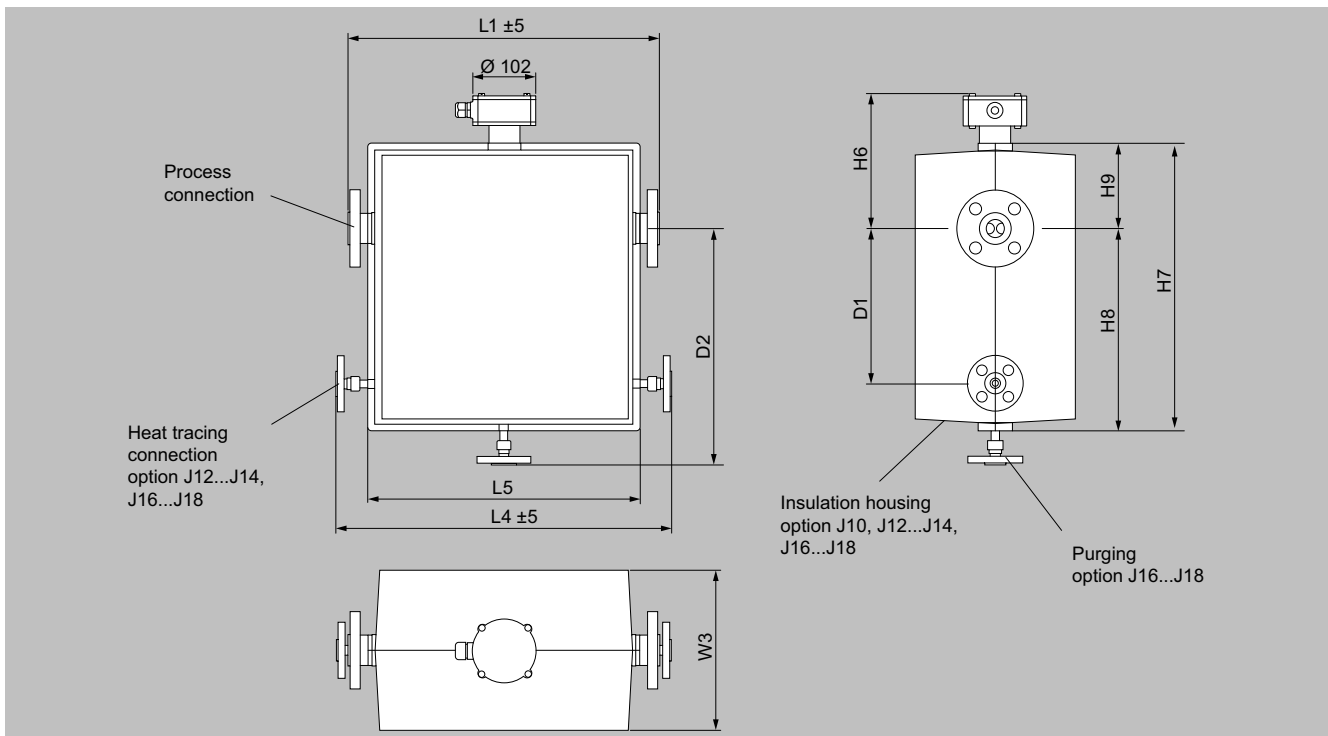


Dimensions in mm, sizes DN 100 and DN 150

Dimensional drawings (continued)



Dimensions in mm, sizes DN 200



Dimensions in mm (with insulation and heating options)

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC720/FC740

Dimensional drawings (continued)

FCS700 sensor dimensions without L1

Nominal size	L2	L3	L4	L5	W1	W2	W3	D1	D2
	Dimensions in mm (inch)								
DN 100	892 (35.1)	691 (27.2)	1050 (41.3)	944 (37.2)	168 (6.6)	176 (6.9)	342 (13.5)	350 (13.8)	677 (26.7)
DN 150	1 140 (44.9)	683 (26.9)	n/a	n/a	273 (10.7)	280 (11)	n/a	n/a	n/a
DN 200	870 (34.3)	759 (29.9)	n/a	n/a	350 (13.8)	350 (13.8)	n/a	n/a	n/a

Nominal size	L2	L3	L4	L5	W1	W2	W3	D1	D2
	Dimensions in mm (inch)								
DN 100	556 (21.9)	315 (12.4)	176 (6.9)	186 (7.3)	266 (10.5)	824 (32.4)	628 (24.7)	196 (7.7)	677 (26.7)
DN 150	891 (35.1)	367 (14.5)	280 (11)	238 (9.4)	320 (12.6)	n/a	n/a	n/a	n/a
DN 200	1 335 (52.6)	n/a	219 (8.6)	n/a	n/a	n/a	n/a	n/a	n/a

Overall length L1 and weight

The overall length of the sensor depends on the selected process connection (type and size). The following tables list the overall length and weight as functions of the individual process connection.

The weights in the tables are for the remote type. Additional weight for the integral type: up to 3.2 kg (7.1 lb).

L1 dimension and weight with process connections according to ASME B16.5, AISI 316L wetted parts

Process connection size and type	FCS700 sensor nominal size DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 4" class 150, raised face (RF)	1 100 (43.3)	95 (210)	n/a	n/a	n/a	n/a
ASME 4" class 300, raised face (RF)	1 100 (43.3)	103 (227)	n/a	n/a	n/a	n/a
ASME 4" class 600, raised face (RF)	1 100 (43.3)	112 (246)	n/a	n/a	n/a	n/a
ASME 4" class 600, ring joint (RJ)	1 100 (43.3)	112 (246)	n/a	n/a	n/a	n/a
ASME 5" class 150, raised face (RF)	1 100 (43.3)	97 (214)	n/a	n/a	n/a	n/a
ASME 5" class 300, raised face (RF)	1 100 (43.3)	109 (239)	n/a	n/a	n/a	n/a
ASME 5" class 600, raised face (RF)	1 160 (45.7)	136 (299)	n/a	n/a	n/a	n/a
ASME 5" class 600, ring joint (RJ)	1 160 (45.7)	136 (299)	n/a	n/a	n/a	n/a
ASME 6" class 150, raised face (RF)	1 100 (43.3)	101 (223)	1 350 (53.1)	290 (639)	n/a	n/a
ASME 6" class 300, raised face (RF)	1 100 (43.3)	118 (259)	1 350 (53.1)	307 (677)	n/a	n/a
ASME 6" class 600, raised face (RF)	1 200 (47.2)	149 (329)	1 390 (54.7)	332 (732)	n/a	n/a
ASME 6" class 600, ring joint (RJ)	1 200 (47.2)	150 (331)	1 390 (54.7)	333 (733)	n/a	n/a
ASME 8" class 150, raised face (RF)	n/a	n/a	1 350 (53.1)	302 (666)	1 030 (40.6)	299 (659)
ASME 8" class 300, raised face (RF)	n/a	n/a	1 350 (53.1)	324 (714)	1 050 (41.3)	323 (712)
ASME 8" class 600, raised face (RF)	n/a	n/a	1 440 (56.7)	371 (818)	1 120 (44.1)	368 (811)
ASME 8" class 600, ring joint (RJ)	n/a	n/a	1 440 (56.7)	372 (821)	1 120 (44.1)	369 (814)
ASME 10" class 150, raised face (RF)	n/a	n/a	n/a	n/a	1 090 (42.9)	318 (701)
ASME 10" class 300, raised face (RF)	n/a	n/a	n/a	n/a	1 140 (44.9)	363 (800)
ASME 10" class 600, raised face (RF)	n/a	n/a	n/a	n/a	1 220 (48)	451 (994)
ASME 10" class 600, ring joint (RJ)	n/a	n/a	n/a	n/a	1 220 (48)	453 (999)

Dimensional drawings (continued)

L1 dimension and weight with process connections according to ASME B16.5, alloy 22 wetted parts

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
ASME 5" class 150, raised face (RF)	1 100 (43.3)	99 (219)	n/a	n/a	n/a	n/a
ASME 5" class 300, raised face (RF)	1 100 (43.3)	111 (245)	n/a	n/a	n/a	n/a
ASME 5" class 600, raised face (RF)	1 110 (43.7)	133 (293)	n/a	n/a	n/a	n/a
ASME 6" class 150, raised face (RF)	1 100 (43.3)	106 (235)	n/a	n/a	n/a	n/a
ASME 6" class 300, raised face (RF)	1 100 (43.3)	123 (270)	n/a	n/a	n/a	n/a

L1 dimension and weight with process connections according to EN 1092-1, AISI 316L wetted parts

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 100 PN 16 type B1, raised face (RF)	1 100 (43.3)	92 (202)	n/a	n/a	n/a	n/a
EN DN 100 PN 16 type D, with groove	1 100 (43.3)	91 (201)	n/a	n/a	n/a	n/a
EN DN 100 PN 16 type E, with spigot	1 100 (43.3)	91 (201)	n/a	n/a	n/a	n/a
EN DN 100 PN 16 type F, with recess	1 100 (43.3)	91 (201)	n/a	n/a	n/a	n/a
EN DN 100 PN 40 type B1, raised face (RF)	1 100 (43.3)	95 (210)	n/a	n/a	n/a	n/a
EN DN 100 PN 40 type D, with groove	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
EN DN 100 PN 40 type E, with spigot	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
EN DN 100 PN 40 type F, with recess	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
EN DN 100 PN 63 type B1, raised face (RF)	1 100 (43.3)	100 (220)	n/a	n/a	n/a	n/a
EN DN 100 PN 63 type D, with groove	1 100 (43.3)	99 (219)	n/a	n/a	n/a	n/a
EN DN 100 PN 63 type E, with spigot	1 100 (43.3)	98 (217)	n/a	n/a	n/a	n/a
EN DN 100 PN 63 type F, with recess	1 100 (43.3)	99 (219)	n/a	n/a	n/a	n/a
EN DN 100 PN 100 type B1, raised face (RF)	1 100 (43.3)	106 (233)	n/a	n/a	n/a	n/a
EN DN 100 PN 100 type D, with groove	1 100 (43.3)	105 (232)	n/a	n/a	n/a	n/a
EN DN 100 PN 100 type E, with spigot	1 100 (43.3)	104 (230)	n/a	n/a	n/a	n/a
EN DN 100 PN 100 type F, with recess	1 100 (43.3)	105 (232)	n/a	n/a	n/a	n/a
EN DN 125 PN 16 type B1, raised face (RF)	1 100 (43.3)	95 (209)	n/a	n/a	n/a	n/a
EN DN 125 PN 16 type D, with groove	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC720/FC740

Dimensional drawings (continued)

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 125 PN 16 type E, with spigot	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
EN DN 125 PN 16 type F, with recess	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
EN DN 125 PN 40 type B1, raised face (RF)	1 100 (43.3)	99 (218)	n/a	n/a	n/a	n/a
EN DN 125 PN 40 type D, with groove	1 100 (43.3)	99 (218)	n/a	n/a	n/a	n/a
EN DN 125 PN 40 type E, with spigot	1 100 (43.3)	98 (216)	n/a	n/a	n/a	n/a
EN DN 125 PN 40 type F, with recess	1 100 (43.3)	98 (216)	n/a	n/a	n/a	n/a
EN DN125 PN63 type B1, raised face (RF)	1 100 (43.3)	109 (240)	n/a	n/a	n/a	n/a
EN DN 125 PN 63 type D, with groove	1 100 (43.3)	108 (239)	n/a	n/a	n/a	n/a
EN DN 125 PN 63 type E, with spigot	1 100 (43.3)	107 (237)	n/a	n/a	n/a	n/a
EN DN 125 PN 63 type F, with recess	1 100 (43.3)	108 (239)	n/a	n/a	n/a	n/a
EN DN 125 PN 100 type B1, raised face (RF)	1 140 (44.9)	121 (267)	n/a	n/a	n/a	n/a
EN DN 125 PN 100 type D, with groove	1 140 (44.9)	121 (267)	n/a	n/a	n/a	n/a
EN DN 125 PN 100 type E, with spigot	1 140 (44.9)	119 (263)	n/a	n/a	n/a	n/a
EN DN 125 PN 100 type F, with recess	1 140 (44.9)	120 (265)	n/a	n/a	n/a	n/a
EN DN 150 PN 16 type B1, raised face (RF)	1 100 (43.3)	98 (216)	1 350 (53.1)	288 (634)	n/a	n/a
EN DN 150 PN 16 type D, with groove	1 100 (43.3)	98 (216)	1 350 (53.1)	287 (632)	n/a	n/a
EN DN150 PN16 type E, with spigot	1 100 (43.3)	97 (214)	1 350 (53.1)	286 (631)	n/a	n/a
EN DN 150 PN 16 type F, with recess	1 100 (43.3)	97 (214)	1 350 (53.1)	287 (632)	n/a	n/a
EN DN 150 PN 40 type B1, raised face (RF)	1 100 (43.3)	105 (231)	1 350 (53.1)	294 (648)	n/a	n/a
EN DN 150 PN 40 type D, with groove	1 100 (43.3)	104 (230)	1 350 (53.1)	293 (647)	n/a	n/a
EN DN 150 PN 40 type E, with spigot	1 100 (43.3)	103 (228)	1 350 (53.1)	293 (647)	n/a	n/a
EN DN 150 PN 40 type F, with recess	1 100 (43.3)	104 (230)	1 350 (53.1)	293 (647)	n/a	n/a
EN DN 150 PN 63 type B1, raised face (RF)	1 140 (44.9)	124 (274)	1 350 (53.1)	311 (685)	n/a	n/a
EN DN 150 PN 63 type D, with groove	1 140 (44.9)	124 (274)	1 350 (53.1)	310 (684)	n/a	n/a
EN DN 150 PN 63 type E, with spigot	1 140 (44.9)	122 (269)	1 350 (53.1)	309 (681)	n/a	n/a
EN DN 150 PN 63 type F, with recess	1 140 (44.9)	123 (272)	1 350 (53.1)	310 (684)	n/a	n/a
EN DN 150 PN 100 type B1, raised face (RF)	1 180 (46.5)	138 (303)	n/a	n/a	n/a	n/a

Dimensional drawings (continued)

Process connection size and type	FCS700 sensor nominal size					
	DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 150 PN 100 type D, with groove	1 180 (46.5)	137 (302)	n/a	n/a	n/a	n/a
EN DN 150 PN 100 type E, with spigot	1 180 (46.5)	136 (299)	n/a	n/a	n/a	n/a
EN DN 150 PN 100 type F, with recess	1 180 (46.5)	137 (301)	n/a	n/a	n/a	n/a
EN DN 200 PN 16 type B1, raised face (RF)	n/a	n/a	1 350 (53.1)	294 (649)	1 010 (39.8)	290 (639)
EN DN 200 PN 16 type D, with groove	n/a	n/a	1 350 (53.1)	294 (649)	n/a	n/a
EN DN 200 PN 16 type E, with spigot	n/a	n/a	1 350 (53.1)	293 (646)	n/a	n/a
EN DN 200 PN 16 type F, with recess	n/a	n/a	1 350 (53.1)	293 (646)	n/a	n/a
EN DN200 PN40 type B1, raised face (RF)	n/a	n/a	1 350 (53.1)	311 (685)	1 030 (40.6)	308 (679)
EN DN 200 PN 40 type D, with groove	n/a	n/a	1 350 (53.1)	310 (683)	n/a	n/a
EN DN 200 PN 40 type E, with spigot	n/a	n/a	1 350 (53.1)	308 (680)	n/a	n/a
EN DN 200 PN 40 type F, with recess	n/a	n/a	1 350 (53.1)	309 (682)	n/a	n/a
EN DN 200 PN 63 type B1, raised face (RF)	n/a	n/a	1 350 (53.1)	333 (733)	1 060 (41.7)	332 (732)
EN DN 200 PN 63 type D, with groove	n/a	n/a	1 350 (53.1)	332 (732)	n/a	n/a
EN DN 200 PN 63 type E, with spigot	n/a	n/a	1 350 (53.1)	330 (728)	n/a	n/a
EN DN 200 PN 63 type F, with recess	n/a	n/a	1 350 (53.1)	331 (730)	n/a	n/a
EN DN 200 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	1 100 (43.3)	362 (798)
EN DN 250 PN 16 type B1, raised face (RF)	n/a	n/a	n/a	n/a	1 080 (42.5)	306 (675)
EN DN 250 PN 40 type B1, raised face (RF)	n/a	n/a	n/a	n/a	1 130 (44.5)	343 (756)
EN DN 250 PN 63 type B1, raised face (RF)	n/a	n/a	n/a	n/a	1 150 (45.3)	370 (816)
EN DN 250 PN 100 type B1, raised face (RF)	n/a	n/a	n/a	n/a	1 150 (45.3)	433 (955)

Flow Measurement

SITRANS FC (Coriolis)

Flowmeter systems / SITRANS FC720/FC740

Dimensional drawings (continued)

L1 dimension and weight with process connections according to EN 1092-1, alloy 22 wetted parts

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
EN DN 125 PN 16, type B1, raised face (RF)	1 100 (43.3)	96 (212)	n/a	n/a	n/a	n/a
EN DN 125 PN 40, type B1, raised face (RF)	1 100 (43.3)	101 (222)	n/a	n/a	n/a	n/a
EN DN 150 PN 16, type B1, raised face (RF)	1 100 (43.3)	103 (227)	n/a	n/a	n/a	n/a
EN DN 150 PN 40, type B1, raised face (RF)	1 100 (43.3)	110 (241)	n/a	n/a	n/a	n/a

L1 dimension and weight with process connections according to JIS B 2220, AISI 316L wetted parts

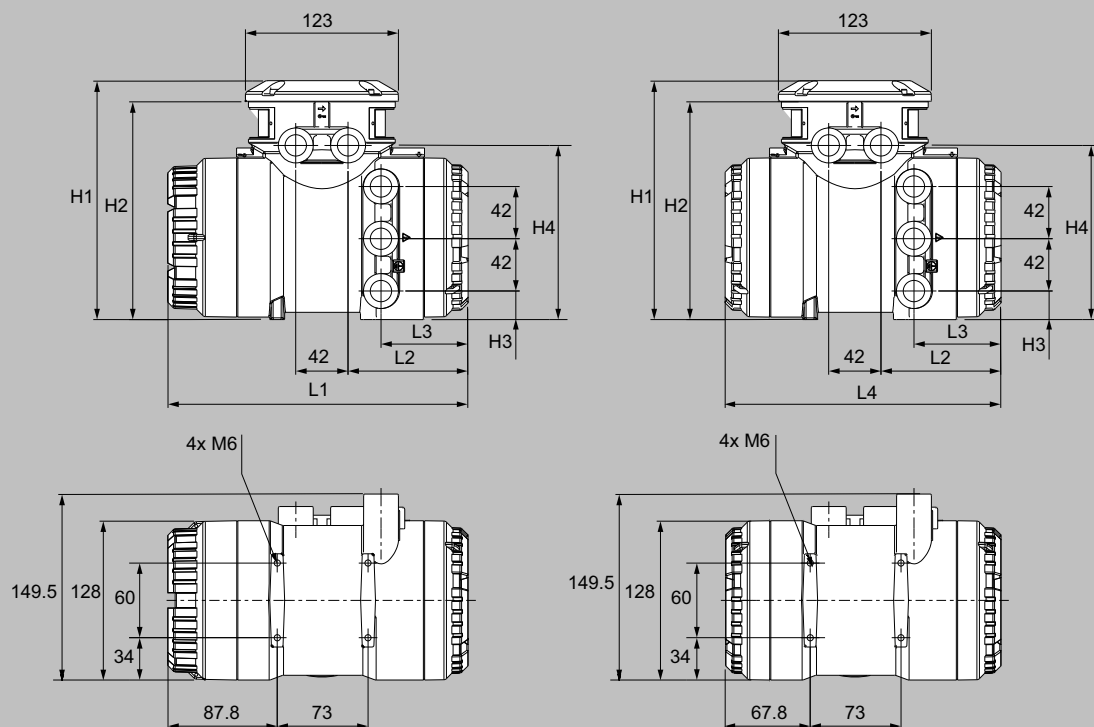
Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS DN 100 10 K	1 100 (43.3)	91 (200)	n/a	n/a	n/a	n/a
JIS DN 100 20 K	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
JIS DN 125 10 K	1 100 (43.3)	94 (208)	n/a	n/a	n/a	n/a
JIS DN 125 20 K	1 100 (43.3)	101 (222)	n/a	n/a	n/a	n/a

L1 dimension and weight with process connections according to JIS B 2220, alloy 22 wetted parts

Process connection size and type	FCS700 sensor nominal size		DN 150		DN 200	
	DN 100		DN 150		DN 200	
	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)
JIS DN 125 10 K	1 100 (43.3)	97 (213)	n/a	n/a	n/a	n/a
JIS DN 125 20 K	1 100 (43.3)	103 (228)	n/a	n/a	n/a	n/a

Dimensional drawings (continued)

Drawings, dimensions and weight for FCT020 and FCT040 transmitters



Dimensions of FCT020 or FCT040 transmitter in mm. Transmitter with display shown on the left. Transmitter without display shown on the right.

Dimensions L1 to L4 and H1 to H4 (material options: stainless steel, aluminum)

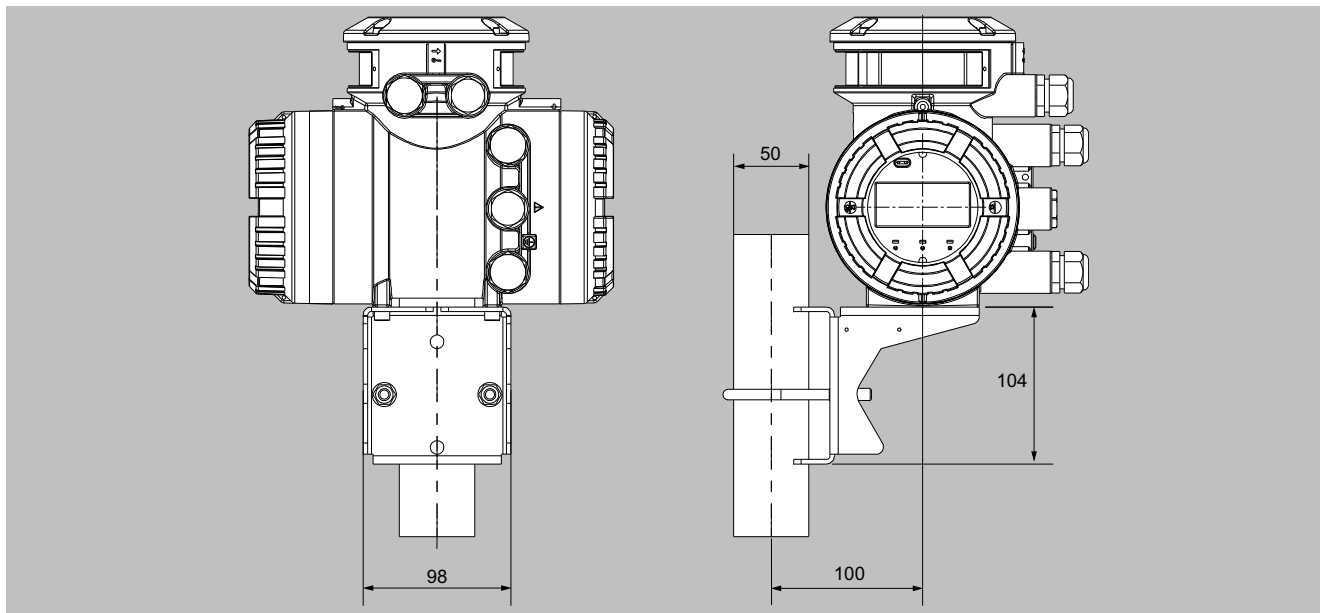
Material	L1 in mm (inch)	L2 in mm (inch)	L3 in mm (inch)	L4 in mm (inch)	H1 in mm (inch)	H2 in mm (inch)	H3 in mm (inch)	H4 in mm (inch)
Stainless steel	255.5 (10.06)	110.5 (4.35)	69 (2.72)	235 (9.25)	201 (7.91)	184 (7.24)	24 (0.94)	150.5 (5.93)
Aluminum	241.5 (9.51)	96.5 (3.8)	70 (2.76)	221 (8.7)	192 (7.56)	175 (6.89)	23 (0.91)	140 (5.51)

Flow Measurement

SITRANS FC (Coriolis)

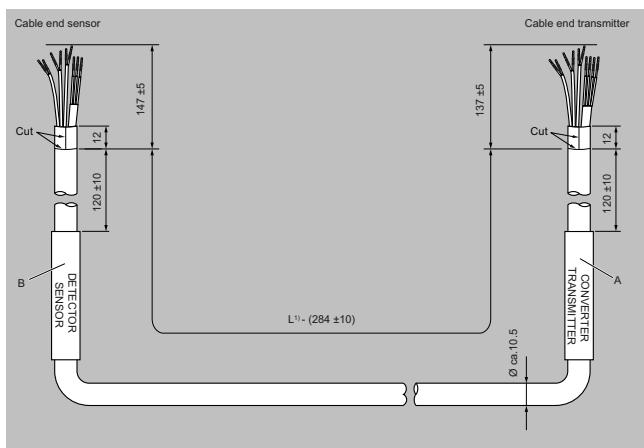
Flowmeter systems / SITRANS FC720/FC740

Dimensional drawings (continued)



Connecting cable dimensions and weights

Standard cable

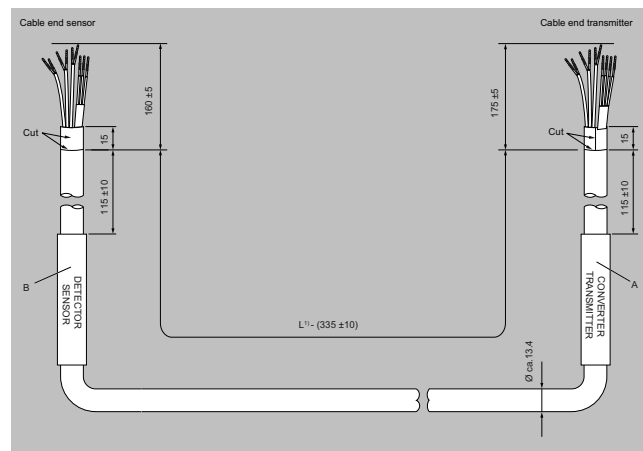


Dimensions in mm. Standard terminated cable. A and B are factory-fitted labels.

Option code	Cable length, L	Cable color
L51	5 m (16.4 ft)	Non-Ex: gray / Ex: blue
L54	10 m (32.8 ft)	
L57	15 m (49.2 ft)	
L60	20 m (65.6 ft)	
L63	30 m (98.4 ft)	

Weight of cable ≤ 0.200 kg/m (0.134 lb/ft)

Standard cable with steel-armored option

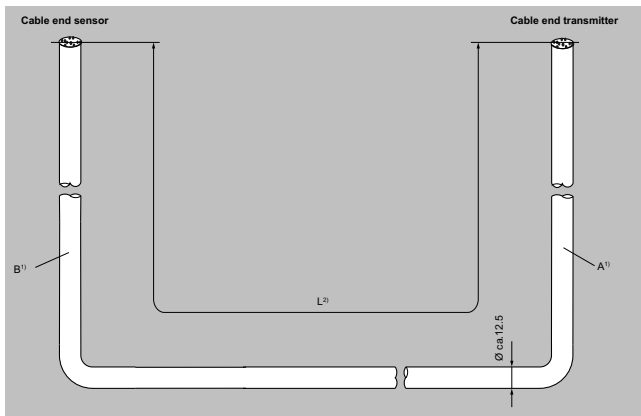


Dimensions in mm. Steel-armored terminated cable. A and B are factory-fitted labels.

Option code	Cable length, L	Cable color
L51 + A20/A21	5 m (16.4 ft)	Blue
L54 + A20/A21	10 m (32.8 ft)	
L57 + A20/A21	15 m (49.2 ft)	
L60 + A20/A21	20 m (65.6 ft)	
L63 + A20/A21	30 m (98.4 ft)	

Dimensional drawings (continued)

Fire retardant cable



Dimensions in mm. Fire retardant unterminated cable. Labels A and B are supplied loose with termination kit.

Option code	Cable length, L	Cable color
L71	5 m (16.4 ft)	Gray
L74	10 m (32.8 ft)	
L77	15 m (49.2 ft)	
L80	20 m (65.6 ft)	
L83	30 m (98.4 ft)	

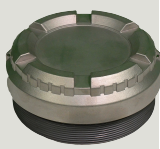
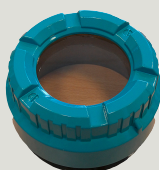
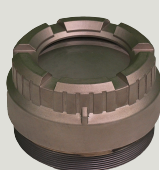
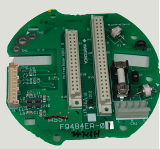
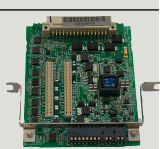
Weight of cable ≤ 0.270 kg/m (0.181 lb/ft)

Flow Measurement

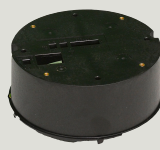
SITRANS FC (Coriolis)

Spare parts / SITRANS FC1x0, FC5x0, FC6x0, FC7x0 and FCT020, FCT040

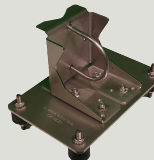
Selection and ordering data

Description	Article No.	
Cover		
Back cover, aluminum PU coating	SAG:M3889JB-01	
Back cover, aluminum high corrosion protection coating	SAG:M3889JC-01	
Back cover, stainless steel	SAG:M3830YB-01	
Front cover, aluminum PU coating, with glass	SAG:M3889JD-01	
Front cover, aluminum high corrosion protection coating, with glass	SAG:M3889JE-01	
Front cover, stainless steel, with glass	SAG:M3829RC-01	
Neck cover, aluminum PU coating	SAG:M3889JF-01	
Neck cover, aluminum high corrosion protection coating	SAG:M3889JG-01	
Neck cover, stainless steel	SAG:M3830YC-01	
Base board		
Base board HART	SAG:M3829ND-01	
Base board for PROFIBUS Fieldbus	SAG:M3829JQ-01	
Base board Modbus	SAG:M3829ZR-01	
Amplifier for sensor incl. specific SN setting and customer set-up		
Transmitter cassette, FCT040, HART, Non-Ex, including serial number setting, without option board (please provide serial number)	SAG:M3889JH-01	
Transmitter cassette, FCT020, HART, Non-Ex, including serial number setting, without option board	SAG:M3889JJ-01	
Transmitter cassette, FCT040, Modbus, Non-Ex, including serial number setting, without option board	SAG:M3889JK-01	
Transmitter cassette, FCT020, Modbus, Non-Ex, including serial number setting, without option board	SAG:M3889JL-01	

Selection and ordering data (continued)

Description	Article No.	
Transmitter cassette, FCT040, PROFIBUS PA, Non-Ex, including SN setting	SAG:M3889JL-01	
Display (serial number mandatory)		
Display, HART FCT020 aluminum housing	SAG:M3889JN-01	
Display, HART FCT040 aluminum housing	SAG:M3889JP-01	
Display, Modbus FCT020 aluminum housing	SAG:M3889JY-01	
Display, Modbus FCT040 aluminum housing	SAG:M3889JZ-01	
Display, PROFIBUS FCT040 aluminum housing	SAG:M3889KA-01	
Display, HART FCT020 SST housing	SAG:M3889JN-01	
Display, HART FCT040 SST housing	SAG:M3889JP-01	
Display, Modbus FCT020 SST housing	SAG:M3889JY-01	
Display, Modbus FCT040 SST housing	SAG:M3889JZ-01	
Display, PROFIBUS FCT040 SST housing	SAG:M3889KA-01	
Accessories		
Cable cover	SAG:M3829NE-01	
Safety cover	SAG:M3829QC-01	
MicroSD card with mini case	SAG:M3829QR-01	
Complete O-Ring set transmitter/sensor	SAG:M3829QW-01	
O-Ring set 114,4x3,1 NBR/HNBR -40 ... 100 °C (-40 ... 212 °F)	SAG:M3827XJ-01	
O-Ring set 83x4 NBR [-50 ... +100 °C (-58 ... 212 °F)]	SAG:M3827XK-01	
O-Ring set 84x3 NBR [-50 ... +100 °C (-58 ... 212 °F)]	SAG:M3827XL-01	
Adapter NPT 1/2" ==> G1/2"	SAG:M3810EM-01	
Terminal box housing part	SAG:M3889KB-01	

Selection and ordering data (continued)

Description	Article No.	
Terminal box cover and O-ring part	SAG:M3889KC-01	
Mounting bracket and bracket mounting set	SAG:M3810DR-01	
2" pipe mounting set	SAG:M3806JA-01	
Remote sensor cable standard		
5 meter sensor cable std terminated	SAG:M3889KJ-01	
10 meter sensor cable std terminated	SAG:M3889KK-01	
15 meter sensor cable std terminated	SAG:M3889KL-01	
20 meter sensor cable std terminated	SAG:M3889KM-01	
30 meter sensor cable std terminated	SAG:M3889KN-01	
50 meter sensor cable std not terminated	SAG:M3889KP-01	
100 meter sensor cable std not terminated	SAG:M3889KQ-01	
150 meter sensor cable std not terminated	SAG:M3889KR-01	
200 meter sensor cable std not terminated	SAG:M3889KS-01	
250 meter sensor cable std not terminated	SAG:M3889KT-01	
300 meter sensor cable std not terminated	SAG:M3889KW-01	
Cable termination set standard and Ex	SAG:M3889KX-01	
Remote sensor cable Ex		
5 meter sensor cable Ex terminated	SAG:M3889KY-01	
10 meter sensor cable Ex terminated	SAG:M3889KZ-01	
15 meter sensor cable Ex terminated	SAG:M3889LA-01	
20 meter sensor cable Ex terminated	SAG:M3889LB-01	
30 meter sensor cable Ex terminated	SAG:M3889LC-01	
50 meter sensor cable Ex not terminated	SAG:M3889LD-01	
100 meter sensor cable Ex not terminated	SAG:M3889LE-01	
150 meter sensor cable Ex not terminated	SAG:M3889LF-01	
200 meter sensor cable Ex not terminated	SAG:M3889LG-01	
250 meter sensor cable Ex not terminated	SAG:M3889LH-01	
300 meter sensor cable Ex not terminated	SAG:M3889LJ-01	
Cable termination set standard and Ex	SAG:M3889KX-01	
Marine and fire retardant remote sensor cable		
5 meter marine sensor cable terminated	SAG:M3889LK-01	
10 meter marine sensor cable terminated	SAG:M3889LL-01	
15 meter marine sensor cable terminated	SAG:M3889LM-01	
20 meter marine sensor cable terminated	SAG:M3889LN-01	
30 meter marine sensor cable terminated	SAG:M3889LP-01	
50 meter marine sensor cable	SAG:M3889LQ-01	
100 meter marine sensor cable	SAG:M3889LR-01	
150 meter marine sensor cable	SAG:M3889LS-01	

Selection and ordering data (continued)

Description	Article No.	
300 meter marine sensor cable	SAG:M3889LT-01	
1000 meter marine sensor cable roll	SAG:M3889LW-01	
Cable termination set > 50+ meter marine	SAG:M3889LX-01	

Flow Measurement

SITRANS FC (Coriolis)

Spare parts / SITRANS FC4x0, FC3x0, MASS2100 and FCT010, FCT030

Selection and ordering data

Accessories and spare parts for flowmeters

Description	Article No.	
CT connector Tamper cover for CT locking. Fits over the M12 connector at both sensor and transmitter ends of the remote system cable (2 pcs.)	A5E31478498	
Bag of glands (metric) in black plastic 1)	A5E03907414	
Bag of glands (metric) in gray plastic Ex e/i ¹⁾	A5E03907424	
Bag of glands (metric) in AISI 316 SS Ex e/i¹⁾	A5E03907429	
Bag of glands (metric) in Ni-plated brass Ex e/i¹⁾	A5E03907430	
Bag of glands (NPT) in black plastic ²⁾	A5E03907435	
Bag of glands (NPT) in gray plastic Ex e/i ²⁾	A5E03907451	
Bag of glands (NPT) in AISI 316 SS Ex e/i²⁾	A5E03907467	
Bag of glands (NPT) in Ni-plated brass Ex e/i²⁾	A5E03907473	
Standard cable (non-Ex) with 2 x M12 connectors, PO insulation and PUR sleeve, gray, -40 ... +80 °C (-40 ... +176 °F) • 5 m (16.4 ft) • 10 m (32.8 ft) • 25 m (82 ft) • 50 m (164 ft) • 75 m (246 ft) • 150 m (492 ft), max. +30 °C (86 °F)	A5E03914805 A5E03914850 A5E03914853 A5E03914859 A5E03914861 A5E03914874	
Standard cable (non-Ex) for termination, PO insulation and PUR sleeve, gray, -40 ... +80 °C (-40 ... +176 °F) • 5 m (16.4 ft)	A5E03914833	

Selection and ordering data (continued)

Description	Article No.	
• 10 m (32.8 ft) • 25 m (82 ft) • 50 m (164 ft) • 75 m (246 ft) • 150 m (492 ft), max. +30 °C (86 °F)	A5E03914849 A5E03914854 A5E03914856 A5E03914864 A5E03914873	
Standard cable (non-Ex) f with M12 connector on one side, PO insulation and PUR sleeve, gray, -40 ... +80 °C (-40 ... +176 °F) • 5 m (16.4 ft) • 10 m (32.8 ft) • 25 m (82 ft) • 50 m (164 ft) • 75 m (246 ft) • 150 m (492 ft), max. +30 °C (86 °F)		
Standard cable (Ex) with 2 x M12 connectors, PO insulation and PUR sleeve, blue, -40 ... +80 °C (-40 ... +176 °F) • 5 m (16.4 ft) • 10 m (32.8 ft) • 25 m (82 ft) • 50 m (164 ft) • 75 m (246 ft) • 150 m (492 ft), max. +30 °C (86 °F)	A5E03914929 A5E03914962 A5E03914995 A5E03915004 A5E03915074 A5E03915088	
Standard cable (Ex) for termination, PO insulation and PUR sleeve, blue, -40 ... +80 °C (-40 ... +176 °F) • 5 m (16.4 ft) • 10 m (32.8 ft) • 25 m (82 ft) • 50 m (164 ft) • 75 m (246 ft) • 150 m (492 ft), max. +30 °C (86 °F)	A5E03914945 A5E03914973 A5E03914984 A5E03915015 A5E03915057 A5E03915100	
Standard cable (Ex) with M12 connector on one side, PO insulation and PUR sleeve, blue, -40 ... +80 °C (-40 ... +176 °F) • 5 m (16.4 ft) • 10 m (32.8 ft) • 25 m (82 ft) • 50 m (164 ft) • 75 m (246 ft) • 150 m (492 ft), max. +30 °C (86 °F)		

Selection and ordering data (continued)

Description	Article No.	
Analog signal cable For analog cable connection between MASS 2100/ FC300 sensor and FCT010/FCT030/FCT070 transmitters. 5 × 2 × Ø 0.34 mm screened and twisted in pairs. Blue PVC insulation and sleeve. With two M20 connectors, female/female. -20 ... 105 °C (-4 ... +221 °F), Ex		
• 1 m (3.28 ft)	A5E42815465	
• 2 m (6.56 ft)	A5E42521862	
• 5 m (16.4 ft)	A5E42522447	
• 10 m (32.8 ft)	A5E42523233	
• 15 m (49.21 ft)	A5E42523347	

- 1) 2 pcs M20; 1 pce M25 with single and dual cable inserts.
 2) 2 pcs ½" NPT; 1 pce ½" NPT with single and dual cable inserts.

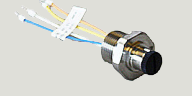
Heating jacket for FCS400

Description	Article No.	
Heating jacket indoor use, 0 ... 200 °C (32 ... 392 °F) max. temperature. Complete with 5 m (16.4 ft) high temperature cable fitted. Dedicated plug connection to included controller		
• 230 V AC, DN 15 electric	A5E33035287	
• 230 V AC, DN 25 electric	A5E33035324	
• 230 V AC, DN 50 electric	A5E33035325	
• 115 V AC, DN 15 electric	A5E32877520	
• 115 V AC, DN 25 electric	A5E32877556	
• 115 V AC, DN 50 electric	A5E32877557	
Heating jacket controller IP65, digital display for 0 ... 200 °C (32 ... 392 °F) control setpoint		
• 230 V AC	A5E03839193	
• 115 V AC	A5E03839194	

Spare parts - sensor FCS400/FCS300 and MASS 2100/FC300

Description	Article No.	
Blind lid in painted aluminum with silicone o-ring seal	A5E03549295	
Sensor housing • Metric • NPT	A5E03549313 A5E03906080	
Bag of loose parts for sensor including cable strain relief components, washer, seals, silicone o-rings, and assorted screws	A5E03549324	

Selection and ordering data (continued)

Description	Article No.	
M12 option for sensor housing in stainless steel pre-wired and potted to replace M12 socket in DSL housing	A5E03906095	

Spare parts - Transmitter FCT030 field mount enclosure (all FW versions)

Description	Article No.	
Display lid in painted aluminum with Ex glass plate and silicone o-ring seal, Ex and Non-Ex	A5E03549344	
Blind lid in painted aluminum with silicone o-ring seal	A5E03549429	
Bag of loose spare parts including cable strain relief components, mounting tool, seals and gasket, assorted screws and washers, hex cap nut, blind connectors, and silicone o-rings	A5E03549396	
Mounting bracket - FCT030 field mount in painted aluminum for pipe or wall mounting of transmitter FCT030 remote version. Including lock ring, pressure pads and seal cap	A5E03906091	
M12 option - remote in painted aluminum; pre-wired and potted replacement M12 connection for FCT030 field mount transmitter remote version	A5E03906104	
Remote junction box painted aluminum for sensor cable termination at FCT030 transmitter remote version. Pre-wired and potted • M20 • NPT	A5E03906112 A5E03906130	

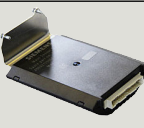
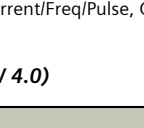
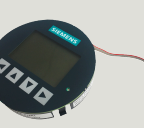
Flow Measurement

SITRANS FC (Coriolis)

Spare parts / SITRANS FC4x0, FC3x0, MASS2100 and FCT010, FCT030

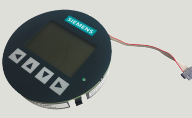
Selection and ordering data (continued)

Spare parts - Transmitter FCT030 (FW 3.1)

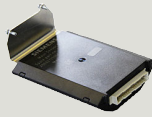
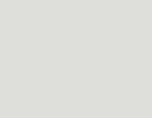
Description	Article No.	
Display and keypad assembly for field mount enclosure with Siemens logo for HW 2 and FW 3.1 version	A5E03548971	
Sensor cassette (compact) (HW version 2, FW 3.1.x)	A5E03549142	
Sensor cassette (remote) (HW version 2, FW 3.1.x)	A5E03549098	
Frontend cassette Spare part frontend cassette for remote version of FC430 and cassette for FC410. For firmware 2.02.x	A5E03549191	
Power supply for field mount enclosure 100 ... 240 V AC, 47 ... 63 Hz, 24 ... 90 V DC (HW version 2 and FW 3.1.x)	A5E03549413	
Transmitter cassette (active) 4 ... 20 mA output and HART 7.2 (HW version 2 and FW 3.1.x)	A5E03549357	
Transmitter cassette (passive) 4 ... 20 mA output and HART 7.2 (HW version 2 and FW 3.1.x)	A5E03549383	
I/O assembly Advise Order code F40 to F97, Selection and Ordering data ¹⁾	A5E03939114	
SensorFlash (microSD card 1G)	A5E03915258	

¹⁾ The I/O configuration must be stated in the "Remark" field. The I/O configuration is found in the F option of the ordering code. e.g. code "F40" for ordering Ch2 Active Current/Freq/Pulse, Ch3 Active Current/Freq/Pulse, Ch4 Active Input.

Spare parts FCT030 - Fieldmount enclosure (FW 4.0)

Description	Article No.	
Display and keypad assembly		
• From firmware 4.0, with Siemens logo	A5E37705139	
• From firmware 4.0, neutral version - no company logo	A5E39844362	

Selection and ordering data (continued)

Description	Article No.	
Power supply for field mount enclosure FCT030 V 4.0 Fieldmount 100 ... 240 V AC, 47 ... 63 Hz, 19.2 ... 28.8 V DC	A5E38264471	
Sensor cassette (compact) for systems without DSL and for systems with analog sensor connection, HW version 3, FW version 4.0	A5E41526318	
Sensor cassette (remote) Ex barrier module digital sensor connection (HW version 3, FW version 4.0)	A5E03549098	
Sensor cassette (remote) for systems with DSL, HW version 3, FW version 4.0	A5E03549098	
Frontend cassette Spare part frontend DSL for remote version. For firmware V 4.0	A5E41526286	
SensorFlash (microSD card 4G)	A5E38288507	
Transmitter cassette for firmware 4.0		
• Ch1 E02: I/O and comm (active/passive) 4 ... 20 mA output and HART 7.5, Non-Ex	A5E38013040	
• Ch1 E06: I/O and comm (-active) 4 ... 20 mA output and HART 7.5, Ex	A5E38012278	
• Ch1 E07: I/O and comm (-passive) 4 ... 20 mA output and HART 7.5, Ex	A5E38013025	
• Ch1 E10: Communication PROFIBUS PA, Non-Ex & Ex	A5E41216315	
• Ch1 E11: Communication PROFIBUS DP, Non-Ex	A5E41216042	
• Ch1: Communication Modbus RTU 485, Ex	A5E38013054	
• Ch1: Communication Modbus RTU 485, Non-Ex	A5E38013069	
I/O Cassette for firmware 4.0		
• F01, Non-Ex Ch2: Current/Frequ./Pulse Ch3: None Ch4: None	A5E38006256	
• F02, Non-Ex Ch2: Current/Frequ./Pulse Ch3: Current/Frequ./Pulse Ch4: None	A5E38006558	
• F03, Non-Ex Ch2: Current/Frequ./Pulse Ch3: Current/Frequ./Pulse Ch4: Current/Frequ./Pulse	A5E38006598	
• F04, Non-Ex Ch2: Current/Frequ./Pulse Ch3: Current/Frequ./Pulse Ch4: Relay	A5E38006896	

Selection and ordering data (continued)

Description	Article No.	
• F05, Non-Ex Ch2: Current/Frequ./Pulse Ch3: Relay Ch4: Relay	A5E38006900	
• F06, Non-Ex Ch2: Current/Frequ./Pulse Ch3: Relay Ch4: None	A5E38011432	
• F11, Ex-passive Ch2: Current/Frequ./Pulse Ch3: None Ch4: None	A5E38011478	
• F12, Ex-passive Ch2: Current/Frequ./Pulse Ch3: Current/Frequ./Pulse Ch4: None	A5E38011509	
• F13, Ex-passive Ch2: Current/Frequ./Pulse Ch3: Current/Frequ./Pulse Ch4: Current/Frequ./Pulse	A5E38011541	
• F14, Ex-passive Ch2: Current/Frequ./Pulse Ch3: Current/Frequ./Pulse Ch4: Relay	A5E38011600	
• F15, Ex-passive Ch2: Current/Frequ./Pulse Ch3: Relay Ch4: Relay	A5E38011618	
• F16, Ex-passive Ch2: Current/Frequ./Pulse Ch3: Relay Ch4: None	A5E38011908	
• F21, Ex-active Ch2: Current/Frequ./Pulse Ch3: None Ch4: None	A5E38012039	
• F22, Ex-active Ch2: Current/Frequ./Pulse Ch3: Current/Frequ./Pulse Ch4: None	A5E38012056	
• F23, Ex-active Ch2: Current/Frequ./Pulse Ch3: Current/Frequ./Pulse Ch4: Current/Frequ./Pulse	A5E38012121	
• F24, Ex-active Ch2: Current/Frequ./Pulse Ch3: Current/Frequ./Pulse Ch4: Relay	A5E38019235	
• F25, Ex-active Ch2: Current/Frequ./Pulse Ch3: Relay Ch4: Relay	A5E38019263	
• F26, Ex-active Ch2: Current/Frequ./Pulse Ch3: Relay Ch4: None	A5E38019378	
Adapter cable for FCS400 sensor with new transmitter DSL/FCT010/FCT030, Version 4.0	A5E50371933	
Remote adapter for wall bracket M20 cable connection		
• Ex	A5E42404417	
• Non-Ex	A5E42846478	

Selection and ordering data (continued)

Description	Article No.	
Wall bracket for FCT030 for M20 analog cable connector	A5E42404426	
Wall bracket for FCT010 for M20 analog cable connector	A5E42404447	
Compact adapter for DSL/FCT030 for upgrade from MASS 2100 DI 3, DI 6, DI 15 with MASS 6000 compact to DSL/FCT030		
• Ex	A5E42846758	
• Non-Ex	A5E42846760	
Compact adapter for DSL/FCT030 FCS300 and FCS400 (DN 100 and DN 150 sensor) adapter for compact mount DSL, FCT010 or FCT030, Ex and Non-Ex	TBD	

Spare parts - FCT030 wall mount enclosure

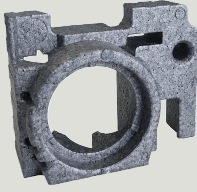
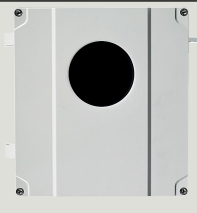
Description	Article No.	
Display and keypad -assembly		
• For wall mount enclosure, Siemens logo	A5E37697615	
• For wall mount enclosure, neutral version	A5E39844261	
Power supply for wall mount 100 ... 240 V AC, 47 ... 63 Hz, 19.2 ... 28.8 V DC	A5E38263021	
Sensor cassette for FCT030 wall mounting enclosure	TBD	

Flow Measurement

SITRANS FC (Coriolis)

Spare parts / SITRANS FC4x0, FC3x0, MASS2100 and FCT010, FCT030

Selection and ordering data (continued)

Description	Article No.	
Foam insert set for wall mount with connectors	A5E38287828	
Wall mount enclosure front Versions: • blind, Siemens version • blind, neutral version - no company logo • with glass	A5E	
Wall mount enclosure bracket for pipe mounting	A5E38288020	
Wall bracket panel mounting	A5E38288032	
Bag of loose spare parts for wall mount including cable strain relief components, mounting tool, seals and gasket, assorted screws and washers, hex cap nut, blind connectors and O-rings	A5E38288072	
Metall kit PSU cover back pane for wall mount enclosure	A5E38415145	
Power input cover plate for wall mount enclosure	A5E38415205	