

## 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

# SITRANS FC (Coriolis) 2023

## Flowmeter systems

### SITRANS FC720/FC740

#### Benefits

##### *Product features aligned to user value targets*

	Customer value targets	SITRANS FC features and solutions
<b>Engineering and project management</b>	<ul style="list-style-type: none"> <li>Reduce engineering investment</li> <li>Cut specification effort</li> <li>Minimize project expenditure</li> <li>Decrease the spending on each measurement point</li> <li>Eliminate function duplication</li> <li>Reduce number of suppliers</li> </ul>	<ul style="list-style-type: none"> <li>Siemens project teams offer complimentary evaluation of customer specifications, provided by regional and HQ experts</li> <li>Simple product selection using intuitive sizing software</li> <li>One SITRANS FC device can typically provide 3 to 6 individual measurements, all transmitted via digital communication, when planned during pre-project design</li> <li>Added value functions: batch control, viscosity, thermal energy, concentration measurement (Fraction) of two-component solutions, and pressure compensation</li> </ul>
<b>Installation</b>	<ul style="list-style-type: none"> <li>Reduce footprint and transport outlay of OEM machinery</li> <li>Lower installation complexity</li> <li>Avoid costly modifications of existing plant</li> </ul>	<ul style="list-style-type: none"> <li>Can be installed in horizontal or vertical (self-draining) pipes</li> <li>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</li> <li>Adaptable to existing pipes: typically, 3 or 4 connection sizes for each sensor size</li> <li>Flexible selection of traditional inputs, outputs, and digital communications</li> </ul>
<b>Configuration and commissioning</b>	<ul style="list-style-type: none"> <li>Shorter commissioning schedules with lower costs</li> <li>Faster start-up with reduced outgoings</li> </ul>	<ul style="list-style-type: none"> <li>Easy setup wizard delivers working meters straight after start-up</li> <li>microSD card stores sensor calibration data and default setup</li> <li>Simple configuration using Process Device Manager (PDM)</li> <li>Siemens device-specific faceplates simplify operation in plantwide control systems</li> </ul>
<b>Efficient plant operation</b>	<ul style="list-style-type: none"> <li>Improve finished product consistency to reduce waste</li> <li>Keep process performance when scaling production up or down</li> <li>Optimize process control</li> <li>Improve finished product quality enabling higher levels of profit</li> <li>Reduce downtime with fast resolution of process upsets</li> <li>Improve asset performance</li> </ul>	<ul style="list-style-type: none"> <li>SITRANS FC meters are calibrated in rigs accredited to EN/ISO 17025 to ensure consistently high performance of flow, density, and concentration measurements</li> <li>First-class zero-point quality maintains high accuracy into the low flow region</li> <li>High sensitivity and intelligent dynamic range keeps the measurement active in demanding high fluid damping cases</li> <li>Designed-in resilience to process extremes</li> <li>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</li> <li>Diagnostic data via local menu or PDM is backed by Siemens applications experts</li> <li>Intelligent Siemens SITRANS IQ apps for continuing asset evaluation</li> </ul>
<b>Maintenance and asset management</b>	<ul style="list-style-type: none"> <li>Optimize technician training</li> <li>Reduce cost of spare parts</li> <li>Increase predictive maintenance</li> <li>Reduce production downtime and associated costs</li> <li>Decrease unplanned maintenance</li> <li>Maximize asset value</li> </ul>	<ul style="list-style-type: none"> <li>Simple product design with interchangeable modular parts</li> <li>Micro SD card loads sensor specific data to deliver fast service exchange</li> <li>Self-verification: tube health check monitors key diagnostics, including tube stiffness, driver and pickups; the user defines verification frequency and alarm behavior</li> <li>Verification results indicate whether preventive maintenance action is required</li> <li>Siemens SIMATIC Maintenance Station uses cyclical acquisition to provide life cycle reports and intelligent preventive maintenance strategies</li> </ul>
<b>Industry compliance</b>	<ul style="list-style-type: none"> <li>Cut effort required to comply with Industry-specific demands</li> <li>Reduce resource needed to maintain regulatory compliance</li> </ul>	<ul style="list-style-type: none"> <li>Food and beverage sector covered with EHEDG and 3-A approvals, polished tubes</li> <li>Global hazardous area approvals for international plant duplications</li> <li>Common and emerging digital networks covered: HART, PROFIBUS PA, PROFINET</li> <li>Class leading safety: SIL2/SIL3, secondary containment, PED, NAMUR NE95</li> </ul>

## Application

Application examples for SITRANS FC multi-parameter meters across diverse industry sectors	
<b>Chemical and petrochemical</b>	<ul style="list-style-type: none"> <li>Transfer, loading and unloading of bulk chemicals</li> <li>Concentration control of acids and alkalis (process optimization)</li> <li>Accurate mass or volume flow of feed chemicals to in-line blending systems</li> <li>Accurate mass flow and density (quality) of reactor fluid feeds catalyst</li> <li>Chemical recovery</li> <li>Mass balance optimization</li> <li>Compressed and cryogenic gases</li> <li>Lubricating oil blending and dosing</li> <li>High accuracy measurement of critical fluid components</li> <li>Low flow control in pilot plants and R&amp;D facilities</li> </ul>
<b>Food and beverage</b>	<ul style="list-style-type: none"> <li>Accurate bulk transfer (mass or volume) of all dairy products: milk, cream, whey and yoghurt</li> <li>Fat concentration in cream</li> <li>Flow, density, temperature, and concentration (Plato) during all fermentation processes</li> <li>Flow, density, temperature, and sugar concentration (Brix) in soft drink processing</li> <li>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</li> <li>Flow and density of fruit juices and pulps</li> <li>Mixing and inventory control of confectionary ingredients, e.g., chocolate, syrup, oils, flavors</li> <li>Metering pump control</li> <li>Oils, Fats enzymes dosing in animal feed plants</li> <li>CO<sub>2</sub> dosing</li> <li>CIP liquids</li> <li>Bottling of beer, spirits, wine, soft drinks, etc.</li> <li>Bulk sugar processing: molasses, sugar slurries, density, Brix of finished product</li> </ul>
<b>Oil and gas</b>	<ul style="list-style-type: none"> <li>Loading/unloading of hydrocarbons (e.g., crude oil, bitumen) from/to ship, road tanker, rail car</li> <li>High pressure chemical injection</li> <li>High pressure low flow gas</li> <li>Net oil computing</li> <li>Gas void fraction</li> <li>Filling of gas bottles</li> <li>Furnace control</li> <li>Test separators</li> <li>LPG, natural gas hydration</li> <li>Well-head water-cut monitoring</li> <li>All hydrocarbon fluids in refineries</li> <li>Metrology, custody transfer</li> <li>Drilling mud</li> <li>Oil well cementing and hydrofracturing</li> </ul>

## Application (continued)

Application examples for SITRANS FC multi-parameter meters across diverse industry sectors	
<b>Life sciences</b>	<ul style="list-style-type: none"> <li>High accuracy flow and batching of bioreactor feeds</li> <li>Solvent flow rate, density and batching</li> <li>Flow of demineralized and deionized water</li> <li>Solvents and fish oils used in high grade omega 3 oils</li> <li>Precision coatings</li> <li>Vacuum thin film coating</li> </ul>
<b>Household and personal care</b>	<ul style="list-style-type: none"> <li>Blending and batching of detergent ingredients</li> <li>Tanker loading and unloading</li> <li>Salt concentration</li> <li>Reliable measurement of aerated liquids</li> </ul>
<b>Automotive and aeronautical</b>	<ul style="list-style-type: none"> <li>Fuel injection nozzle and pump testing</li> <li>Filling of under bonnet fluid reservoirs, air conditioning, coolant</li> <li>Fuel flow and density measurement in engine test beds</li> <li>Checking for air in oil using high accuracy density measurement</li> <li>Paint spray robots – requires accurate and fast measurements</li> <li>Aircraft fuel loading (kerosene)</li> <li>High pressure flow used in turbine blade manufacture</li> </ul>
<b>Power and energy</b>	<ul style="list-style-type: none"> <li>Boiler fuel flow and burner control</li> <li>Turbine fuel flow</li> <li>Glycol flow and concentration</li> <li>Bioethanol</li> </ul>
<b>Marine</b>	<ul style="list-style-type: none"> <li>Fuel consumption management</li> <li>Boiler control</li> <li>Bunkering management</li> <li>Density used to indicate fuel quality</li> </ul>
<b>Pulp, paper and textiles</b>	<ul style="list-style-type: none"> <li>Accurate dosing of dyes and chemicals</li> </ul>
<b>Water and environmental</b>	<ul style="list-style-type: none"> <li>Dosing of chemicals for water treatment</li> <li>Chemical concentration for water quality control</li> </ul>

# SITRANS FC (Coriolis) 2023

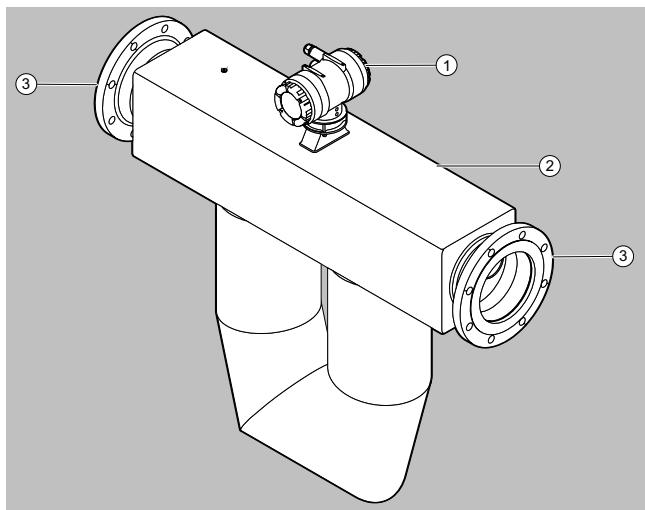
## Flowmeter systems

### SITRANS FC720/FC740

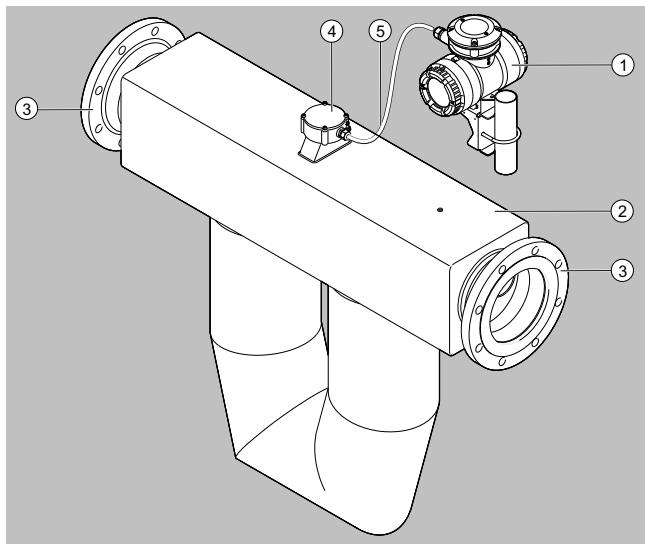
#### Design

##### **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)]



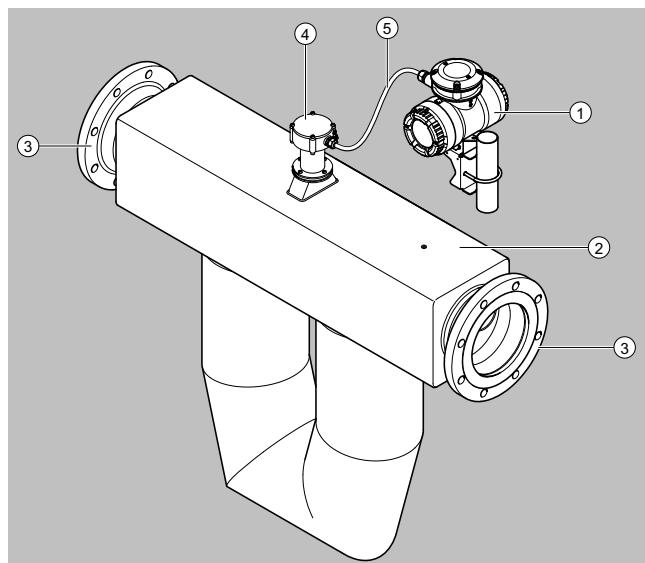
FCS700 sensor with compact transmitter



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.

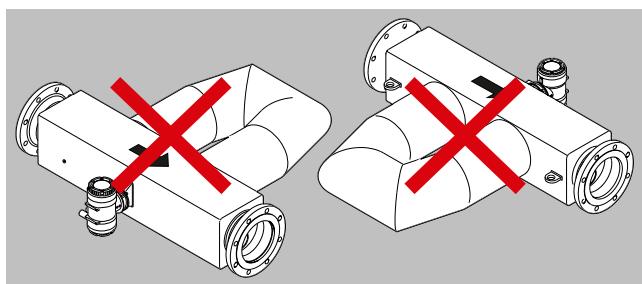
1	Transmitter
2	FCS700 sensor
3	Process connection
4	Sensor terminal box
5	Connecting cable

#### 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

**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

**SITRANS FC (Coriolis) 2023****Flowmeter systems****SITRANS FC720/FC740****Selection and ordering data**

	Article No.	Order code
	7ME447	● - ● ● ● - ● ● ● - ● ● ●
<b>SITRANS FC720/740 (High flow)</b>		
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
<b>Transmitter variant</b>		
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
<b>Sensor size / Connector size</b>		
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 150 with connection size 6" DN 150	2 D	
Sensor size DN 150 with connection size 8" DN 200	2 E	
Sensor size DN 200 with connection size 8" DN 200	3 E	
Sensor size DN 200 with connection size 10" DN 250	3 F	
<b>Process connection</b>		
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 (RU)	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	Z 1	K 1 Y
<b>Tube material (wetted)</b>		
<b>Process connection material and max operational temperature</b>		
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	
<b>Calibration</b>		
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
<b>Mounting style, transmitter housing and material</b>		
Compact type with "urethane-cured polyester powder coating" coated aluminum transmitter housing	A	
Compact type with "corrosion protection coating" coated aluminum transmitter housing	B	

## Selection and ordering data (continued)

SITRANS FC720/740 (High flow)	Article No. 7ME447	Order code ● - ● ● ● - ● ● ● - ● ● ●
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
<b>Ex approvals</b>		
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
FM, groups A B C D E F G		H
FM, groups C D E F G		J
NEPSI, explosion group IIC and IIIC		M
NEPSI, explosion group IIB and IIIC		N
<b>Local user interface</b>		
Spare sensor without transmitter, no display applied		0
No display		1
With display		3

Order code	
<b>Further designs</b> Please add "-Z" to Article No. and specify order code(s).	
<b>Cable glands</b>	
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
<b>Sensor housing material</b>	
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
<b>I/O Configuration Ch1</b>	
None	E00
4-20 mA HART active	E06
4-20 mA HART passive	E07
PROFIBUS PA	E10
<b>I/O Configuration Ch2, Ch3 and Ch4</b>	
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

**SITRANS FC (Coriolis) 2023****Flowmeter systems****SITRANS FC720/FC740****Selection and ordering data (continued)**

Order code		Order code	
1 passive pulse or status output, 1 active pulse or status output with pull-up resistor	F36	10 meter (32.8 ft) remote fire retardant connecting cable not terminated	L74
1 passive pulse or status output, 1 active current output	F37	15 meter (49.2 ft) remote fire retardant connecting cable not terminated	L77
1 passive pulse output	F41	20 meter (65.6 ft) remote fire retardant connecting cable not terminated	L80
Output CH1 intrinsically safe, 1 passive pulse output	F42	30 meter (98.4 ft) remote fire retardant connecting cable not terminated	L83
<b>Certificates</b>		<b>SW functions</b>	
Declaration of compliance with the order 2.1 according to EN 10204	C11	Heat measurement	S11
Quality Inspection Certificate (Inspection Certificate 3.1 according to EN 10204)	C40	Tube health check	S12
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	Batching and filling function	S13
Hydrostatic Pressure Test Certificate (Inspection Certificate 3.1 according to EN 10204)	C18	Netoil computing	S14
Degreasing of wetted surfaces according to ASTM G93-03 (Level C), including test report	C54	Viscosity computing function for liquids	S15
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	Standard concentration measurement	S16
Welding procedures and certificate according to ASME IX	C37	<b>Marine approval</b>	
Traceable calibration to national standards, including a list of working standards used for calibration. Language: English/Japanese	C41	Marine approved DNV, ABS, KR piping class 2	S22
Traceable calibration to national standards, including a list of primary standards to which the delivered product is traceable. Language: English/Japanese	C42	Marine approved DNV, ABS, KR piping class 3	S23
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	Marine approved LR, MR, TAC piping class 2	S24
X-ray test according to ASME V	C34	Marine approved LR, MR, TAC piping class 3	S25
Dye penetrant test of process connection weld seams according to DIN EN ISO 3452-1, including certificate	C38	Marine approved BV piping class 2	S26
Dye penetrant test of flange welding according to ASME V, including certificate	C39	Marine approved BV piping class 3	S27
Ferrite test for flange welding according to DIN EN ISO 8249	C50	<b>Rupture Disk</b>	
Positive Material Identification of wetted parts, including certificate (Inspection Certificate 3.1 according to EN 10204)	C15	Namur built-in length according to NE132	S31
Functional Safety (IEC 61508) - SIL2/3	C20	Rupture Disk	S32
ASME B31.3 compliance NORMAL FLUID SERVICE	C70	<b>Insulation</b>	
NTEP accuracy class 0.3 acc. NIST for heated products	C17	Insulation	J10
<b>Connecting cable type and length</b>		Insulation and heat tracing, ½" ASME class 150, raised face (RF)	J12
without standard connecting cable	L50	Insulation and heat tracing, ½" ASME class 300, raised face (RF)	J13
5 meter (16.4 ft) remote connecting cable terminated standard gray / Ex blue	L51	Insulation and heat tracing, EN DN 15, PN 40	J14
10 meter (32.8 ft) remote connecting cable terminated standard gray / Ex blue	L54	Insulation, heat tracing with ventilation, ½" ASME class 150, raised face (RF)	J16
15 meter (49.2 ft) remote connecting cable terminated standard gray / Ex blue	L57	Insulation, heat tracing with ventilation, ½" ASME class 300, raised face (RF)	J17
20 meter (65.6 ft) remote connecting cable terminated standard gray / Ex blue	L60	Insulation, heat tracing with ventilation, EN DN 15, PN 40	J18
30 meter (98.4 ft) remote connecting cable terminated standard gray / Ex blue	L63	<b>Country specific delivery</b>	
without fire retardant connecting cable	L70	Delivery to China including China RoHS mark	W21
5 meter (16.4 ft) remote fire retardant connecting cable not terminated	L71	Delivery to Korea including KC mark	W22
<b>Fraction setup</b>		<b>FIA: Please select four options</b>	
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 <sub>4</sub> NO <sub>3</sub> / Water 1 ... 50 WT%, 0 ... 80 °C (32 ... 176 °F)	G04		
NH <sub>4</sub> NO <sub>3</sub> / Water 20 ... 70 WT%, 20 ... 100 °C (68 ... 212 °F)	G05		
HCl / Water 22 ... 34 WT%, 20 ... 40 °C (68 ... 104 °F)	G06		
HNO <sub>3</sub> / Water 50 ... 67 WT%, 10 ... 60 °C (50 ... 140 °F)	G07		
H <sub>2</sub> O <sub>2</sub> / 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		

**Selection and ordering data (continued)**

Order code	
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

Order code	
<b>Tag name</b>	
Tag name plate, SS (max. 16 characters)	Y11
HART Tag No. (max. 8 characters)	Y25
HART Tag No. (max. 32 characters)	Y26
PROFIBUS PA NODE ADDRESS (4 characters HEX)	Y28
PROFIBUS PA SOFTWARE TAG (max. 32 characters)	Y29
<b>Customer installation length</b>	
Customer installation length (mm)	Y30
<b>Special versions</b>	
ID-Number of special design	Y99

# SITRANS FC (Coriolis) 2023

## Flowmeter systems

### SITRANS FC720/FC740

#### Technical specifications

##### Mass flow rate of liquids

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

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.

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

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

- $Q_{\text{max}}$  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 kg/h	Q <sub>flat</sub> kg/h	Q <sub>nom</sub> kg/h	Q <sub>max</sub> kg/h
	lb/h	lb/min	lb/min	lb/min
DN 100	13.0	28.6	20 000	734
DN 150	25.0	55.0	38 000	1395
DN 200	27.0	59.4	45 000	1652

#### Performance summary by FCS700 sensor size and transmitter type

Sensor size	DN 100	DN 150	DN 200
<b>Mass flow (liquids)</b>			
Accuracy % (of rate)	FCT020	± 0.2	± 0.2
% (of rate)	FCT040	± 0.1	± 0.1
Zero stability kg/h (lb/h)		± 13 (28.6)	± 25 (55)
<b>Density (liquids)</b>			
Accuracy kg/m <sup>3</sup> (lb/ft <sup>3</sup> )	FCT020	± 4 (0.25)	± 4 (0.25)
kg/m <sup>3</sup> (lb/ft)	FCT040	± 2 (0.12)	± 2 (0.12)
<b>Mass flow (gases)</b>			
Accuracy % (of rate)	FCT020	± 0.75	± 0.75
% (of rate)	FCT040	± 0.35	± 0.35
<b>Temperature</b>			
Accuracy °C (°F)		± 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/m<sup>3</sup> (0.03 lb/ft<sup>3</sup>) 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 <sup>3</sup> (56 ... 69 lb/ft <sup>3</sup> )
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 <sup>3</sup> (44 lb/ft <sup>3</sup> ) 1 000 kg/m <sup>3</sup> (62 lb/ft <sup>3</sup> ) 1 650 kg/m <sup>3</sup> (103 lb/ft <sup>3</sup> )
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, 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.

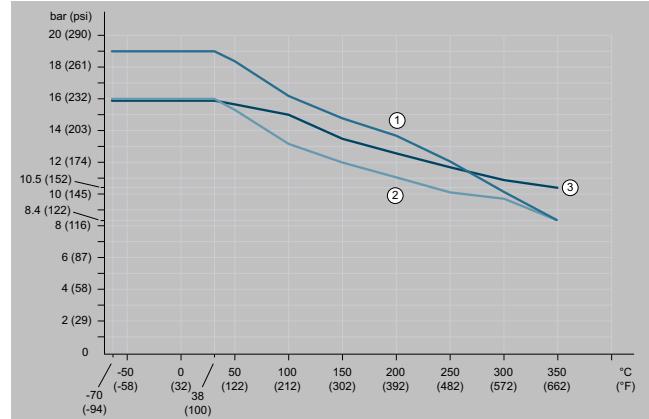
The given process temperature and process pressure ranges are calculated and approved without corrosion or erosion effects.

#### 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).

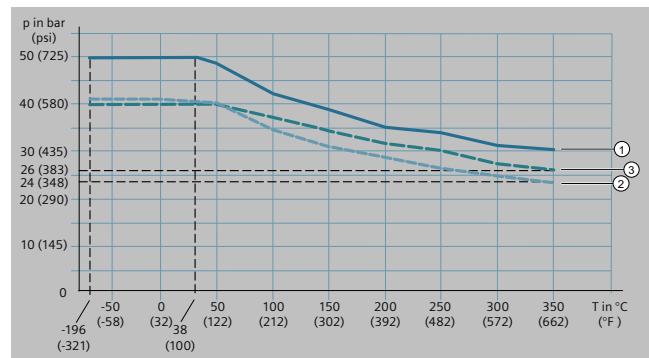
### ASME class 150, EN PN 16



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

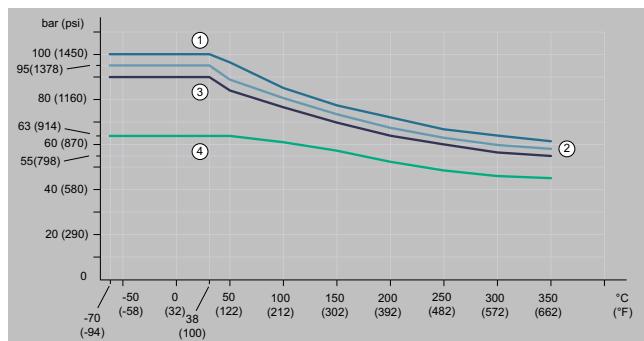
# SITRANS FC (Coriolis) 2023

## Flowmeter systems

### SITRANS FC720/FC740

#### Technical specifications (continued)

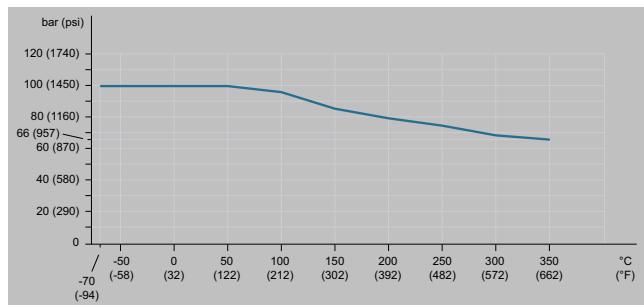
##### ASME class 600, EN PN63



Allowed process pressure as a function of process fluid temperature

1	Process connection compatible to ASME B16.5 class 600:
	<ul style="list-style-type: none"> <li>FCS700 size DN 100, AISI 316L or alloy 22 wetted parts (without ASME B31.3 compliance)</li> <li>FCS700 size DN 100, alloy 22 wetted parts and ASME B31.3 compliance (requires option C70)</li> <li>FCS700 size DN 200, AISI 316L wetted parts (without ASME B31.3 compliance)</li> </ul>
2	Process connection compatible to ASME B16.5 class 600:
	<ul style="list-style-type: none"> <li>FCS700 size DN 100, AISI 316L wetted parts and ASME B31.3 compliance (requires option C70)</li> <li>FCS700 size DN 200, AISI 316L wetted parts and ASME B31.3 compliance (requires option C70)</li> </ul>
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

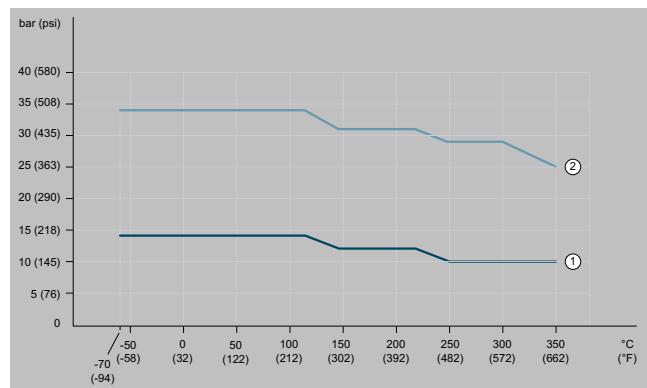


Allowed process pressure as a function of process fluid temperature, compatible to EN 1092-1 PN 100

#### 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)
Fire retardant cable	Remote	Transmitter	-40 ... +60 °C (-40 ... +140 °F)
		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, FCTOXO 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).

**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)
Fire retardant cable	Remote	Transmitter	-40 ... +50 °C (-40 ... +122 °F)
		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)
Fire retardant cable	Remote	Transmitter	-40 ... +60 °C (-40 ... +140 °F)
		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, UK Ex
- Gas group A to 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, UK Ex
- Gas group C to 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)

**FCS700 all sizes, remote transmitter**

- Gas group A to G: FM

**Standard temperature, standard neck**Ex approvals:

- Gas group IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, UK Ex

**SITRANS FC (Coriolis) 2023****Flowmeter systems****SITRANS FC720/FC740****Technical specifications (continued)**

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, UK Ex
- Gas group C to 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 neck**Ex approvals:

Gas group IIC and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, UK Ex

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 to 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)

Ex approvals:

Gas group IIB and IIIC: ATEX, IEC Ex, EAC Ex, NEPSI, Korea Ex, UK Ex

**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	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 to 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, UK Ex

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 to 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, UK Ex

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)

# SITRANS FC (Coriolis) 2023

## Flowmeter systems

### SITRANS FC720/FC740

#### Technical specifications (continued)

##### Ex approvals:

Gas group C to 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, UK Ex

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)
Mechanical load	<ul style="list-style-type: none"> <li>Transmitter: 10 ... 500 Hz, 1g</li> <li>Sensor: 10 ... 500 Hz, 1g according to IEC 60068-2-6</li> </ul>
Electromagnetic (EMC) Immunity	<ul style="list-style-type: none"> <li>EN IEC 61326-1, Table 2</li> <li>EN IEC 61326-2-3</li> <li>EN IEC 61326-2-5</li> <li>NAMUR NE21 recommendation</li> <li>DNV-CG-0339 section 3, chapter 14</li> </ul>

Specification	Rating/level of compliance
Surge Immunity Emission	<ul style="list-style-type: none"> <li>EN 61000-4-5 for lightning protection</li> <li>EN IEC 61000-3-2, Class A (harmonic current emissions)</li> <li>EN IEC 61000-3-3, Class A (voltage fluctuations)</li> <li>Immunity assessment criterion: output signal fluctuation is within <math>\pm 1\%</math> of the output span.</li> </ul>
Oversupply	Category II according to EN IEC 61010-1

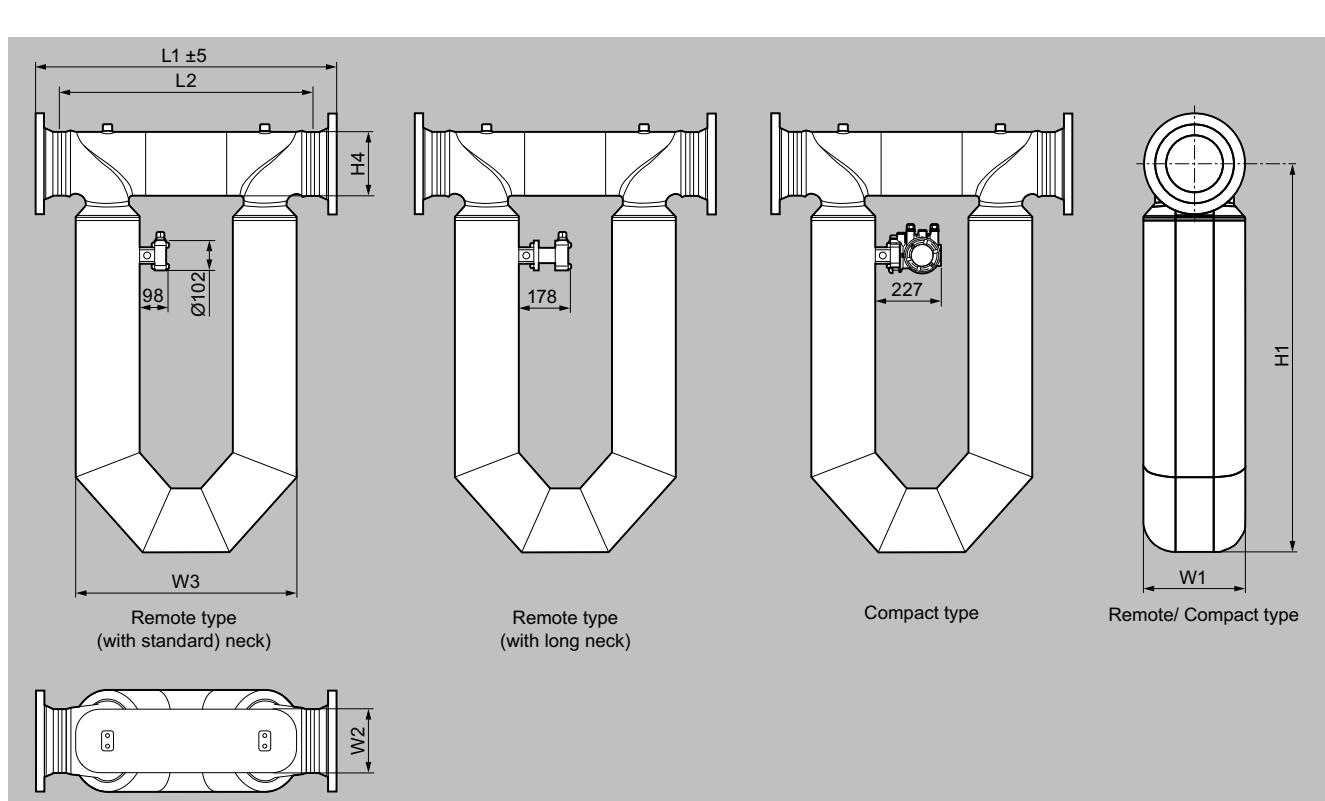
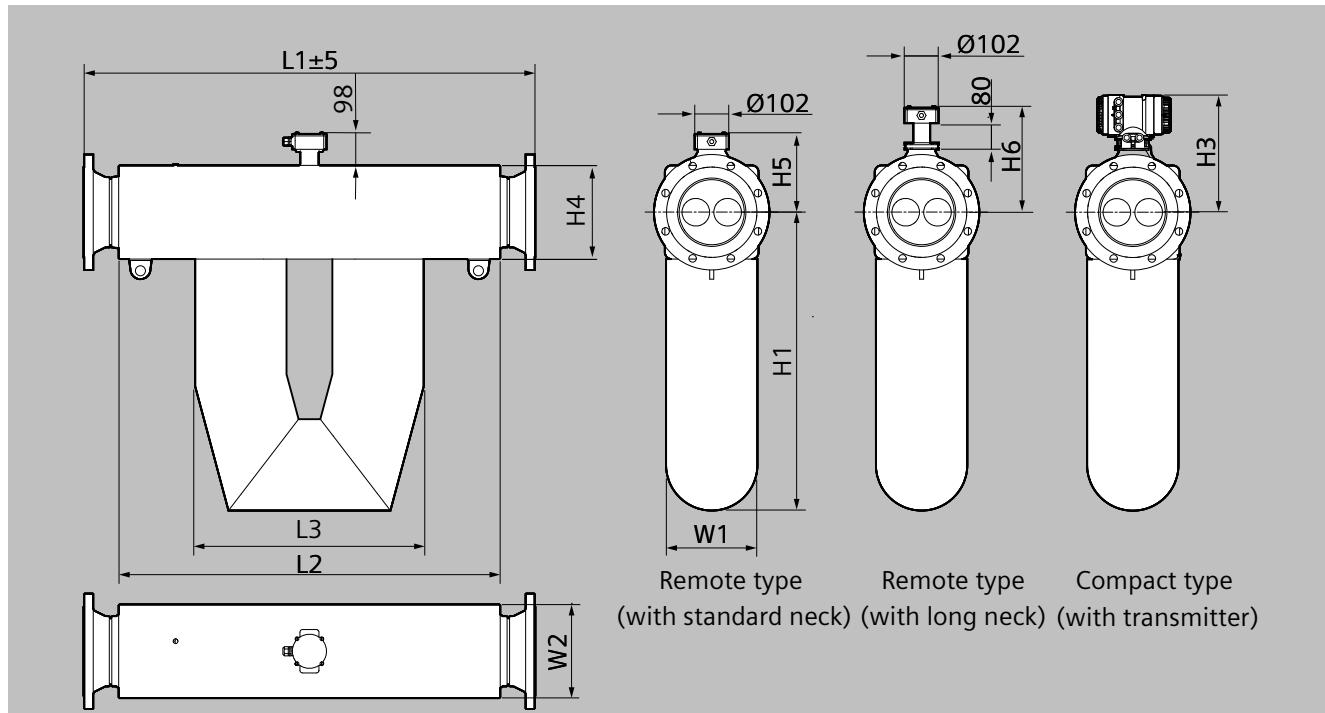
#### Approvals and certificates – summary

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
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

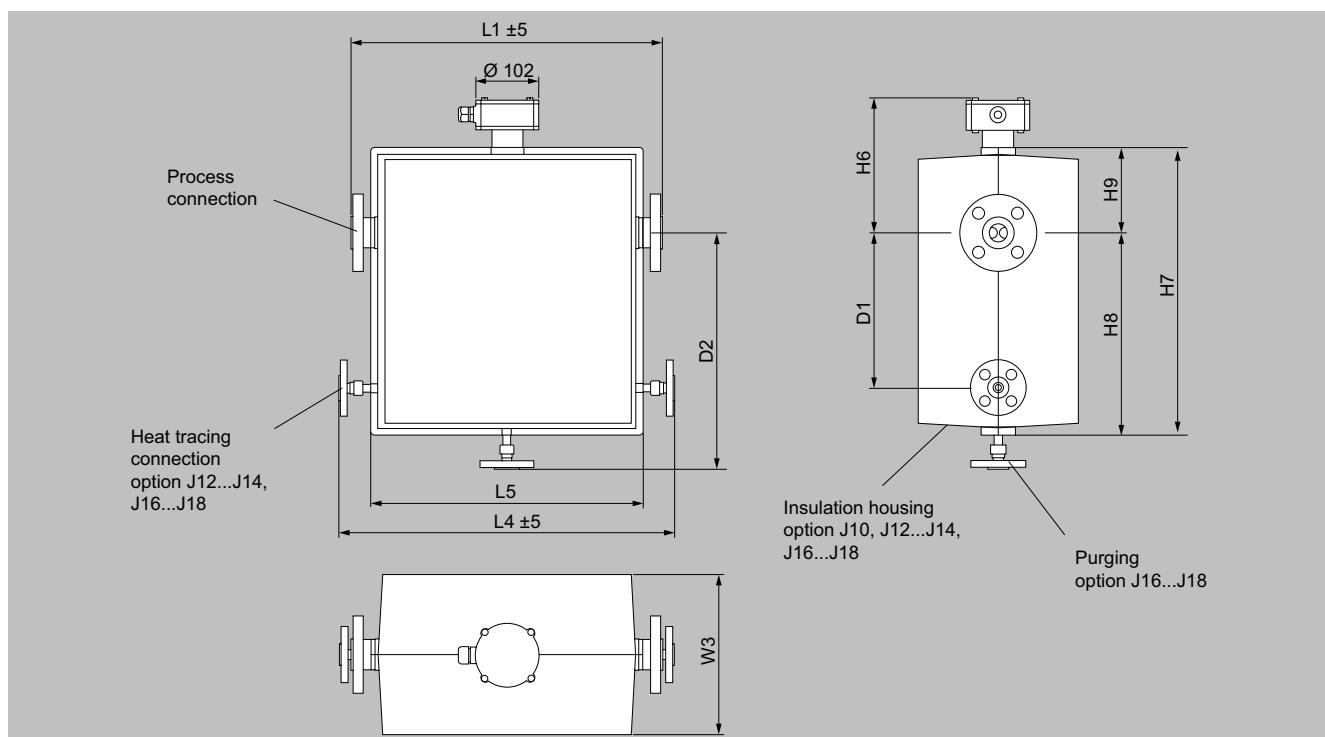
## Technical specifications (continued)

Position in code, type	Order code	Description
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
15, Ex approval	U	UKEx, explosion group IIC and IIIC
15, Ex approval	V	UKEx, explosion group IIB and IIIC
ZS2, Marine approval	S22	Marine approval according DNV, ABS and KR piping class 2
ZS2, Marine approval	S23	Marine approval according DNV, ABS and KR piping class 3
ZS2, Marine approval	S24	Marine approval according LR MR TAC piping class 2
ZS2, Marine approval	S25	Marine approval according LR MR TAC piping class 3

Position in code, type	Order code	Description
ZS2, Marine approval	S26	Marine approved BV piping class 2
ZS2, Marine approval	S27	Marine approved BV piping class 3
ZC1, Certificate	C17	NTEP approval, accuracy class 0.3 acc. NIST Handbook 44, heated products
ZC1, Certificate	C11	Compliance with the order 2.1 EN 10204
ZC1, Certificate	C40	Quality Inspection Certificate 3.1 EN 10204
ZC1, Certificate	C13	3.1 EN 10204 + IGC + NACE MR0175, MR0103
ZC1, Certificate	C18	Pressure Test Certificate 3.1 EN 10204
ZC1, Certificate	C54	Degreasing ASTM G93-03, including report
ZC1, Certificate	C36	WPS; WPQR; WQC
ZC1, Certificate	C37	Welding procedures and Certificate ASME IX
ZC1, Certificate	C33	X-ray DIN EN ISO 17636-1/B
ZC1, Certificate	C34	X-ray test according to ASME V
ZC1, Certificate	C38	Dye penetration DIN EN ISO 3452-1
ZC1, Certificate	C39	Dye penetration ASME V
ZC1, Certificate	C20	Functional Safety (IEC 61508) – SIL2/3
ZC1, Certificate	C15	PMI 3.1 according to EN 10204

**SITRANS FC (Coriolis) 2023****Flowmeter systems****SITRANS FC720/FC740****Dimensional drawings***Drawings, dimensions and weight for FCS700 sensors*

## 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	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 b).

**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 L1 in mm (inch)	Weight in kg (lb)	DN 150 L1 in mm (inch)	Weight in kg (lb)	DN 200 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

**SITRANS FC (Coriolis) 2023****Flowmeter systems****SITRANS FC720/FC740****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)
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	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)
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	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)	Weight in kg (lb)	L1 in mm (inch)
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

## 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 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 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

**SITRANS FC (Coriolis) 2023****Flowmeter systems****SITRANS FC720/FC740****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)
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
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)

## Dimensional drawings (continued)

Process connection size and type	FCS700 sensor nominal size								
	DN 100	L1 in mm (inch)	Weight in kg (lb)	DN 150	L1 in mm (inch)	Weight in kg (lb)	DN 200	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

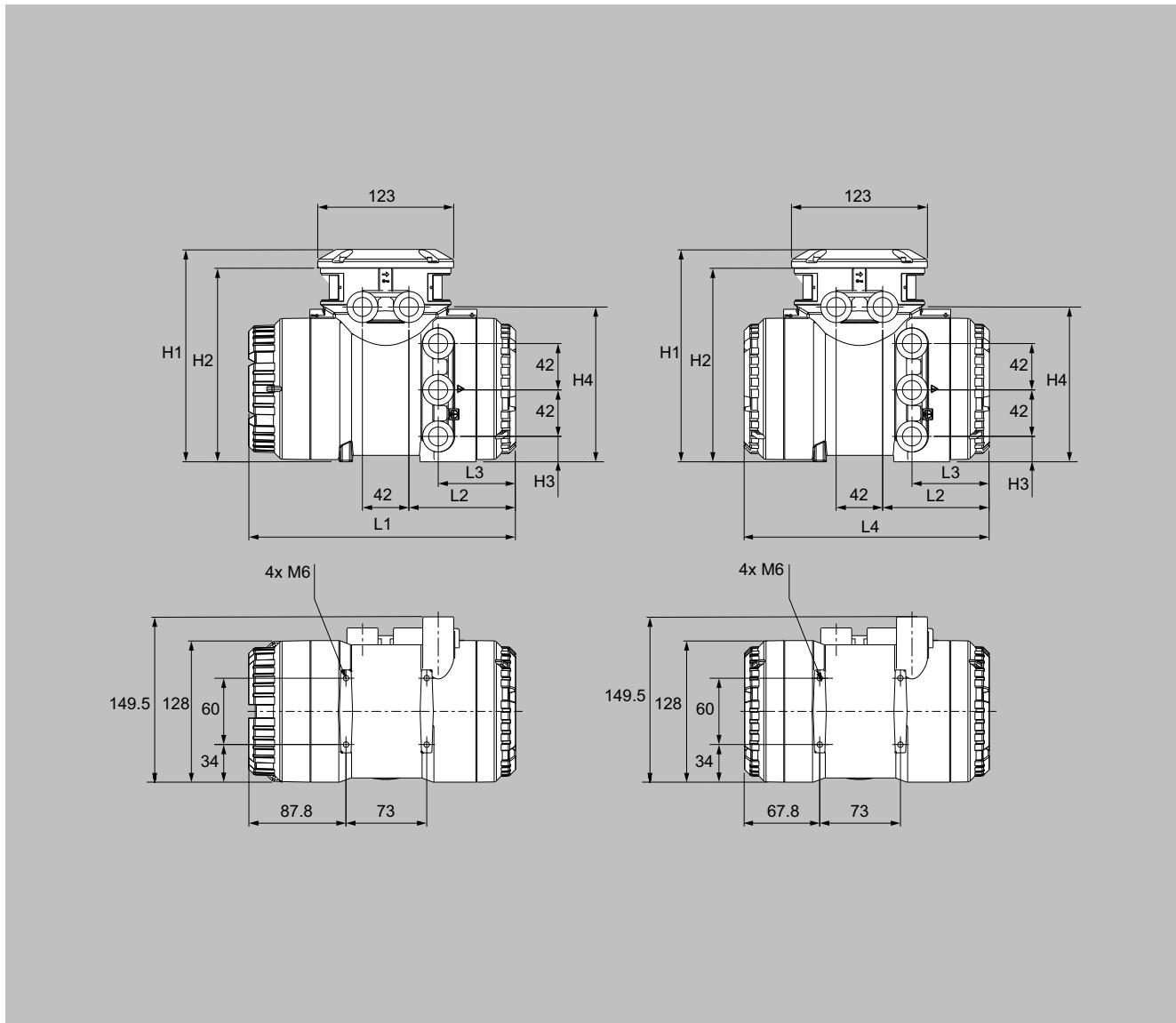
Process connection size and type	FCS700 sensor nominal size								
	DN 100	L1 in mm (inch)	Weight in kg (lb)	DN 150	L1 in mm (inch)	Weight in kg (lb)	DN 200	L1 in mm (inch)	Weight in kg (lb)
EN DN 125 PN 16, type B1, raised face (RF)	1 100 (43.3)	96 (212)		n/a	n/a	n/a	n/a		n/a
EN DN 125 PN 40, type B1, raised face (RF)	1 100 (43.3)	101 (222)		n/a	n/a	n/a	n/a		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		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		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 100	L1 in mm (inch)	Weight in kg (lb)	DN 150	L1 in mm (inch)	Weight in kg (lb)	DN 200	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		n/a
JIS DN 100 20 K	1 100 (43.3)	94 (208)		n/a	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		n/a
JIS DN 125 20 K	1 100 (43.3)	101 (222)		n/a	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 100	L1 in mm (inch)	Weight in kg (lb)	DN 150	L1 in mm (inch)	Weight in kg (lb)	DN 200	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		n/a
JIS DN 125 20 K	1 100 (43.3)	103 (228)		n/a	n/a	n/a	n/a		n/a

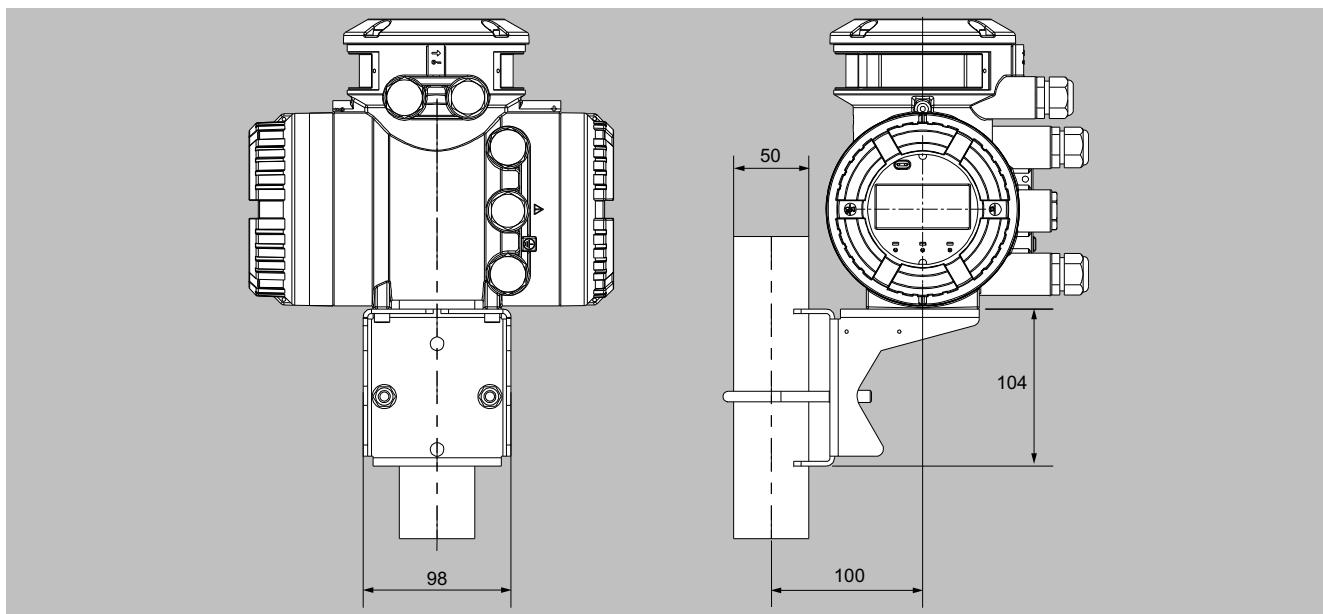
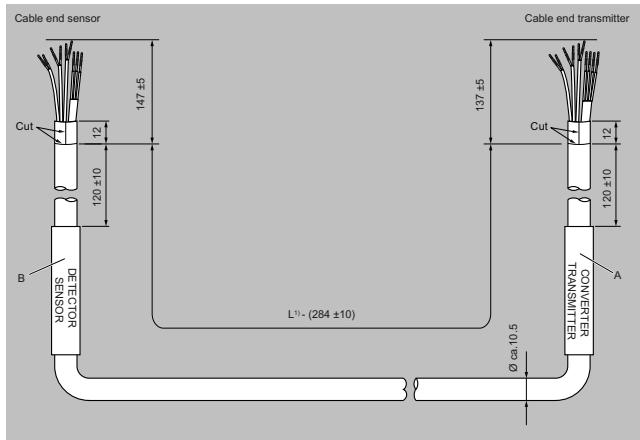
**SITRANS FC (Coriolis) 2023****Flowmeter systems****SITRANS FC720/FC740****Dimensional drawings (continued)***Drawings, dimensions and weight for FCT020 and FCT040 transmitters*

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)

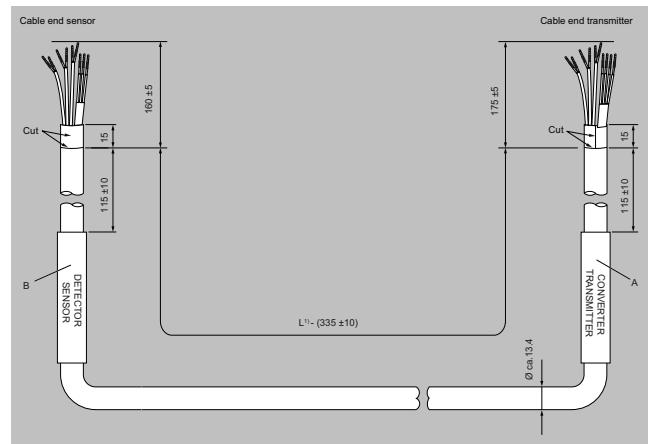
## Dimensional drawings (continued)

**Connecting cable dimensions and weights**Standard cable

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

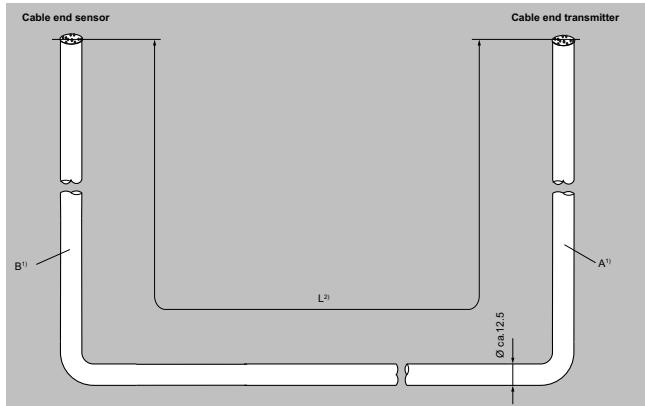
Option code	Cable length, L	Cable color
L51	5 m (16.4 ft)	Non-Ex: gray / Ex: blue
L54	10 m (32.8 ft)	
L57	15 m (49.2 ft)	
L60	20 m (65.6 ft)	
L63	30 m (98.4 ft)	

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)	

**SITRANS FC (Coriolis) 2023****Flowmeter systems****SITRANS FC720/FC740****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  $\leq$  0.270 kg/m (0.181 lb/ft)