

Flowmeter Product Portfolio

Magnetic Flowmeters



IMT30A, IMT31A and IMT33A



9500A



9600A



IMT25



9200A



9300A



8000A



8300



MAG2



IMT96



2800

Vortex Flowmeters



84C



84F



84W



84S

Coriolis Flowmeters



CFT51



CFS10 and CFS20



CFS25

Magnetic Flowmeters

Our complete magnetic flowmeter family, including MagPLUS, sets an industry standard for wide-ranging excellence.

The Flexible Solution for Most Flows

Magnetic flowmeters are designed to fit a wide range of applications, including water, slurries, chemicals, pharmaceuticals, and foodstuffs, in a wide range of industries. Foxboro magnetic meters are a reliable flow measurement solution with a lower cost of ownership and maintenance, with field-proven stability to maximize the availability of flow measurement.

For most applications, a Foxboro magnetic flowmeter with DC excitation is the ideal solution.

This efficient system comprises a Foxboro flanged body, wafer body, or sanitary magnetic flowtube coupled to an intelligent magnetic flow transmitter.

Our transmitters boast such desirable features as automatic/manual empty tube pipe detection, bidirectional measurement, contact inputs for remote operability, and relay outputs for alarm functionality. You also receive flexible configuration to fit your control scheme, easy programming, and durable, modular construction.

In addition, our new MagPLUS flowmeters provide continuous diagnostic and self-tests, with the capability to identify coating and corrosion of the electrode, or change of flow profile. A new, unique feature is also available with MagPLUS, the virtual reference grounding. With the virtual grounding, electrodes or rings can be left out, simplifying and reducing installation costs while eliminating the risk of the accuracy being affected by an unstable ground on site.

Our flowtubes are available in a wide range of sizes (0.1" to 80", 3 mm to 2,000 mm) with an extensive variety of industrial and sanitary options.

These flowtubes can be used with most conductive fluids, including hard-to-handle liquids and slurries. Retained, reinforced PFA liners withstand even severe process temperature swings to 204°C (400°F) and process pressures from full vacuum to 51 bar (740 psi).

You also get a wide variety of mounting options, line sizes, and configurations.





The Breakthrough Technology for Your Toughest Flow Problems

Foxboro flow expertise stretches from the process industry's first mag flow system in 1954 to DC pulsed mag transmitters in 1983. Today, we are developing even better answers for your flow future.

Only one magnetic flowmeter solves your most challenging flow problems. With AC excitation, the Foxboro MagEXPERT™ IMT96 squelches noise and boosts performance on your worst flows such as slurries, cement, or pulp and paper applications.

The MagEXPERT uses the Foxboro's patented eX-Pulse coil excitation method to create a strong measurement signal, coupled with optimum noise reduction capability and fast speed of response.

The result is a clean, accurate, and reliable measurement where solids or additives generate unacceptably high process signal noise, including chemical additives, slurries, and high-consistency or pulsating flows.

Like most Foxboro flow solutions, MagEXPERT provides online, intelligent diagnostics and help, simple, menu-driven software configuration, compatibility with A/C 2800 flowtube, high accuracy and fast response, plus durability and ease of use.

Our revolutionary MagEXPERT IMT96 flowmeter is the only solution specifically designed for your greatest flow challenges.



Need some help to select the right magnetic flowmeter for your process? Visit www.FlowExpertPro.com for easy sizing and selection.

Selection Guide

Magflow Flowmeters



Model	MagPLUS 9500A IMT30A / 31A / 33A	MagPLUS 9600A IMT30A / 31A / 33A
Applications	Water & Wastewater Industry, Power Industry	Sanitary Flowmeter used for Food & Beverage, Pharmaceutical, Cosmetics
Size	1" to 80"; DN25 to DN2000	1/10" to 6"; DN2.5 to DN150
Accuracy	0.5% to IMT30A (above 0.5 m/s) 0.3% ±1 mm/s... IMT31A 0.2% ±1 mm/s... IMT33A	0.5% to IMT30A (above 0.5 m/s) 0.3% ±1 mm/s... IMT31A 0.2% ±1 mm/s... IMT33A
Liners	Hard rubber, Polyolefin (PO)	Reinforced PFA
Electrode Material	Hastelloy C, Stainless Steel, Titanium	Hastelloy C and B2, Stainless Steel, Titanium, Tantalum, Platinum, Tantalum-Tungsten
Fittings	EN 1092-1, JIS, ASME B16.5, AWWA	DIN 11850 / 11866, DIN 11851, DIN 11864-2A, DIN 32676, ISO 2037, ISO 2852, SMS 1145, Tri-Clamp
Temperature Range	-5°C to +80°C / +23°F to +176°F	-40°C to +140°C / -40°F to +284°F
Minimum Conductivity	5 µS (water ≥ 20 µS/cm)	5 µS
Communication Protocols	4-20 mA, HART, FF ¹ , Modbus	4-20 mA, HART, FF ¹ , Modbus
Certifications and Approvals	ATEX, IECEx, FM, CSA, NEPSI KTR, ACS, DVGW, NSF 61 and WRAS Drinking Water Approvals	CSA 3-A Sanitary Approval
Specific Features	Virtual Grounding option Continuous device and process diagnostics	Continuous device and process diagnostics
Specifications*	9500A PSS 1-6H4 A IMT30A PSS 1-6H3 A IMT31A PSS 1-6H2 A IMT33A PSS 1-6H1 A	9600A PSS 1-6H5 A IMT30A PSS 1-6H3 A IMT31A PSS 1-6H2 A IMT33A PSS 1-6H1 A



9200A / IMT25

Standard Application in the Process Industry

1/2" to 78"; DN15 to DN2000

±0.5% of reading

Neoprene, Linatex, EPDM
Ebonite, PTFE

Hastelloy C,
Platinum-Iridium,
316L SST, Titanium,
Tantalum

ANSI, EN 1092-1, AWWA

PTFE liner:
-20°C to +100°C / -4°F to +212°F
EPDM:
-10°C to +70°C / +14°F to +158°F
Neoprene:
0°C to +70°C / +32°F to +158°F
Linatex Rubber:
-40°C to +70°C / -40°F to +158°F
Ebonite:
0°C to +95°C / -32°F to +203°F

5 µS

4-20 mA, HART

FM, CSA

9200A PSS 1-6F10 A
IMT25 PSS 1-6F5 A

9300A / IMT25

General Purpose Flowmeter for Chemical and Process Industry

1/2" to 16"; DN15 to DN400

±0.25% of reading (1/2" to 6")
±0.5% of reading (8" to 16")

Retained PFA, PTFE,
Polyurethane (PU)

316L SST (conical option),
Hastelloy C (conical option),
Platinum-Iridium, Titanium,
Tantalum-Tungsten

ANSI, EN 1092-1

PFA liner (depending on size):
-40°C to +180°C / -40°F to +356°F
-40°C to +120°C / -40°F to +250°F
PTFE liner
-40°C to +180°C / -40°F to +356°F
Polyurethane liner:
-29°C to +71°C / -20°F to +160°F

5 µS

4-20 mA, HART

FM, CSA

9300A PSS 1-6F F
IMT25 PSS 1-6F5 A

¹ FF = FOUNDATION Fieldbus.

* Please use this term in our search window on www.schneider-electric.com to access more product details.

Selection Guide

Magflow Flowmeters

(continued)



Model	8000A / IMT25	8300 / IMT25
Applications	General Purpose Wafer Flowmeter for Chemical & Process Industry	Water, Slurries, and Sticky, Abrasive, and Highly Corrosive Processes
Size	1/16" to 6"; DN1.6 to DN150	1/2" to 36"; DN15 to DN900
Accuracy	±0.25% of reading (1/2" to 6") ±0.5% of reading (1/16" to 1/4")	±0.5% of reading
Liners	Ceramic, retained PFA	Neoprene, PTFE, Polyurethane
Electrode Material	316L Stainless Steel (conical option), Hastelloy C (conical option), Platinum-Iridium, Titanium, Tantalum-Tungsten	316L Stainless Steel (conical option), Hastelloy C (conical option), Tantalum-Tungsten, Titanium, Platinum-10% Iridium
Fittings	Wafer (flangeless) Sanitary with Tri-Clamp End Connections	ANSI, EN 1092-1
Temperature Range	Ceramic liner: -40°C to +204°C / -40°F to +400°F PFA liner: -40°C to +180°C / -40°F to +356°F	PTFE liner (depending on size): -40°C to +180°C / -40°F to +356°F -18°C to +82°C / 0°F to +180°F Polyurethane liner: -18°C to +71°C / 0°F to +160°F Neoprene liner: -18°C to +82°C / 0°F to +180°F
Minimum Conductivity	5 µS	5 µS
Communication Protocols	4-20 mA, HART	4-20 mA, HART
Certifications and Approvals	FM, CSA, 3-A Sanitary Approval	FM, CSA
Specific Features		
Specifications*	8000A PSS 1-6F2 A 8000A Sanitary: PSS 1-6F2 C IMT25 PSS 1-6F5 A	8300 PSS 1-6F2 B IMT25 PSS 1-6F5 A



2800 / IMT96 MagEXPERT

MAG2

Tough Application Flowmeter for Slurries,
Pulp Stock and Non-uniform Solids

2-Wire Flowmeter for Water & Wastewater
Applications and Chemical Industry

1/2" to 36"; DN15 to DN900

Wafer body: 1" to 4"; DN25 to DN100
Flanged body: 1/10" to 8"; DN2.5 to DN200

±0.50% of rate (1/2" to 12")
±1.0% of rate (14" to 36")

±0.50% of rate

Neoprene, PTFE,
Polyurethane

PFA

316L Stainless Steel (conical option),
Hastelloy C (conical option),
Platinum-Iridium, Titanium,
Tantalum-Tungsten

Hastelloy C-276,
Platinum-Iridium,
316L Stainless Steel, Titanium,
Tantalum, Nickel Zirconium

ANSI, EN 1092-1, AWWA

ANSI, EN 1092-1, Wafer

PTFE liner (depending on size):
-40°C to +180°C / -40°F to +356°F
-18°C to +82°C / 0°F to +180°F
Polyurethane liner:
-18°C to +71°C / 0°F to +160°F
Neoprene liner:
-18°C to +82°C / 0°F to +180°F

-20°C to +100°C / -4°F to +212°F

2 µS

10 µS

4-20 mA, HART

4-20 mA, HART

FM, CSA

ATEX, FM, CSA, NEPSI

Loop-Powered, 2-Wire Operation

2800 PSS 1-6B5 A
IMT96 PSS 1-6F8 A

MAG2 PSS 1-6G3 A

* Please use this term in our search window on www.schneider-electric.com to access more product details.

Vortex Flowmeters

The 84C vortex flowmeter with temperature compensation is the best solution for mass flow measurement of saturated steam or custom liquids, reducing the cost of ownership.



The Industry's Most Popular Vortex Meter Choice

Foxboro's 84 Series intelligent vortex flowmeters are proven to be the best choice for meeting many of the accuracy, dependability, and cost challenges your process can present.

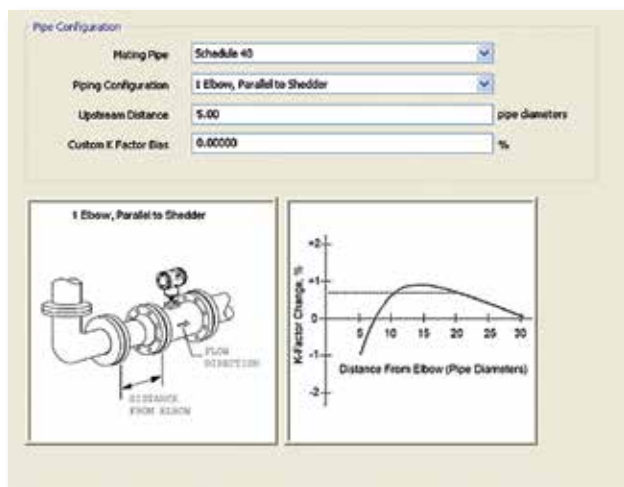
Forget about specifying different models for liquid, gas, and steam measurements. With the Foxboro vortex flowmeter, a single sensor design handles the majority of your measurement needs. And, with the introduction of the 84C having built-in temperature compensation for mass flow of saturated steam or custom liquids, the 84 family of vortex meters provides an even higher value solution for your measurement needs. Therefore, you simplify ordering, reduce inventories, and cut overall costs. Even after years of hard use, you continue to receive predictable, long-term, accurate performance, with a minimum cost of ownership.

Smart, Durable Design

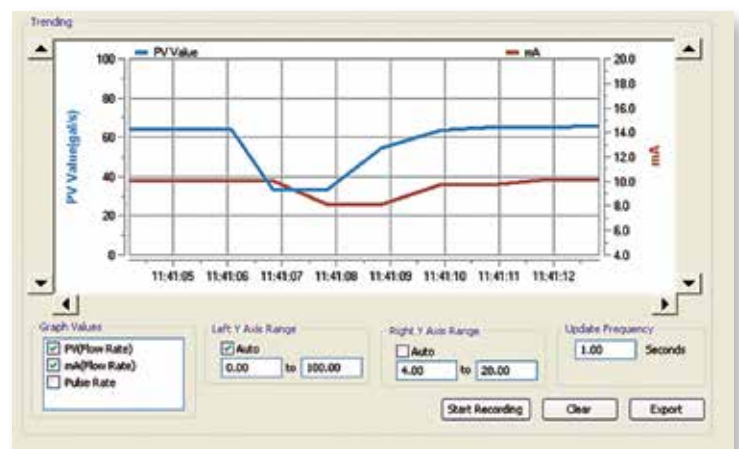
The patented shape of the shedding element has no moving parts to wear out and degrade accuracy.

The 84C, with built-in Pt1000 RTD temperature sensor, provides best-in-class accuracy for compensated mass flow of saturated steam.

Patented "Direct Sense™" vortex sensing places the sensor in the correct location for the widest rangeability and best low-flow performance. The toughened sensor (backed by a lifetime warranty) stands up to harsh processes, as does the rugged, epoxy-coated housing. An optional isolation manifold will allow you to replace the entire sensor assembly without shutting down your process.



Built-in configuration tools for real-world applications.



Trending you can customize.



Intelligence in Every Model

All Foxboro intelligent vortex flowmeters possess excellent low flow rate characteristics, wide rangeability, and online diagnostics. They also include a K-factor correction and compensation for piping effects to provide the most accurate measurement possible.

Like many Foxboro instruments, they can be remotely interrogated or configured by your choice of PC software based on FDT/DTM standard or any hand-held terminal using DD files.

A Choice of Versions

Our flanged-body and wafer-body vortex flowmeters measure liquid, gas, or steam at process temperatures up to 430°C (800°F). Our sanitary intelligent vortex flowmeter is 3-A authorized for applications that require crevice-free design to enable inline cleaning.

The 84S sanitary vortex flowmeter is suitable for hygienic applications and CIP cycles.



Searching for a great vortex meter? Look no further than Foxboro. Visit www.FlowExpertPro.com for help with sizing and selection of a vortex flowmeter that meets your liquid, gas, or steam flow measurement needs.

Selection Guide

Vortex Flowmeters



Model	84F	84F-NPT
Applications	Gas, Liquid, or Steam applications (clean single-phase fluid). General purpose flowmeter for virtually any process industry. Chemical, Oil & Gas, Energy Industries, Utilities.	Gas, Liquid, or Steam applications (clean single-phase fluid). Direct replacement for turbine, magnetic flow, and orifice meters. Chemical, Oil & Gas, Energy Industries.
Size	3/4" to 12"; DN15 to DN300	1" to 2"; DN25 to DN50
Accuracy	±0.5% of reading in liquids ±1.0% of reading in gas and steam	±0.5% of reading in liquids ±1.0% of reading in gas and steam
Flowtube Material	316 or 304 Stainless Steel	316 or 304 Stainless Steel
Fittings	Flange ANSI RF, ANSI RTJ, EN 1092-1	Male NPT threaded
Temperature Range	-20°C to +200°C / 0°F to +400°F +150°C to +430°C / +300°F to +800°F	-20°C to +200°C / -4°F to +400°F +150°C to +430°C / +300°F to +800°F
Communication Protocols	4-20 mA, HART	4-20 mA, HART
Certifications and Approvals	ATEX, IECEx, FM, CSA, NEPSI	ATEX, IECEx, FM, CSA, NEPSI
Specific Features		
Specifications*	(Style A) PSS 1-8A3 A (Style B) PSS 1-8A7 A	PSS 1-8A7 A



84W

Liquid, gas, or steam applications (clean single-phase fluid). General purpose flowmeter for virtually any process industry. Chemical, Oil & Gas, Energy Industries, Utilities.

3/4" to 8"; DN15 to DN200

±0.5% of reading in liquids
±1.0% of reading in gas and steam

316 Stainless Steel or Nickel alloy CW2M (equivalent to Hastelloy C-4C)

Wafer (flangeless)
Centering for ANSI Class 150, 300, 600 and Metric PN 63, PN 100; Centering for Metric PN 16 and PN 40; Centering for ANSI Class 600; Centering for Metric PN 16; Centering for Metric PN 40
Wafer (flangeless)
Centering for ANSI Class 150, 300, 600
Centering for Metric PN 16, 40, 63, 100

-20°C to +200°C / 0°F to +400°F
+200°C to +430°C / +400°F to +800°F

4-20 mA, HART

ATEX, IECEx, FM, CSA, NEPSI

PSS 1-8A3 A



84S

Liquid, gas, or steam applications (clean single-phase fluid). Hygienic design for Food & Beverage and Pharmaceutical sanitary applications. Wide range of temperature and pressure, ideal for CIP/SIP skid application.

2" to 3"; DN50 to DN80

±0.5% of reading in liquids
±1.0% of reading in gas and steam

316 Stainless Steel tube and 316L Stainless Steel shedder bar

3-A I-line coupling mates with Cherry Burrell 15 WI, SI (DIN 11851) coupling with external knuckle thread, per DIN 405, Part 1; RJT coupling per BS 1864, with external Whitworth thread, 6 TPI; 3-A Tri-clamp type quick-disconnect ferrule, mates with Tri-Clover 14 WMP or equivalent; ISS (ISO 2853) coupling with external Trapezoidal thread, 8 TPI

-18°C to +177°C / 0°F to +350°F

4-20 mA, HART

ATEX, IECEx, FM, CSA, NEPSI
3-A Sanitary certification, approved with no cracks or crevices wetted-parts

PSS 1-8A5 A



84C

Liquid, steam, or gas application (clean single-phase fluid). Utility metering of saturated steam in the process industries with integrated temperature compensation. Low-cost mass meter for liquid. General purpose flowmeter for virtually any process industry.

3/4" to 12"; DN15 to DN300

±0.5% of reading in liquids
±1.0% of reading in gas and steam
Mass flow rate accuracy of ±1.4% of reading in saturated steam

316 or 304 Stainless Steel

Flange
ANSI RF, ANSI RTJ, EN 1092-1
Wafer
Centering for ANSI Class 150, 300, 600
Centering for Metric PN 16, 40, 63, 100

-20°C to +200°C / 0°F to +400°F
+150°C to +260°C / +300°F to +500°F

4-20 mA, HART

ATEX, IECEx, CSA, INMETRO, EAC

Temperature compensated Vortex

PSS 1-8A8 A

* Please use this term in our search window on www.schneider-electric.com to access more product details.

Coriolis Mass Flowmeters

With single-path construction, our CFS10 flowtubes provide obstruction-free flow-through and positive cleaning. Clogging is virtually eliminated. The no-splitter design means process fluid is never damaged.

The Meter for Your Critical Process Flows

Foxboro's Coriolis flow transmitters handle measurements that cause other Coriolis meters to fail. They overcome problems associated with entrained gases, empty tube conditions, or flash-prone fluids and fully realize the promise of Coriolis measurement to achieve high accuracy, eliminate downtime, avoid workarounds, and keep profits flowing.

These Coriolis mass flowmeters comprise Foxboro CFT51 mass flow transmitters in conjunction with CFS mass flowtubes. They deliver highly accurate, direct measurement of mass flow, density, and temperature as well as total mass, volume flow, and concentration of mixtures (BRIX, baume, alcohol, and even customs). They are your meters of choice to measure the mass flow of conventional liquids — plus non-Newtonian fluids, viscous, abrasive, shear-sensitive fluids, slurries, and liquefied gases.

Our clean-in-place flowtube construction makes sanitary applications a specialty. Where competitive designs bend, Foxboro Coriolis flowtubes give just a slight twist. You get added insurance against metal fatigue.

CFS10: Single-path flow system available in sizes 1/8" to 2"

CFS20: Dual-path system available to 3"

CFS25: Lower cost, inline design flowtube for more general process applications available in sizes 1/5 to 3"

The Meter That Bursts the Entrained Air Bubble

There is one application type even the best Coriolis meters have trouble handling: fluids with entrained air bubbles. Even the smallest bubbles in the process fluid can seriously interrupt or even stall your measurement.

Finally, there is a Foxboro solution for even this formerly intractable difficulty. The CFT51 digital Coriolis mass flow transmitter bursts the entrained air bubble problem forever.





First to Find the Fix

The CFT51 solves the problem as nothing has done before. Foxboro's patented software-based system prevents the erratic liquid/gas flowtube vibrations that cause measurement failures, by maintaining a digitally precise process flow measurement — while simultaneously retuning the drive of the Coriolis flowtube every halfcycle of the drive frequency.

This completely eliminates air-induced interruptions or stoppages during two-phase events. You can measure from liquid to gas back to liquid and everything in between. This allows batch operations from an empty tube to a full tube, back to an empty tube, without ever waiting for a full flowtube. Result: no lost product or below-spec batches.

The CFT51 offers superior response times — better than ten times faster than other mass meters. It is ideal for small batches as well as small-volume proving. Nothing else on the market can successfully tackle these challenging applications. For cheese making, pulp & paper coatings, foaming fluids, tanker truck/railcar unloading, and more, turn to the astonishing CFT51 mass flow transmitter.

A Complete Net Oil Solution

Finally, when combined with an industry-leading flow computer, Foxboro Coriolis flowmeters offer a complete solution for liquid net oil measurement: NOCT60A. The NOCT60A Net Oil Coriolis Transmitter integrates digital Coriolis technology with Realflo® flow computation software and PLC-style logic to provide an all-in-one device for streamlined separation and allocation measurement, with auditable flow history data for regulatory compliance. It is the ideal solution for measurement from a 2-phase or 3-phase separator in upstream Oil & Gas applications. See PSS 1-2B6 A* for more details.

Our amazing CFT51: it handles the bubbles that can stop a conventional mass flowmeter in its tracks.



Visit www.FlowExpertPro.com to help with sizing and selection of this and other Foxboro meters.

* Please use this term in our search window on www.schneider-electric.com to access more product details.

Selection Guide

Coriolis Flowmeters



Model		CFT51 / CFS10
Applications		Mass Flow, Volume Flow, Density, and Temperature measurements of Liquids & Gases. 2-Component concentration measurement. Best 2-Phase continuous measurement capability — Applications in Food & Beverage, Pharmaceuticals, Chemical, Power, Oil & Gas Industries. Custody transfer applications also.
Size		1/8" to 2"; DN3 to DN50
Accuracy	Liquid	±0.10% of flow rate plus flowtube zero instability
	Gas	±0.50% of flowrate plus flowtube zero instability
	Density	±0.0005 g/cc or better
Flowtube Material		AISI Type 316L Stainless Steel, Nickel alloy equivalent to Hastelloy C-22
Fittings		ANSI, EN 1092-1, DIN 11851, BS4504, Tri-Clamp, Threaded ANSI B2.1
Temperature Range		-200°C to +180°C / -328°F to +356°F
Communication Protocols		HART, Modbus
Certifications and Approvals		ATEX, IECEx, FM, CSA 3-A Sanitary approval
Specific Features		Custody transfer (NTEP / Industry Canada) Concentration measurement (Brix, Baume, %Solute, Proof, Custom)
Specifications*		CFT51 PSS 1-2B7 C CFS10 PSS 1-2B1 A



CFT51 / CFS20

Mass Flow, Volume Flow, Density, and Temperature measurements of Liquids & Gases.
 2-Component Concentration measurement.
 Best 2-Phase continuous measurement capability —
 Applications in Food & Beverage, Pharmaceuticals, Chemical, Power, Oil & Gas Industries. Custody transfer applications also.

1.5" to 3"; DN40 to DN80

±0.10% of flow rate plus flowtube zero instability

±0.50% of flowrate plus flowtube zero instability

±0.0005 g/cc or better

AISI Type 316L Stainless Steel, Nickel alloy equivalent to Hastelloy C-22

ANSI, EN 1092-1, BS4504, Tri-Clamp, Threaded DIN

-200°C to +180°C / -328°F to +356°F

HART, Modbus

ATEX, IECEx, FM, CSA
 3-A Sanitary approval

Custody transfer (NTEP / Industry Canada)
 Concentration measurement
 (Brix, Baume, %Solute, Proof, Custom)

CFT51 PSS 1-2B7 C
 CFS20 PSS 1-2B1 A



CFT51 / CFS25

Mass Flow, Volume Flow, Density, and Temperature measurements of Liquids & Gases.
 2-Component Concentration measurement.
 Applications in Power, Chemical, Oil & Gas Industries.

1/2" to 3"; DN15 to DN80

±0.10% of flow rate plus flowtube zero instability

±0.50% of flowrate plus flowtube zero instability

±0.0005 g/cc or better

AISI Type 316L Stainless Steel

ANSI B16.5, DIN EN 1092-1, Female thread BSPP, Female thread

-60°C to +150°C / -76°F to +302°F

HART, Modbus

ATEX, IECEx, FM, CSA

Concentration measurement
 (Brix, Baume, %Solute, Proof, Custom)

CFT51 PSS 1-2B7 C
 CFS25 PSS 1-2B3 A

* Please use this term in our search window on www.schneider-electric.com to access more product details.

Selection Guide

Flow Technologies



Model	Coriolis	Magnetic
Technology		
Type of Measurement	Linear mass flow measurement Density measurement	Linear volumetric flow measurement
Liquids		
Clean Liquid	Good	Good
Dirty Liquid	Good	Good
Corrosive Liquid	Limited	Good
Low Conductivity Liquid <5 μS	Good	No
High Viscosity	Good	Good
Gas		
Clean Gas	Good	No
Dirty / Corrosive Gas	Limited	No
Steam	No	No
Special Applications		
High Temperature	Limited	Limited
Low Temperature	Good	No
Low Velocity	Good	Good
Abrasive Slurries	Limited	Good
Fibrous Slurries	Good	Good
Dual-phase / Emulsion	Good	Limited
Specifications		
Accuracy	0.1% to 2%	0.2% to 2%



Vortex

dP

Linear volumetric flow measurement
Mass flow measurement for steam
and liquids

Square root volumetric flow
measurement

Good

Good

Limited

Limited

Limited

Limited

Good

Good

No

No

Good

Good

Limited

Limited

Good

Good

Good

Limited

Limited

Limited

No

No

No

No

No

No

No

No

0.5% to 1%
1.4% for saturated steam mass flow

0.5% to 3%