



ElveFlow Flow Sensor Comparison

Thermal Time-of-Flight or Coriolis Based Sensor?



WPI offers ElveFlow flow sensors in two types: o\

- One based on thermal conductivity technology (Microfluidic Flow Sensors, MFS)
- One based on the Coriolis principle (Bronkhorst Flow Sensors, BFS).

Both sensors have pros and cons based on your application needs that are summarized in the table below. This table will help you choose the best sensors depending on your application and your budget.

FLOW SENSORS COMPARISON	BFS (1 & 1+)	MFS	BFS 2	MFS 6+
Accuracy (" (for water)	2% of measured value (BFS1) 0,2% of measured value (BFS1+)	10% of measured value (MFS1) 5% of measured value (MFS2 to 5)	0.2 % of measured value	5% of measured value
Range (for water)	One sensor from 0 to 3.3 mL/min	Five sensors from 0 to 5 mL/min	One sensor from 0 to 33.3 mL/min	One sensor from 0 to 40 mL/min
Negative flow measurement	Yes	Yes	Yes	Yes
Supported fluid types	All without calibration (2)	All with calibration (2)	All without calibration (2)	All with calibration (2)
Response time	35 ms (3)	Down to 1 ms (4)	35 ms (3)	Down to 0.5 ms (4)
Flow sensor size	240 x 40 x 167 mm (5)	52 x 58 x 29 mm	240 x 40 x 175 mm (9)	47 x 58 x 29 mm
Internal diameter	250 pm	From 25 pm to 1.8 mm (6)	0.5 mm	1.4 mm
Internal volume	13 pL	From 1 pL to 80 pL (6)	450 pL	58 pL
Weight	2800 g	145 g	3100g (0)	130 g
Connectors	Swagelok	UNF 1/4-28 flat bottom	Swagelok	UNF 1/4-28 flat bottom
Suitable tubings	1/16"OD	1/16"OD	1/16" OD (11)	1/16" OD
Ingress protection	IP40	IP54	IP65	IP54
Wetted material	Stainless steel 316L or comparable	Glass / PEEK / FEP	Stainless steel 316L or comparable	Polyphenylene sulfide (PPS) / stainless steel 316L / epoxy-based adhesive
Technology	Coriolis	Thermal	Directly via USB to the computer	Thermal
Computer connection	Directly via USB to the computer	No direct connection to the computer (8)	Directly via USB to the computer	No direct connection to the computer(8)
Additional features	Temperature and density measurement		Temperature and density measurement	

Non contractual information, may be changed without notice

- 1 Accuracy depends on the value in the range
- 2 While respecting wetted material compatibility constraints
- 3 0.2 s at 98% to fill the tubing then 35 ms with temperature measurement
- 4 Depending on chosen digital resolution
- 5 Dimensions with mass block. Without mass block, the dimensions are: 130 x 32 x 155 mm
- 6 Depending on the sensor range
- 7 Weight with mass block. The weight without mass block is 800 g
- 8 Connection to the OB1, the pressure controller or to the MSR or Sensor Hub via M8 cable.
- 9 Dimensions with mass block. Without mass block, the dimensions are: 118 x 32 x 144 mm
- 10 Weight with mass block. The weight without mass block is 1100 g
- 11 1/8" OD on request