

Truflo® — UltraFlo® UF-500

Clamp-On Ultrasonic Flow Meter Sensor

ICON™ Corrosion-Free
PROCESS CONTROLS Instrumentation Equipment™

Flow | Total | RS485 | 4-20mA | Pulse | Alarm

**Ultra-Convenient,
Ultra-Simple,
Ultra-Versatile
— UltraFlo®**

truflo®



Convenience, Accuracy and Value in an Ultrasonic Flow Meter

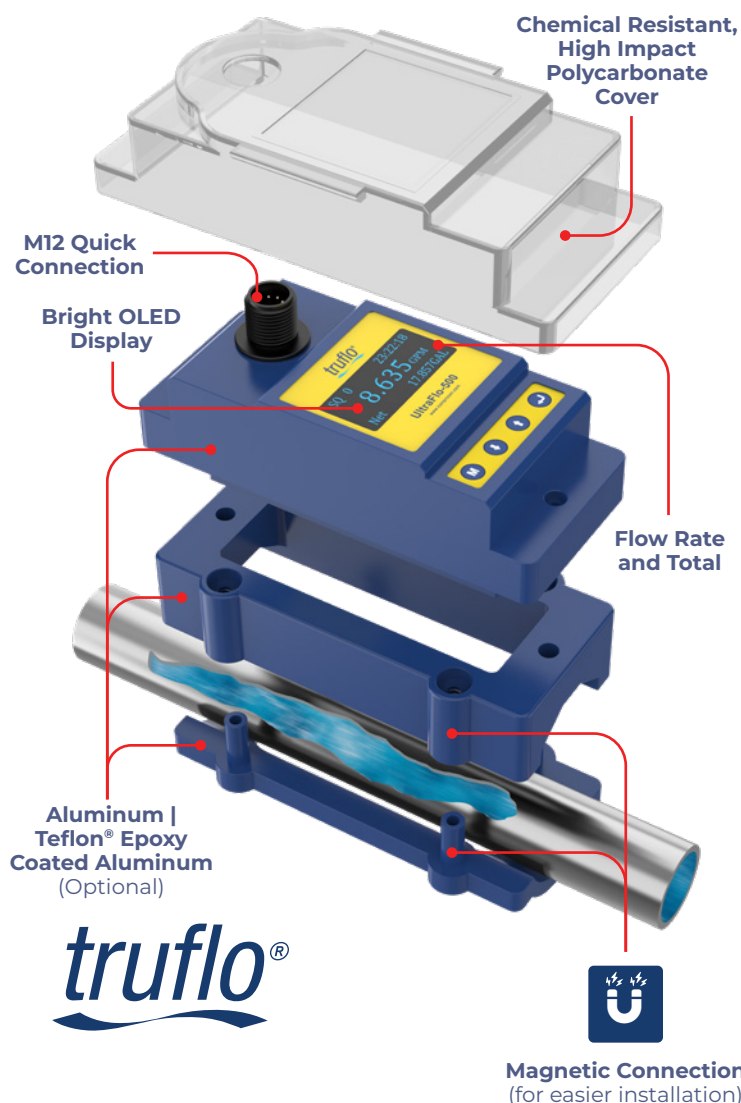
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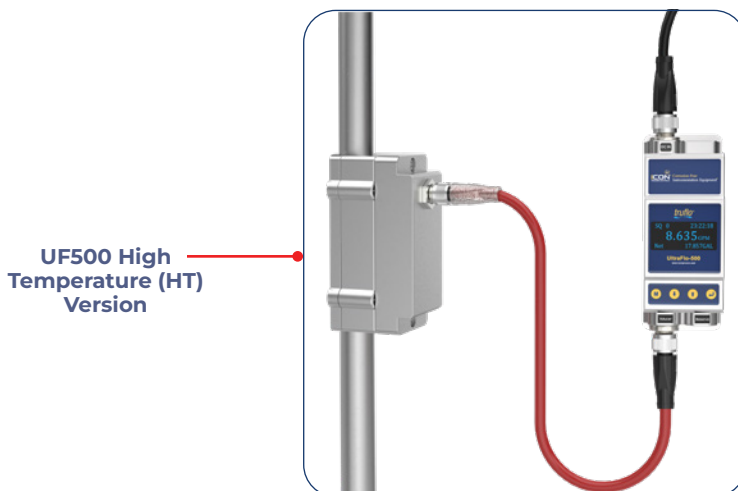
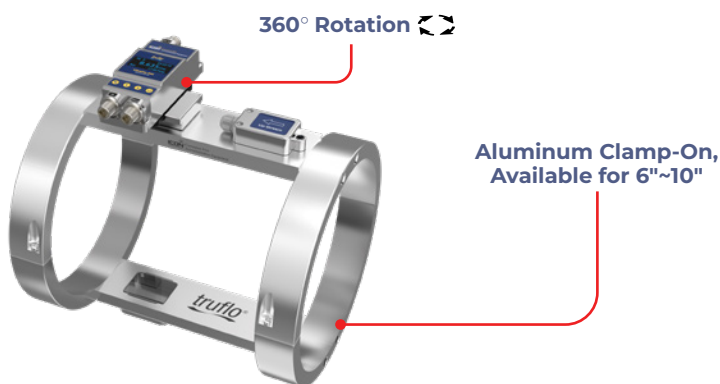
- ✓ Wide Dynamic Flow Range of 0.3 to 15 ft/s | 0.1 to 5 m/s
- ✓ High Accuracy | $\pm 2.0\%$
- ✓ Pipe Sizes $\frac{1}{4}$ " – 10"
- ✓ Under 2 Minute Installation Time
- ✓ No Contact with Liquid
- ✓ No Moving Parts
- ✓ Simple to Install — No Cutting of Pipe
- ✓ Output Options: 4-20mA | RS485 | Pulse | Alarm
- ✓ Flow Rate + Totalizer | Resettable
- ✓ Large Blue OLED Low Light Display
- ✓ Data Logging (Day | Month | Year)
- ✓ Suitable for RO | DI Systems



Convenience, Accuracy and Value in an Ultrasonic Flow Meter

The TruFlo® UF-500 series clamp-on ultrasonic flow meters are easy to install with exceptional long life performance and they require no alteration to current piping configurations.

The sensor sends over 50 pulses/sec in order to provide accurate measurement of liquid flow rates in full pipes and can be used in low pressure systems.



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Technical Specifications

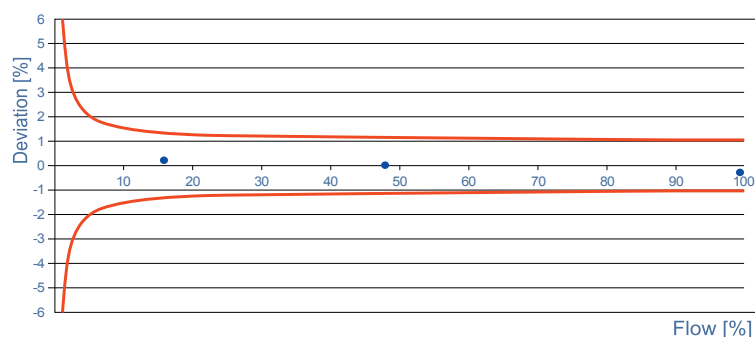
Standard Version		
Operating Range	0.3 – 15 ft/s	0.1 – 5 m/s
Pipe Size Range	¼" – 10"	DN8 – DN250
Temperature Range	14 ~ 122°F	-10 ~ 50°C
Repeatability	±0.8%	
Response Time	500ms	
Accuracy	±2.0% (0.5m/s ~ 5.0m/s)	
Output	4-20mA (Max. Load: 600 Ω) Pulse* Alarm*	
Communication	RS485 MODBUS	
Viscosity Range	<300 cSt (mm²/s)	
Power Supply	24VDC@3W	
Electrical Connection	M12	
Display	OLED 128 * 64 Dot Matrix	
Flow Units	Gal m³ L	
Totalizer	7-Digit Accumulator	
Housing Material	Aluminum Teflon® Epoxy Coated Aluminum	
IP Rating	IP54	
Standards & Approvals	CE RoHS Compliant	

*Optional

High Temperature Version		
Temperature Range	14 ~ 302°F	-10 ~ 150°C
IP Rating	IP65	
Housing Material	Aluminum	
Design	4-Component Design	

All other specifications follow the standard version configuration

Measuring Points



Other Considerations

Ensure Proper Installation

Proper installation plays a crucial role in ensuring the accuracy of the UF-500 flow meter. Any errors or misalignments during installation can lead to inaccurate measurements. The UF-500 is designed with ease of installation in mind. Installation time is typically less than two minutes.

Installation Location

Selecting an appropriate location away from disturbances such as bends, valves, or pipe irregularities is essential as it will affect the flow profile (see Page 6).

Flow Profile

The flow profile refers to the velocity distribution across the pipe's cross-section. If the flow profile is not uniform, the accuracy of the ultrasonic flow meter can be compromised. Factors such as bends, valves, or obstructions in the pipe can cause variations in the flow profile. The flow meter's accuracy can be improved by ensuring a smooth and fully developed flow profile (see Page 6).

Transducer Care

The transducers are the key components of an ultrasonic flow meter that emit and receive ultrasonic signals. The transducer surface should be free from air bubbles, dirt, or deposits which can interfere with the ultrasonic signal. Ensure that the pipe surface is clean and smooth.

Signal Interference

External factors can introduce signal interference, affecting the flow meter's accuracy. Electrical equipment, nearby machinery, or electromagnetic fields can disrupt the ultrasonic signals. Shielding the flow meter from these interferences or relocating it to a less disruptive environment can help mitigate inaccuracies caused by signal interference.

Pipe Conditions and Material

The condition and material of the pipe through which the liquid flows can impact the accuracy of the ultrasonic flow meter. Irregularities in the pipe, such as corrosion, scaling, or rough surfaces, can cause signal reflections or attenuations, leading to inaccuracies. It is important to regularly inspect the pipe and address any issues promptly to maintain accurate measurements.

PTFE

AL

PC



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Outside Diameter Range

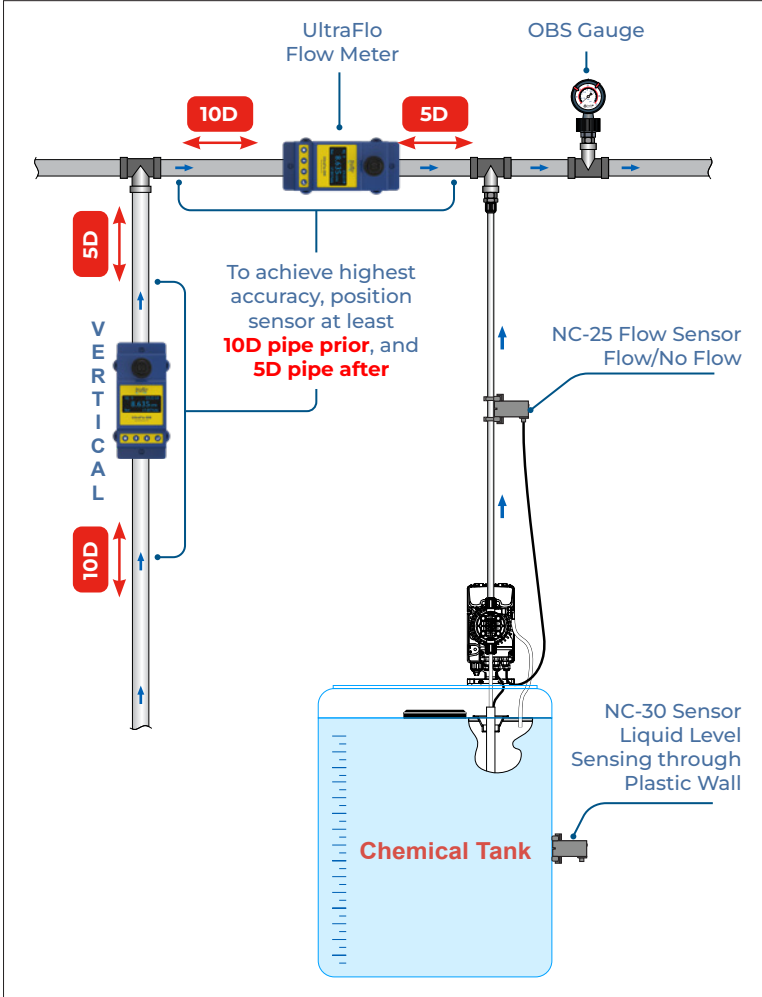
Size		¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	6"	8"	10"
OD Range (mm)	OD min.	9	15	15	21	28	36	44	52	66	80	100	142	196	250
	OD	12.7	15	20	25	32	40	50	63	75	90	110	150	200	250
	OD max.	15	21	21	28	36	44	52	66	80	95	115	169	223	277

Rated Flow Range

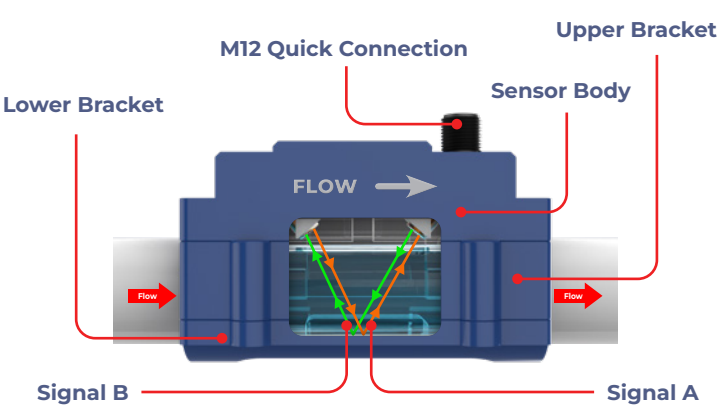
Operating Velocity Range: 0.1 to 5.0 m/s (accuracy rated from 0.5 to 5.0 m/s)

Size		¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	6"	8"	10"
Flow Range (L/min)	Min.	0.44	0.57	0.92	1.36	2.71	4.24	6.8	9.54	14.8	21.8	36.5	246	479	801
	Max.	30	50	70	150	200	330	460	700	1030	1360	2170	5957	10490	16546
Flow Range (Gal/min)	Min.	0.13	0.13	0.26	0.35	0.70	1.10	1.81	2.51	3.92	5.77	9.64	65.16	126.36	211.34
	Max.	8.81	13.21	17.61	44.03	66.04	88.06	132.09	176.11	264.17	352.23	572.37	1571.82	2769.41	4372.05

Application Example



Working Principle



Model Selection

UltraFlo® 500 — Clamp-On Ultrasonic Flow Meter		
Size	Part Number	Material
¼"	UF500-A-08	Aluminum
⅜"	UF500-A-10	Aluminum
½"	UF500-A-15	Aluminum
¾"	UF500-A-20	Aluminum
1"	UF500-A-25	Aluminum
1¼"	UF500-A-32	Aluminum
1½"	UF500-A-40	Aluminum
2"	UF500-A-50	Aluminum
2½"	UF500-A-65	Aluminum
3"	UF500-A-80	Aluminum
4"	UF500-A-100	Aluminum
6"	UF500-A-150	Aluminum
8"	UF500-A-200	Aluminum
10"	UF500-A-250	Aluminum

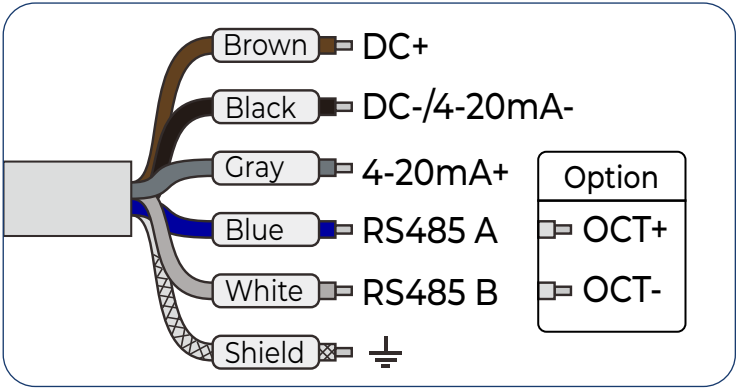
Add Suffix -
'P' - Pulse | Alarm Output
'HT' - High Temperature Version
'EC' - Epoxy Coated Aluminum

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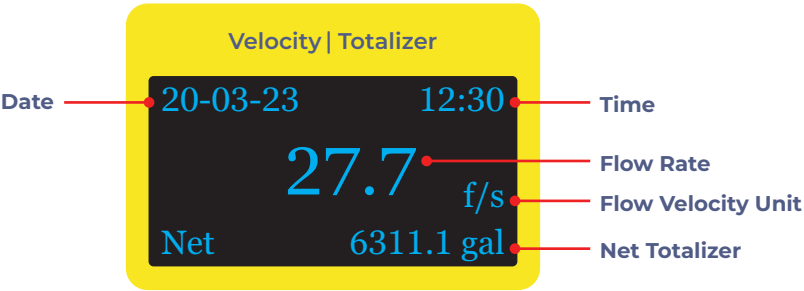
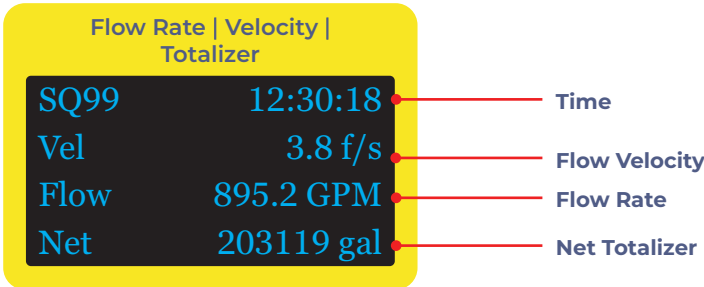
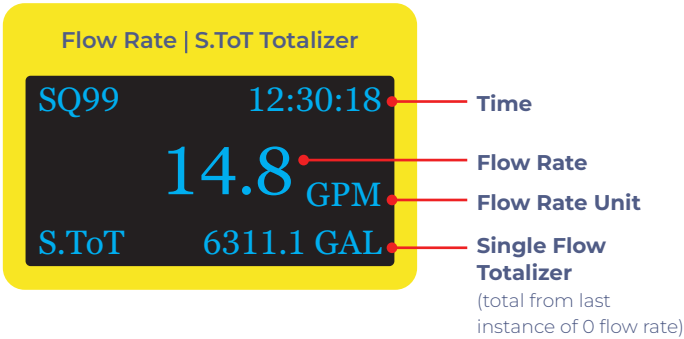
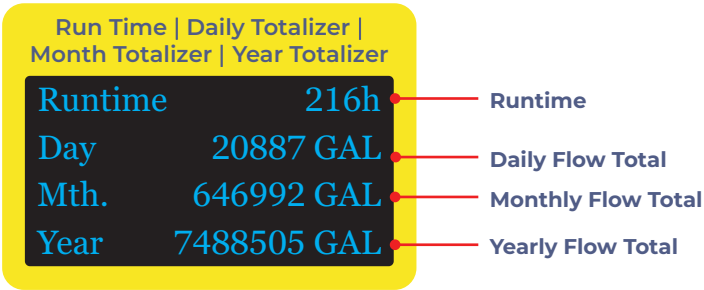
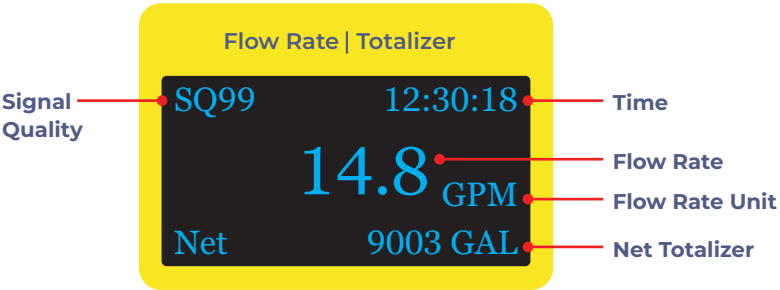
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Wiring Diagram

5-Pin M12 A Coded		
Pin	Wire Color	Description
1	Brown	+VDC
2	Blue	RS485A
3	Black	-VDC / mA-
4	White	RS485B
5	Gray	mA+



Main Display Layout

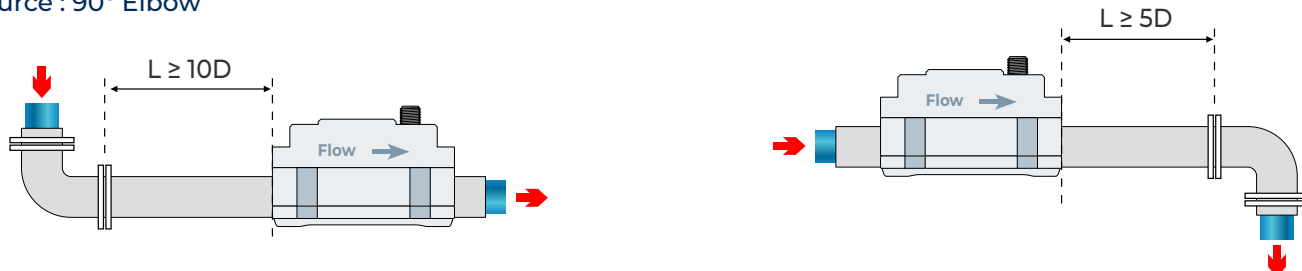


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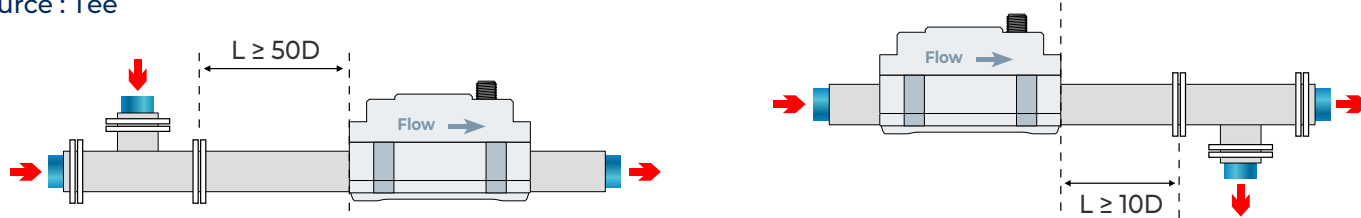
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Installation Positions

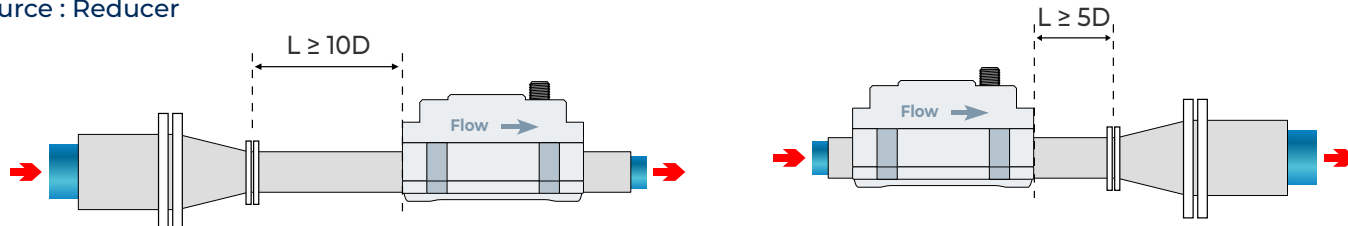
Source : 90° Elbow



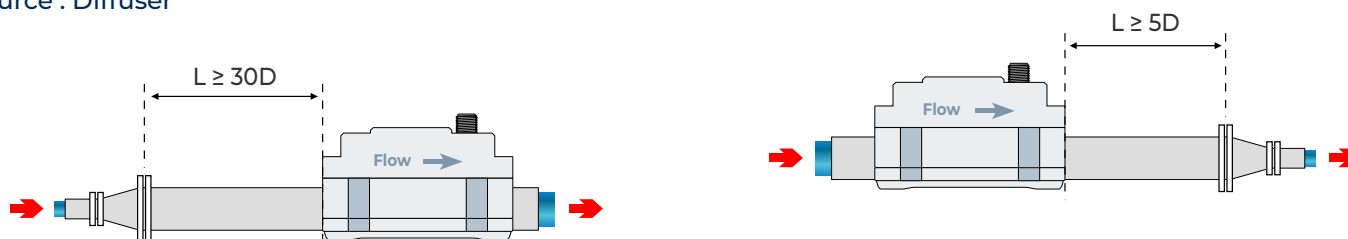
Source : Tee



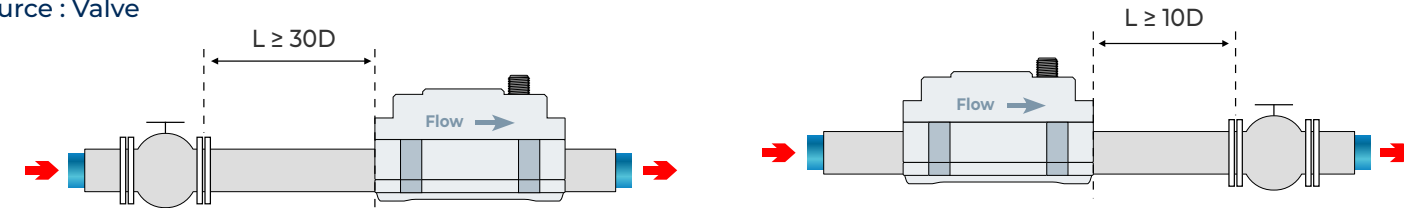
Source : Reducer



Source : Diffuser



Source : Valve



D = Pipe Diameter