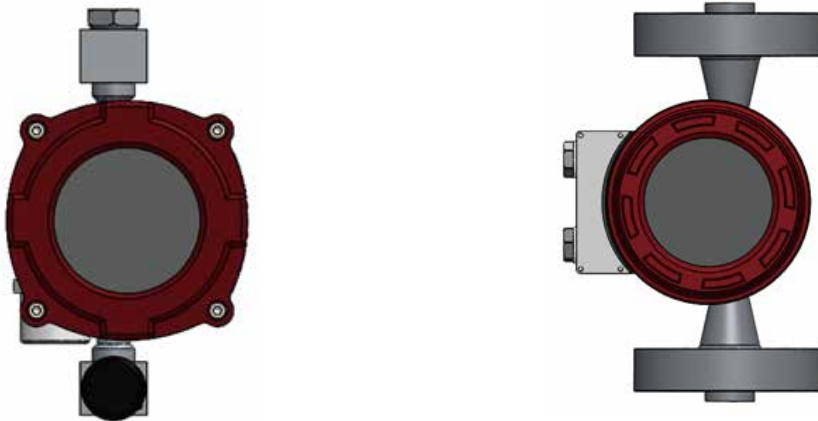


MTF VARIABLE AREA FLOW METER FOR MICROFLOW

Summary

MTF Micro Flow Variable Flow Meter can measure the micro flow of liquid or gas, with stable and reliable measurement and wide range of applications. This instrument can be widely used in petrochemical, oil refining, fertilizer, iron and steel, pharmaceutical and other industries for micro flow measurement, pipeline purging and process control.

MTF type micro flow variable area flow meter is divided into two structural forms: one is 10C type, suitable for low, fluid and high pressure, instrument range is 1-20 L/h (20 °C water), the transmitter can be MTF-A/M TF-B / MTF-TF-C/M TF-D type; the other is 10S type, suitable for low pressure, flow measurement range is 4-120 L/h (20 °C water), the transmitter can be MTF-A/M TF-B type, the instrument is equipped with fine tuning valve, convenient for users to set the specific flow.



Operating Principle

The measuring device includes a measuring tube in which the float can move freely up and down, the medium is bottom up through the measuring tube, the float self-adjusts to make the buoyancy A , pressure W and the float gravity G equal, namely $G=A + W$.

For the mechanical pointer display type, the measured flow rate corresponds to the position of the float in the measuring cone tube. Display the flow rate on the dial through the magnetic coupling structure. For the digital display type, the measured flow rate corresponds to the position of the float in the measuring cone tube, through the circuit conversion, and the 4-20 mA signal can be output.



Figure 1: Schematic Diagram of Instrument Operation

Note:

The flow meter is mainly composed of two parts: measuring device and indicator. According to the connection mode, it can be divided into vertical installation and horizontal side inlet and side exit.

Product Features

Solid, corrosion resistance

As the measuring pipe, the float is made of stainless steel metal material, it has a strong, corrosion resistance and other characteristics.

Flexible connections

It can be selected to connect with tube $\phi 6\text{mm}$, $\phi 8\text{mm}$, $\phi 10\text{mm}$ and $\phi 12\text{mm}$, or flange connection, the flange standard will be determined according to the requirements of users.

The output flow can be controlled

Can bring the inlet needle valve, control the outlet flow, can set a constant value.

Applicable to the situation with fluctuations

For cases where there are large pressure fluctuations at the inlet or outlet, a pressure regulator (constant flow valve) is available as an option to stabilize the flow at the outlet.

Display type

Mechanical pointer type, liquid crystal digital display, easy to read, liquid crystal digital display, can output 4-20 mA current signal.

Technical Parameters

Measurement Scope	20°C, water	0.1-120L/h
	20°C, 0.1013MPa air	1.2-3600L/h
Fluid Viscosity	$\eta < 5\text{mPa}\cdot\text{s}$	
Range Ratio	10:1	
Accuracy	Standard: $\pm 4.0\%$, Special: $\pm 2.5\%$	
Tube material	Standard	304/316L
	Special	According to customer requirement
Fluid Temperature Scope	$-40 \leq T \leq 300^\circ\text{C}$	
Max Fluid Pressure	$\leq 69\text{Mpa}$	
Ambient Temperature	$-40^\circ\text{C} \leq T \leq 80^\circ\text{C}$ (当 $\leq -35^\circ\text{C}$ 时, 液晶无显示)	
Connection type	Standard Screw (thread)	NPT 1/4"
	Standard Tube Fitting	$\phi 6\text{mm}$, $\phi 8\text{mm}$, $\phi 10\text{mm}$, $\phi 12\text{mm}$
	Standard Flange	HG/T20615, HG/T20592
	Special	According to customer requirement
Output Signal	4 ~ 20mADC +HART	
Power Supply Inlet	M20x1.5 (inner thread), M12x1.5 (inner thread) or according to customer's requirement	
Enclosure Material	Cast aluminum	
Explosion Proof Type	Ex ia II C T5/T4 Ga Ex d II C T6/T5/T4/T3 Gb	
IP Rating	IP66	

Model Selection Table

Model	Code		Content							
MTF-	A		Pointer indicating type Variable Area Flow Meter							
	B		Digital display + remote transmission type Variable Area Flow Meter							
	C		Pointer indicating type + remote transmission type Variable Area Flow Meter							
	D		Pointer indicating type + remote transmission type+ Digital display Variable Area Flow Meter							
	10S		DN10, side in side out type							
	10C		DN10, bottom in and top out type							
		2		PN10						
		3		PN16						
		4		Class150						
		5		PN25						
		6		PN40						
		7		Class300						
		8		PN63						
		9		Other						
		N		Standard NPT1/4						
		6		Ø 6 Card set connection						
		8		Ø 8 Card set connection						
		10		Ø 10 Card set connection						
		12		Ø 12 Card set connection						
		F		Flange connection (caliber)						
		T		Special connection						
		/								
			2		Wetted material: 304					
			3		Wetted material: 316					
			4		Wetted material: 316L					
			5		Other					
			i		Intrinsically Safe Type					
			d		Explosion-proof Type					
			D	Fluid Temperature: $0 < T \leq 200^{\circ}\text{C}$						
			G	Fluid Temperature: $-40^{\circ}\text{C} \leq T \leq 0^{\circ}\text{C}$						
			S	$200^{\circ}\text{C} < T \leq 300^{\circ}\text{C}$						
			C	Annex horizontal installation						
MTF -	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Annex vertical installation

Model Selection Example

MTF-B10C3F / 2dDC is a micro flow variable flow meter, caliber is DN10, bottom in and top out type, digital display + remote transmission, nominal pressure is PN16, flange connection, wetted material is 304, explosive type, fluid temperature is $0^{\circ}\text{C} < T \leq 200^{\circ}\text{C}$, vertical installation.

Flow Table

Range Ratio 10:1, 100% Flow, Reference Condition: Water 20 °C, Air 20 °C-0.1013Mpa

Float number / cone tube number	Water Flow 【 L/H 】	Air Flow 【 L/H 】	Pressure Loss 【 kPa 】
F002	1	70	0.5
F004	2	112	0.7
F004A	2	112	0.9
F005	4	125	1
F005A	5	162	1.5
F010	6	232	1.9
F015	8	340	2.3
F030	11	435	2.5
F040	15	530	2.7
F080	20	660	3.6
F125	40	1250	4.2
F200	60	2000	8.5
F300	80	2500	11.7
F350	100	3400	16.6
F400	120	3600	18

Flow Valve Flow Parameter Table

Valve Feature	Valve Rob φ 【 mm 】	Water 【 L/H 】	Air 【 L/H 】
Taper Tube	φ 【 mm 】	【 L/H 】	【 L/H 】
F005-F010	1	30	955
F015-F080	2.5	150	5200
F125-F400	4.5	250	8800

(For use of 10S type)

Outline Drawing and Installation

1. MTF-10C Type Outline Drawing and Installation Dimension

The dimensions in the figure (see Figure 2) are the installation dimensions of standard instruments (when the nominal pressure is ≤ Class600). When the nominal pressure is >Class600, the installation dimensions of the instrument need to be determined according to the specific design.

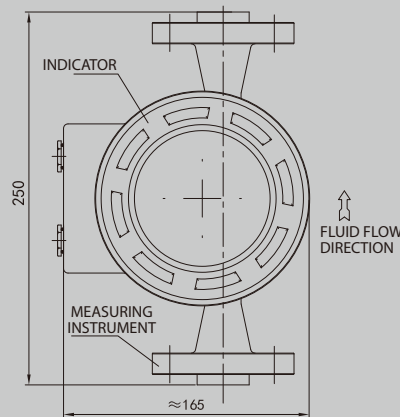


Figure2 MTF-10C Type Installation Outline Drawing

2. MTF-10S Type Outline Drawing and Installation Dimension

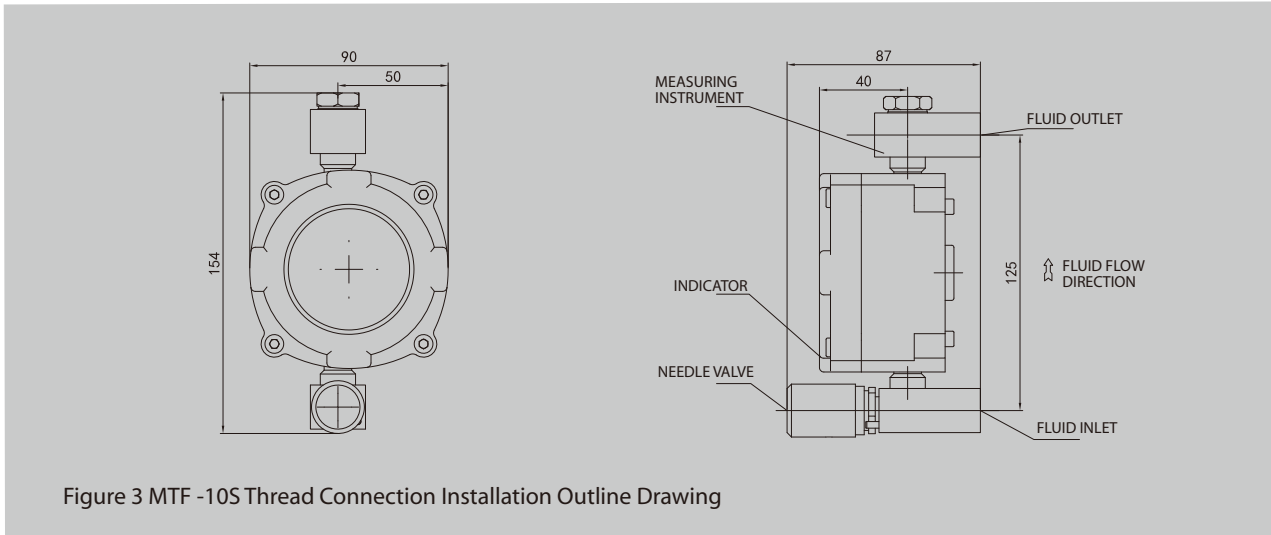


Figure 3 MTF -10S Thread Connection Installation Outline Drawing

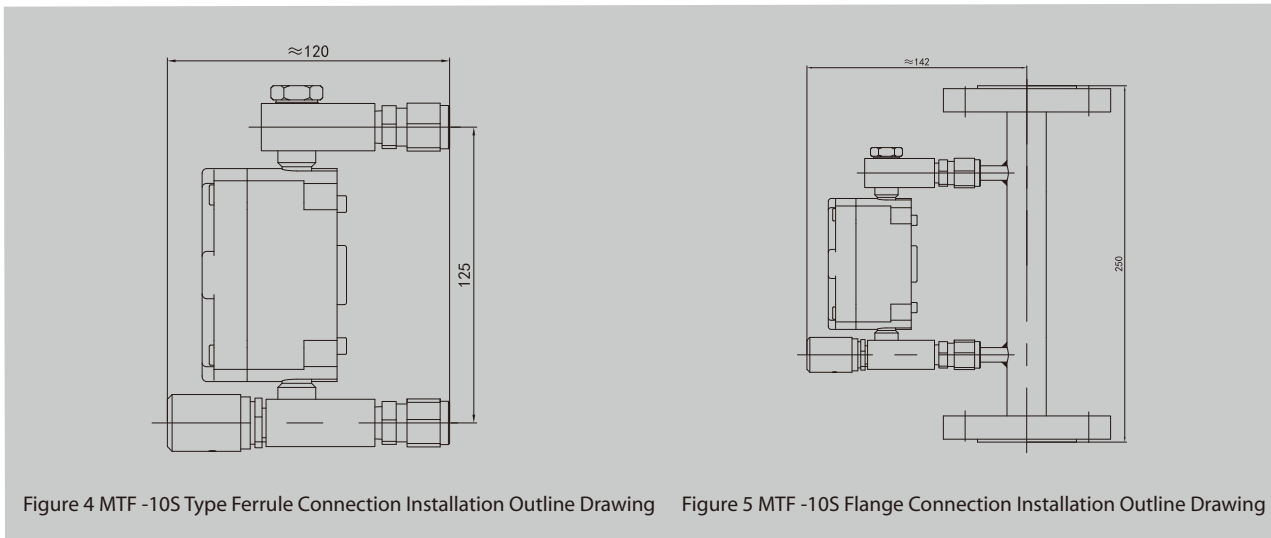


Figure 4 MTF -10S Type Ferrule Connection Installation Outline Drawing Figure 5 MTF -10S Flange Connection Installation Outline Drawing

Ordering Information

When ordering, please provide the following data

Fluid Name	
Working Pressure (no need to fill if fluid is liquid)	
Working Temperature (no need to fill if fluid is liquid)	
Density	
Production Range	
Connection standard	