

FMT700 Flange target flowmeter

APPLICATION

- Applicable pipe diameter range: $\Phi 10 \sim \Phi 2000$ to larger;
- Wide temperature range: $-196^{\circ}\text{C} \sim 500^{\circ}\text{C}$;
- Suitable for high/low pressure conditions: $0 \sim 42\text{MPa}$;
- Suitable for a variety of media: gas, liquid (including high viscosity liquid, slurry), steam;
- Suitable for low flow media, it can measure a minimum flow rate of $0.08\text{m} / \text{s}$.



OVERVIEW

FMT700 target flowmeter is a new type of capacitive force-inductive flowmeter developed on the basis of traditional target flowmeters with the development of new sensors and microelectronics technology. It has both orifice and vortex flow. It has the characteristics of no moving parts, high sensitivity, high accuracy compared with volumetric flow meters, and wide measuring range.

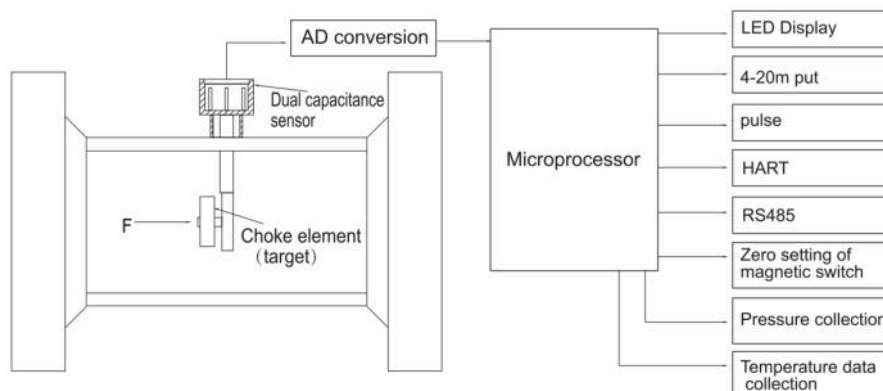
Using chip-level capacitive force sensor, the high-efficiency anti-overload structure design is the key core of the new product to achieve high precision and high stability.

MAIN FEATURES

- Measured medium: liquid; gas; steam
- Steam diameter: DN15 ~ DN3000mm
- Nominal pressure: $0.6 \sim 42\text{MPa}$
- Working temperature: $-196 \sim +500^{\circ}\text{C}$
- Accuracy: $\pm 0.2 \sim \pm 1.5\% \text{FS}$
- Measure ratio: 1:10
- Shell: carbon steel; stainless steel (or on request) (fluorinated)
- Power supply mode: built-in 3.6VDC lithium battery (changed once every two years, no signal output); external supply 24VDC (with signal output)
- Output signal: 4 ~ 20mA two-wire system; pulse 0 ~ 1000HZ; Hart, RS232 / RS485
- Protection level: IP65 IP67
- Explosion-proof mark: intrinsic safety type ExiIICT4; explosion-proof type ExdIICT4
- Connection method: flange, clamp, thread, etc.
- The head shows: cumulative flow; instantaneous flow; working temperature; fault self-test, working condition pressure (temperature and pressure compensation type only); rod full scale percentage;

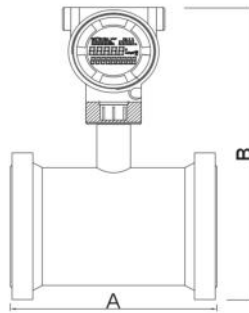
WORKING PRINCIPLE

When the medium flows in the measuring tube, the pressure difference is generated by its own kinetic energy during flowing the blocker (target) and has acting force to choke element which the magnitude of its action force is direct ratio to the square of the medium flow velocity. The acting force F received by the choke element (target) is transmitted to the dual capacitance sensor through the rigid connecting transmitter (measuring bar). The capacitor light generated by the dual capacitance sensor is processed by the high precision AD chip, and the digital signal is output directly. Thus, after AD conversion and computer processing, the corresponding instantaneous flow and cumulative total amount can be obtained.



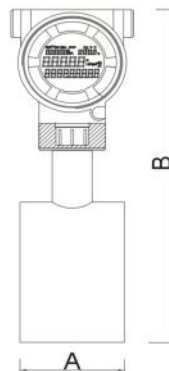
TYPICAL TYPE

• Flange type



DN(mm)	Total height		DN(mm)	Total height	
	A	B		A	B
15	150	360	125	200	480
20	150	360	150	200	490
25	150	370	200	250	580
32	150	370	250	250	630
40	200	390	300	250	680
50	200	400	350	250	730
65	200	430	400	250	780
80	200	450	450	250	830
100	200	470	500	250	880

• Clamp type

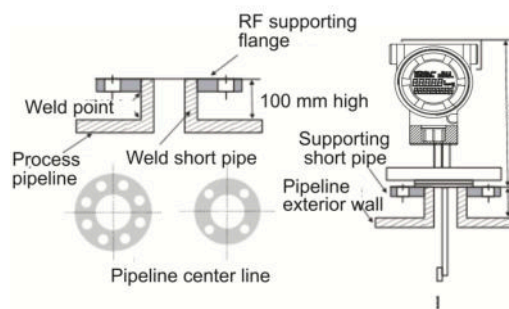


DN(mm)	Total height		DN(mm)	Total height	
	A	B		A	B
15	80	320	125	80	430
20	80	325	150	80	455
25	80	330	200	80	505
32	80	337	250	80	555
40	80	345	300	80	605
80	80	355	350	80	655
65	80	360	400	80	7055
80	80	385	450	80	755
100	80	405	500	80	805

• Plug in type



A. Stationary type



B. Online detachable type

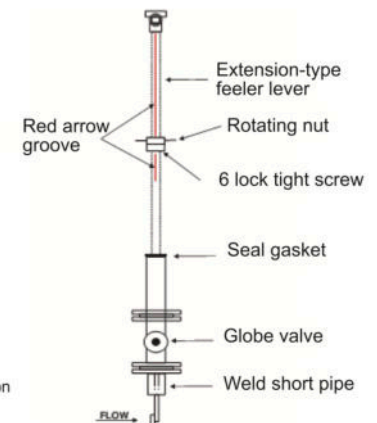


Fig. (5) Drawing of plug-in flowmeter short pipe construction and installation

• More type



APPLICATION

Gases:

gas, air, hydrogen, natural gas, nitrogen, liquefied petroleum gas, hydrogen peroxide, flue gas, methane, butane, chlorine, mixed gas, etc.

Liquid:

Heavy oil, paraffin, asphalt, sulfuric acid, edible oil, residue, acetone, diesel oil, mine water, detergent, soy sauce, gasoline, silicone oil, syrup, solvent, perfume, sea water, aviation kerosene, soapstone water, glucose, oleic acid, salt water, paste, ink, coolant, ethylene glycol, mineral oil, liquid sugar, hydrochloric acid, automotive paint, resin, butter, rapeseed oil, liquid oxygen, shampoo, toothpaste, gel, fuel oil, milk Bleach, conditioner, soda, additive, detergent, alkaline, ammonia, marine oil, chemical reagent, kerosene, glycerin, dye, water, nitric acid, high boiling point organic solution, lard, additive, alcohol, oil, ethylene, polypropylene, toluene, etc



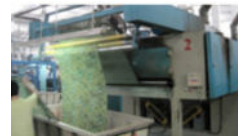
Sewage treatment



Desulfurization industry



Chemical Industry



Printing & dyeing



Electroplating industry

MODEL SELECTION POINTS

The correct type selection of target flowmeter can ensure the better use of target flowmeter. What kind of target flowmeter should be selected according to the physical and chemical properties of the measured fluid medium? The diameter, flow range and output mode of the target flowmeter can adapt to the properties of the measured fluid and the requirements of flow measurement.

1. Precision function inspection

Accuracy grade and function: select the accuracy grade of the instrument according to the measurement requirements and application occasions, so as to achieve economic efficiency. For example, for the occasions of trade settlement, product handover and energy measurement, the accuracy level should be higher, such as 1.0, 0.5, or higher; For the occasion of process control, choose different accuracy levels according to the control requirements; For some occasions where the process flow is only detected without precise control and measurement, you can choose a slightly lower accuracy level, such as level 1.5, level 2.5, or even level 4.0. At this time, you can choose the low-cost plug-in target flowmeter.

2. Measurable medium

When measuring medium flow rate, instrument range and caliber to measure general medium, the full-scale flow of target flowmeter can be selected within the range of 0.1-12m/s of measuring medium flow rate, with a wide range. The specification (caliber) of the selected instrument is not necessarily the same as that of the process pipeline, but should be determined according to whether the measured flow range is within the flow rate range, that is, when the flow rate of the pipeline is low and cannot meet the requirements of the flow instrument, or the measurement accuracy under this flow rate cannot be guaranteed, it is necessary to reduce the diameter of the instrument, so as to improve the flow rate in the pipe and obtain satisfactory measurement results.

