DYNAMETERS DMDFC Insertion Doppler Flow Meter

Series DMDFC Doppler Ultrasonic Flow Meters measure metal or plastic pipes with a certain amount of air bubbles or suspended solids.

Advanced technique allows this instrument to operate with high reliability and low maintenance. Insertion transducers permit the instrument to be installed without interrupting system pressure or flow.

In addition, no pressure loss is created. Therefore system pump horsepower requirements are reduced. The DMDFC transmitter has a full keypad designed for simple field setup and application versatility. The Two-line and eight characters LCD display for flow rate, total flow (resettable) in a variety of user selectable engineering units.

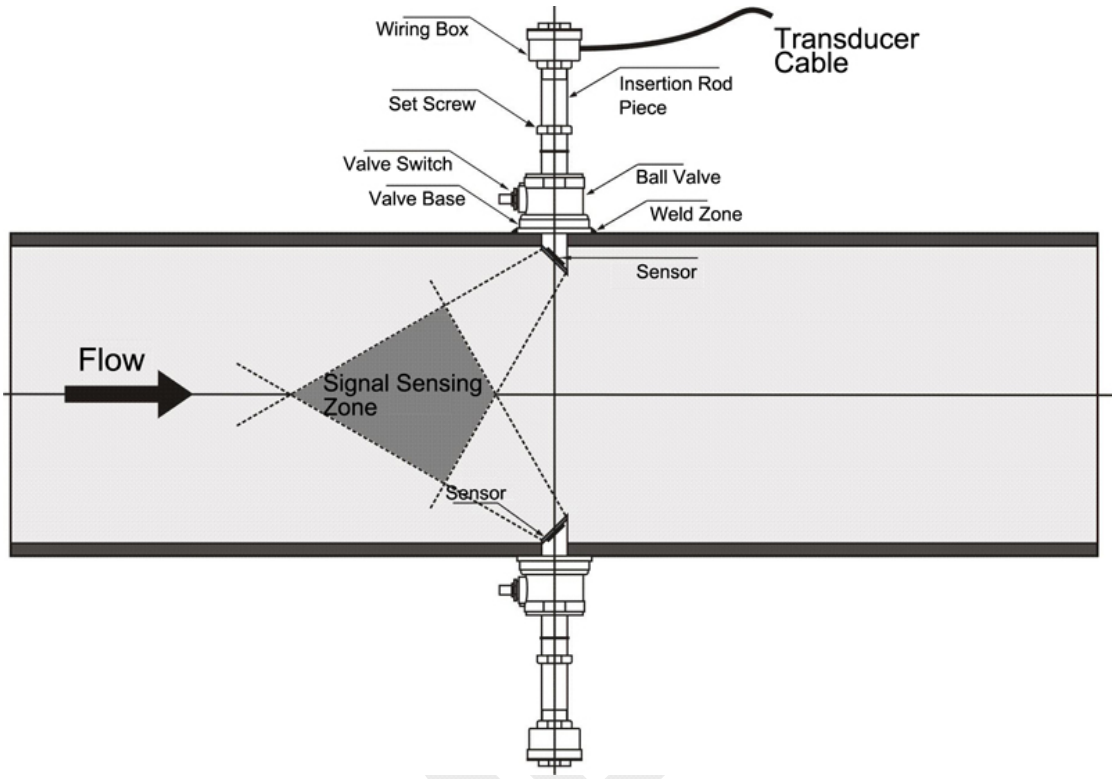
Features:

- The system can be field configured to pipe sizes ranging from 65 to 4000mm.
- Hot-tapped installation and demounted online, do not need to shut down the pipe flow when installing the transducers.
- Excellent low flow rate measurement ability, low to 0.05 m/s
- A wide range of flow measurement, high flow rate can reach 12m/s
- Automatically signal gain adjustment
- User-friendly configuration
- 4-20mA, Relays for totalizer and alarm outputs
- Accuracy: 2.0% Calibrated span

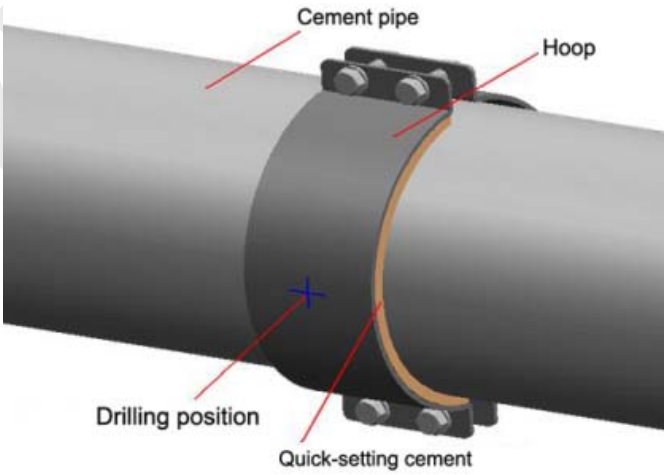
Applications:

- Raw sewage
- Activated sludge
- Ground water
- Pulp and paper slurries
- Chemical slurries
- Drainage
- Mining recirculation

When installing the insertion transducer, Hot-tapped installation and demounted online, do not need to shut down the pipe flow.



While the pipe can't be welded directly, such as cement pipe, ductile iron or other unweldable material, please notify manufacturer for extended transducers (wall thickness of pipe can be up to 110mm). In this case, it also needs to install a weldable (usually carbon steel) hoop shown as below.



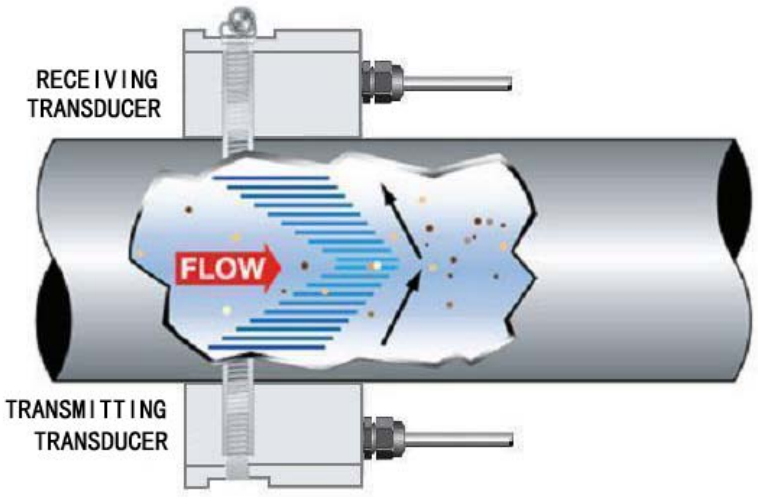
Installation Drawing of Weldable Hoop

Principle of Measurement

The Doppler ultrasonic flow meter is designed to measure volumetric flow of liquid within closed conduit, the pipe line must be full of liquids, and there must be a certain amount of air bubbles or suspended solids in liquid.

Transducers are clamp-on or hot-tapped insertion types, user don't need to shut down the pipe flow when install transducers.

The flow meter operates by transmitting an ultrasonic sound from its transmitting transducer, the sound will be reflected by useful sonic reflectors suspended within the liquid and recorded by the receiving transducer. If the sonic reflectors are moving within the sound transmission path, sound waves will be reflected at a frequency shifted (Doppler frequency) from the transmitted frequency. The shift in frequency will be directly related to the speed of the moving particle or bubble. This shift in frequency is interpreted by the instrument and converted to various user defined measuring units.



There must be some particles large enough to cause longitudinal reflection – particles larger than 100 micron.
When install the transducers, the installation location must have enough straight pipe length upstream and downstream. Commonly, the upstream needs 10D and downstream needs 5D straight pipe length, where D is pipe diameter.

Technical Parameters：

 Transmitter	Accuracy	0.5%～2.0%F.S.
	Flow Velocity Range	0.05m/s～12m/s
	Liquid Types	Liquids containing 100ppm of reflectors and at least 20% of the reflectors are larger than 100 micron.
	Transmitter	
	Enclosure	NEMA 4X [IP65], cast aluminum 260L×193W×80H(mm) 10.2L×7.6W×3.2H(inch)
 Standard Transducer	Power Supply	Standard: 100~240VAC, 50/60Hz ±5%, 5VA Max Optional: 12~28VDC, 2.5VA Max
	Display	2 line × 8 characters LCD 8-digit rate or 8-digit total (resettable)
	Response Time	User selectable: 0-99 seconds
	Outputs	4-20mA, Relays for Totalizer and alarm outputs
	Temperature	-40 to +70℃
 Extended Transducer	**Transducer**	
	Measuring Range	0.05m/s ～12m/s
	Type	Insertion (DN65-4000)
	Liquid Temperature	Standard: -40 to +121℃ Optional: -40 to +150℃
	Cable Length	Standard Lengths: 6m [20Feet] Optional Lengths: to 300m [990 Feet]
	Housing Material	Stainless Steel
	Protection Class	Standard: IP65 Optional: IP68, can work under water

Model Selection Table of DMDFC Flow Meter

MODEL DMDFC -X -X -DDC -X -X -DNX -X -X

Power supply
- A-110VAC
- B-220VAC
- E-24VDC
- S-Solar Supply

Output Selection
- N-None
- 1-4-20mA
- 2-Relay for Totalizer
- 3-Relay for Alarm

(Can select the three outputs at the same time)

Transducer Type
- 1- Standard Insertion (65～4000mm)
- 2- Extended Insertion (65～4000mm, wall thickness of pipe can be up to 110mm)

Liquid Temperature
- N- -40～121℃
- H- -40～150℃

Pipeline Diameter
- DN X – DN65, DN3000

Transducer Cable
- 6m - 6 meters straight cable (STD.)
- Xm - Common cable, Max 300m
- XmH - High temp. cable Max 300m

Work underwater
- 0- No
- 1- Yes

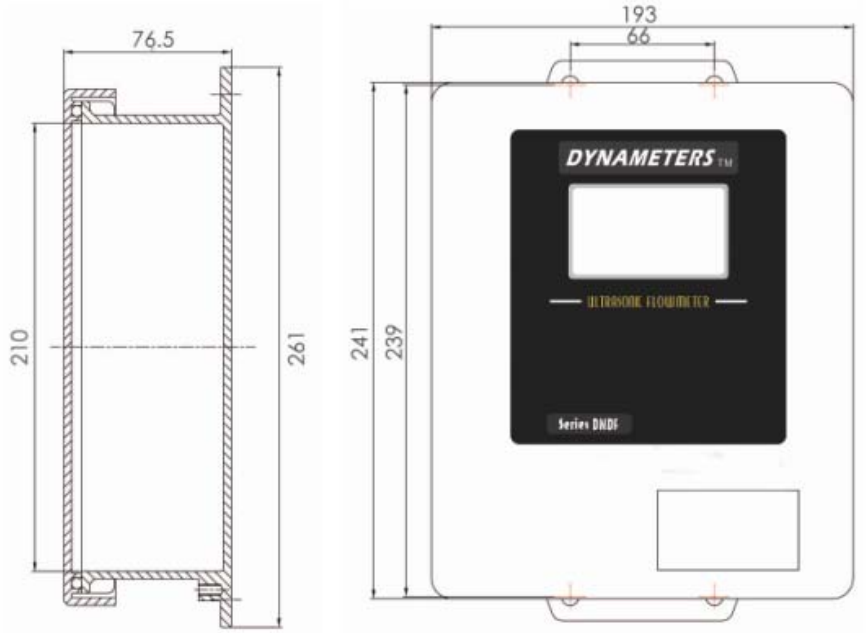
Selection example:

DMDFC-A-123-DDC-1-N-DN100-6m-0

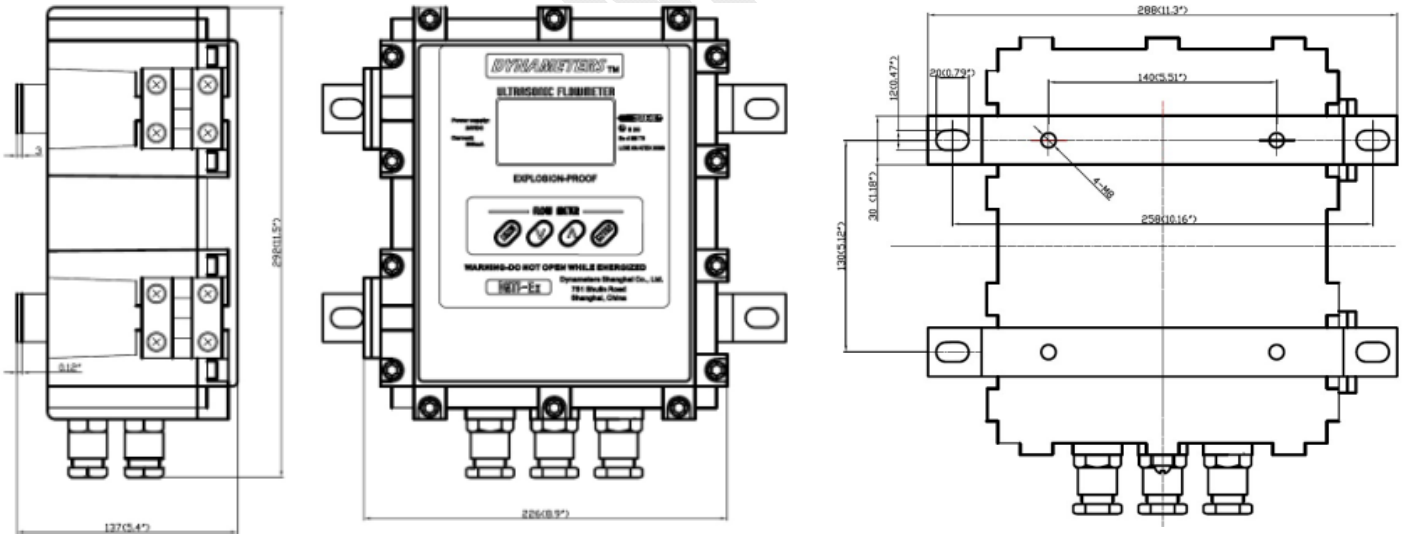
Description: DMDFC Doppler ultrasonic flow meter; 110VAC power supply; 4-20mA, Relays for Totalizer and alarm outputs; Standard Insertion Transducer; Liquid Temperature: -40 to 121℃; Pipeline diameter is 100mm, transducer cable length is 6m; don't need to work underwater.

Parts & Dimensions

Standard Transmitter: Conduit holes: M18×1.5.
Housing: NEMA 4 X [IP65], aluminum alloy diecasting.



Explosion-proof Transmitter: Conduit holes: M20×1.5, inner bore Φ8.5/10mm.
Housing: NEMA 4 X [IP65], aluminum casting alloy.



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