

Maximizing the efficiency of your liquid measurement processes in industrial applications

Oscillating Piston Flowmeters – 6600 and 6610 Model Best-in-class “every liquid” flowmeter

Fluidyne Oscillating Piston flowmeter series is the industry standard for flow measurement of liquids. Virtually unaffected by variations in density and viscosity of products makes them one of the best instruments in Chemical Processing, Life Sciences, Food and Beverage and Hydrocarbon process industries.

Fluidyne continues to refine the oscillating piston mechanism because it is one of the few Positive Displacement methods that has the lowest wear and as a result shows no drift after years of operation. The flowmeters are a result of cutting-edge research and development and can measure any liquid pushed through them seamlessly.



Overview

The Fluidyne Oscillating Piston meters are electronic type only and come in two variants – The 6600 series is dedicated for products like chemicals, solvents, liquid hydrocarbons, fuels, viscous liquids among other process liquids used in industry.

The 6610 was developed as a solution for precise water flow measurement in industrial applications. The 6610 is commonly utilized for measurement of DM/DI water, RO water, treated water, drinking water and chilled or hot water.

By the use of the single moving part i.e. the oscillating piston, Fluidyne flowmeters offer the same accuracy over a large turndown and provide same repeatability with viscous products at low flow rates. This is because of very low pressure drop (one moving part) and lower maintenance cost.

Fluidyne's oscillating piston design comprises of a rotor made of durable industrial plastic PEEK/PVDF/PPS options and is housed within a 3-piece closed end body configuration. This design is advantageous over standard rotary piston designs that cannot be used for flow rates greater than 50 LPM.

Fluidyne's flowmeter ensures reliable operation via seven sizes at flow rates as low as 10 ml/min and even at 1,200 LPM enabling customers realise their flow measurement objectives.

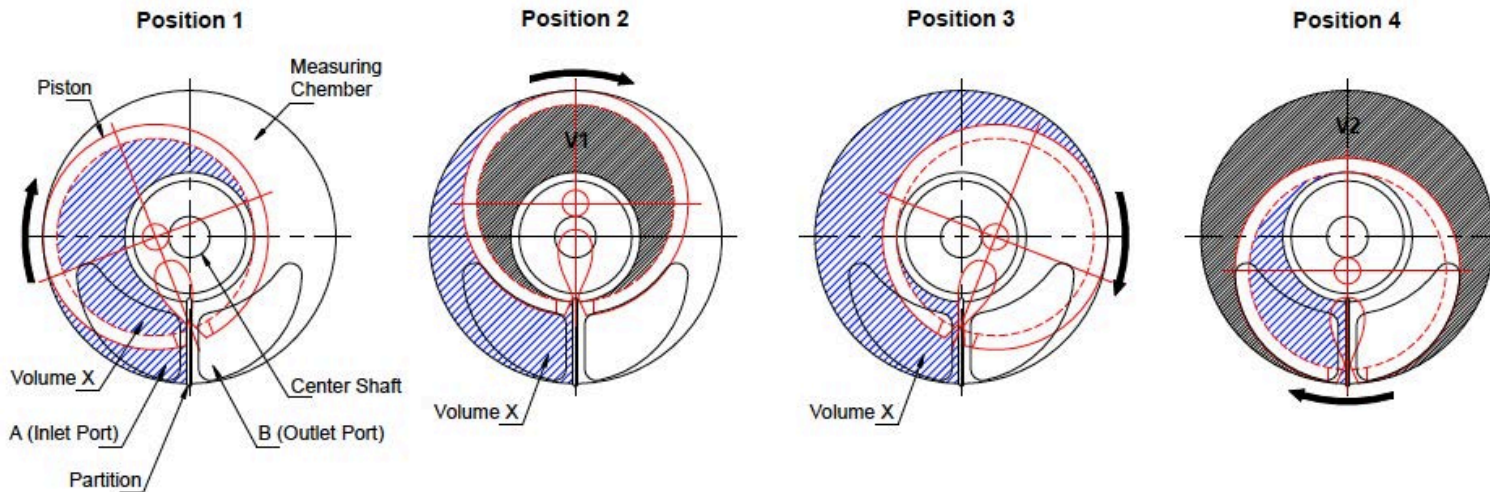
The advantages of our Oscillating Piston flowmeter are –

- Single moving part ensures very low pressure drop
- Low slippage because of self-adjusting movement of piston with respect to liquid viscosity
- No effect of changing density/temperature on measurement
- Low on maintenance
- Compatibility with 99.99% liquids
- Piston is easily accessible and serviceable
- Built-in strainer for primary protection
- Weatherproof and explosion-proof construction

Your benefits

- Accuracy – +/- 0.1% of measured volume
- Repeatability – Better than +/- 0.02%
- Lowest pressure drop in a Positive Displacement meter – 0.1 kg/cm²
- Turndown – 1:50, 1:100 (Premium Cal)
- Low wear and tear/maintenance due to single moving part
- Built in range of MOCs such as Aluminium, 316L, Alloy 20, Alloy C276 to suit any liquid application
- Virtually unaffected by changes in density and viscosity
- Range of output options such as 4-20 mA, configurable pulse output, Modbus
- Comprehensive alarms and fault detection with diagnostics
- The only PD flowmeter with built-in filter protection. Filters are 100 micron size and are reusable

Measurement Technology



- High Inlet pressure condition fills the Piston Inner cavity V1 which drives the piston in the direction of the arrow
- Volume X outside the Piston starts expanding

- The Piston Inner space V1 is completed filled and sealed off
- Due to the high pressure at the Inlet Piston continues to rotate in the direction of the arrow
- Volume X has further expanded

- Piston continues to move in the direction of the arrow
- Volume X further expands
- Piston inner cavity V1 connects with the Outlet causing the Volume V1 to flow out through the outlet

- Volume X fully expands to volume V2 and is sealed
- Liquid filling into the Piston inner cavity rotates the piston in the same direction
- As the Piston moves ahead showed in Position 1, Volume V2 connects with the Outlet
- For One revolution of the piston Volume V1+V2 is displaced from Inlet to the Outlet

The Positive Displacement principle is the only accurate method of flow measurement due to its **direct measurement of volume**. Volume is not inferred from velocity of liquid or mass flow rates as in inferential meters.

The Positive Displacement principle works by continuously separating the flow stream into discrete volumetric segments and precisely measuring this volume in a calibrated measurement chamber. These segment volumes remain the same no matter what the liquid for a certain size of Fluidyne PD meter. This correlation of piston movement to the calibrated volume is the calibration factor or 'k factor' which is adjusted as per the liquid to be measured by the flowmeter.

Total volume in flow stream = k factor * number of oscillations of piston

Design Highlights

SMART TRANSMITTER

Volume/mass flow modes.
4-20mA/ MODBUS/ PULSE
output. Comprehensive fault
detection & diagnostics

TRANSDUCER

Direct Pulse Output to
Transmitter

EASY ACCESS 3-PIPE CONSTRUCTION

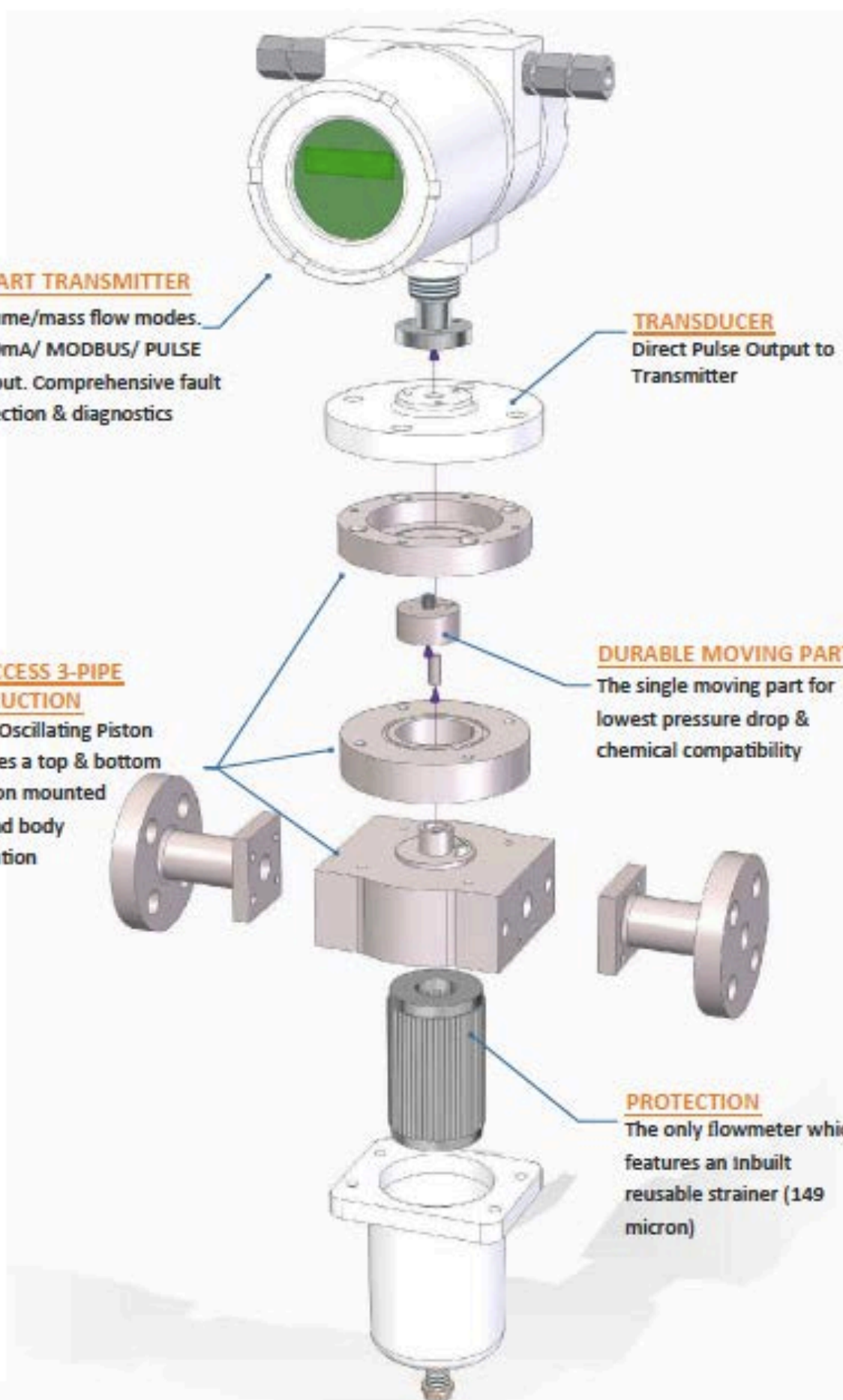
Fluidyne Oscillating Piston
meter uses a top & bottom
connection mounted
closed end body
configuration

DURABLE MOVING PART

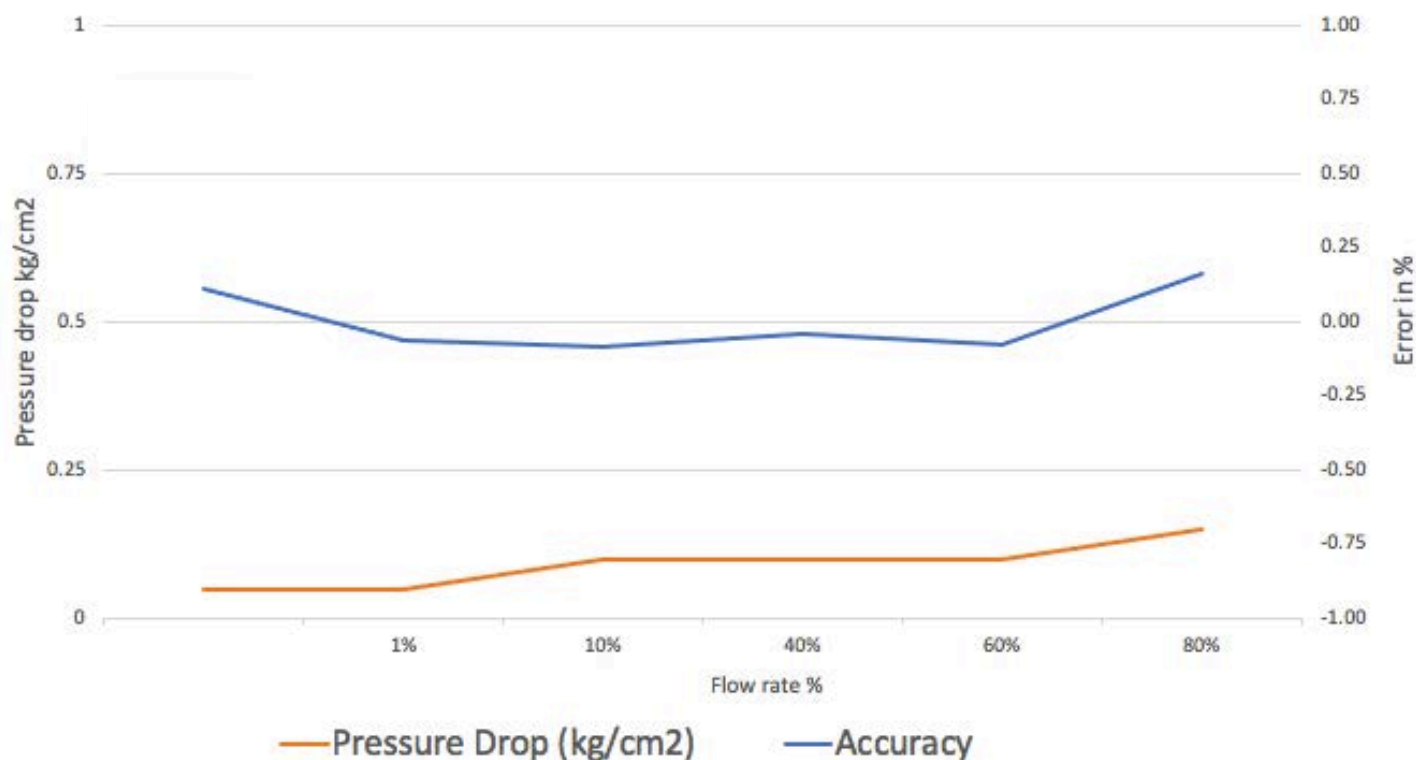
The single moving part for
lowest pressure drop &
chemical compatibility

PROTECTION

The only flowmeter which
features an Inbuilt
reusable strainer (149
micron)



Accuracy and Pressure Drop Curves



Accuracy and Pressure drop test conditions

Test liquid - Exxsol D-80, Density = 0.78-0.82

Flowmeter size – DN25

Approvals

Weights and Measures (India) – Class 0.5

Certificate No. – IND/09/21/953

PESO/ATEX – Ex d IIB T6 Gb, Ex db IIC T6 Gb

Certificate No. - A/P/HQ/MH/104/6946

Ingress Protection: IP66/67

Certificate No. – IN/CIMFR/TR21/146

Flowrange capacities

Connection size (inch)	Model No.	Calibrated flow range (LPH)
1/4"	6600 – 06	0.1-90
1/2"	6600 – 15	12-700
3/4"	6600 – 20	20-1500
1"	66x0 – 25	40 - 3000
1.5"	66x0 – 40	360 – 7200
2"	66x0 – 50	1000 – 12,000
3"	66x0 – 80	1000 – 36,000
4"	66x0 – 100	3600 – 60,000

Maximum working pressure

Flange (MOC)	ANSI flange (psi)	Pressure rating at 100 deg C (psi)
Mild Steel	150 RF	285
Mild Steel	300 RF	740
316L	150 RF	275
316L	300 RF	720
316L	450 RF	800

Strainers specification

Connection size (in)	Mesh	Micron
1/2"	100	149
1"	100	149
1.5"	100	149
2"	140	100
3"/4"	140	100

The above strainers are recommended to be put upstream of flowmeter as added protection

Working Temperatures:

Standard Option - -40 deg C to 150 deg C

Accuracy:

+/- 0.1% of measured volume

Repeatability:

Better than +/-0.02%

Working Pressures:

Standard Option – upto 50 bar

Process connections:

Standard: 1/2" to 4" Class 150 ANSI flange

Optional: 1/2" to 4" Class 300/450/600 flange, Triclover, NPT/BSPF

Materials of construction:

Body – Aluminium LM04/316L/Alloy 20Cb3/Alloy C276

Rotor – PEEK/PVDF/Ryton

O-rings – Viton, PTFE, Silicone, Nordel

May we assist you with your liquid measurement and control requirement?

Contact your Fluidyne representative today to discuss your problem statement and experience our state-of-the-art product quality, accuracy, reliability and outstanding service.

Key people

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