

Principle of Oval Gear Flowmeter Operation

The oval gear flow meter is a kind of Positive Displacement Flow Meter. As the fluid being measured passes thru the meter, it rotates 2 oval gears in measuring cavity to displace a precise volume of fluid. A sensor detects the gear rotation to determine displaced volume and flow rate.

Fluid pressure rotates the oval gear, Figure 1. In position (a), the fluid exerts a clockwise driving force on gear A, there is no driving force on gear B. It is perpendicular to the flow so the fluid forces are balanced around the shaft. As the gear rotate to position (b), the fluid being to exert a force on gear B. At position (c), all the driving force is on the gear B. This alternating driving force provides a smooth rotation of almost constant torque.

The meter design minimizes the slippage between the gears and the measuring cavity wall. As a result, the oval meter is less affected than other designs by the liquid's viscosity and lubricity

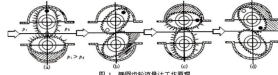


Figure 1: The Principle of Oval Gear Operation

Application

Oval gear flowmeter is mainly used for high value liquids such as oil, chemical etc. Main applications include unloading, transfer and consumption monitoring.

Oval Gear Flowmeter Features

- Only Two Moving Parts
- Higher Accuracy, 0.5% or 0.2%
- Standard Viscosity up to 5,000 cP (Centipoises = mPa.s).
- Size of wide flow ranges 0.04-340 M³/h (18-37,398GPM).
- Wide range of working environment -20 ~ +280 °C

Counter types



DH900-A: Digital display

(pulse or 4-2 Pulse Signal only)

DH900-B: Basic counter

DH900-C: Counter with 4-20mA/pulse

DH900-D: Pulse Signal

DH900-E: Zero reset counter

| Model No. | DH900 | | DH900 | | | DH900 | |
|-------------------------------|------------------|----------|------------|---------|----------|-----------------|----------|
| | Cast Iron | | Cast Steel | | | Stainless Steel | |
| Pressure (Mpa) | 1.0 | 1.6 | 2.5 | 4.0 | 6.4 | 1.0 | 1.6 |
| Liquid Temperature | -20°C ~ +100°C | | | | | | |
| Flange | #150-300 PN ANSI | | | | | | |
| Liquid Viscosity (Mpa.s) | 0.3-2m Pa.s | | 2-8 mPa.s | | | 8-200 mPa.s | |
| Flowmeter (m ³ /h) | DN 10mm | 0.2-0.4 | 0.08-0.4 | 0.1-0.4 | 0.08-0.4 | 0.08-0.4 | 0.04-0.4 |
| | DN 15mm | 0.75-1.5 | 0.3-1.5 | 0.3-1.5 | 0.3-1.5 | 0.3-1.5 | 0.15-1.5 |
| | DN 20mm | 1-3 | 0.4-3 | 0.6-3 | 0.4-3 | 0.5-3 | 0.3-3 |
| | DN 25mm | 2-6 | 0.8-6 | 1.2-6 | 0.8-6 | 1-6 | 0.6-6 |
| | DN 40mm | 5-15 | 2-15 | 3-15 | 2-15 | 2.5-15 | 1.5-15 |
| | DN 50mm | 8-24 | 3-24 | 4.8-24 | 3-24 | 4-24 | 2.4-24 |
| | DN 65mm | 15-40 | 5-40 | 8-40 | 5-40 | 6-40 | 4-40 |
| | DN 80mm | 20-60 | 6-60 | 12-60 | 6-60 | 10-60 | 6-60 |
| DN 100mm | 34-100 | 10-100 | 20-100 | 10-100 | 16-100 | 10-100 | |
| DN 150mm | 64-190 | 19-190 | 38-190 | 19-190 | 32-190 | 19-190 | |
| DN 200mm | 114-340 | 34-340 | 68-340 | 34-340 | 56-340 | 34-340 | |
| Accuracy | 0.2% | 0.5% | 0.2% | 0.5% | 0.2% | 0.5% | |

Material

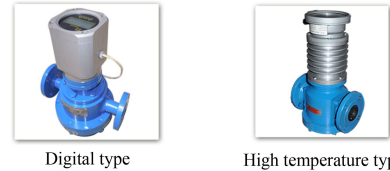


Cast iron

Cast steel

Stainless steel

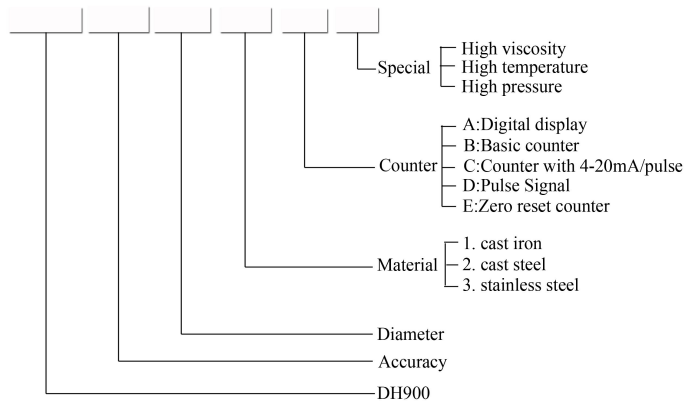
Special models



Digital type

High temperature type

Model selection



Working process



Process workshop



Process workshop



Storage

Process



Assemble

Package