



# Elliptical Gear Flowmeter

ESPL Series



## Product Description

Designed for precise flow measurement, the volumetric flow meter is suitable for continuous or intermittent monitoring of liquid flow or instantaneous flow in pipelines. It performs reliably in high-viscosity, high-pressure environments such as heavy oil, polyvinyl alcohol, resin, and similar conditions. Capable of accurately measuring even small flow rates, it meets the high-precision monitoring needs of a wide range of industries.

Applicable Liquids Include Water, oil products, food-grade lubricants, chemical agents, cosmetics, fertilizers, ink, pharmaceutical ingredients, coatings, petroleum products, automotive fluids, adhesives, polyurethane, electrolytes, and various additives.

## Principle of Operation & Structure

The volumetric flow meter contains a pair of precision-meshed gears that serve as rotors. These gears, together with the chamber, form a fixed unit of volume known as the standard volume. As liquid flows through the meter, it drives the gears to rotate. By counting the number of standard volumes passing through over time, the flow rate can be measured accurately.

## Features

- **Ideal for High-Viscosity Media:** The higher the viscosity, the less leakage occurs through the gear and chamber gaps, resulting in reduced measurement error and improved accuracy.
- **Compact & Lightweight:** Quiet and low-vibration operation. Suitable for measuring high-viscosity fluids. Offers high accuracy up to  $\pm 0.3\%$ (F.S) and a wide turndown ratio of up to 100:1.
- **Standard Model:** Designed for precise measurement of small flow rates of clean liquids.
- **No Straight Pipe Required:** Flexible installation in limited spaces.
- **Suitable for Pulsating Flow:** Handles unsteady or intermittent fluid flows effectively.
- **Supports Micro-Dosing:** Ideal for short-duration, small-quantity dosing or filling.



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## ESPL Series Specifications

| Type               | ESPL50   | ESPL500            | ESPL1700            | ESPL4600             |
|--------------------|--|--------------------|---------------------|----------------------|
| Flow Range         | 15-900<br>mL/min   | 150-9000<br>mL/min | 500-30000<br>mL/min | 1300-83000<br>mL/min |
| Pulse Frequency    | 0.25 mL/p  | 2.5 mL/p           | 8.5 mL/p            | 23 mL/p              |
| Port Size          | G1/4"  | G1/4"              | G1/2"               | G1"                  |
| Work Pressure(bar) | 200  | 200                | 50                  | 50                   |
| Accuracy(F.S)      | 0.3%   |                    |                     |                      |
| Temp.              | -40~80°C   |                    |                     |                      |
| Medium             | Water, oil products, food-grade lubricants, chemical agents, cosmetics, fertilizers, ink, pharmaceutical ingredients, coatings, petroleum products, automotive fluids, adhesives, polyurethane, electrolytes, and various additives. |                    |                     |                      |
| Output Signal      | 4-20mA / 0-5V / 0-10V / Modbus RTU485  |                    |                     |                      |
| Supply             | 5-24VDC  |                    |                     |                      |
| Body Material      | Stainless Steel  |                    |                     |                      |
| Gear Material      | PPS  |                    |                     |                      |