



# 高精度橢圓齒輪流量計

## Elliptical Gear Flowmeter

ESPL 系列



### 產品敘述 Product Description

容積式流量計為精密流量測量的設計，用於連續或間斷方式測量管路中液體的流量或瞬間流量。適用於高黏度、高壓力環境，如重油、聚乙烯醇、樹脂...等工況，能準確計量微小流量，表現穩定可靠，滿足多數產業對高精度流量監控的需求。

可測液體涵蓋水、油品、食品級潤滑油、化學藥劑、化妝品、肥料、墨水、製藥原料、塗料、石油產品、汽車用液體、膠合劑、聚氨酯、電解液與多種添加劑等。

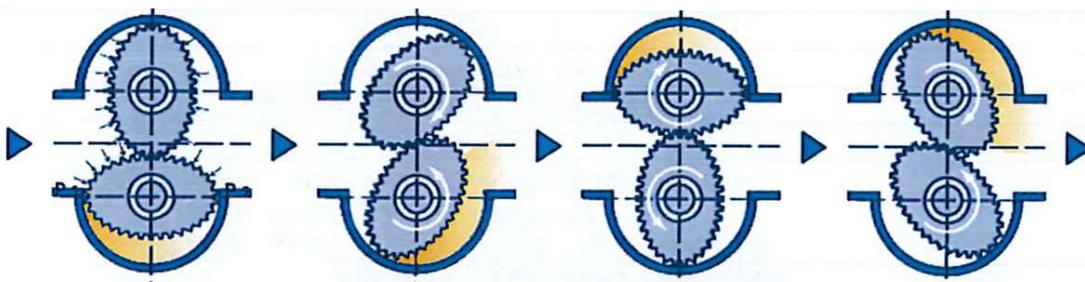
Designed for precise flow measurement, the volumetric flow meter is suitable for continuous or intermittent monitoring of liquid flow or instantaneous flow in pipelines. It performs reliably in high-viscosity, high-pressure environments such as heavy oil, polyvinyl alcohol, resin, and similar conditions. 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.

### 工作原理與結構 Principle of Operation & Structure

容積式流量計內部設有一對精密互嚙的齒輪作為轉子。齒輪與流量計腔體共同形成固定體積單位，稱為標準容積。當液體流過流量計時，驅動齒輪轉動，藉由計算在一定時間內液體通過的標準容積數量，即可精確計量流量。

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.





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#### 產品特色 Features

- **適用高黏度介質**：介質黏度越高，從齒輪與計量腔體之間縫隙洩漏的量越少，黏度越大，測量誤差越低，有利於提升準確性。  
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.
- **體積小、重量輕**：運轉平穩，低振動、低噪音；可測高黏度流體。測量精度高達±0.5%(F.S)，量程比最高可達 100 : 1。  
Compact & Lightweight: Quiet and low-vibration operation. Suitable for measuring high-viscosity fluids. Offers high accuracy up to ±0.3%(F.S) and a wide turndown ratio of up to 100:1.
- **標準型**：適用於多種潔淨液體之微小流量測量。  
Standard Model: Designed for precise measurement of small flow rates of clean liquids.
- **無需直管段**：安裝彈性高，適用於空間受限環境。  
No Straight Pipe Required: Flexible installation in limited spaces.
- **支援脈動流體**：可應對不穩定或間歇式流體輸送。  
Suitable for Pulsating Flow: Handles unsteady or intermittent fluid flows effectively.
- **短時間定量添加**：適用於微量液體的定時/定量添加需求。  
Supports Micro-Dosing: Ideal for short-duration, small-quantity dosing or filling.

#### 產品規格 Specifications

型號 Type	ESPL50	ESPL500	ESPL1700	ESPL4600
量測範圍 Flow Range	15-900 mL/min	150-9000 mL/min	500-30000 mL/min	1300-83000 mL/min
脈衝頻率 Pulse Frequency	0.25 mL/p	2.5 mL/p	8.5 mL/p	23 mL/p
口徑 Port Size	G1/4"	G1/4"	G1/2"	G1"
工作壓力 Work Pressure	200 bar	200 bar	50 bar	50 bar
精度 Accuracy(F.S)	*0.5%			
工作溫度 Temp.	-40~80 °C			
介質 Medium	水、油品、食品級潤滑油、化學藥劑、化妝品、肥料、墨水、製藥原料、塗料、石油產品、汽車用液體、膠合劑、聚氨酯、電解液與多種添加劑等。 Water, oil products, food-grade lubricants, chemical agents, cosmetics, fertilizers, ink, pharmaceutical ingredients, coatings, petroleum products, automotive fluids, adhesives, polyurethane, electrolytes, and various additives.			
輸出訊號 Output Signal	4-20mA / 0-5V / 0-10V / Modbus RTU485			
供應電源 Supply	5-24VDC			
本體材質 Body Material	不鏽鋼 Stainless Steel			
齒輪材質 Gear Material	PPS			
*以 ESPL1700 為例：介質:水 / 量程比: 1:10 / 讀取精度：1% / 全程：0.5% F.S.，在量程比以內(3000-30000)，精度是讀取數據的 1%，在量程比以外(500-3000)的精度是全程的 0.5%。 For ESPL1700: Water fluid Accuracy: 1% of reading within turndown ratio of 1: 10 (3000-30000) 0.5% F.S outside turndown ratio (500-3000).				



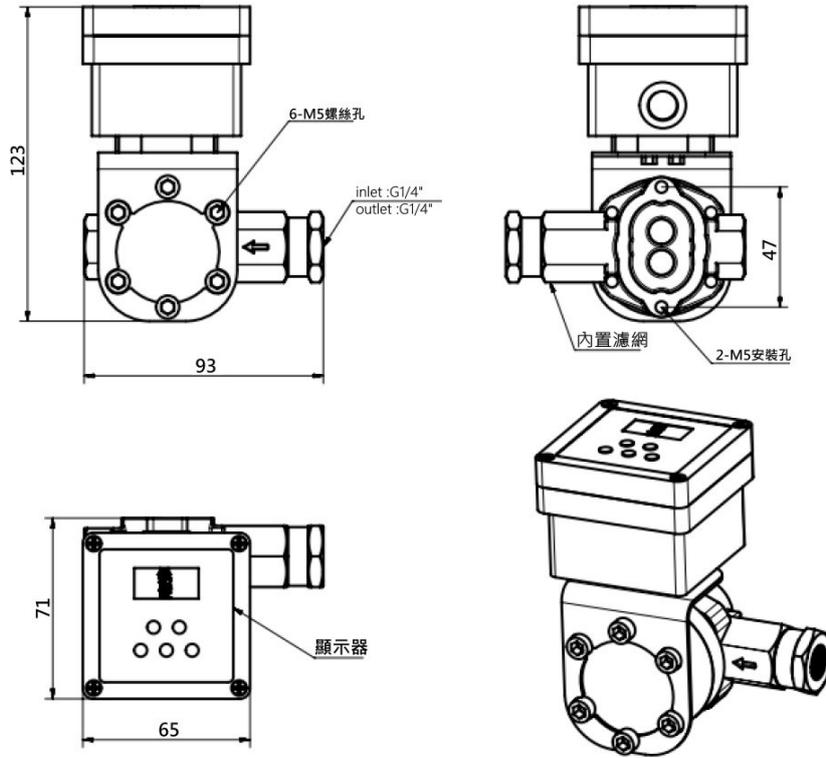
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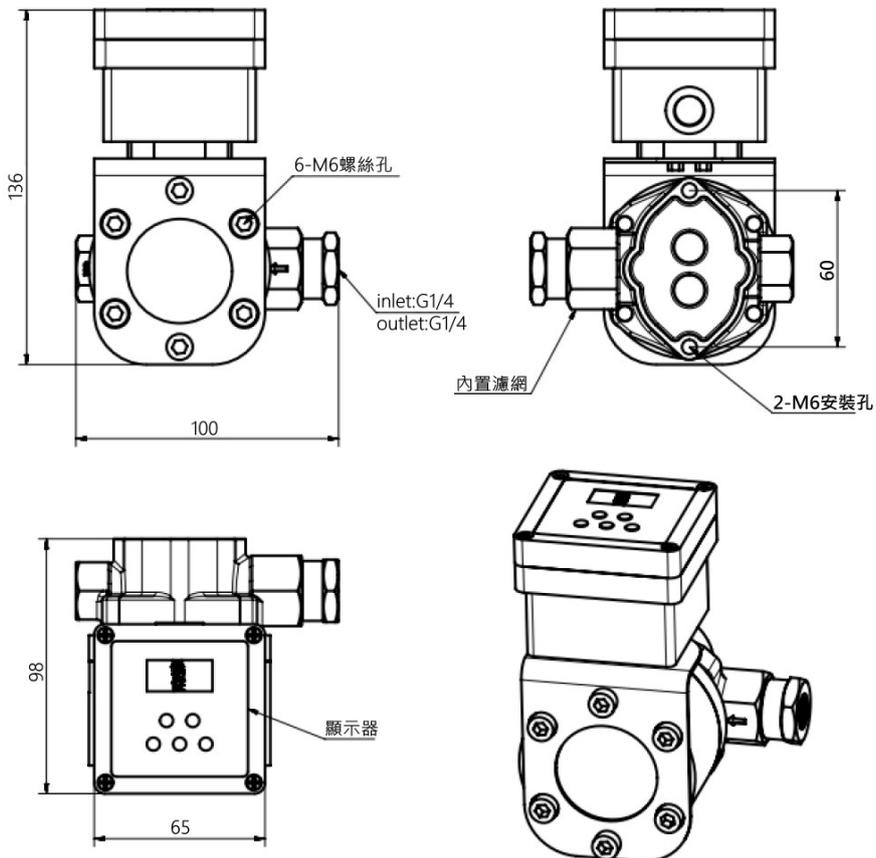
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外觀尺寸 Dimensions

ESPL50



ESPL500





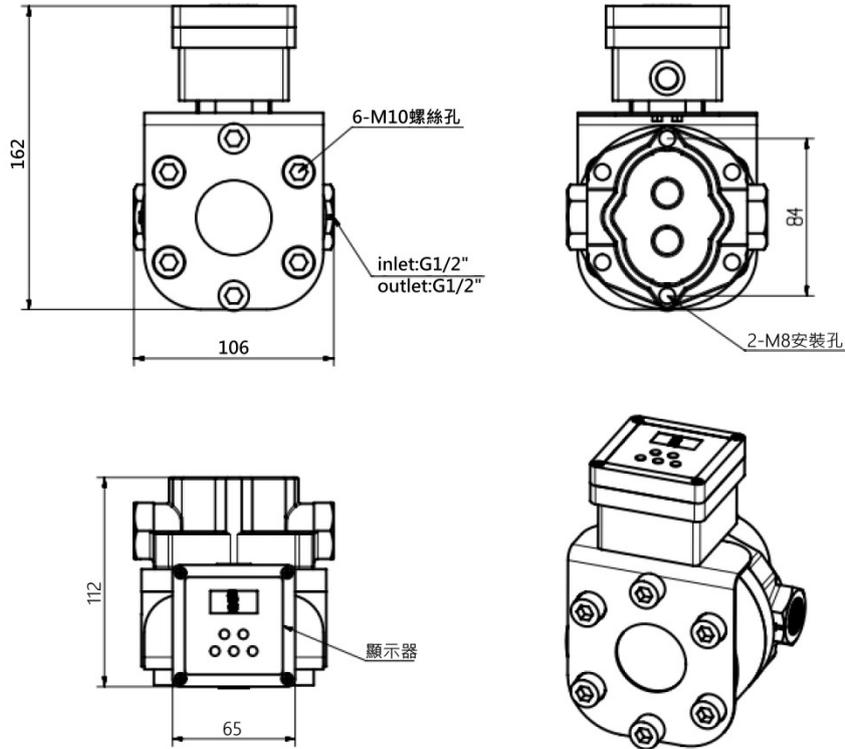
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外觀尺寸 Dimensions

ESPL1700



ESPL4600

