

The Growco LS Series PD BiRotary Flow Meters are designed in double case construction and are typically used as standalone flow meters or used together with batch controllers or PLC for loading of products used in trucks loading terminals, barge loading terminals, rail cars, or related processing installations.

### ➤ TYPICAL FEATURES OF LS SERIES:

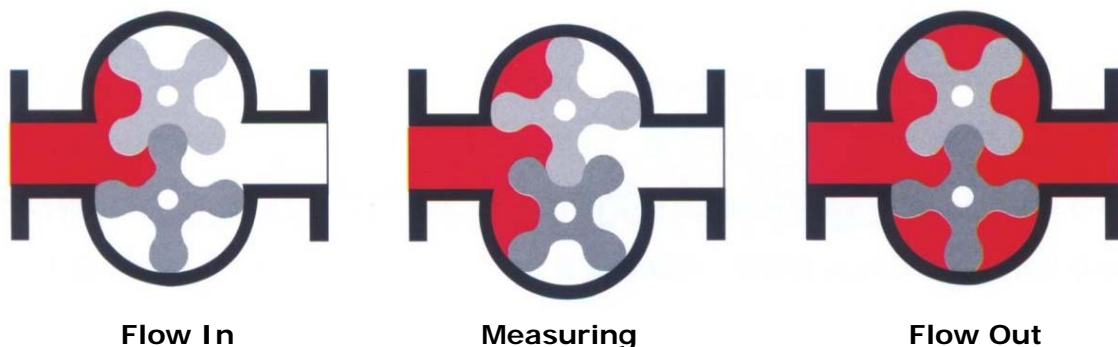
- Stable and reliable operations.
- Straight through flow design.
- Simple structure and easy maintenance.
- BiRotary design rotors allow high accuracy and stable repeatability.
- Options for horizontal or vertical installation.
- Optional with pulse transmitter for remote pulses output.



Typical Vertical LS Series  
Double Case PD Meter

### ➤ PRINCIPLE OF OPERATIONS

When the fluid flows through the casing, its pressure push the two BiRotary rotors to rotate, the fluid is then displaced out of the measuring chamber. The volume of the measuring chamber is constant with the rotation of the BiRotary rotors and the fluid volume flowing through the rotors can be calculated. See the below schematic sketches of the rotors rotation with the fluid flows.



The BiRotary rotation of the rotors is transmitted to the adjusting unit by the sealed shaft connected to the mechanical counter. There is an option of installing a pulse transmitter to provide pulses output for remote indication or batch controller.

➤ **GENERAL SPECIFICATIONS**

**Table 1 – Typical Capabilities**

<b>Nominal Diameter Range (mm)*</b>	DN 8 ~ 400	
<b>Working Fluid</b>	Petroleum products such as diesel, gasoline, kerosene & crude oil; water or consult factory for other fluids	
<b>Accuracy*</b>	0.2%	0.5%
<b>Nominal Pressure Type*</b>	1.6 ; 2.5 ; 4.0 ; 6.4 MPa	
<b>Temperature ranges*</b>	-20°C ~ +80°C ; 0°C ~ +150°C ; 0°C ~ 250°C	
<b>Fluid Viscosity*</b>	0 ~ 20,000 mPa.s	
<b>Ambient temperature</b>	-30°C ~ +70°C	
<b>Material of Construction</b>	Standard : Cast Steel Option : 304 SS & 316 SS	
<b>Power Supply (For pulse transmitter, if provided)</b>	+ 12 VDC or +24 VDC	
<b>Output Signal, if provided</b>	Pulse	
<b>Classification</b>	Exd II CT6	
<b>Enclosure</b>	IP65	

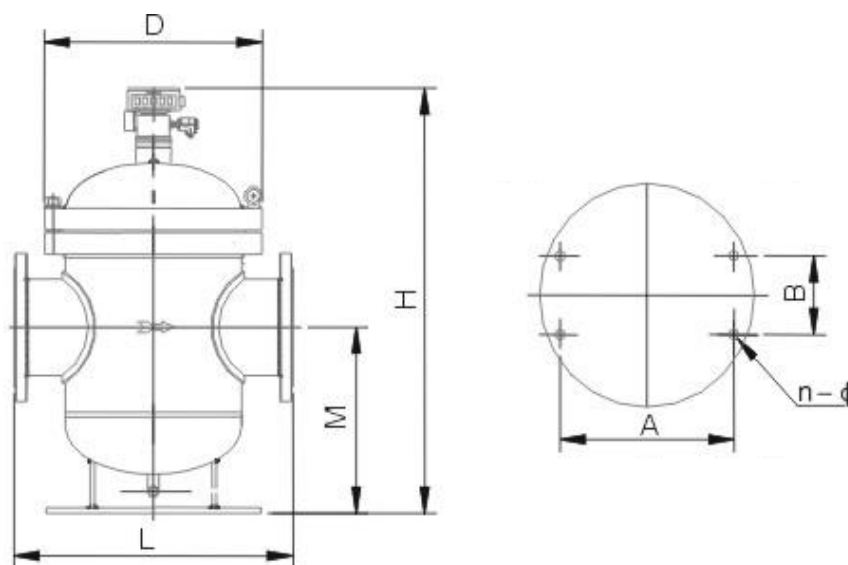
\* **Note:** Please provide the information during inquiry.

**Table 2 – Typical Flow Range Data**

Liquid Name	Gasoline / LPG		Kerosene (Water)		Diesel Oil		Crude / Heavy Oil		High Viscosity Liquid		Extreme Viscosity Liquid	
	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%
<b>Viscosity (mPa.s)</b>	0.32 - 0.8		0.8 - 2		2 - 5		5 - 400		400 - 2,000		2,000 - 20,000	
<b>Code DC</b>	<b>Flow Range (m3/h)</b>											
15 (0.5")	0.6-3		0.4-4		0.4-4		0.4-4		0.3-2.4		0.3-2.4	
25 (1")	3-8		1.5-10		1-10		1-10		1-8		1-6	
40 (1.5")	8-20	8-20	2.7-22	5.5-22	2.5-25	4.4-22	2.5-25	4.4-22	2.1-18	4.2-18	1.5-12	3-12
50 (2")	9-36	15-36	4.5-36	9-36	4-40	7.2-36	4-40	7.2-36	2.8-24	6-24	2.2-18	4.5-18
80 (3")	20-80	32-80	10-80	20-80	9-90	16-80	9-90	16-80	6.5-56	14-56	5-40	10-40
100 (4")	25-100	40-100	13-100	25-100	12-120	20-100	12-120	20-100	8.5-72	18-72	6.5-54	14-54

150 (6")	55-225	88-220	31-250	57-225	25-250	44-220	25-250	44-220	18-150	38-150	12-100	25-100
200 (8")	90-360	150-360	50-400	90-360	40-400	72-360	40-400	72-360	28-240	53-210	20-160	40-160
250 (10")	135-540	180-540	68-540	135-540	60-600	108-540	60-600	108-540	42-360	90-360	30-240	60-240
300 (12")	220-900	300-900	112-900	225-900	100-1000	180-900	100-1000	180-900	70-600	150-600	54-450	113-450
400 (16")	400-1600	550-1600	200-1600	400-1600	180-1800	320-1600	180-1800	320-1600	130-1100	275-1100	90-750	180-750

➤ **APPROX. OUTLINE DIMENSIONS AND WEIGHTS OF VERTICAL TYPE DESIGN**



**Vertical Type**

➤ **TABLE 3 - APPROX. OUTLINE DIMENSIONS AND WEIGHTS OF VERTICAL TYPE DESIGN**

DN(mm)	Flange Distance (L)		Total Height (H)	Center Height (M)	Upper Dia (D)	Install Dim. A x B	Bolt hole size n-φ	Weight (Kg)
	Standard	Special						
8	82	150	210	50	108			6
15	180	200	260	50	108			8
25	200	250	300	60	150			14
40	250	300	500	126	185			40
50	360	370	580	150	235			60
80	400	380	700	222	305			115
100	450	500	780	270	325	340×215	4-φ23	150
150	560	650	828	318	415	450×240	4-φ23	320
200	700		1180	450	530	445×200	4-φ23	560
250	1000		1270	500	620	524×250	4-φ25	1000
300	1000		1540	640	780	645×300	4-φ25	1460
400	1200		1830	750	980	φ700	6-φ25	2000

- Notes:**
- 1) All dimensions and weights shown in table 3 are approximate for reference only. We can make the "L" flange to flange length to suit clients' requirements. Consult us if in doubt
  - 2) We are able to make either smaller flange size or larger flange size irrespective of the flow range of the meter's nominal diameter. Please consult us with your flange size requirements.
  - 3) DN 8 mm is available on electric meter head upon request.
  - 4) DN - Nominal Diameter based on flange connection. Consult us when necessary.

➤ **CAUTIONS FOR THE INSTALLATION:**

- ❑ Welding slug, foreign particles, etc. in the pipe must be cleared up before the Flow meter is installed.
- ❑ Install the Flow meter correctly (eg. Horizontally or Vertically based on purchased requirement)
- ❑ The strainer must be installed at the upstream of the Flow meter.
- ❑ Please also follow any required local standard recommendations of pipelines installations to ensure compliance to local safety requirements.

➤ **NOTICE WHEN ORDERING:**

- Describe its application
- Specify accuracy type
- Specify its model/series or size
- Specify working & maximum pressures
- Specify product & maximum viscosity
- Specify voltage if pulse transmitter is required
- Specify horizontal or vertical installation
- Other useful details or contact us

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**TOTAL MEASUREMENT SOLUTIONS PROVIDER**

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Printed in Singapore.