



# F2001

## Bi-Rotator Flowmeter

VF2001-002.00-13/04

### Description

The F2001 Bi-Rotator Flowmeter is a positive displacement meter utilized in the most demanding applications requiring accuracy, long life and ruggedness. It features two precisely machined rotating members known as helical rotators which rotate and mesh within the meter's interior housing in order to form a measuring chamber of known volume which may be used to accurately determine volumetric flow rate as a function of the rotators' velocity. As liquid enters the intake of the measurement element, two finely timed rotators divide the liquid into precise segments of known volume and return those segments to the flowing stream. During this transition, the rotation of the two rotators is directly proportional to volumetric throughput. Volume indication is determined by mechanical output gearing leading to registration devices and F9005 Signal Generator.



stainless Steel Bi-Rotator Flowmeter



High accuracy is attained by two unique helical rotators which features two finely balanced rotators( Refer to Figure 1). An adjustor, incorporated on the meter, is used to assure maximum accuracy within the meter's flow range.

### Features

- Superior accuracy  $\pm 0.1\%$ , over 10:1 turn-down ratio
- Extremely long service life
- Self-lubricating, low noise and vibration
- Two unique helical rotators with no touch, but synchronized by timing gears in the measuring chamber
- Uniform rotation means low pressure drop
- Rugged double case construction prevents loss of calibration due to changes in pressure or temperature
- No oscillating, reciprocating or sliding parts or cranks to wear or disturb the balanced rotary action



※ The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

# GPE Inc.

Factory Address:  
9-17 Libella Court, Essex County, Newark, NJ 07105  
T:+ 1(646)619.1289 F:+1(212)400.7201  
[www.gpeus.com](http://www.gpeus.com) [sales@gpeus.com](mailto:sales@gpeus.com)



# F2001

## Bi-Rotator Flowmeter

### Specification

- Accuracy:  $\pm 0.1\%$  of reading accuracy
- Line size : 1/4" to 16" (8 to 400mm)
- Repeatability:  $\pm 0.02\%$
- Working Pressure: Customized
- Pulse Output: (18 to 36V, VH=20V,) VL<1V and output load <200Ω)
- Process temperature: - 22 to 480° F (-30°C to 250°C)
- Current Output: 4 to 20mA, (two wire system w/ 600Ω max loop load)
- RS485 Output: communication with Modbus
- Viscosity: 0 to 20,000 cP
- RTU (powered by 18 to 36V and <60mA)
- Protection: IP 65( IP67 for option)
- Display: Instantaneous / Total / Batch flow
- Ambient Temperature: 104 to 176 ° F (40°C to 80°C)
- Ambient Humidity: 5% to 95% RH @ 75 ° F
- User Parameters: K factors, linear correction coefficient flowrate input signal section points, temperature and pressure compensation, set pulse output range, decimal adjustment, etc.
- Communication Baud Rate: Optional (1200 ,2400, 4800 or 9600)

### Materials of Construction

Housing: Welded Steel Construction Combining Steel Castings and Drawn Steel Plate

Rotators: Three/Four Lobe Rotator - Cast Iron/SS304/SS316/ 2Cr13

Measuring Chamber: Cast Iron/SS304/SS316

Rotator Shafts: E.T.D. 150

Rotator Bearings: Stainless Steel (Standard) , other materials (Optional)

Body and End Covers: Cast Iron, Cast Steel, SS304, Ss316

Counter Base Plate: Cast Steel

Body: Cast iron, Cast steel, SS304, SS316

O-Ring: Viton (Standard)

Drive Shafts, Drive Gears, and Ball Bearings: Stainless Steel

### Counters

MOD. D1 Explosion-proof digital totalizer and flow indicator with optional RS485, pulse output and/or 4 to 20mA output

MOD. M1 Mechanical counter with 6 figures non reset type totalizer (5 on digits plus 1 on dial)

MOD. VR Mechanical counter with 5 large figures, 8 digits non reset type totalizer, 5 figures resettable through single handle

MOD.D1



MOD.VR



MOD.M1



※ The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

# GPE Inc.

Factory Address:  
9-17 Libella Court, Essex County, Newark, NJ 07105  
Tel: + 1(646)619-1289 Fax: +1(212)400-7201  
[www.gpeus.com](http://www.gpeus.com) [sales@gpeus.com](mailto:sales@gpeus.com)



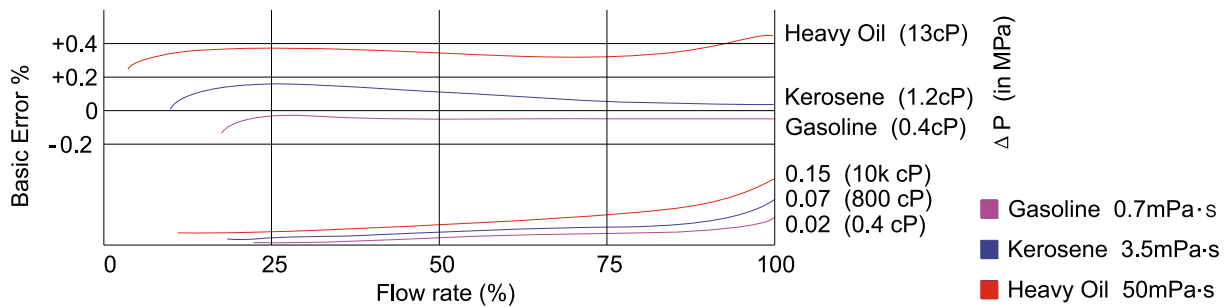
# F2001

## Bi-Rotator Flowmeter

### Flow Range

Nominal Pipe Size	F2001 Flow Range in GPM							Pulse  (Gallons Per Pulse)
	Viscosity (in cP)							
	0.32-0.8	0.8 to 2	2 to 5	5 to 50	500 to 400	400 to 2k	2k to 20k	
	Gasoline & Liquefied Gas	Kerosene	Light Diesel	Crude Oil	Heavy Oil	High Viscosity Liquid	High Water Content & Supertohigh	
1/4"	0.44 to 1.32	0.3 to 1.32	0.26 to 1.32	0.26 to 1.32	0.26 to 1.32	0.26 to 1.19	0.26 to 1.06	0.000264
1/2"	1.45 to 4.40	1.10 to 4.40	0.88 to 4.40	0.88 to 4.40	0.88 to 4.40	0.88 to 3.96	0.88 to 3.52	
1"	5.28 to 26.4	6.60 to 26.4	5.28 to 26.4	5.28 to 26.4	5.28 to 26.4	5.28 to 23.8	5.28 to 22	
1 1/2"	48.4 to 96.9	39.6 to 96.9	33 to 96.9	33 to 96.9	33 to 96.9	17.6 to 96.9	14.5 to 44	0.00264
2"	79.3 to 1585	63.4 to 158.5	52.8 to 158.5	52.8 to 158.5	52.8 to 158.5	33 to 96.9	26.4 to 123.3	0.0264
3"	176.1 to 352.2	140.9 to 352.2	117.6 to 352.2	117.6 to 352.2	117.6 to 440.3	70.4 to 2113	66 to 198.1	
4"	220.1 to 440.3	176.1 to 440.3	149.7 to 440.3	149.7 to 440.3	149.7 to 440.3	105.7 to 317	88.1 to 264.2	
6"	506.3 to 968.6	396.3 to 968.6	321.4 to 968.6	321.4 to 968.6	321.4 to 968.6	176.1 to 528.3	132.1 to 396.3	
8"	792.5 to 1585	634 to 1585	528.3 to 1585	528.3 to 1585	528.3 to 1585	352.2 to 1057	220.1 to 660.4	
10"	1189 to 2378	951 to 2378	792.5 to 2378	792.5 to 2378	792.5 to 2378	440.3 to 1321	264.2 to 792.5	
12"	1981 to 3963	1585 to 3963	1321 to 3963	1321 to 3963	1321 to 3963	880.6 to 2642	660.4 to 1981	
16"	3522 to 7045	2819 to 7045	2334 to 7045	2334 to 7045	2334 to 7045	1761 to 5283	1321 to 3963	

### Pressure Drop Curve



※ The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

# GPE Inc.

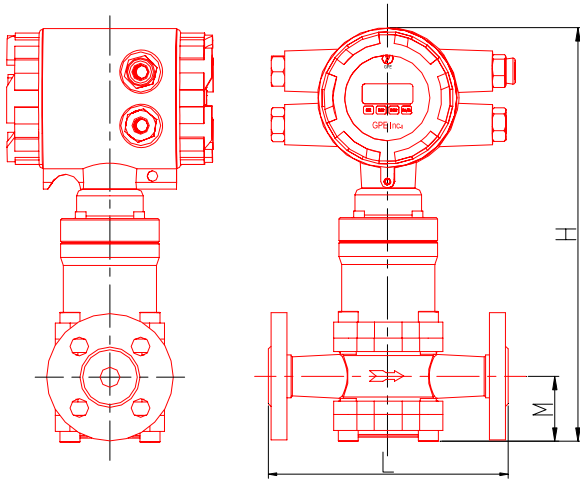
Factory Address:  
9-17 Libella Court, Essex County, Newark, NJ 07105  
Tel: +1(646)619-1289 Fax: +1(212)400-7201  
[www.gpeus.com](http://www.gpeus.com) [sales@gpeus.com](mailto:sales@gpeus.com)



# F2001

## Bi-Rotator Flowmeter

### Dimension and Weight



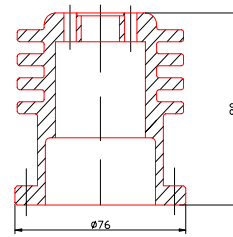
Graph 1

#### Remarks

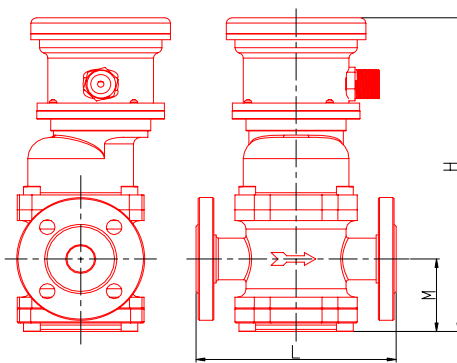
1. M may vary with expanded flange resulted from different flow range.
2. The radiator should be added with the working temperature beyond 125° C. See graph-2

Table 1 Electric register DN8mm- DN25mm( check graph 1 and graph 2)

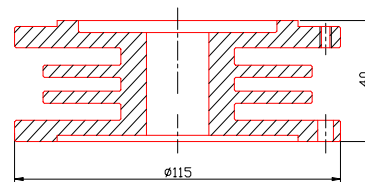
DN (mm)	Flange Distant (L)	Total Height (H)	Centre Height (M)	Weight Kg
8	82	210	50	5
15	180	305	50	8
25	200	350	68	14



Graph 2



Graph 3



Graph 4

※ The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

# GPE Inc.

Factory Address:  
 9-17 Libella Court, Essex County, Newark, NJ 07105  
 Tel: +1(646)619-1289 Fax: +1(212)400-7201  
[www.gpeus.com](http://www.gpeus.com) [sales@gpeus.com](mailto:sales@gpeus.com)



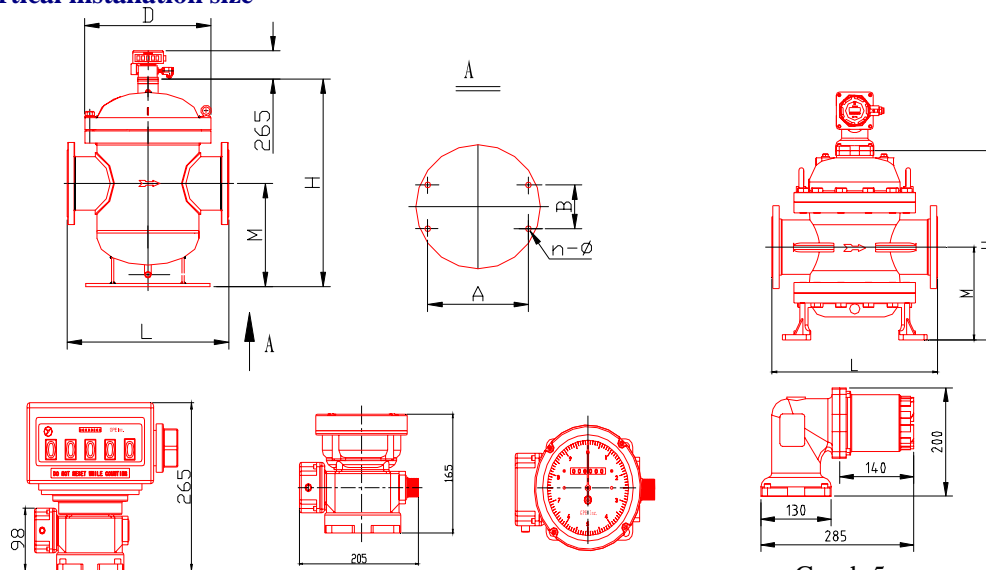
# F2001

## Bi-Rotator Flowmeter

Table 2 Round mechanic register DN15mm-DN25mm ( Check graph 3 and graph 4)

DN (mm)	Flange Distant(L)	Total Height (H)	Center Height (M)	Weight(Kg)
15	180	260	50	8
25	200	300	68	14

### Vertical installation size



Graph 5

Table 3 vertical installation size for size 1-1/2" to 16" (Check graph 5)

DN (mm)	Flange Distant( L)	Total Height (H)	Center Height (M)	Upper Dia (D)	Install Dim. A × B	Bolt hole size n-Φ	Weight Kg
40	250	335	126	185			38
50	360	410	150	235			56
80A	400	465	178	280			100
80B	400	535	222	305			112
100	450	580	270	325	340×215	4-Φ23	146
100Weld	450	580	270	310	235×170	4-Φ23	150
150	560	675	318	415	450×240	4-Φ23	315
150Weld	560	675	318	415	190×190	4-Φ23	315
200	700	945	450	530	445×200	4-Φ23	550
250	1000	1029	500	620	524×250	4-Φ25	990
300	1000	1295	640	780	645×300	4-Φ25	1420
400	1200	1584	750	980	Φ700	6-Φ25	1950

※ The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

# GPE Inc.

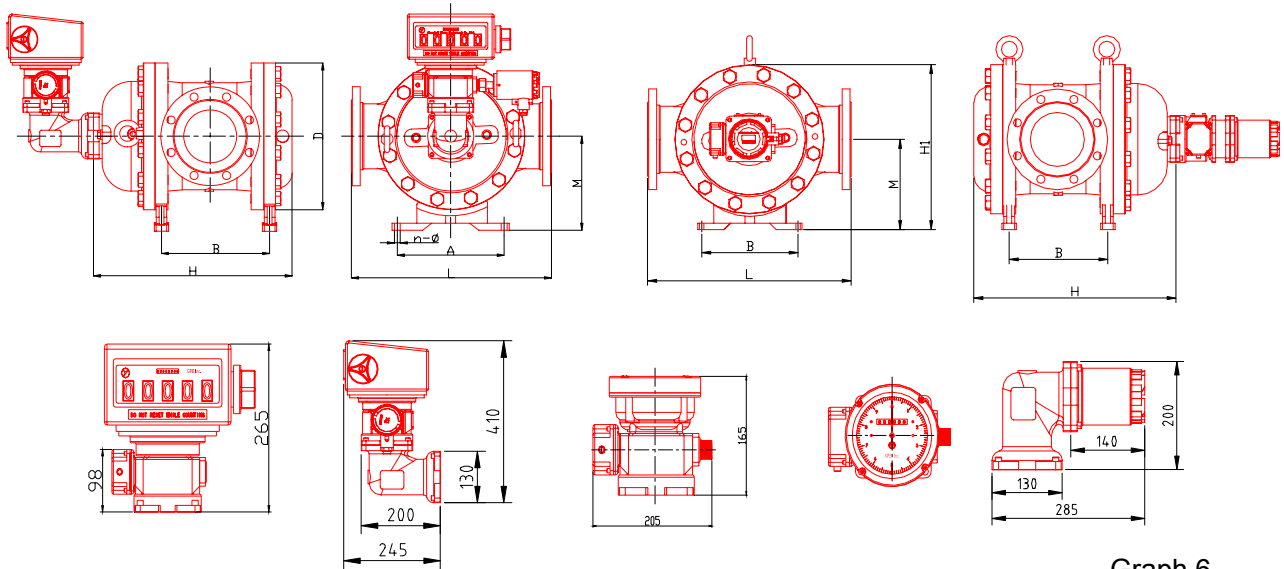
Factory Address:  
 9-17 Libella Court, Essex County, Newark, NJ 07105  
 Tel: +1(646)619-1289 Fax: +1(212)400-7201  
[www.gpeus.com](http://www.gpeus.com) [sales@gpeus.com](mailto:sales@gpeus.com)



# F2001

## Bi-Rotator Flowmeter

### Horizontal installation size

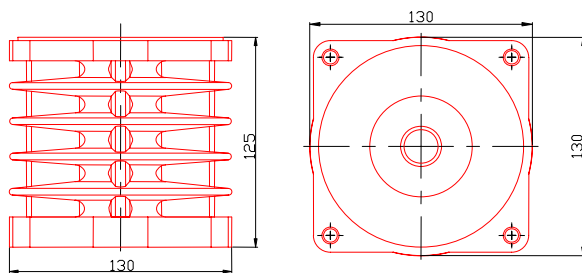


Graph 6

Table 4 Horizontal installation size for size 1-1/2" to 16" (Check graph 6)

DN (mm)	Flange Distant( L)	Total Height (H)	Center Height (M)	Upper Dia (D)	Install Dim. A × B	Bolt hole size n-Φ	Weight Kg
40	250	335	95	185			40
50	360	410	120	235			60
80A	400	465	140	280			100
80B	400	535	153	305			115
100	450	515	210	325	250×220	4-φ20	150
100Weld	450	540	210	310	250×210	4-Φ20	145
150	560	585	255	415	250×270	4-φ20	315
150Weld	560	630	255	415	255×250	4-Φ20	315

Remarks: The radiator should be added with the working temperature of 80-150° C or higher without diverter. See pic-3



※ The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

# GPE Inc.

Factory Address:  
 9-17 Libella Court, Essex County, Newark, NJ 07105  
 Tel: +1(646)619-1289 Fax: +1(212)400-7201  
[www.gpeus.com](http://www.gpeus.com) [sales@gpeus.com](mailto:sales@gpeus.com)



# F2001

## Bi-Rotator Flowmeter

### Model Selection

#### F2001- Series

Example F2001-025SDI21CSEXDI1RN3

F2001	Size	**	**	**	**	**	**	**	**	**	**	Description
1/4"	008											Size
1/2"	015											
1"	025											
1 1/2"	040											
2"	050											
3"	080											
4"	100											
6"	150											
8"	200											
10"	250											
12"	300											
16"	400											
Standard	S											
Thermal Jacket	J											
ANSI	AN											Flange Standard
DIN	DI											
JIS	JS											
Others	OF											
-20°C to +80°C	1											Working Temperature
+80°C to +150°C	2											
+150°C to +250°C	3											
1.6 MPa	1											Max. Working Pressure
2.5 MPa	2											
4.0 MPa	3											
6.4 Mpa	4											
Cast steel(Iron)	CS											Material
Rotator Material SS304	S4											
Rotator Material SS316	S6											
All materials SS304	A4											
All materials SS316	A6											
Special materials	SP											
Non-Explosion	NX											Approval
Explosion proof	EX											
Digital counter	D1											Counter
Round Mechanical counter	M1											
VR 7887 mechanical counter	VR											
No signal output ( Local LCD display)	N											Signal output
4 to 20mA/Pulse	I											
Dual Pulse( Backed up with pulse generator)	F											
RS485+ 4 to 20mA+Pulse(For digital counter only)	R											
Stepless calibrator	S											Calibrator type
Gear Calibrator	G											
Without Calibrator	N											
±0.1%	1											Accuracy
±0.2%	2											
±0.5%	3											

※ The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

# GPE Inc.

Factory Address:  
 9-17 Libella Court, Essex County, Newark, NJ 07105  
 Tel: +1(646)619-1289 Fax: +1(212)400-7201  
[www.gpeus.com](http://www.gpeus.com) [sales@gpeus.com](mailto:sales@gpeus.com)