



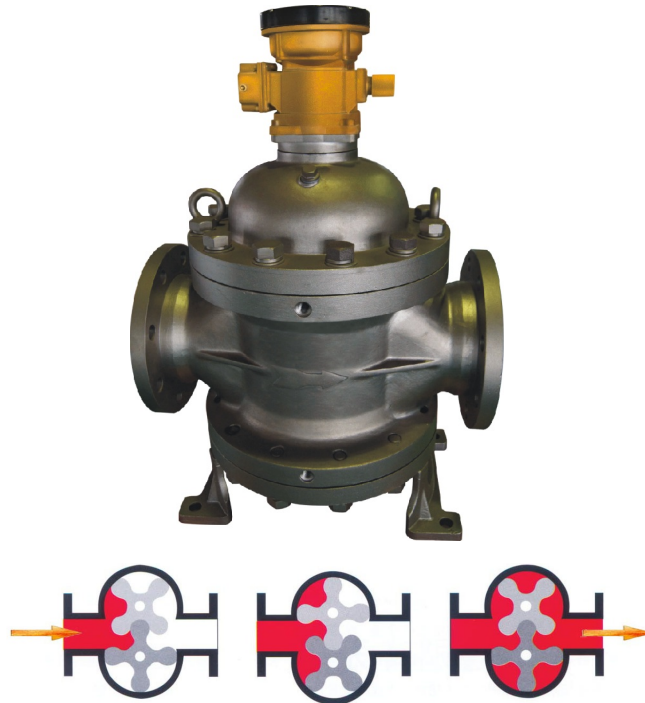
# F2001

## Bi-Rotator Flow Meter

VF2001-002.00-13/04

### Description

The F2001 Bi-Rotator Flow Meter is a positive displacement meter utilized in the most demanding applications requiring accuracy, long life and ruggedness. It owns two precise machined helical rotators which share the same size. The two rotators rotate together at the same speed in the measuring chamber and divide the flowing stream into segments with equal volume which is precisely designed, and the segments will join back into one stream on the outlet side of the Flow Meter. By counting the segments through the meter, the flow can be calculated. The rotation status is transferred to the totalizing register or the transmitter for recording and calculation. Volume indication is determined by mechanical output gearing leading to mechanical register and F9005 Signal Generator.



Stainless Steel Bi-Rotator Flow Meter

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

- Accuracy up to 0.1%, over 10:1 turn-down ratio
- Extremely long service life and easy maintenance
- Self-lubricating, low pressure drop, and low noise and vibration
- Two unique helical rotators with no touch, but synchronized by timing gears in the measuring chamber
- No oscillating, reciprocating or sliding parts or cranks to wear or disturb the balanced rotary action



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## Bi-Rotator Flow Meter

### Specification

- Accuracy:  $\pm 0.1\%$  of reading accuracy
- Line size :  $\frac{1}{4}$ " to 16" (8 to 400mm)
- Repeatability:  $\pm 0.02\%$
- Working Pressure: Customized
- Pulse Output: (18 to 36V, VH=20V,) VL<1V and output load <200  $\Omega$ )
- Process temperature: - 22 to 480° F (-30 to 250°C)
- Current Output: 4 to 20mA, (two wire system w/ 600  $\Omega$  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: -4 to 131° F (-20 to +55°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/ SS420

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

### Registers

MOD. D1	Explosion-proof GPE3000 register with ATEX, UL etc.
MOD. D2	Explosion-proof digital totalizer and flow indicator with optional RS485, pulse output and/or 4 to 20mA output
MOD. M1	Mechanical registers with 6 figures non reset type totalizer ( 5 on digits plus 1 on dial)
MOD. VR	Mechanical registers with 5 large figures, 8 digits non reset type totalizer, 5 figures resettable through single handle

MOD.D1



MOD.D2



MOD.VR



MOD.M1



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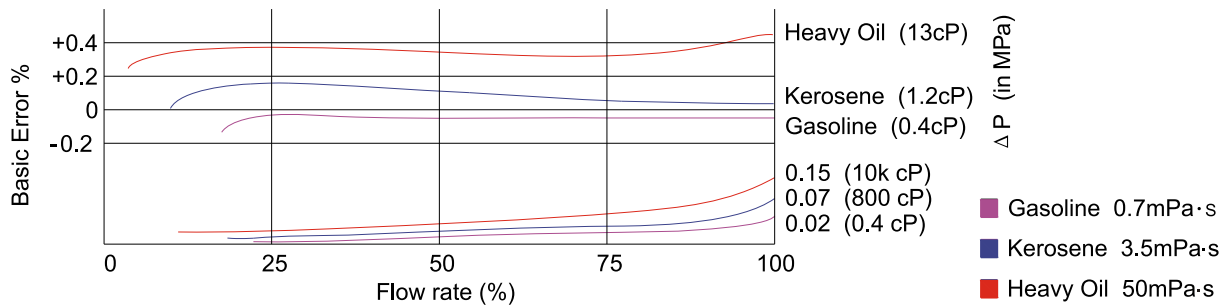
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## Bi-Rotator Flow Meter

### Flow Range

F2001 Flow Range in GPM								
Nominal Pipe Size	Viscosity (in cP)							Pulse (Gallons Per Pulse)
	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 158.5	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	
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 211.3	66 to 198.1	0.0264
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



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## Bi-Rotator Flow Meter

### Model Selection

#### F2001- Series

Example F2001-025SDI21CSEXD1RN3

F2001	Size(mm)	**	**	**	**	**	**	**	**	**	**	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											
-4 to 176 ° F (-20 to 80°C)	1											Working Temperature
176 to 302 ° F(+80 to 150°C)	2											
-4 to 482 ° F(+150 to 250°C)	3											
230psi(16bar)	1											Max. Working Pressure
360psi(25bar)	2											
580psi(40bar)	3											
915psi(63bar)	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	DI											Counter
Round Mechanical counter	MI											
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											

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