

FMC Technologies **Smith Meter® Genesis™ Series** 2" and 3" PD meter is a single case, positive displacement, rotary vane meter designed for accuracy and reliability for today's custody transfer market. Relying on nearly a century of experience in the petroleum measurement world, FMC has designed the Genesis Series PD meters for biofuel blending and crude oil service, offering longevity and application versatility that out-measures the competition. Market applications include gasoline and oxygenates, ethanol, biodiesel, jet fuel, lube oils, and crude oils.

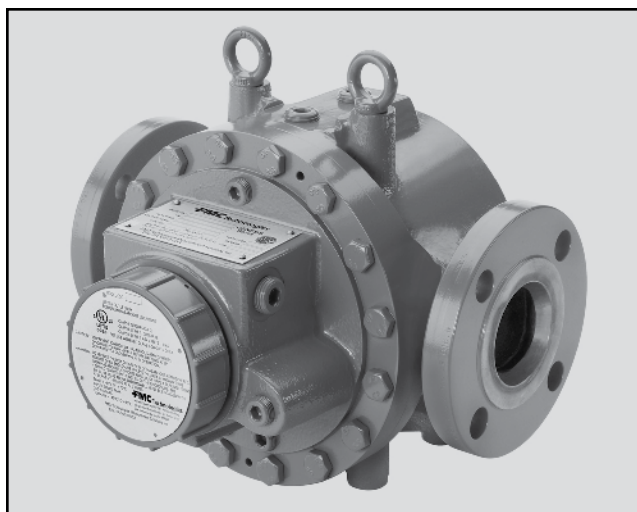
Features

- **Improved Flow Range¹** – Linear performance up to a 50:1 flow turndown which makes the Genesis Series ideal for terminal blending and low flow applications.
- **Integrated Electronic Output** – Meter is characterized from the factory allowing for improved linearity and reproducibility across the application range with no need for a separate pulse transmitter.
- **Long Service Life** – Horizontal shaft design with ceramic hybrid ball bearings and (PEEK™) polyetheretherketone wear strips to significantly reduce wear on blade tip thus ensuring long life/reduced maintenance requirements.
- **Reliable Design** – Reduced mechanical parts from traditional positive displacement meter by over 40% as well as an adjustable measuring chamber and block design to eliminate the need for hand fitted parts.
- **Fully Sealed Design** – Eliminates the possibility of VOC emissions and maintenance requirements of packing glands and gear trains which minimizes total cost of ownership.
- **Compact Design** – In-line installation envelope is simple with no special piping offsets.
- **Integrated Temperature Option** – Meter includes an optional integrated temperature well with internal wiring to the HRE board and separate external Weights and Measures test well.
- **NACE MR0175** compliant for all wetted components.

Specifications

Accuracy

Applicable to refined products from gasoline to fuel oil and crude oils up to 300 cSt.



Smith Meter® Genesis™ Series PD Meter

Typical Performance

Size	Linearity	Repeatability	Flow Range (min-max)		Viscosity Range (cSt)
2"	+/- 0.075%	+/- 0.01%	10-150 gpm	15:1	0.7-20 ²
			38-570 lpm		
			14-214 bph		
2"	+/- 0.15%	+/- 0.02%	3-150 gpm	50:1	20.1-300
			11-570 lpm		
			4-214 bph		
3"	+/- 0.075%	+/- 0.01%	33-500 gpm	15:1	0.7-20 ²
			127-1,900 lpm		
			48-714 bph		
3"	+/- 0.15%	+/- 0.02%	10-500 gpm	50:1	20.1-300
			38-1,900 lpm		
			14-714 bph		
3"			100-500 gpm	5:1	20.1-300
			380-1,900 lpm		
			143-714 bph		

Nominal Resolution Options

Gallon Registration:

- 2" – 100, 200, 500, 1,000 (Pulses/Gallon)
- 3" – 100, 200, 500 (Pulses/Gallon)

Barrel Registration:

- 2" – 5,000, 10,000, 20,000, 50,000 (Pulses/Barrel)
- 3" – 1,000, 2,000, 5,000, 10,000, 20,000 (Pulses/Barrel)

Liter Registration:

- 2" – 100, 200, 500 (Pulses/Liter)
- 3" – 100 (Pulses/Liter)

Dekalitre Registration:

- 2" – 200, 500, 1,000, 2,000, 5,000 (Pulses/Dekalitre)
- 3" – 100, 200, 500, 1,000 (Pulses/Dekalitre)

¹ Reference the performance chart for flow range and viscosity range.

² Reference the modeling code to select the application viscosity range.

Cubic Meter Registration:
 2" – 20,000, 50,000, 100,000, 200,000, 500,000
 (Pulses/Cubic Meter)
 3" – 5,000, 10,000, 20,000, 50,000, 100,000
 (Pulses/Cubic Meter)

Operating Temperature Range

Standard: -20°F to 150°F (-29°C to -65°C)

End Connections	Housing/ Cover Material	Maximum Working Pressure @ 100°F			
		psig	kPa	bar	Pressure Code
2" ASME 150	Steel	285	1,965	19	ASME Section VIII Division 1/ PED*
3" ASME 150	Steel	285	1,965	19	ASME Section VIII Division 1/ PED*
DN 50, PN 16	Steel	232	1,600	16	PED*
DN 50, PN 25	Steel	362	2,500	25	PED*
DN 75, PN 16	Steel	232	1,600	16	PED*
DN 75, PN 25	Steel	362	2,500	25	PED*

* PED required for all European Countries. Equipment must be manufactured by Ellerbek, Germany facility.

Electrical Specifications

Electrical Inputs

DC Power Range:

10 to 30 Vdc

Input Current:

Quiescent Current (No Load): 27 mA @ 10 Vdc, 20 mA @ 24 Vdc, 20 mA @ 30 Vdc

Power Consumption:

≤ 650 mW plus load

Output Signal

10 Vdc Input Power Supply:

No Load: 9.7 ± 0.3 Vp-p square wave

270 Ω Load: 7.6 ± 0.3 Vp-p square wave (minimum)

24 Vdc Input Power Supply:

No Load: 23.7 ± 0.3 Vp-p square wave

270 Ω Load: 16 ± 0.3 Vp-p square wave (minimum)

30 Vdc Input Power Supply:

No Load: 29.7 ± 0.3 Vp-p square wave

270 Ω Load: 21 ± 0.3 Vp-p square wave (minimum)

Output Source Current (A & B @ 270 Load):

70 mA @ 10 Vdc, 130 mA @ 24 Vdc, 160 mA @ 30 Vdc

Output Current per Channel (A & B):

Maximum Sink Current: 300 mA @ 30 Vdc

Maximum Source Current: 80 mA @ 30 Vdc

Signal Cable

Three-wire shielded for single-channel transmission.

Size	Distance
#20 AWG	Up to 2,000 ft. (610 m)
#18 AWG	Up to 3,000 ft. (915 m)
#16 AWG	Up to 5,000 ft. (1,525 m)

Approvals

Electrical UL/CUL

Class I, Division I, Groups C & D
 UL/CUL File E23545

IEC Ex UL 09_0007X

DEMKO 09ATEX 0903808X

Exd IIB T5

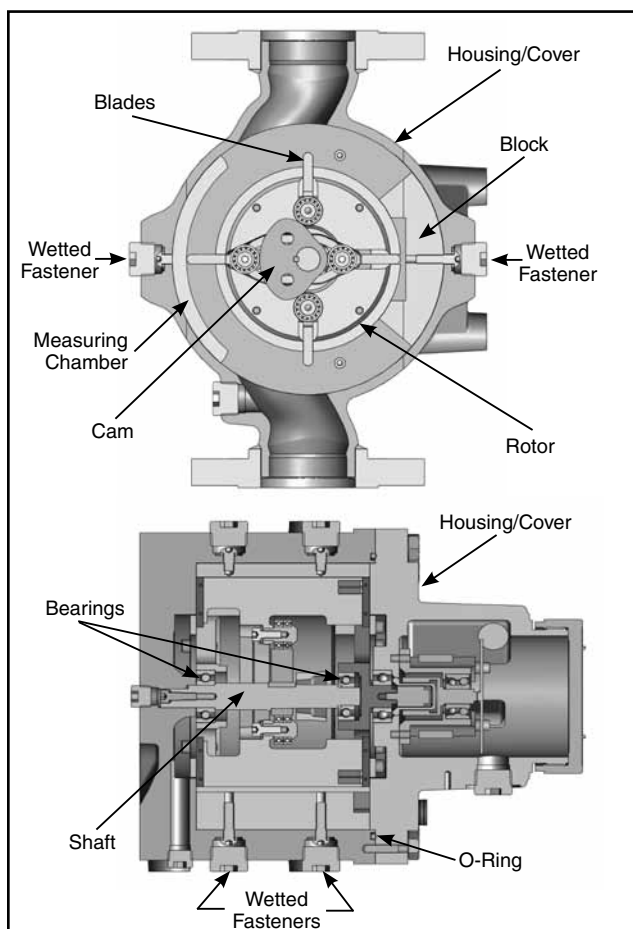
Weights and Measures

NTEP Certificate of Conformance # 10-032
 Reference for applicable viscosity range.

Directive

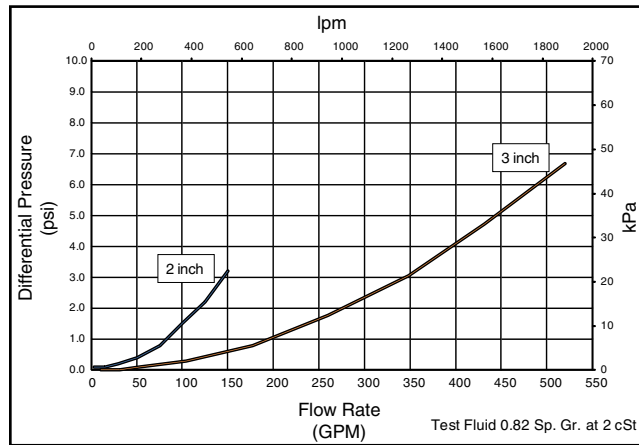
PED – Pressure Equipment Directive (Europe)

Materials of Construction



Housing and Cover	Carbon Steel
Block	Carbon Steel/Cast Iron
Measuring Chamber	Carbon Steel/Cast Iron
Rotor	Cast Iron
Blades	Hard Anodized Aluminum w/ PEEK™ wear strips
Cam	Hardened Stainless Steel
Shaft	Hardened Stainless Steel
Bearings	Ceramic Hybrid Stainless Steel
O-Ring	GFLT Low Temp Viton F
Wetted Fasteners	Stainless Steel/Carbon Steel

Pressure Drop



Modeling Code

The following guide defines the correct Genesis Meter for a given application and the respective catalog code. This code is part of the ordering information and should be included on the purchase order.

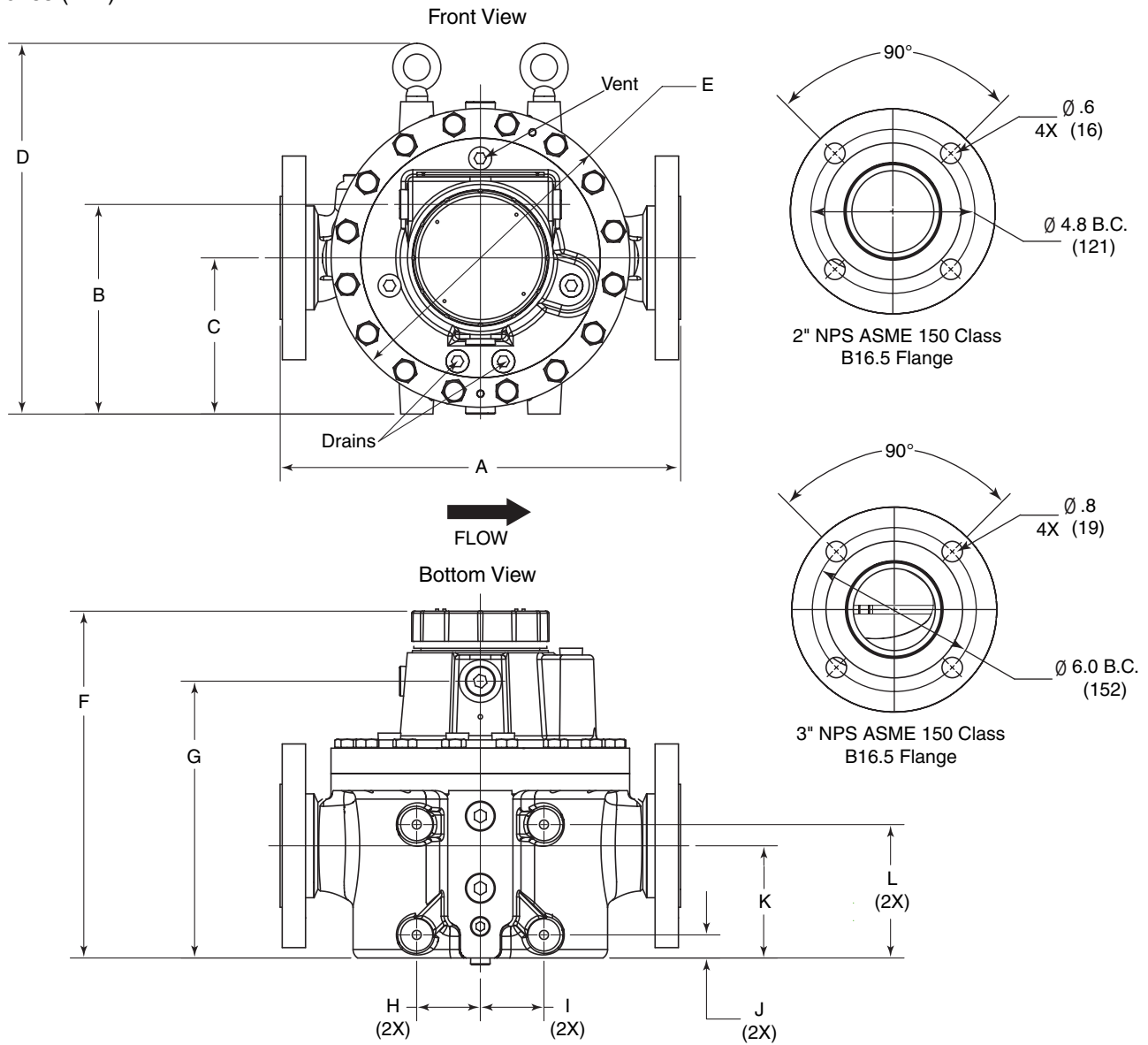
	GSC - 2 - ST - 2 - A - 1 - P - 1 - GF - 50 - G - U		
Model Designation		Approval	
GSC		U – UL/CUL A – ATEX/IEC Ex P – PED/ATEX/IEC Ex*	
Meter Size		*Output Units	
2 – 2" 3 – 3"		B – Barrel C – Cubic Meters D – Dekalitre G – Gallon H – HectoLitre L – Litre	
Type of Material		*Output Resolution (Pulses per Unit Volume)	
ST – Steel		000100 – 100 000200 – 200 000500 – 500 001000 – 1,000 002000 – 2,000 005000 – 5,000 010000 – 10,000 020000 – 20,000 050000 – 50,000 100000 – 100,000 200000 – 200,000 500000 – 500,000	
End Connection Size		Elastomers	
2 – 2" 3 – 3"		GF – GFLT (Low Temp Viton F)	
End Connection Type			
A – ASME 150 B – ASME 300 C – DIN PN16 D – DIN PN25			
Viscosity			
1 – .7 cSt to 3 cSt 2 – 3.1 cSt to 6 cSt 3 – 6.1 cSt to 10 cSt 4 – 10.1 cSt to 20 cSt 5 – 20.1 cSt to 300 cSt 6 – Special			
Cover Ports			
P – 1/2" NPT M – M20 x 1.5 THREADS			
Temperature Probe With Test Well			
0 – Not Required 1 – Required			

* Reference product specification for applicable combinations of Output Resolution and Units for each meter size.

* PED required for all European Countries. Equipment must be manufactured by Ellerbek, Germany facility.

Dimensions

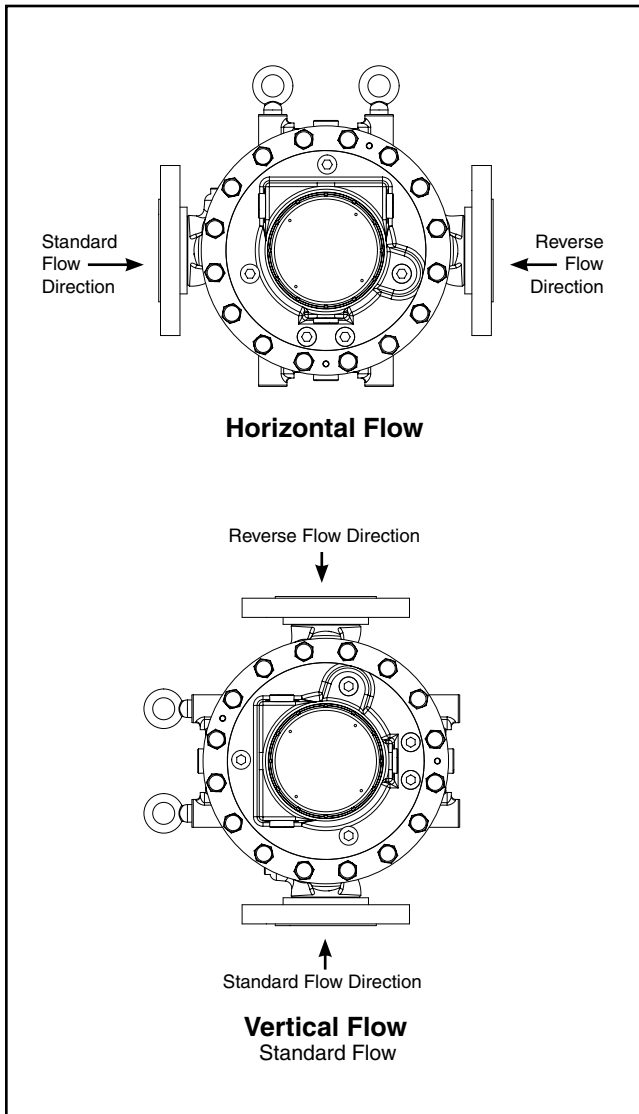
Inches (mm)



Note: Dimensions – Inches to the nearest tenth (millimeters to the nearest whole mm), each independently dimensioned from respective engineering drawings.

Size	A	B	C	D	E	F	G	H	I	J	K	L	Weight lb (kg)
2"	11.8" (300)	6.2" (157)	4.6" (117)	10.9" (277)	8.8" (224)	10.2" (259)	8.2" (207)	1.9" (48)	1.9" (48)	.7" (17)	3.3" (84)	3.9" (99)	75 (34)
3"	16.5" (419)	8.5" (215)	6.9" (175)	15.5" (394)	13" (330)	13.7" (348)	11.5" (293)	2.8" (70)	2.8" (70)	1.4" (34)	3.7" (95)	6.9" (176)	190 (86)

Arrangement



Terminal Connections: CN1

Terminal 1	+ 10 - 30 Vdc
Terminal 2	"A" Signal (Leading)
Terminal 3	"B" Signal (Lagging)
Terminal 4	Logic Common (Ground)
Terminal 5	No electrical connection on circuit board. These can be used for wiring connections or tie-ins (ex. RTD junction, etc.)
Terminal 6	
Terminal 7	
Terminal 8	

Revisions included in SS01060 Issue/Rev. 0.3 (9/11):

Page 1 – NACE MR0175 compliance added.

– Table added for performance of 2 and 3 inch.

Page 2 – ASME Section VIII replaced B31.3 in Operating Temperature Range table.

– UL/CUL approval changed from Division 2 to Division 1.

– Electrical approval Exd IIB T5 added.

– Wetted Fasteners materials of construction - Carbon Steel added.

Page 3 – Modeling Code - Viscosity - 5 - 20.1 cSt to 300 cSt and 6 - Special.

– 000050 - 50 removed from Output Resolution

Editorial Change – Corrected error in type of Linearity - performance at 50:1 has been corrected to +/-0.15 percent. (12/15/2011)

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.

Contact information is subject to change. For the most current contact information, visit our website at www.fmctechnologies.com/measurementsolutions and click on the "Contact Us" link in the left-hand column.

Headquarters:

500 North Sam Houston Parkway West, Suite 100, Houston, TX 77067 USA, Phone: +1 (281) 260 2190, Fax: +1 (281) 260 2191

Measurement Products and Equipment:

Erie, PA USA +1 (814) 898 5000

Ellerbek, Germany +49 (4101) 3040

Barcelona, Spain +34 (93) 201 0989

Beijing, China +86 (10) 6500 2251

Buenos Aires, Argentina +54 (11) 4312 4736

Burnham, England +44 (1628) 603205

Dubai, United Arab Emirates +971 (4) 883 0303

Los Angeles, CA USA +1 (310) 328 1236

Melbourne, Australia +61 (3) 9807 2818

Moscow, Russia +7 (495) 5648705

Singapore, +65 6861 3011

Integrated Measurement Systems:

Corpus Christi, TX USA +1 (361) 289 3400

Kongsberg, Norway +47 (32) 286700

Dubai, United Arab Emirates +971 (4) 883 0303

Visit our website at www.fmctechnologies.com/measurementsolutions