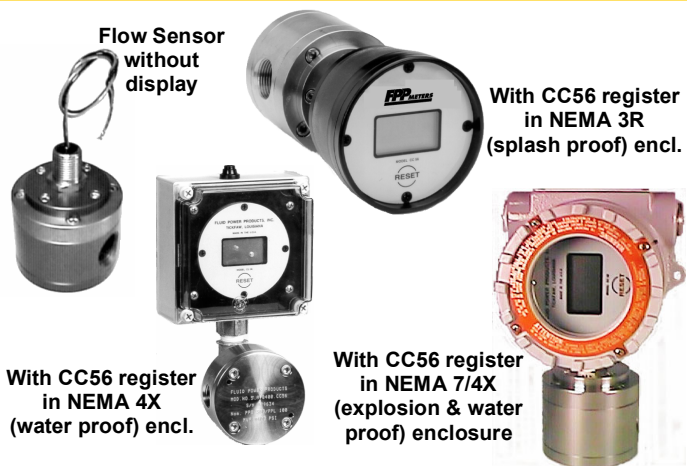
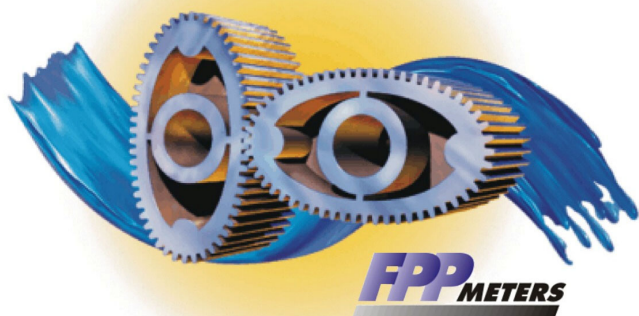


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TM02D

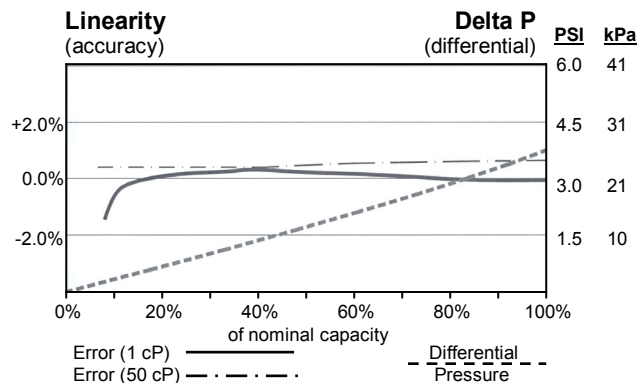
316 Stainless Steel

- Only two moving parts
 - No metal to metal contact in chamber or bearings
 - Electronic = Gland-less meter
 - Patented 'Wave Form' oval gear design
 - Low differential pressure for maximum flow
- = Low Cost of Ownership!**

Specifications

- **Nominal Capacity on 1 cSt viscosity with 10:1 turndown:**
 - 0.3 GPM = 1.1 lpm
 - 18 GPH = 68 lph
- **Pressure Rating at 100°F (38°C), with 3:1 Safety Factor:**
 - 400 PSI = 28 BAR
 - Opt.: 1500 PSI = 103 BAR (code K)
- **Temperature Rating:**
 - Design : -40°F/+300°F = -40°C/+150°C
 - Temperature ratings under UL & ATEX listings may differ.
 - See register specifications for temperature range rating for electronics.
- **Connections:**
 - 1/4" ports in meter case, FNPT standard, FBSP optional.
 - 1/4" NPT x 1/2" 150# RF ANSI (floating flange) adaptors optional.
- **Materials:**
 - Case : 316 Stainless Steel
 - Seals : Teflon™
 - Posts : 316SS Hard Chrome coated
 - Gears: Stainless steel with carbon filled Teflon bearing
- **Pulsers:**
 - H = Hall Effect is standard
 - Pos. 14 Q = Opt. Quadrature Hall Effect (via SCL)
 - in P/No. B = Opt. Reed Switch,
 - for use with FPP battery powered registers only.
- **Nominal Pulse Resolution:**

	On 1 cSt viscosity	On 100 cSt viscosity
Standard H & Q:	±7700 PPG (2034 ppl)	±7325 PPG (1935 ppl)
B only:	±3850 PPG (1017 ppl)	±3665 PPG (968 ppl)



Meter Performance

- **Linearity** Over 10:1 turn-down from nominal capacity: ±2% with electronic enhancements: ±1%
- **Repeatability** ±0.5% under constant conditions

Approvals

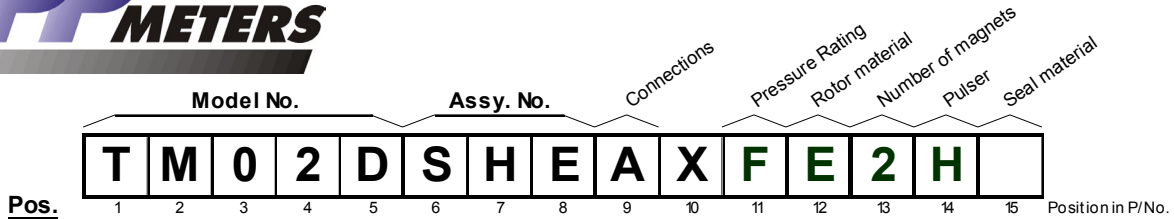
- **Flow Meter** CE mark
- **Pulsers** UL, cUL & ATEX listed; Intrinsically Safe when powered through a UL or ATEX listed barrier with appropriate rating.

Optional Registration, Signals & Accessories

- **Signal Conditioners:**
 - PIA** Pulse Isolator, Amplifier & Splitter, with sinking & sourcing output signal.
 - PAC** Pulse to Analog (4-20 mA) signal converter, requires min. 9 Hz input frequency.
 - SCL** Scaler, Calibrator and/or Linearizer, please consult for selection & pricing.
- **Registers, Totalizers & Batch Controllers**
 - CC56** Battery powered register, NEMA 3R, 4X or 7/4X
 - ELNC** AC, DC or battery powered, NEMA 4X
 - PRT** AC or DC, high/low flow alarm, opt. 4-20 mA signal
 - PC58** DC or battery, Total & Rate, opt. 4-20 mA signal
 - PCDT58** DC or battery, opt. 4-20 mA signal
 - PDB180** AC or DC batch controller, opt. 4-20 mA signal
 - EMR²** DC, register/preset, serial port for PC interface, Optional with temperature compensation
 - 6116** Differential totalizer, pulse & 4-20 mA signal
 - 6127** Temperature compensated version of 6116
- **Accessories**
 - Inlet strainer for flow meter protection is recommended
 - Solenoid control valves, pneumatic operator
 - Solenoid control valves, electric operator

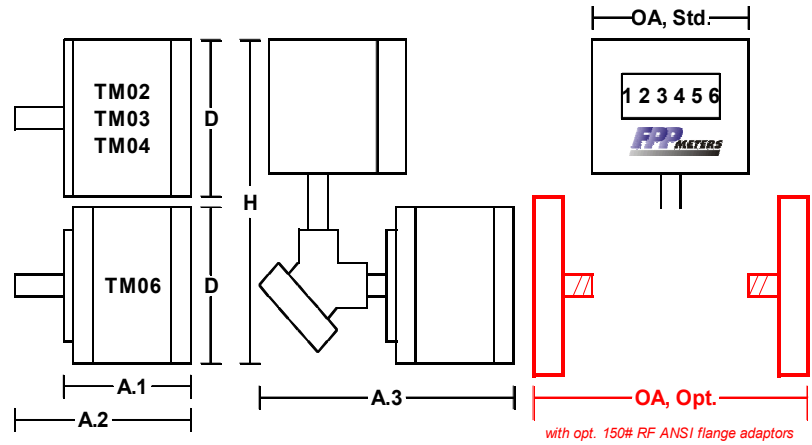


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- Pos. 5:** D = 316 Stainless steel case
- 6-8:** SHE = Flow sensor with Hall Effect pulser
 SQE = Flow sensor with Hall Effect pulser + SCL for quadrature signal
 SRS = Flow sensor with Reed Switch pulser
- 9:** A = Bolted companion flanges, with NPT port.
 B = Bolted companion flanges, with BSP port.
 C = 1/4" NPT x 1/2" 150# RF ANSI adaptor (floating flange type)

All dimensions are in inches. 1" = 25.4 mm



Flow Sensor		Flow Meter with signal conditioner/register in enclosure									with ANSI adaptors OA, opt.			
		NEMA 3R			NEMA 4X			NEMA 7/4X						
		D	A.1	A.2	A.3	H	OA	A.3	H	OA	A.3	H	OA	
TM02D	400 PSI	2.48"	1.69"	2.82"	4.67"	3.61"	3.61"	4.04"	8.44"	5.06"		7.84"	5.89"	5.98"
	1500 PSI	2.48"	1.89"	3.02"	4.87"	3.61"	3.61"	4.24"	8.44"	5.06"		7.84"	5.89"	na
					A.4 =		3.02"	A.4 =		4.54"				



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Transfer Systems

Tuthill Transfer Systems,
P.O. Box 400,
Tickfaw, LA 70466, USA

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Fax: 985-542-7394

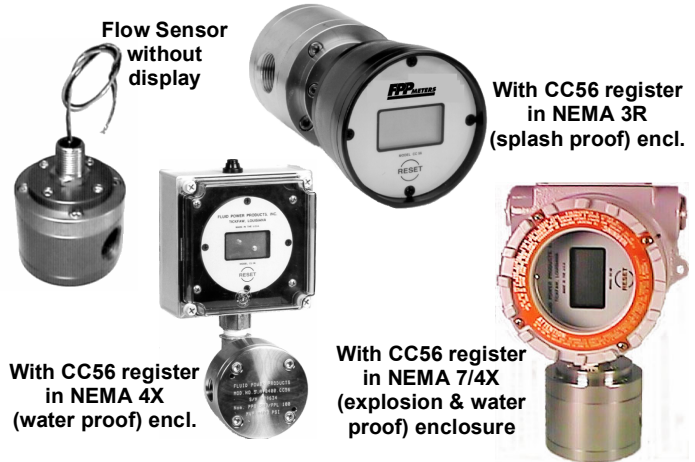
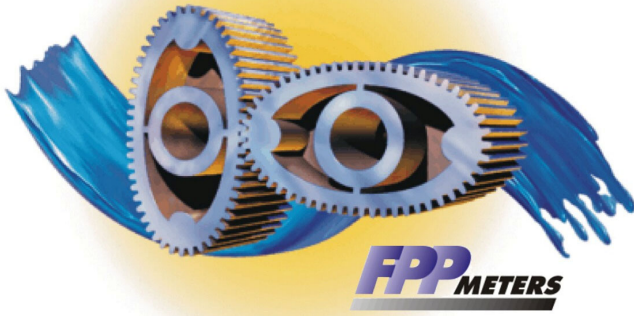
E-mail: FPPWebInquiries@tuthill.com

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TM03A & TM03D

TM03A Anodized Aluminum

TM03D 316 Stainless Steel

- Only two moving parts
- No metal to metal contact in chamber or bearings
- Electronic = Gland-less meter
- Patented 'Wave Form' oval gear design
- Low differential pressure for maximum flow

= **Low Cost of Ownership!**

Specifications

- **Nominal Capacity on 1 cSt viscosity with 10:1 turndown:**

3.0 GPM	=	11.4 lpm
180 GPH	=	680 lph
- **Pressure Rating at 100°F (38°C), with 3:1 Safety Factor:**

TM03A	:	400 PSI	=	28 BAR
TM03D	:	400 PSI	=	28 BAR
		Opt. 1500 PSI	=	103 BAR (code K)
- **Temperature Rating:**

Design : -40°F/+300°F = -40°C to +150°C
*Temperature ratings under UL & ATEX listings may differ.
 See register specifications for temperature range rating for electronics.*
- **Connections:**

3/8" ports in meter case, FNPT standard, FBSP optional.
 3/8" NPT x 1/2" 150# RF ANSI (floating flange) adaptors optional.
- **Materials:**

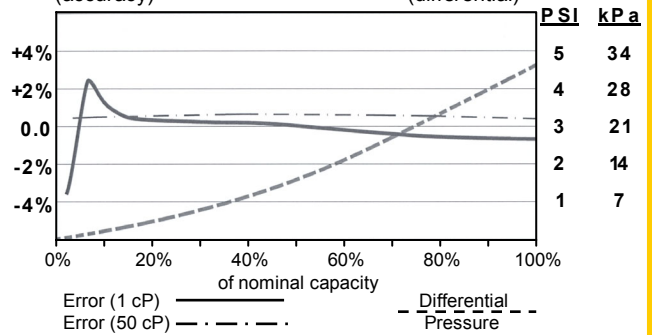
TM03A	Case :	Hardcoat anodized aluminum
	Seals :	Viton™ standard, Teflon™ optional (code B)
TM03D	Case :	316 Stainless Steel
	Seals :	Teflon™ standard.
	Posts :	316SS Hard Chrome coated
	Gears Std. :	PPS (polyphenylene sulfide resin)
	Opt. :	Stainless steel with carbon filled Teflon bearing
- **Pulsers:**

H	=	Hall Effect is standard
Pos. 14 Q	=	Opt. Quadrature Hall Effect (via SCL)
in P/No. B	=	Opt. Reed Switch, for use with FPP battery powered registers only.
- **Nominal Pulse Resolution:**

		<u>On 1 cSt viscosity</u>	<u>On 100 cSt viscosity</u>
Standard H & Q:		±1400 PPG (370 ppl)	±1350 PPG (355 ppl)
Optional H & Q:		±2800 PPG (740 ppl)	±2700 PPG (710 ppl)
	B only:	±700 PPG (185 ppl)	±670 PPG (178 ppl)

Linearity
(accuracy)

Delta P
(differential)



Meter Performance

- **Linearity** Over 10:1 turn-down from nominal capacity: ±0.5% with electronic enhancements: ±0.25%
- **Repeatability** ±0.25% under constant conditions

Approvals

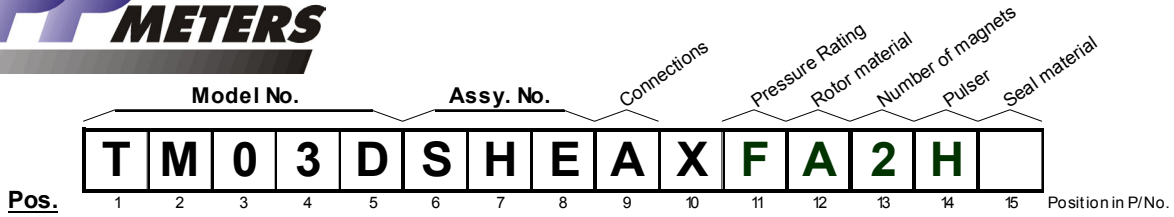
- **Flow Meter** CE mark
- **Pulsers** UL, cUL & ATEX listed; Intrinsically Safe when powered through a UL or ATEX listed barrier with appropriate rating.

Optional Registration, Signals & Accessories

- **Signal Conditioners:**
 - PIA** Pulse Isolator, Amplifier & Splitter, with sinking & sourcing output signal.
 - PAC** Pulse to Analog (4-20 mA) signal converter, requires min. 9 Hz input frequency.
 - SCL** Scaler, Calibrator and/or Linearizer, please consult for selection & pricing.
- **Registers, Totalizers & Batch Controllers**
 - CC56** Battery powered register, NEMA 3R, 4X or 7/4X
 - ELNC** AC, DC or battery powered, NEMA 4X
 - PRT** AC or DC, high/low flow alarm, opt. 4-20 mA signal
 - PC58** DC or battery, Total & Rate, opt. 4-20 mA signal
 - PCDT58** DC or battery, opt. 4-20 mA signal
 - PDB180** AC or DC batch controller, opt. 4-20 mA signal
 - EMR²** DC, register/preset, serial port for PC interface, Optional with temperature compensation
 - 6116** Differential totalizer, pulse & 4-20 mA signal
 - 6127** Temperature compensated version of 6116
- **Accessories**
 - Inlet strainer for flow meter protection is recommended
 - Solenoid control valves, pneumatic operator
 - Solenoid control valves, electric operator



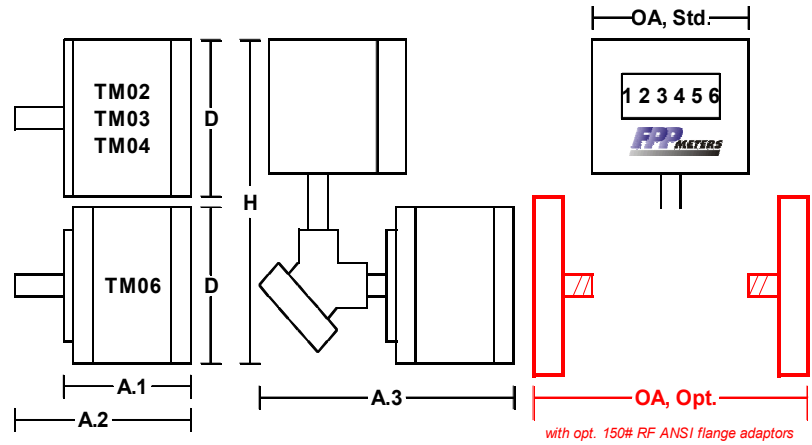
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Pos. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 Position in P/No.

- 5: A = Hardcoat Anodized Aluminum
 D = 316 Stainless steel case
- 6-8: SHE = Flow sensor with Hall Effect pulser
 SQE = Flow sensor with Hall Effect pulser + SCL for quadrature signal
 SRS = Flow sensor with Reed Switch pulser
- 9: A = Bolted companion flanges, with NPT port.
 B = Bolted companion flanges, with BSP port.
 C = 3/8" NPT x 1/2" 150# RF ANSI adaptor (floating flange type)

All dimensions are in inches. 1" = 25.4 mm



Flow Sensor	Flow Meter with signal conditioner/register in enclosure									with ANSI adaptors OA, opt.			
	NEMA 3R			NEMA 4X			NEMA 7/4X						
	D	A.1	A.2	A.3	H	OA	A.3	H	OA		A.3	H	OA
TM03 400 PSI	2.73"	1.76"	3.12"	4.75"	3.61"	3.61"	4.34"	8.56"	5.06"		7.97"	5.89"	6.23"
1500 PSI	2.73"	1.96"	3.32"	4.95"	3.61"	3.61"	4.54"	8.56"	5.06"		7.97"	5.89"	na
				A.4 =		3.02"	A.4 =		4.54"				



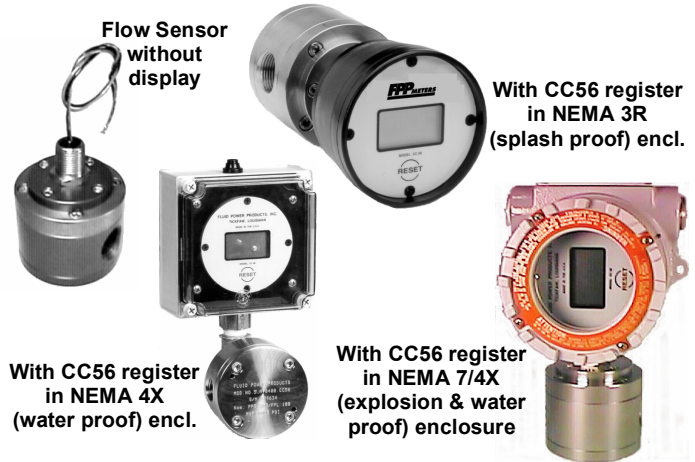
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TM04A Anodized Aluminum

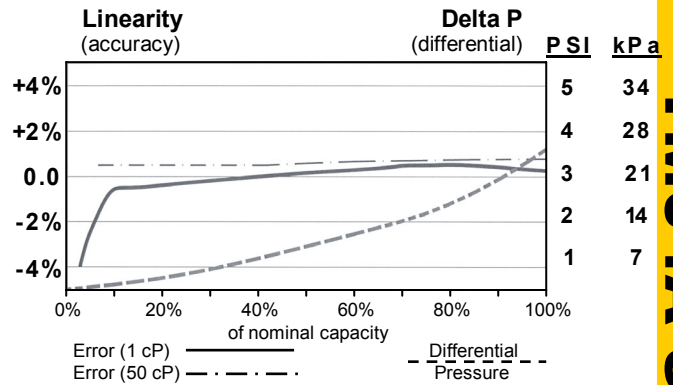
TM04D 316 Stainless Steel

- Only two moving parts
 - No metal to metal contact in chamber or bearings
 - Electronic = Gland-less meter
 - Patented 'Wave Form' oval gear design
 - Low differential pressure for maximum flow
- = Low Cost of Ownership!**

Specifications

- **Nominal Capacity on 1 cSt viscosity with 10:1 turndown:**
 - 10 GPM = 38 lpm
 - 600 GPH = 2250 lph
- **Pressure Rating at 100°F (38°C), with 3:1 Safety Factor:**
 - TM04A : 400 PSI = 28 BAR
 - TM04D : 400 PSI = 28 BAR
 - Opt. : 1500 PSI = 103 BAR (code K)
 - TM04C : 2500 PSI = 173 BAR (code L)
- **Temperature Rating:**
 - Design : -40°F/+300°F = -40°C to +150°C
 - Temperature ratings under UL & ATEX listings may differ.
 - See register specifications for temperature range rating for electronics.
- **Connections:**
 - 1/2" ports in meter case, FNPT standard, FBSP optional.
 - 1/2" NPT x 1/2" 150# RF ANSI (floating flange) adaptors optional.
- **Materials:**
 - TM04A Case : Hardcoat anodized aluminum
 - Seal : Viton™ standard, Teflon™ optional (code B)
 - TM04D Case : 316 Stainless Steel
 - Seal : Teflon™ standard.
 - TM04C Case : 303 Stainless Steel
 - Seal : Teflon™ standard.
 - Posts : 316SS Hard Chrome coated
 - Gears Std. : PPS (polyphenylene sulfide resin)
- **Pulsers:**
 - H = Hall Effect is standard
 - Pos. 14 Q = Opt. Quadrature Hall Effect (via SCL)
 - in P/No. B = Opt. Reed Switch, for use with FPP battery powered registers only.
- **Nominal Pulse Resolution:**

	On 1 cSt viscosity	On 100 cSt viscosity
Standard H & Q:	±402 PPG (106 ppl)	±388 PPG (103 ppl)
Optional H & Q:	±805 PPG (53 ppl)	±775 PPG (51 ppl)
B only:	±201 PPG (27 ppl)	±194 PPG (26 ppl)



Meter Performance

- **Linearity** Over 10:1 turn-down from nominal capacity: ±0.5% with electronic enhancements: ±0.25%
- **Repeatability** ±0.25% under constant conditions

Approvals

- **Flow Meter** CE mark
- **Pulsers** UL, cUL & ATEX listed; Intrinsically Safe when powered through a UL or ATEX listed barrier with appropriate rating.

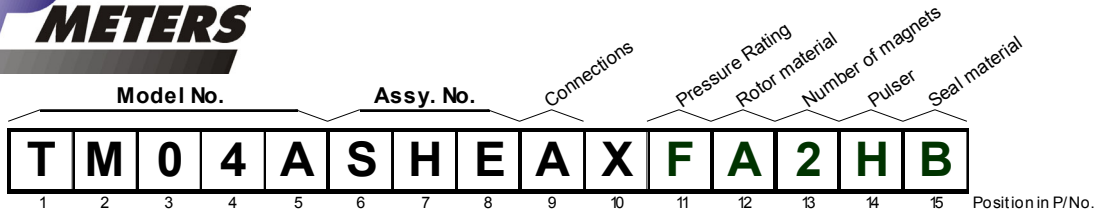
Optional Registration, Signals & Accessories

- **Signal Conditioners:**
 - PIA Pulse Isolator, Amplifier & Splitter, with sinking & sourcing output signal.
 - PAC Pulse to Analog (4-20 mA) signal converter, requires min. 9 Hz input frequency.
 - SCL Scaler, Calibrator and/or Linearizer, please consult for selection & pricing.
- **Registers, Totalizers & Batch Controllers**
 - CC56 Battery powered register, NEMA 3R, 4X or 7/4X
 - ELNC AC, DC or battery powered, NEMA 4X
 - PRT AC or DC, high/low flow alarm, opt. 4-20 mA signal
 - PC58 DC or battery, Total & Rate, opt. 4-20 mA signal
 - PCDT58 DC or battery, opt. 4-20 mA signal
 - PDB180 AC or DC batch controller, opt. 4-20 mA signal
 - EMR² DC, register/preset, serial port for PC interface, Optional with temperature compensation
 - 6116 Differential totalizer, pulse & 4-20 mA signal
 - 6127 Temperature compensated version of 6116
- **Accessories**
 - Inlet strainer for flow meter protection is recommended
 - Solenoid control valves, pneumatic operator
 - Solenoid control valves, electric operator

TM04A & TM04D

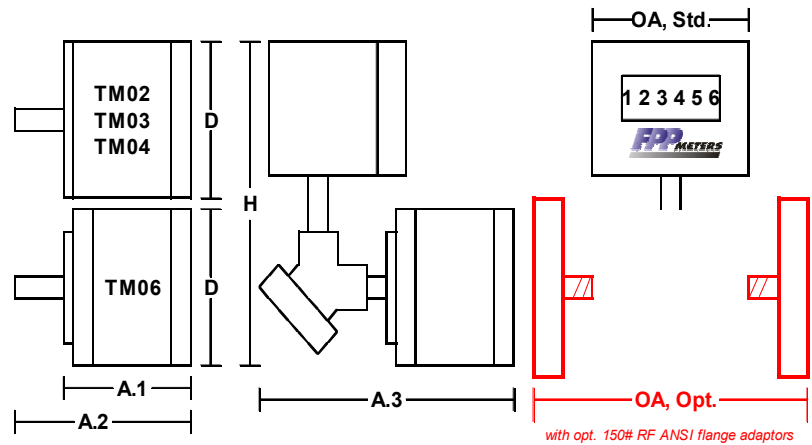


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- Pos. 5:**
- A = Hardcoat Anodized Aluminum
 - C = 303 Stainless steel case (2500 PSI version only)
 - D = 316 Stainless steel case
- 6-8:**
- SHE = Flow sensor with Hall Effect pulser
 - SQE = Flow sensor with Hall Effect pulser + SCL for quadrature signal
 - SRS = Flow sensor with Reed Switch pulser
- 9:**
- A = Bolted companion flanges, with NPT port.
 - B = Bolted companion flanges, with BSP port.
 - C = 1/2" NPT x 1/2" 150# RF ANSI adaptor (floating flange type)

All dimensions are in inches. 1" = 25.4 mm



	Flow Sensor	Flow Meter with signal conditioner/register in enclosure									with ANSI adaptors			
		NEMA 3R			NEMA 4X			NEMA 7/4X						
		D	A.1	A.2	A.3	H	OA	A.3	H	OA		A.3	H	OA
TM04	400 PSI	3.23"	2.05"	3.66"	5.01"	3.61"	3.61"	4.88"	8.81"	5.06"		8.22"	5.89"	6.73"
	1500 PSI	3.23"	2.17"	3.78"	5.13"	3.61"	3.61"	5.00"	8.81"	5.06"		8.22"	5.89"	na
	2500 PSI	3.98"	2.31"	3.73"	5.60"	3.98"	3.98"	4.95"	9.19"	5.06"		8.59"	5.89"	na
								A.4 =	3.02"			A.4 =	4.54"	



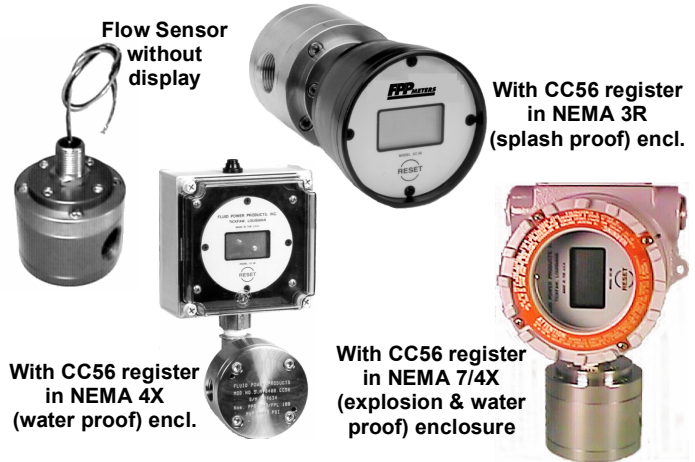
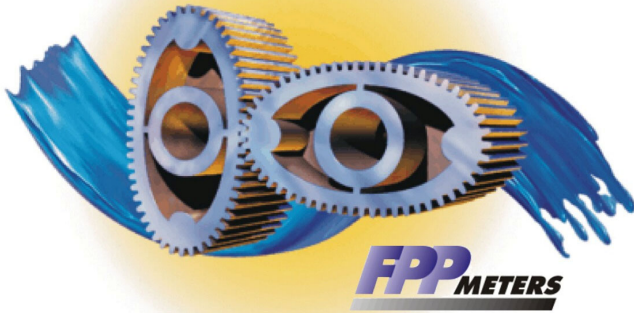
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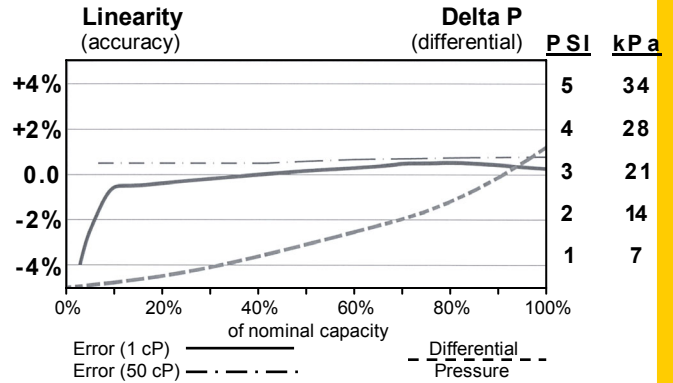
TM06A Anodized Aluminum
TM06C 303 Stainless Steel
TM06D 316 Stainless Steel

- Only two moving parts
 - No metal to metal contact in chamber or bearings
 - Electronic = Gland-less meter
 - Patented 'Wave Form' oval gear design
 - Low differential pressure for maximum flow
- = Low Cost of Ownership!**

Specifications

- **Nominal Capacity on 1 cSt viscosity with 10:1 turndown:**
 20 GPM = 76 lpm
 1200 GPH = 4500 lph
- **Pressure Rating at 100°F (38°C), with 3:1 Safety Factor:**
TM06A : 400 PSI = 28 BAR
 Opt. : 1500 PSI = 103 BAR
TM06D : 400 PSI = 28 BAR
 Opt. : 1500 PSI = 103 BAR (code K)
TM06C : 400 PSI = 28 BAR
 Opt. : 1500 PSI = 103 BAR (code K)
 Opt. : 2500 PSI = 173 BAR (code L)
- **Temperature Rating:**
Design : -40°F/+300°F = -40°C to +150°C
Temperature ratings under UL & ATEX listings may differ.
See register specifications for temperature range rating for electronics.
- **Connections:**
 3/4" ports in meter case, FNPT standard, FBSP optional.
 3/4" NPT x 3/4" 150# RF ANSI (floating flange) adaptors optional.
- **Materials:**
TM06A Case : Hardcoat anodized aluminum
 Seal : Viton™ standard, Teflon™ optional (code B)
TM06D Case : 316 Stainless Steel
 Seal : Teflon™ standard.
TM06C Case : 303 Stainless Steel
 Seal : Teflon™ standard.
 Posts : 316SS Hard Chrome coated
 Gears Std. : PPS (polyphenylene sulfide resin)
- **Pulsers:** H = Hall Effect is standard
 Pos. 14 Q = Opt. Quadrature Hall Effect (via SCL)
 in P/No. B = Opt. Reed Switch,
for use with FPP battery powered registers only.
- **Nominal Pulse Resolution:**

	On 1 cSt viscosity	On 100 cSt viscosity
Standard H & Q:	±202 PPG (54 ppl)	±195 PPG (52 ppl)
Optional H & Q:	±405 PPG (107 ppl)	±390 PPG (103 ppl)
B only:	±101 PPG (27 ppl)	±98 PPG (26 ppl)



Meter Performance

- **Linearity** Over 10:1 turn-down from nominal capacity: ±0.5%
 with electronic enhancements: ±0.25%
- **Repeatability** ±0.25% under constant conditions

Approvals

- **Flow Meter** CE mark
- **Pulsers** UL, cUL & ATEX listed;
 Intrinsically Safe when powered through a UL or ATEX listed barrier with appropriate rating.

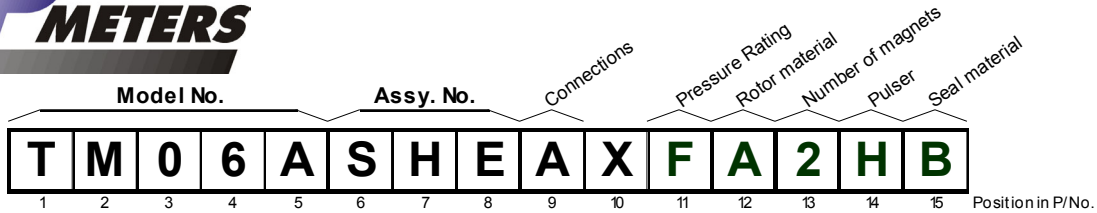
Optional Registration, Signals & Accessories

- **Signal Conditioners:**
PIA Pulse Isolator, Amplifier & Splitter, with sinking & sourcing output signal.
PAC Pulse to Analog (4-20 mA) signal converter, requires min. 9 Hz input frequency.
SCL Scaler, Calibrator and/or Linearizer, please consult for selection & pricing.
- **Registers, Totalizers & Batch Controllers**
CC56 Battery powered register, NEMA 3R, 4X or 7/4X
ELNC AC, DC or battery powered, NEMA 4X
PRT AC or DC, high/low flow alarm, opt. 4-20 mA signal
PC58 DC or battery, Total & Rate, opt. 4-20 mA signal
PCDT58 DC or battery, opt. 4-20 mA signal
PDB180 AC or DC batch controller, opt. 4-20 mA signal
EMR² DC, register/preset, serial port for PC interface, Optional with temperature compensation
6116 Differential totalizer, pulse & 4-20 mA signal
6127 Temperature compensated version of 6116
- **Accessories**
 Inlet strainer for flow meter protection is recommended
 Solenoid control valves, pneumatic operator
 Solenoid control valves, electric operator



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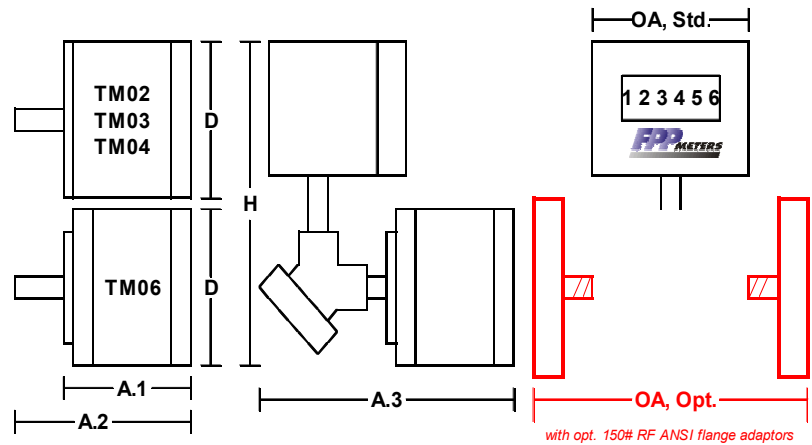
TM04A, TM06C & TM04D



Pos. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 Position in P/No.

- 5:** A = Hardcoat Anodized Aluminum
 C = 303 Stainless steel case
 D = 316 Stainless steel case
- 6-8:** SHE = Flow sensor with Hall Effect pulser
 SQE = Flow sensor with Hall Effect pulser + SCL for quadrature signal
 SRS = Flow sensor with Reed Switch pulser
- 9:** A = Bolted companion flanges, with NPT port.
 B = Bolted companion flanges, with BSP port.
 C = 3/4" NPT x 3/4" 150# RF ANSI adaptor (floating flange type)

All dimensions are in inches. 1" = 25.4 mm



	Flow Sensor	Flow Meter with signal conditioner/register in enclosure									with ANSI adaptors OA, opt.			
		NEMA 3R			NEMA 4X			NEMA 7/4X						
		D	A.1	A.2	A.3	H	OA	A.3	H	OA		A.3	H	OA
TM06	400 PSI	3.23"	3.00"	4.60"	6.02"	3.61"	3.61"	5.82"	8.81"	5.06"		8.22"	5.89"	7.88"
	1500 PSI	3.23"	3.13"	5.73"	6.15"	3.61"	3.61"	6.95"	8.81"	5.06"		8.22"	5.89"	na
	2500 PSI	4.23"	3.20"	4.62"	6.49"	4.23"	4.23"	5.84"	9.31"	5.06"		8.72"	5.89"	na
								A.4 =	3.02"		A.4 =	4.54"		



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