

# Turbine<sup>™</sup>

## UNIVERSAL<sup>®</sup> Flow Monitors Turbine In-Line Meters for Liquids

The TM Series Liquid Turbine flow meter is a highly-versatile product line that offers all stainless steel, precision-machined components with CD4MCu steel rotors. Available for line sizes from 1/2" to 10".

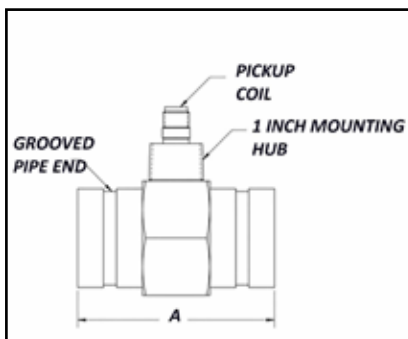


**TM FLOWMETER**

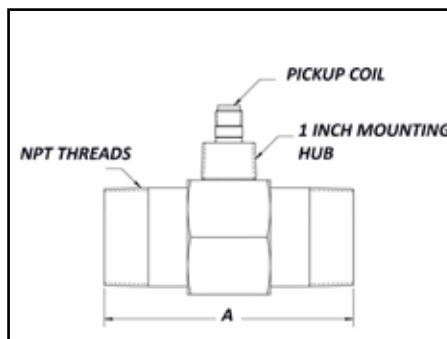
### Performance Data

<b>Accuracy</b>	+/- 1.0% over flow range (except TM0038 which is +/- 2.0%)
<b>Repeatability</b>	+/- 0.1% over flow range
<b>Operating Temperature</b>	-100° F to +300° F
<b>Connection</b>	Flanged, Victaulic <sup>®</sup> (grooved), or threaded
<b>Materials</b>	
<b>Meter Body</b>	316 stainless steel
<b>Rotor Supports</b>	316 stainless steel
<b>Meter Rotor</b>	CD4MCu steel
<b>Rotor Shaft</b>	Tungsten carbide
<b>Sleeve Bearings</b>	Tungsten carbide
<b>Certifications</b>	NIST, CRN
<b>Additional Information</b>	Full line of economical Retrofit Kits are available

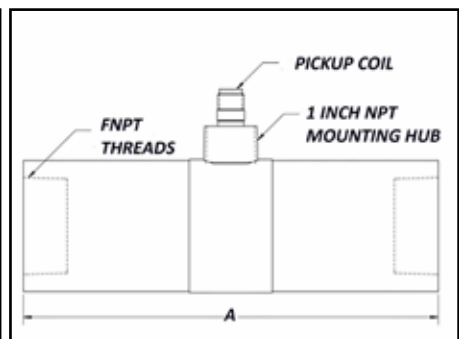
### INSTALLATION DRAWING



**GROOVED VICTAULIC TM**



**MALE TM**



**2 INCH FEMALE TM**

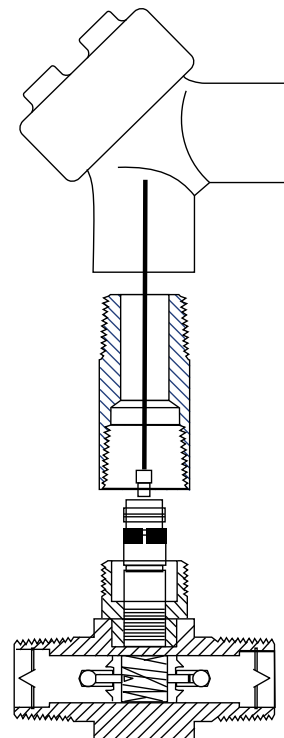
#### Installation

1. Magnetic pickup coils included with each turbine meter at no extra charge
2. Turbine meter is linear and accurate over its designed operating range
3. Minimum recommended piping installation: 10 diameters upstream & 5 diameters
4. Locate valves or chokes downstream
5. For best meter performance and to avoid bearing wear, do not exceed maximum rated flow for long periods of time
6. Consult factory for warranty details

**HOW TO ORDER** Select appropriate symbols and build a model code number, as in example shown:

**EXAMPLE 1: TM0050 - N**

Part Number	End Connection Size (in)	Flow in GPM		Flow in LPM		A Dimension Inches
		Min	Max	Min	Max	
TM0038	1" X 1" Male NPT	0.3	3	1.1	11	4
TM0038-F150	1" X 1" with 150 LB RF flange	0.3	3	1.1	11	6
TM0038x 1/2	½" X ½" Male NPT	0.3	3	1.1	11	4
TM0050	1" X 1" Male NPT	0.8	8	2.8	28	4
TM0050-F150	1" X 1" with 150 LB RF flange	0.8	8	2.8	28	6
TM0050x 1/2	½" X ½" Male NPT	0.8	8	2.8	28	4
TM0075	1" X 1" Male NPT	2	15	7.6	57	4
TM0075-F150	1" X 1" with 150 LB RF flange	2	15	7.6	57	6
TM0075x 1/2	½" X ½" Male NPT	2	15	7.6	57	4
TM0078	1" X 1" Male NPT	3	30	11.4	114	4
TM0078-F150	1" X 1" with 150 LB RF flange	3	30	11.4	114	6
TM0078-VIC	1" X 1" Victaulic	3	30	11.4	114	4
TM0100	1" X 1" Male NPT	5	50	18.9	189	4
TM0100-F150	1" X 1" with 150 LB RF flange	5	50	18.9	189	6
TM0100-VIC	1" X 1" Victaulic	5	50	18.9	189	4
TM0150	1½" X 1½" Male NPT	15	180	57	681	6
TM0150-F150	1½" X 1½" with 150 LB RF flange	15	180	57	681	7
TM0150-VIC	1½" X 1½" Victaulic	15	180	57	681	6
TM0200L	2" X 2" Low Flow Male NPT	15	180	57	681	6
TM0200L-F150	2" X 2" Low Flow with 150 LB RF flange	15	180	57	681	6.5
TM200L-VIC	2" X 2" Low Flow Victaulic	15	180	57	681	6
TM0200	2" X 2" Female NPT	40	400	151	1514	10
TM0200-F150	2" X 2" with 150 LB RF flange	40	400	151	1514	8.5
TM0300-VIC	3" Victaulic	60	600	227	2271	12
TM0300-F150	3" with 150 LB RF flange	60	600	227	2271	10
TM0400-VIC	4" Victaulic	120	1200	454	4542	12
TM0400-F150	4" with 150 LB RF flange	120	1200	454	4542	12
TM0600-VIC	6" Victaulic	250	2500	946	9464	12
TM0600-F150	6" with 150 LB RF flange	250	2500	946	9464	12
TM0800-VIC	8" Victaulic	350	3500	1325	13249	12
TM0800-F150	8" with 150 LB RF flange	350	3500	1325	13249	12
TM1000-VIC	10" Victaulic	550	5500	2082	20820	12
TM1000-F150	10" with 150 LB RF flange	550	5500	2082	20820	12



**Y ENCLOSURE MOUNTED ON TM METER**



**FML ENCLOSURE MOUNTED ON TM METER**

**STANDARD OUTPUTS WITH NO DIGITAL VISUAL OR PROGRAMMABLE FLOW MONITOR**

	SYMBOL
Standard mag pickup sine wave good to 30 ft	N
In a Y Enclosure (conduit box)	NY
Hi Temp Magnetic Pick-up (-100F to +450F)	M
In a Y Enclosure (conduit box)	MY
Square wave Magnetic Pick-up with Pre-Amplifier (requires power)	P
In a Y Enclosure (conduit box)	PY
4-20 mA Analog Transmitter in Y Enclosure	X
Want 20 mA at lower than max possible? Express as % of max flow eg. 50% is X50	X50

Note: Y Enclosure is UL rated, Class I, Groups A, B, C & D Class II Groups E, F & G; CSA

**EXAMPLE 2: TM0100 - FML250-P-SM**

**PROGRAMMABLE FLOW MONITOR WITH DIGITAL VISUAL READOUT MOUNTED ON THE FLOW METER**

Added flow meter control box (see FML250 literature) with visual display and programming

Note: units are pre-set with unit K-factor

On unit mounting options fixed and on a swivel for better visibility

Standard Pulse Output	FML250-P	<b>FML250-P-SM</b>
4-20mA Loop Output (4)	FML250-P4	FML250-P4-SM
Linearization (2-40 point)	FML250-PL	FML250-PL-SM
Pulse, 4-20mA, Linearization	FML250-P4L	FML250-P4L-SM
Temperature Compensation	FML250-PTC	FML250-PTC-SM

Note: FML250 Enclosure is NEMA 4 – CSA/UL

Note: Select with your maximum flow at 50% to 100% of the max flow listed above to have sufficient rangeability. Select by flow rate with user estimated Max Flow at midscale of max flow for the model so that there is sufficient rangeability for the meter, eg TM0050 for flows between 4 and 8 max.

Note: These meters are typically ordered with attached flow monitor display (See FML250 data sheet). By putting this FML250 part number at the end of the model selected, it will come installed on the meter and pre-configured for k factor Eg. TM0300-FML250-P-SM.