

# Truflo® — TKM | TK3M Series In-Line Paddle Wheel Flow Meter Sensor

ICON™ Corrosion-Free  
PROCESS CONTROLS Instrumentation Equipment™

Flow | Total | Pulse | 4-20mA | Volatge (Opt.)



## Industry's **Longest Lasting** Paddle Wheel Flow Meter

# Truflo® — TKM | TK3M Series

## In-Line Paddle Wheel Flow Meter Sensor

- ✓ No Programming | Quick Installation
- ✓ Industry's Highest Accuracy:  $\pm 0.5\%$
- ✓ Lifetime Warranty\*



- ✓ Pulse | 4-20mA | \*Voltage Outputs (\*Optional)
- ✓ Flow | Total
- ✓ Revolutionary ShearPro® Paddle Wheel Design
- ✓ Low Pressure Drop
- ✓ NEMA 4X | IP 66 Protection
- ✓ Password Protected Security
- ✓ True Union Design ½" - 2"
- ✓ Flange Connection 3" - 4"

### Engineered for accuracy, ruggedness and longevity

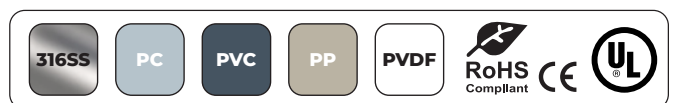
The Truflo® TKM Series digital in-line flow meter sensors are easy to install with exceptional guaranteed long-life performance. They are highly repeatable, extremely rugged sensors that offer outstanding value and require no scheduled maintenance.

The TKM Series has a process-ready output signal with a wide dynamic flow range of 0.3 to 33 ft/s | 0.1 to 10 m/s. The sensor measures liquid flow rates in full pipes.

TKM Series flow meters are offered in a variety of materials and are available from ¼" - 4" pipe sizes. The many material choices, including PVC, PP, PVDF and 316 SS make this model highly adaptable and chemically resistant to many corrosive liquid process applications.

The TKM Series flow meter bodies (PVC, PP, PVDF) are true-union designed up to 2" just as any true-union ball valve is designed. 3" - 4" versions are flanged. They come completely pre-programmed with a bright LCD Display that rotates 360°.

\* The Truflo® TKM Series also comes equipped with a lifetime warranty on the paddle wheel assembly.



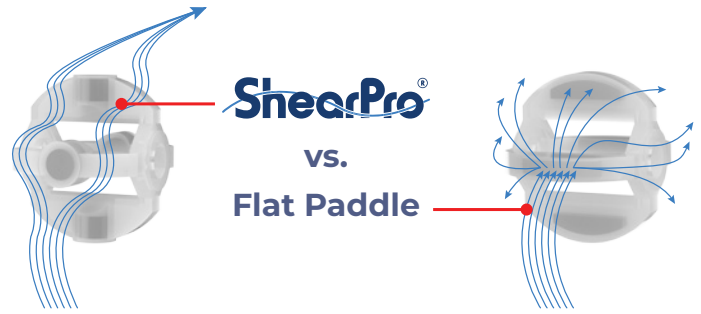
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## In-Line Paddle Wheel Flow Meter Sensor

### New ShearPro® Design

- ✓ Contoured Flow Profile
- ✓ Reduced Turbulence = Increased Longevity
- ✓ 78% Less Drag than Old Flat Paddle Design†

†Ref: NASA "Shape Effects on Drag"



### Tefzel® Paddle Wheel

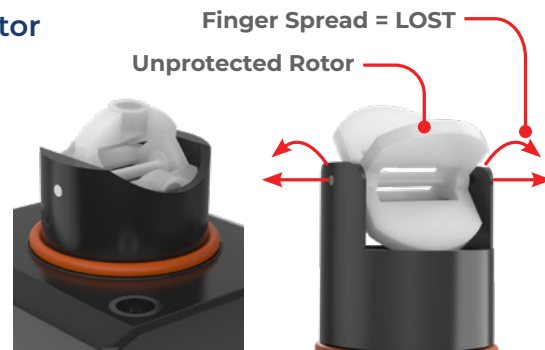
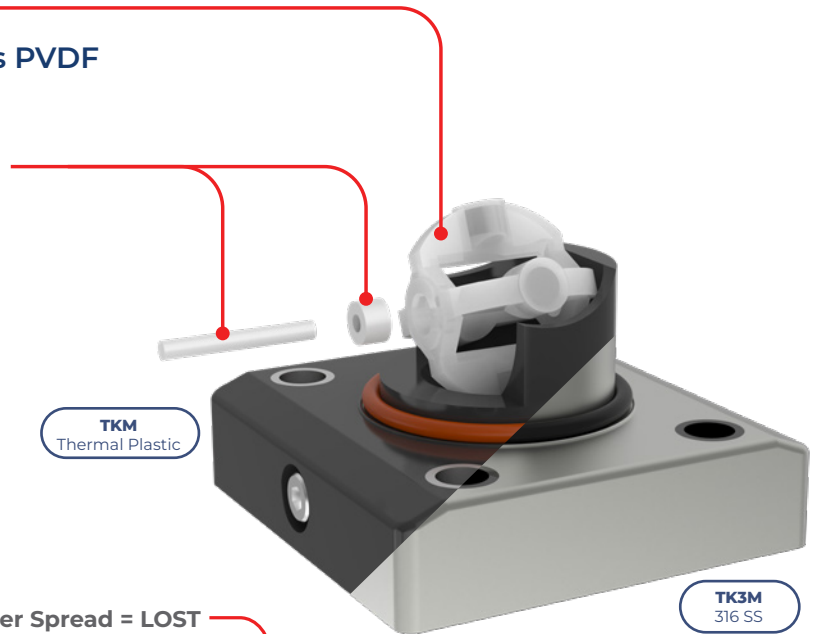
- ✓ Superior Chemical And Wear Resistance vs PVDF

### Zirconium Ceramic Rotor | Bushings

- ✓ Up to 15x the Wear Resistance vs. Regular Ceramic
- ✓ Integral Rotor Bushings Reduce Wear and Fatigue Stress

### ShearPro® Through-Pin Design

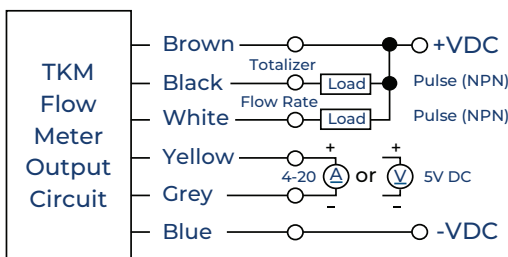
- ✓ Eliminates Finger Spread
- ✓ No Lost Paddles
- ✓ Increased Temp. Rating
- ✓ 360° Housing Protects Rotor



**ShearPro® vs. Competitor 'A'**

### Wiring Diagram

**TKM - (4-20mA or 0-5V DC + NPN Pulse)**



Wire Color	Description
Brown	+ 10~30VDC
Black	Totalizer Pulse Output (OP2)
White	Flow Rate Pulse Output (OP1)
Yellow	+ 4-20mA   0-5V*
Grey	- 4-20mA   0-5V*
Blue	-VDC

\*Optional

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## In-Line Paddle Wheel Flow Meter Sensor

### Technical Specifications

General		
Operating Range	0.3 to 33 ft/s	0.1 to 10 m/s
Pipe Size Range	¼" to 4" **	DN08 to DN100
Linearity	±0.5% of F.S @ 25°C   77°F	
Repeatability	±0.5% of F.S @ 25°C   77°F	
Wetted Materials		
Sensor Body	PVC (Dark)   PP (Pigmented)   PVDF (Natural)   316SS	
O-Rings	FKM   EPDM*   FFKM*	
Rotor Pin   Bushings	Zirconium Ceramic   ZrO <sub>2</sub>	
Paddle   Rotor	ETFE Tefzel®	
Electrical		
Frequency	49 Hz per m/s nominal	15 Hz per ft/s nominal
Supply Voltage	10 to 30 VDC ±10% regulated	
Supply Current	<1.5 mA @ 3.3 to 6 VDC	<20 mA @ 6 to 24 VDC
Max. Temperature/Pressure Rating – Standard and Integral Sensor   Non-Shock		
PVC	180 Psi @ 68°F   40 Psi @ 140°F	12.5 Bar @ 20°C   2.7 Bar @ 60°C
PP	180 Psi @ 68°F   40 Psi @ 190°F	12.5 Bar @ 20°C   2.7 Bar @ 88°C
PVDF	200 Psi @ 68°F   40 Psi @ 240°F	14 Bar @ 20°C   2.7 Bar @ 115°C
316 SS	200 Psi @ 180°F   40 Psi @ 300°F	14 Bar @ 82°C   2.7 Bar @ 148°C
Operating Temperature		
PVC	32°F to 140°F	0°C to 60°C
PP	-4°F to 190°F	-20°C to 88°C
PVDF	-40°F to 240°F	-40°C to 115°C
316 SS	-40°F to 300°F	-40°C to 148°C
Outputs		
NPN Pulse   4-20mA   Voltage (0-5V)*		
Display		
LED   Flow Rate + Flow Totalizer		
Standards and Approvals		
UL   CE   RoHS Compliant		

See Temperature and Pressure Graphs for more information

\*Optional  
\*\* ¼" - ¾" SS Only

### K-Factors for TK Series (V1)

Size	LPM	GPM
¼"	547	2079
⅜"	300	1140
½"	127.6	484.9
¾"	81.8	310.8
1"	55.1	209.4
1½"	18.8	71.4
2"	10.2	38.8
3"	4.7	18
4"	2.1	8

### K-Factors for TK Series (V2)

Size	K-Factor
½"	127.6
¾"	81.8
1"	55.1
1½"	18.8
2"	10.2
2½"	6.0

**⚠** K-Factor is Pre-Programmed

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## In-Line Paddle Wheel Flow Meter Sensor

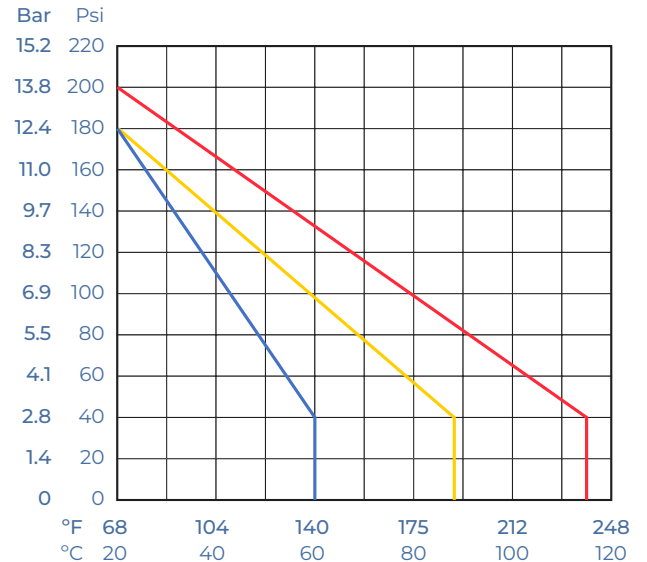
### Min/Max Flow Rates

Pipe Size (O.D.)	LPM   GPM		LPM   GPM	
	0.3m/s min.		10m/s max.	
DN08 (1/4")	0.6	0.16	12	3
DN10 (3/8")	1.8	0.48	50	13
DN15 (1/2")	3.5	1.0	120	32
DN20 (3/4")	5.0	1.5	170	45
DN25 (1")	9.0	2.5	300	79
DN40 (1 1/2")	25.0	6.5	850	225
DN50 (2")	40.0	10.5	1350	357
DN65 (2 1/2")	60.0	16.0	1850	357
DN80 (3")	90.0	24.0	2800	739
DN100 (4")	125.0	33.0	4350	1149

◀ SS Only

◀ SS Only

■ = PVC ■ = PP ■ = PVDF



### Temperature | Pressure Graphs | Non-Shock

**Note:** The Pressure/Temperature graphs are specifically for the Truflor® Flow Meter Sensors.

During system design the specifications of all components must be considered.

### Model Selection

PVC		
Size	End Connections	Part Number
1/2"	Sch 80 Soc	TKM-15-P
3/4"	Sch 80 Soc	TKM-20-P
1"	Sch 80 Soc	TKM-25-P
1 1/2"	Sch 80 Soc	TKM-40-P
2"	Sch 80 Soc	TKM-50-P
3"	Flanged	TKM-80-P
4"	Flanged	TKM-100-P

PP		
Size	End Connections	Part Number
1/2"	NPT	TKM-15-PP
3/4"	NPT	TKM-20-PP
1"	NPT	TKM-25-PP
1 1/2"	NPT	TKM-40-PP
2"	NPT	TKM-50-PP
3"	Flanged	TKM-80-PP
4"	Flanged	TKM-100-PP

PVDF		
Size	End Connections	Part Number
1/2"	NPT	TKM-15-PF
3/4"	NPT	TKM-20-PF
1"	NPT	TKM-25-PF
1 1/2"	NPT	TKM-40-PF
2"	NPT	TKM-50-PF

#### Add 1<sup>st</sup> Suffix (end connection):

- T ▶ NPT End Connectors (on PVC)
- B ▶ Butt Fused End Connections for PP or PVDF
- F ▶ Flange ANSI 150lb - Consult Factory

#### Add 2<sup>nd</sup> Suffix (seals):

- FKM (std, no suffix required)
- E ▶ EPDM Seals
- K ▶ FFKM | Kalrez® Seals

Note: PVC Socket Ends (Std)  
PP/PVDF NPT Ends (Std)

316 SS		
Size	End Connections	Part Number
1/4"	NPT	TK3M-08-SS
3/8"	NPT	TK3M-10-SS
1/2"	NPT	TK3M-15-SS
3/4"	NPT	TK3M-20-SS
1"	NPT	TK3M-25-SS
1 1/2"	NPT	TK3M-40-SS
2"	NPT	TK3M-50-SS
3"	NPT	TK3M-80-SS
4"	NPT	TK3M-100-SS

#### Add 1<sup>st</sup> Suffix (end connection):

- T ▶ NPT End Connectors
- SE ▶ Sanitary - Consult Factory for Pricing
- F ▶ Flange ANSI 150lb - Consult Factory

#### Add 2<sup>nd</sup> Suffix (seals):

- FKM (std, no suffix required)
- E ▶ EPDM Seals
- K ▶ FFKM | Kalrez® Seals