

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

**ICON**™ Corrosion-Free  
PROCESS CONTROLS Instrumentation Equipment

Flow | Total | Pulse | 4-20mA



*truflo*®

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

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# Truflo® — TKM Series

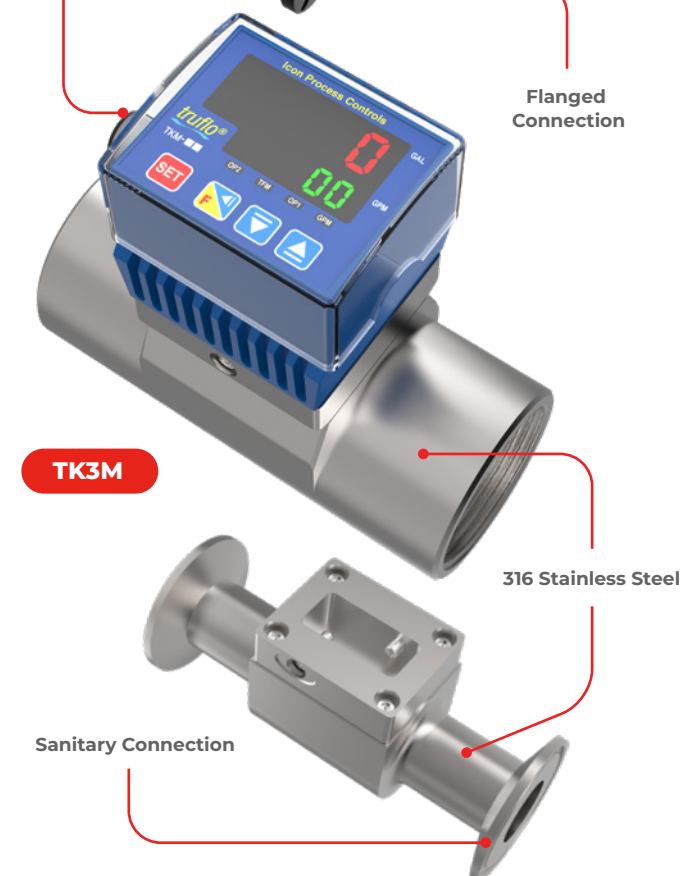
## In-Line Paddle Wheel Flow Meter Sensor

**ICON**™ Corrosion-Free  
PROCESS CONTROLS Instrumentation Equipment

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



- ✓ Pulse | 4-20mA Outputs
- ✓ 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

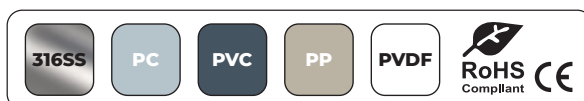
The Truflo® TKM Series digital in-line flow meter sensors are easy to install with exceptional guaranteed long-life performance. They are highly repeatable, extremely rugged sensors that offer outstanding value and require no scheduled maintenance.

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

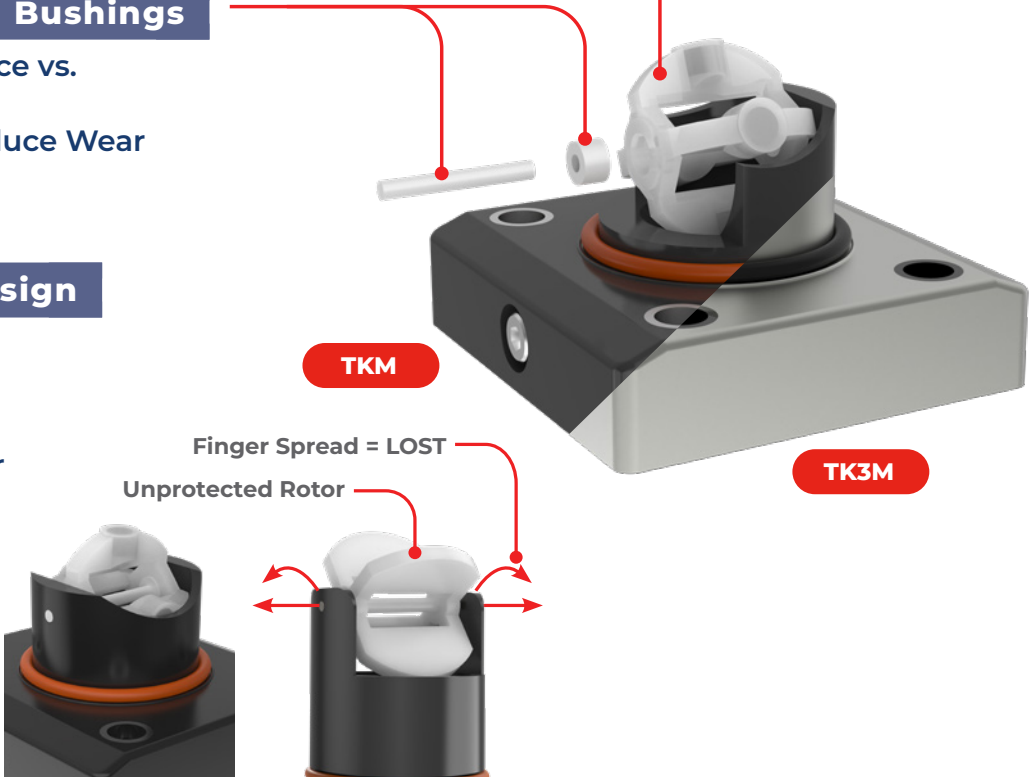
- ✓ Superior Chemical And Wear Resistance vs PVDF

### 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

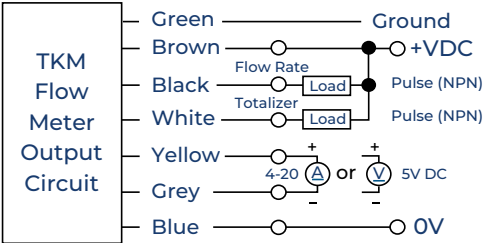
- ✓ Eliminates Finger Spread
- ✓ No Lost Paddles
- ✓ Increased Temp. Rating
- ✓ 360° Housing Protects Rotor



ShearPro® vs. Competitor 'A'

### Wiring Diagram

#### TKM - (4-20mA or 0-5V DC + NPN Pulse) Flow Rate + Flow Totalizer + Pulse Diagram



|              |                            |               |                                                                                             |
|--------------|----------------------------|---------------|---------------------------------------------------------------------------------------------|
| <b>Brown</b> | 10 - 30 VDC (+)            | <b>Yellow</b> | + (4-20mA) or (0-5V)                                                                        |
| <b>Blue</b>  | 0V (-)                     | <b>Grey</b>   | Totalizer Output NPN (4-20mA or 0 - 5V DC)<br>(4-20mA Default -0-5VDC Option-Special Order) |
| <b>White</b> | Totalizer Pulse Output NPN | <b>Black</b>  | Flow Rate Pulse Output NPN                                                                  |

Black Wire can be Changed for Flow Total Limit Output or Unit Volume Pulse Output

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## In-Line Paddle Wheel Flow Meter Sensor

### 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                                                              | 9 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                                                                      | Consult Factory                                      |                                  |
| 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 149°C                   |
| Outputs                                                                     |                                                      |                                  |
| TKM Series                                                                  | NPN Pulse   4-20mA Outputs                           |                                  |
| Standards and Approvals                                                     |                                                      |                                  |
| CE   FCC   RoHS Compliant                                                   |                                                      |                                  |

See Temperature and Pressure Graphs for more information

\*Optional

### K-Factors for TK Series

| 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-Factor is Pre-Programmed |       |       |

### Min/Max Flow Rates

| Pipe Size (O.D.) | LPM   GPM   |      | LPM   GPM   |
|------------------|-------------|------|-------------|
|                  | 0.3m/s min. |      | 10m/s max.  |
| DN08 (¼")        | 0.04        | 0.16 | 12   3      |
| DN10 (⅜")        | 1.0         | 3.8  | 50   13     |
| DN15 (½")        | 3.5         | 1.0  | 120   32    |
| DN20 (¾")        | 5.0         | 1.5  | 170   45    |
| DN25 (1")        | 9.0         | 2.5  | 300   79    |
| DN40 (1½")       | 25.0        | 6.5  | 850   225   |
| DN50 (2")        | 40.0        | 10.5 | 1350   357  |
| DN65 (2½")       | 60.0        | 16.0 | 1850   357  |
| DN80 (3")        | 90.0        | 24.0 | 2800   739  |
| DN100 (4")       | 125.0       | 33.0 | 4350   1149 |

• SS Only

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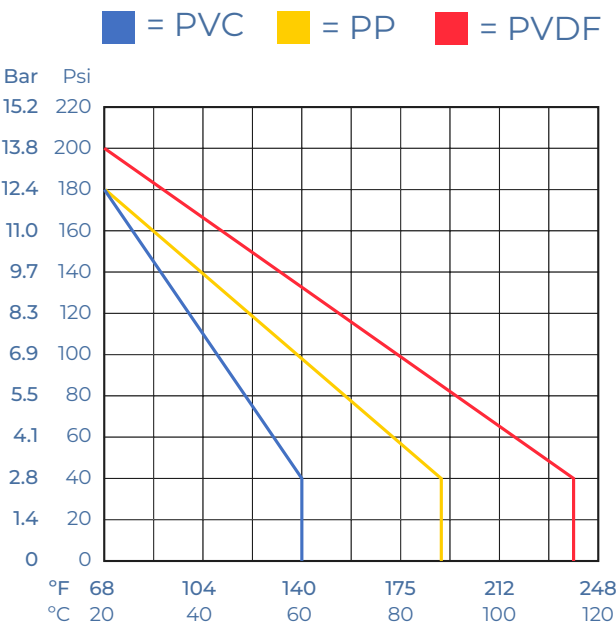
# Truflo® — TKM Series

## In-Line Paddle Wheel Flow Meter Sensor

### Temperature | Pressure Graphs | Non-Shock

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

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



### Model Selection

TKM - 20 - P - T -  **NOTE:** Leave blank for standard options

| Pipe Size | Material | End Connections                                 | Seals             |
|-----------|----------|-------------------------------------------------|-------------------|
| 15 : ½"   | P : PVC  | Sch 80 Soc (Standard on PVC)                    | FKM (std)         |
| 20 : ¾"   | PP: PP   | T : NPT (Standard on PP/PVDF, available on PVC) | E: EPDM           |
| 25 : 1"   | PF: PVDF | F: ANSI 150lb Flange                            | K: FFKM   Kalrez® |
| 40 : 1½"  |          | B: Butt Fusion                                  |                   |

TK3M - 20 - SS - SE -  **NOTE:** Leave blank for standard options

| Pipe Size | Material | End Connections    | Seals             |
|-----------|----------|--------------------|-------------------|
| 08 : ¼"   | S: SS    | T : NPT (Standard) | FKM (std)         |
| 10 : ⅜"   |          | SE: Sanitary       | E: EPDM           |
| 15 : ½"   |          |                    | K: FFKM   Kalrez® |
| 20 : ¾"   |          |                    |                   |
| 25 : 1"   |          |                    |                   |