

# Truflo® — TKW Series (Blind) In-Line Paddle Wheel Flow Meter Sensor

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

Pulse | Voltage | 4-20mA



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

1.800.561.8187

www.**itm**.com

information@itm.com

# Truflo® — TKW Series (Blind) 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 | Voltage | 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

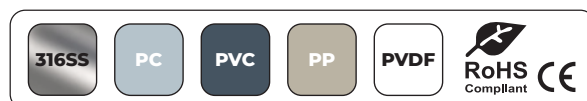
The Truflo® TKW Series digital in-line flow meter sensors are easy to install with exceptional guaranteed long-life performance. They are highly repeatable, extremely rugged sensors that offer outstanding value and require no scheduled maintenance.

The TKW 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.

TKW 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 TKW 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. This blind unit comes completely pre-programmed with a bright LED power indicator.

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



1.800.561.8187

www.itm.com

information@itm.com

# Truflo® — TKW Series (Blind) In-Line Paddle Wheel Flow Meter Sensor

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

## 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

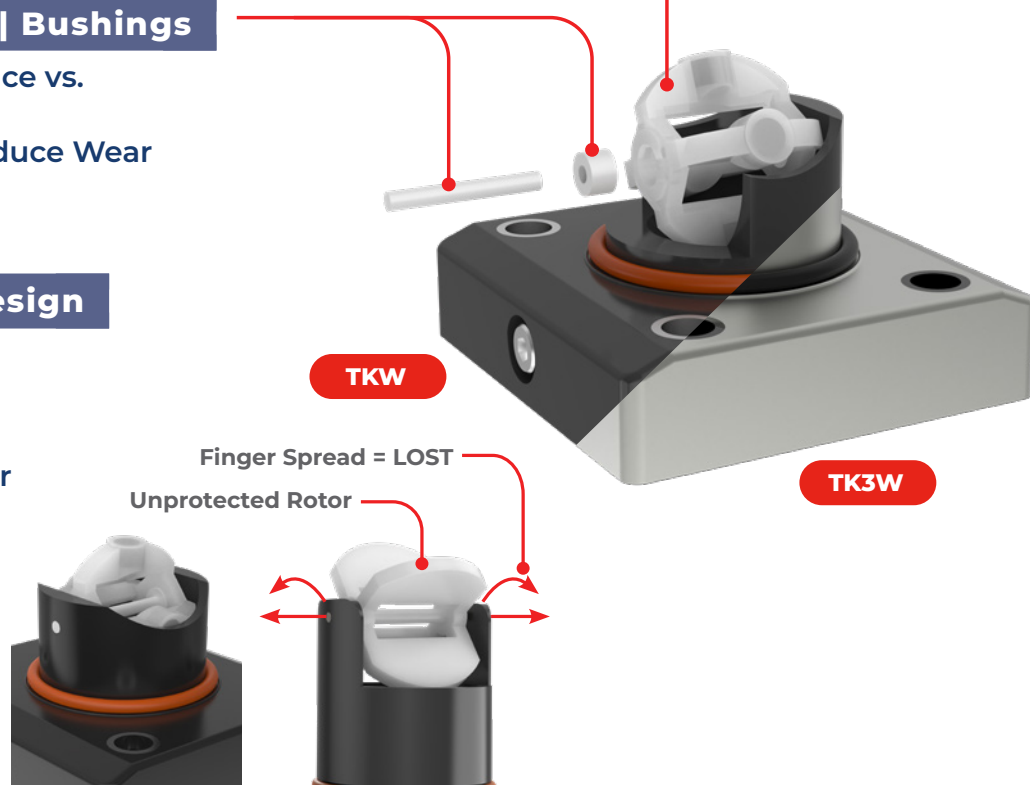
- ✓ Superior Chemical And Wear Resistance vs PVDF

## Zirconium Ceramic Rotor | Bushings

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

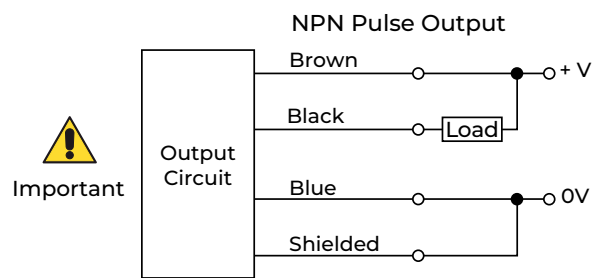
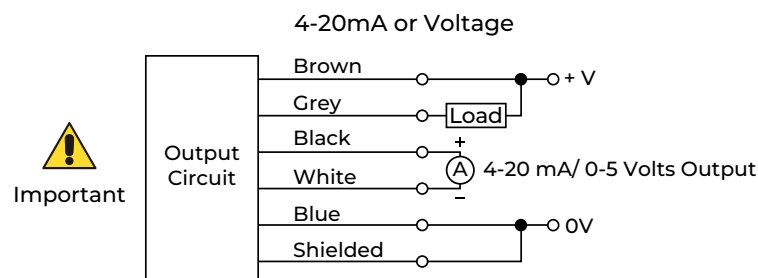
## ShearPro® Through-Pin Design

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



**ShearPro®** vs. Competitor 'A'

## Wiring Diagram



# Truflo® — TKW Series (Blind)

## 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                                                                     |                                                      |                                  |
| TKW Series                                                                  | NPN Pulse   Voltage   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      | ◀ SS Only |
| DN10 (⅜")        | 1.0   3.8    | 50   13     | ◀ SS Only |
| 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 |           |

# Truflo® — TKW Series (Blind) In-Line Paddle Wheel Flow Meter Sensor

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

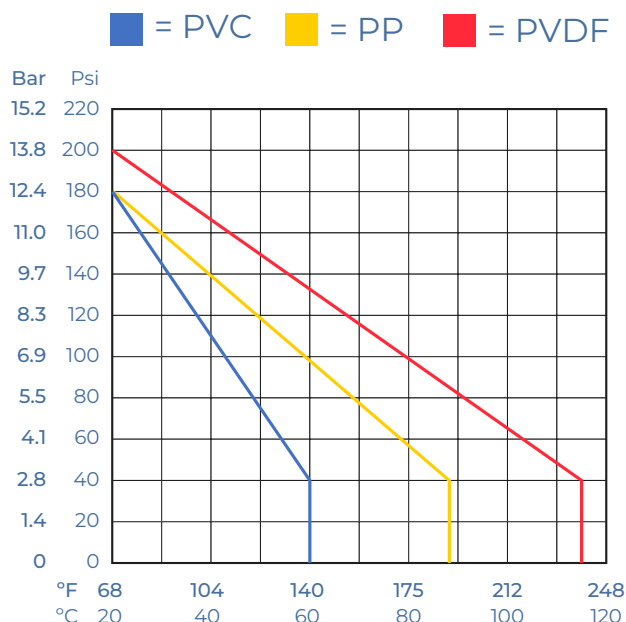
## Range of Transmitter

| TKW Series |      | Range LPM   GPM |          |
|------------|------|-----------------|----------|
| DN15       | ½"   | 0-30 LPM        | 0-8 GPM  |
| DN20       | ¾"   | 0-60 LPM        | 0-16 GPM |
| DN25       | 1"   | 0-90 LPM        | 0-24 GPM |
| DN40       | 1 ½" | 0-200 LPM       | 0-53 GPM |
| DN50       | 2"   | 0-330 LPM       | 0-87 GPM |

## 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

TKW - 20 - P - T - [ ] - [ ] **NOTE:** Leave blank for standard options

| Pipe Size       | Material | End Connections                                 | Seals             | Optional Output    |
|-----------------|----------|-------------------------------------------------|-------------------|--------------------|
| 15 : ½" 50 : 2" | P : PVC  | Sch 80 Soc (Standard on PVC)                    | FKM (std)         | A : 4-20mA         |
| 20 : ¾" 80 : 3" | PP: PP   | T : NPT (Standard on PP/PVDF, available on PVC) | E: EPDM           | V : 0-5 V          |
| 25 : 1" 100: 4" | PF: PVDF | F : ANSI 150lb Flange                           | K: FFKM   Kalrez® | PA: 4-20mA + Pulse |
| 40: 1½"         |          | B: Butt Fusion                                  |                   |                    |

TK3W - 20 - SS - SE - [ ] - [ ] **NOTE:** Leave blank for standard options

| Pipe Size       | Material | End Connections    | Seals             | Optional Output    |
|-----------------|----------|--------------------|-------------------|--------------------|
| 08: ¼" 40 : 1½" | S: SS    | T : NPT (Standard) | FKM (std)         | A : 4-20mA         |
| 10 : ⅜" 50 : 2" |          | SE: Sanitary       | E: EPDM           | V : 0-5 V          |
| 15 : ½" 80 : 3" |          |                    | K: FFKM   Kalrez® | PA: 4-20mA + Pulse |
| 20 : ¾" 100: 4" |          |                    |                   |                    |
| 25 : 1"         |          |                    |                   |                    |

truflo®

by

**ICON**™  
PROCESS CONTROLS

Corrosion-Free  
Instrumentation Equipment