Truflo® — TKM | TK3M Series

In-Line Paddle Wheel Flow Meter Sensor

ICON PROCESS CONTROLS™ Corrosion-Free Instrumentation Equipment™

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

GUARANTEE LIFETIME WARRANTY

NSF c UL US LISTED



truflo®

Industry's Longest Lasting Paddle Wheel Flow Meter

 © Icon Process Controls Ltd.

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In-Line Paddle Wheel Flow Meter Sensor

ICON PROCESS CONTROLS™ Corrosion-Free Instrumentation Equipment™

- No Programming | Quick Installation
- Industry's Highest Accuracy: ±0.5%
- Lifetime Warranty*





- Pulse | 4-20mA | *Voltage Outputs (*Optional)
- Flow | Total
- Revolutionary ShearPro® Paddle Wheel Design
- Low Pressure Drop
- NEMA 4X | IP66 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 1 to 33 ft/s | 0.3 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 LED Display that rotates 360°.

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

316SS | PC | PVC | PP | PVDF | RoHS Compliant | CE | NSF | c UL us LISTED

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In-Line Paddle Wheel Flow Meter Sensor

ICON PROCESS CONTROLS™ Corrosion-Free 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

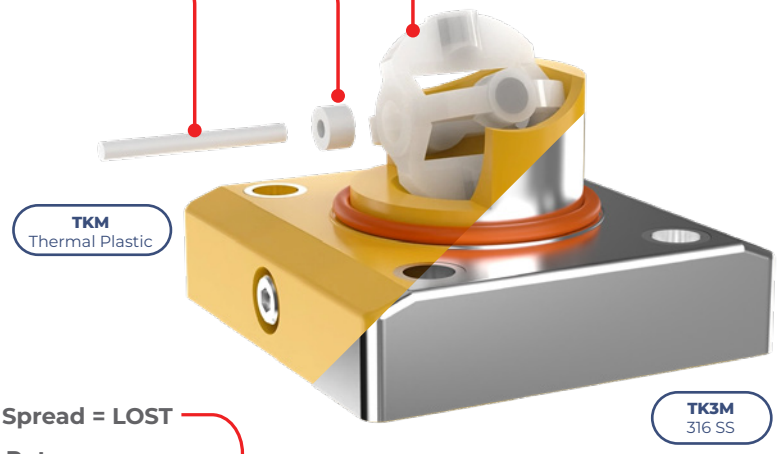
- Superior Chemical And Wear Resistance vs PVDF

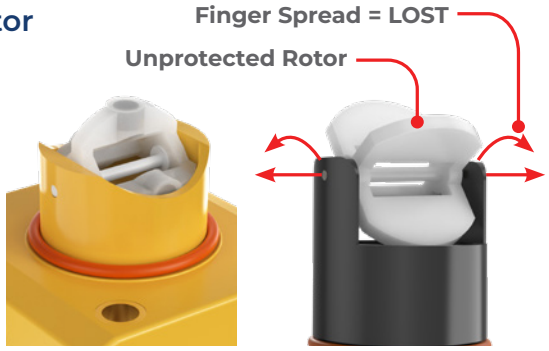
Zirconium Ceramic Rotor | Bushings

- 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

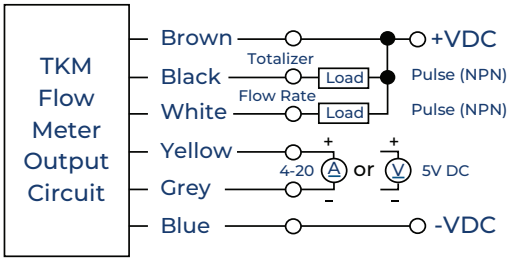




ShearPro® vs. Competitor 'A'

Wiring Diagram

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

 © Icon Process Controls Ltd.

Technical Specifications

General		
Operating Range	1 to 33 ft/s	0.3 to 10 m/s
Pipe Size Range	¼" to 4" **	DN8 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_2	
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 | NSF | CE | RoHS Compliant		

See Temperature and Pressure Graphs for more information

*Optional
** ¼" - ⅜" 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

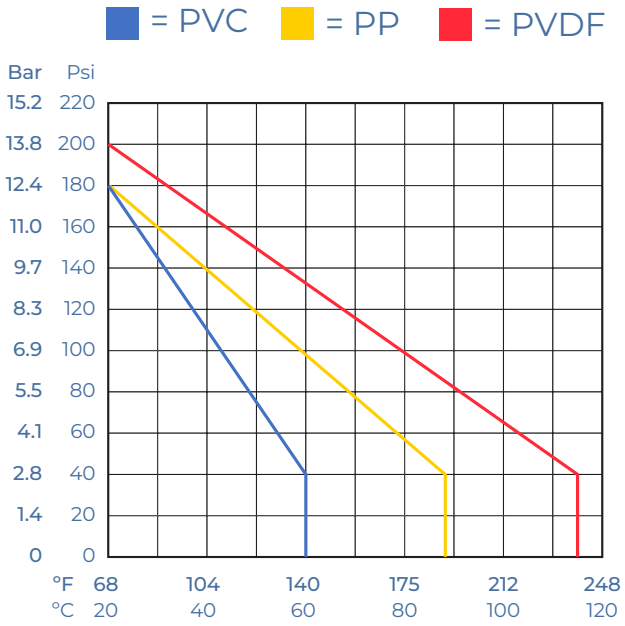
Min/Max Flow Rates

Pipe Size (O.D.)	LPM | GPM 0.3m/s min.	LPM | GPM 10m/s max.	
DN08 (¼")	0.6 | 0.16	12 | 3	◂ SS Only
DN10 (⅜")	1.8 | 0.48	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	

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

PVC		
Size	End Connections	Part Number
½"	Sch 80 Soc	TKM-15-P
¾"	Sch 80 Soc	TKM-20-P
1"	Sch 80 Soc	TKM-25-P
1 ½"	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
½"	NPT	TKM-15-PP
¾"	NPT	TKM-20-PP
1"	NPT	TKM-25-PP
1 ½"	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
½"	NPT	TKM-15-PF
¾"	NPT	TKM-20-PF
1"	NPT	TKM-25-PF
1 ½"	NPT	TKM-40-PF
2"	NPT	TKM-50-PF

Add 1st 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 2nd 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
¼"	NPT	TK3M-08-SS
⅜"	NPT	TK3M-10-SS
½"	NPT	TK3M-15-SS
¾"	NPT	TK3M-20-SS
1"	NPT	TK3M-25-SS
1 ½"	NPT	TK3M-40-SS
2"	NPT	TK3M-50-SS
3"	NPT	TK3M-80-SS
4"	NPT	TK3M-100-SS

Add 1st Suffix (end connection):
-T ▸ NPT End Connectors
-SE ▸ Sanitary - Consult Factory for Pricing
-F ▸ Flange ANSI 150lb - Consult Factory

Add 2nd Suffix (seals):
FKM (std, no suffix required)
-E ▸ EPDM Seals
-K ▸ FFKM | Kalrez® Seals