

Truflo® — TIR Series Insertion Paddle Wheel Flow Meter Sensor

ICON™ Corrosion-Free
PROCESS CONTROLS Instrumentation Equipment

Flow | Total | Pulse | 4-20mA | 1A Relay | IO-Link



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

Truflo® — TIR Series

Insertion Paddle Wheel Flow Meter Sensor

- ✓ Lifetime Warranty
- ✓ ½" – 24" Line Sizes
- ✓ Pulse | 4-20mA + 1 Amp Relay Output

- ✓ M12 Quick Connection
- ✓ Industry's Highest Accuracy: ±0.5% F.S
- ✓ Retrofits into Signet® Type Fittings
- ✓ Double O-Ring Seal



Industry's Most Accurate & Reliable Paddle Wheel Flow Meter Sensors

The TIR digital flow meter sensors are easy to install with exceptional guaranteed long-life performance and are engineered to provide long-term accurate flow measurement in tough industrial applications.

The paddle wheel assembly consists of an engineered high performance Tefzel® paddle and micro-polished zirconium ceramic rotor pin and bushings, providing excellent chemical and wear resistant properties.

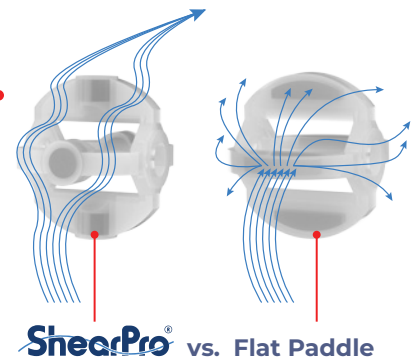
The TIR Series paddle wheel flow meter sensors are highly repeatable, exceptionally accurate, extremely rugged, offer outstanding value and require absolutely no maintenance.

The TIR flow meter sensors can be installed using Truflo's® extensive line of ANSI and DIN fittings. Truflo® offers SDR Pipe Saddles from DN15 - DN600 in GFPP material.

Revolutionary 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

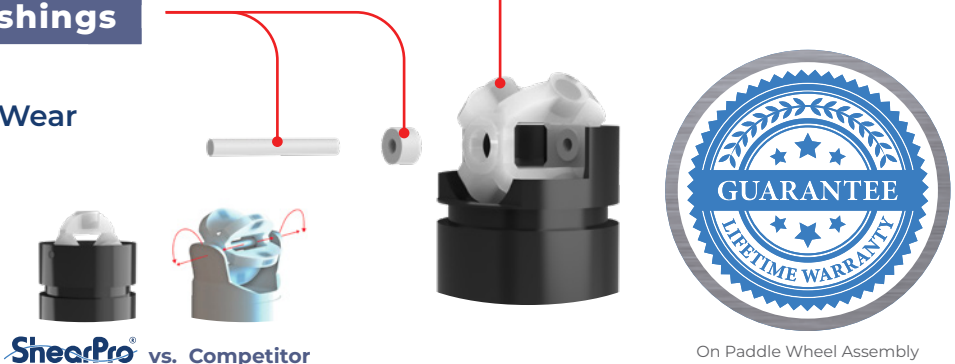
- ✓ Superior Chemical And Wear Resistance vs PVDF

Zirconium Ceramic Rotor | Bushings

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

360° Shielded Rotor Design

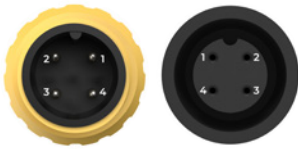
- ✓ Eliminates Finger Spread
- ✓ No Lost Paddles



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Terminal Connections



IO-Link Connection

Terminal	Description
1	18-30VDC
2	Factory Specific
3	- VDC
4	IO-Link



M12 Connection (no Internal wiring required)

Terminal	Description	Color
1	+ 10-30 VDC	Brown
2	Totalizer Pulse Output NPN	White
3	- VDC	Blue
4	Flow Rate Pulse Output NPN	Black
5	4-20mA +	Yellow
6	4-20mA -	Grey



Fittings and K-Factor

TEE FITTINGS



Tee Fitting		K-Factor		Sensor Length
IN	DN	LPM	GPM	
½" (V1)	20	156.1	593.0	S
½" (V2)	25	267.6	1013.0	S
¾"	20	160.0	604.0	S
1"	25	108.0	408.0	S
1½"	40	37.0	140.0	S
2"	50	21.6	81.7	L
2½"	65	14.4	54.4	L
3"	80	9.3	35.0	L
4"	100	5.2	19.8	L

CLAMP-ON SADDLES



Clamp Saddles		K-Factor		Sensor Length
IN	DN	LPM	GPM	
2"	50	21.6	81.7	S
3"	80	9.3	35.0	S
4"	100	5.2	19.8	S
6"	150	2.4	9.2	L
8"	200	1.4	5.2	L

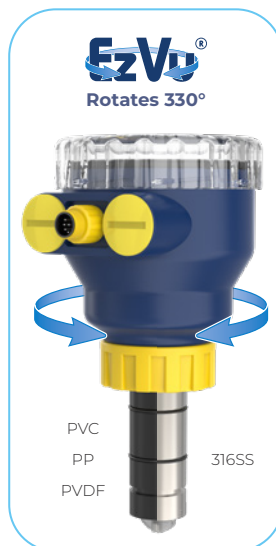
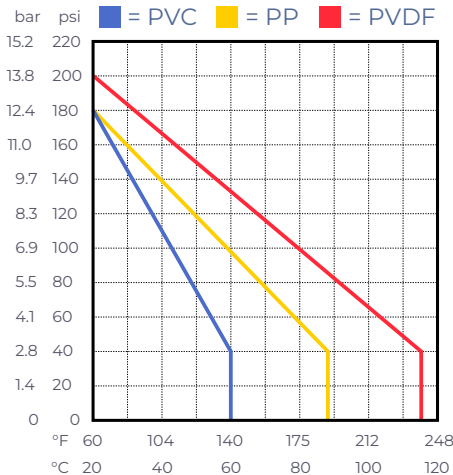
CPVC SOCKET WELD-ON ADAPTERS



Weld On Adapter		K-Factor		Sensor Length
IN	DN	LPM	GPM	
2"	50	14.4	54.4	S
2½"	65	9.3	35.5	S
3"	80	9.3	35.0	S
4"	100	5.2	19.8	S
6"	150	2.4	9.2	L
8"	200	1.4	5.2	L
10"	250	0.91	3.4	L
12"	300	0.65	2.5	L
14"	400	0.5	1.8	L
16"	500	0.4	1.4	L
18"	600	0.3	1.1	L
20"	800	0.23	0.9	L
24"	1000	0.16	0.6	L

Pressure vs. Temperature

Note: During system design the specifications of all components must be considered. | Non-Shock



Min/Max Flow Rates

Pipe Size (O.D.)	LPM GPM	
	0.3m/s min.	10m/s max
½" DN15	3.5 1.0	120.0 32.0
¾" DN20	5.0 1.5	170.0 45.0
1" DN25	9.0 2.5	300.0 79.0
1 ½" DN40	25.0 6.5	850.0 225.0
2" DN50	40.0 10.5	1350.0 357.0
2 ½" DN60	60.0 16.0	1850.0 357.0
3" DN80	90.0 24.0	2800.0 739.0
4" DN100	125.0 33.0	4350.0 1149.0
6" DN150	230.0 60.0	7590.0 1997.0
8" DN200	315.0 82.0	10395.0 2735.0



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Technical Specifications

General		
Operating Range	0.3 to 33 ft/s	0.1 to 10 m/s
Pipe Size Range	½ to 4"	DN15 to DN600
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	10-30 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°F
PP	180 psi @ 68°F 40 psi @ 190°F	12.5 bar @ 20°C 2.7 bar @ 88°F
PVDF	200 psi @ 68°F 40 psi @ 240°F	14 bar @ 20°C 2.7 bar @ 115°F
316SS	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
316SS	-4°F to 190°F	-20°C to 88°C
Standards and Approvals		
CE FCC RoHS Compliant		

See Temperature and Pressure Graphs for more information

* Optional

Model Selection

PVC PP PVDF		
Size	Part Number	Material
½" - 4"	TIR-P-S	PVC
6" - 24"	TIR-P-L	PVC
1" - 4"	TIR-PP-S	PP
6" - 24"	TIR-PP-L	PP
1" - 4"	TIR-PF-S	PVDF
6" - 24"	TIR-PF-L	PVDF

Add Suffix -
'E' - EPDM Seals

316 SS		
Size	Part Number	Material
½" - 4"	TI3R-SS-S	316 SS
6" - 24"	TI3R-SS-L	316 SS

Add Suffix -
'E' - EPDM Seals

Installation Fittings



SA Clamp-On Saddle Fittings

- PVC Material
- Viton® O-Rings
- Available in Metric DIN
- Will Accept Signet® Type Flow Meter

PVC	
Size	Part Number
2"	SA020
3"	SA030
4"	SA040
6"	SA060
8"	SA080



PT | PPT | PFT Installation Fittings

- PVC | PP | PVDF
- Socket End Connections
- Will Accept Signet® Type Flow Meter
- True-Union Design

	PVDF	PVC	PP
Size	Part Number	Part Number	Part Number
½"	PFT005	PT005	PPT005
¾"	PFT007	PT007	PPT007
1"	PFT010	PT010	PPT010
1½"	PFT015	PT015	PPT015
2"	PFT020	PT020	PPT020

Add Suffix -
 'E' - EPDM Seals
 'T' - NPT End Connectors
 'B' - Butt Fused End Connections for PP or PVDF



SAR Clamp-On Saddle Fittings (SDR Pipe)

- PVC Material
- Viton® O-Rings
- Available in Metric DIN
- Will Accept Signet® Type Flow Meter

PVC	
Size	Part Number
2"	SAR020
3"	SAR030
4"	SAR040
6"	SAR060
8"	SAR080
10"	SAR100
12"	SAR120
14"	SAR140
16"	SAR160



CT CPVC Tee Installation Fitting

- 1"-4" Pipe Sizes
- Easy to Install
- Will Accept Signet® Flow Meter

CPVC	
Size	Part Number
1"	CT010
1½"	CT015
2"	CT020
3"	CT030
4"	CT040

Add Suffix -
 'E' - EPDM Seals
 'T' - NPT End Connectors
 'B' - Butt Fused End Connections for PP or PVDF



SWOL Weld-On Adapter

- 2"-12" Pipe Sizes
- 316SS Weld-o-let with PVDF insert
- Easy to Install
- Will Accept Signet® Flow Meter

Weld-On Adapter - 316 SS	
Size	Part Number
3"	SWOL3
4"	SWOL4
6"	SWOL6
8"	SWOL8
10"	SWOL10
12"	SWOL12



Glue-On Adapter - CPVC	
Size	Part Number
2"- 4"	PG4
6"- 24"	PG24

PG Glue-On Adapter

- 2"-24" Pipe Sizes
- Easy to Install
- Will Accept Signet® Flow Meter