Truflo® — TIR | TI3R Series

Insertion Paddle Wheel Flow Meter

ICON PROCESS CONTROLS™ Corrosion-Free Instrumentation Equipment™

Flow Rate | Pulse | 4-20mA | Voltage*

GUARANTEE LIFETIME WARRANTY

IO-Link

truflo®

Industry's Longest Lasting Paddle Wheel Flow Meter

Truflo® — TIR | TI3R Series
Insertion Paddle Wheel Flow Meter Sensor

ICON PROCESS CONTROLS™ Corrosion-Free Instrumentation Equipment™

- Lifetime Warranty
- ½" – 24" Line Sizes
- Pulse | 4-20mA | Voltage (Optional)

Features

- M12 Quick Connection
- Industry's Highest Accuracy: ±0.5% F.S
- 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 have been 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.

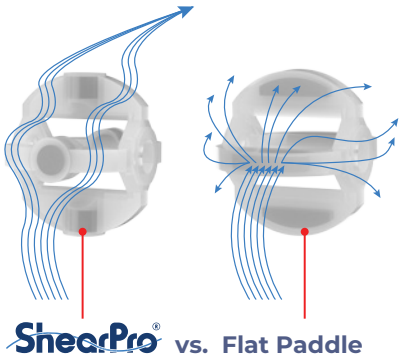
The TIR Series paddle wheel flow meter sensors are highly repeatable, exceptionally accurate, extremely rugged, offer outstanding value and require absolutely no maintenance.

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"



ShearPro® vs. Flat Paddle

Tefzel® Paddle Wheel

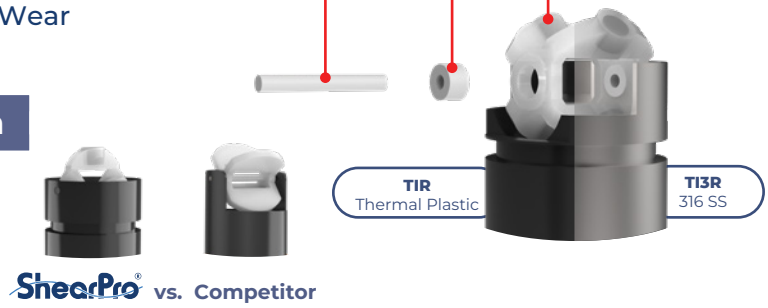
- Superior Chemical & Wear Resistance vs. PVDF

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



ShearPro® vs. Competitor

On Paddle Wheel Assembly

Technical Specifications

General		
Operating Range	0.3 to 33 ft/s	0.1 to 10 m/s
Pipe Size Range	½ to 24"	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	200 Psi @ 180°F | 40 Psi @ 300°F	14 Bar @ 82°C | 2.7 Bar @ 148°F
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	-40°F to 300°F	-40°C to 148°C
Output		
Pulse | 4-20mA | Voltage (0~5V)*		
Display		
LED | Flow Rate		
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

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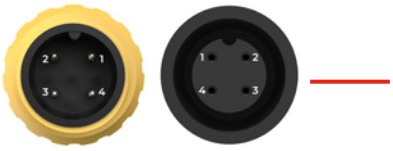
Terminal Connections



IO-Link Connection

Terminal	Description
1	10~30 VDC
2	Factory Specific
3	- VDC
4	IO-Link

M12 Connection (no Internal wiring required)

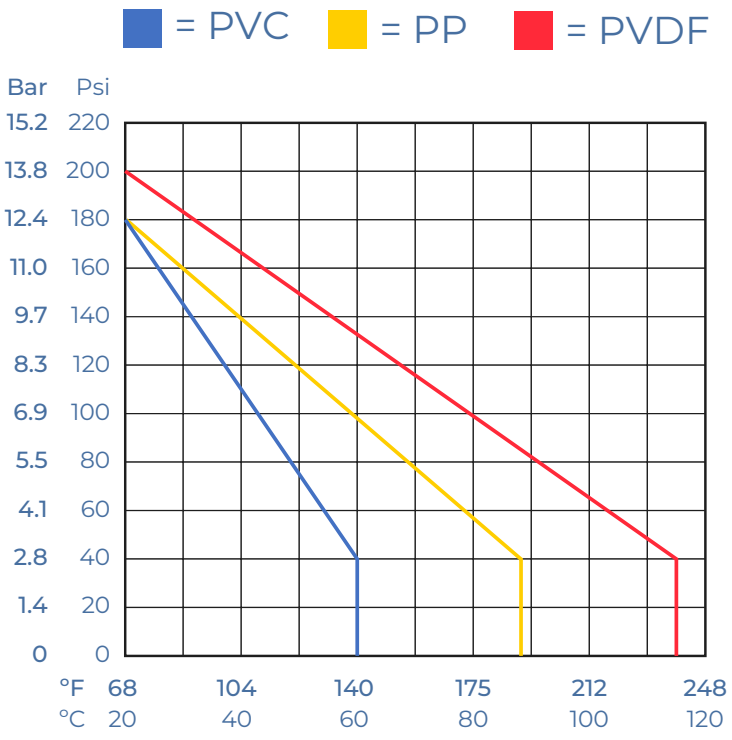
Terminal	Description	Color
1	10~30 VDC	Brown
2	Pulse Output NPN	White
3	- VDC	Blue
4	Pulse Output PNP	Black
5	4-20mA + or V*	Yellow
6	4-20mA - or V*	Grey

*Optional

Min/Max Flow Rates

Pipe Size (O.D.)	LPM | GPM 0.3m/s min.	LPM | GPM 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

Pressure vs. Temperature



*Optional

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

316SS PC PVC PP PVDF RoHS Compliant CE

Fittings and K-Factor

TEE FITTINGS

Tee Fitting		K-Factor		Sensor Length
IN	DN	LPM	GPM	
½" (V1)	15	156.1	593.0	S
½" (V2)	15	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	S
2½"	65	14.4	54.4	S
3"	80	9.3	35.0	S
4"	100	5.2	19.8	S

TEE FITTINGS (V2)

Size	K-Factor
½”	282.0
¾”	196.0
1”	136.0
1½”	43.2
2”	23.2

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

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
1 ½"	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

PG
Glue-On Adapter

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

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

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

SST
316SS TI3 Series
NPT Tee Fittings

- Will Accept Signet® Type Flow Meter

Threaded Tee Fitting - 316 SS	
Size	Part Number
½"	SST005
¾"	SST007
1"	SST010
1 ½"	SST015
2"	SST020
3"	SST030
4"	SST040

SSS
316SS TI3 Series
Sanitary Tee Fittings

- Will Accept Signet® Type Flow Meter

Sanitary Tee Fitting - 316 SS	
Size	Part Number
½"	SSS005
¾"	SSS007
1"	SSS010
1 ½"	SSS015
2"	SSS020
3"	SSS030
4"	SSS040

SSF
316SS TI3 Series
Flanged Tee Fittings

- Will Accept Signet® Type Flow Meter

Flanged Tee Fitting - 316 SS	
Size	Part Number
½"	SSF005
¾"	SSF007
1"	SSF010
1 ½"	SSF015
2"	SSF020
3"	SSF030
4"	SSF040