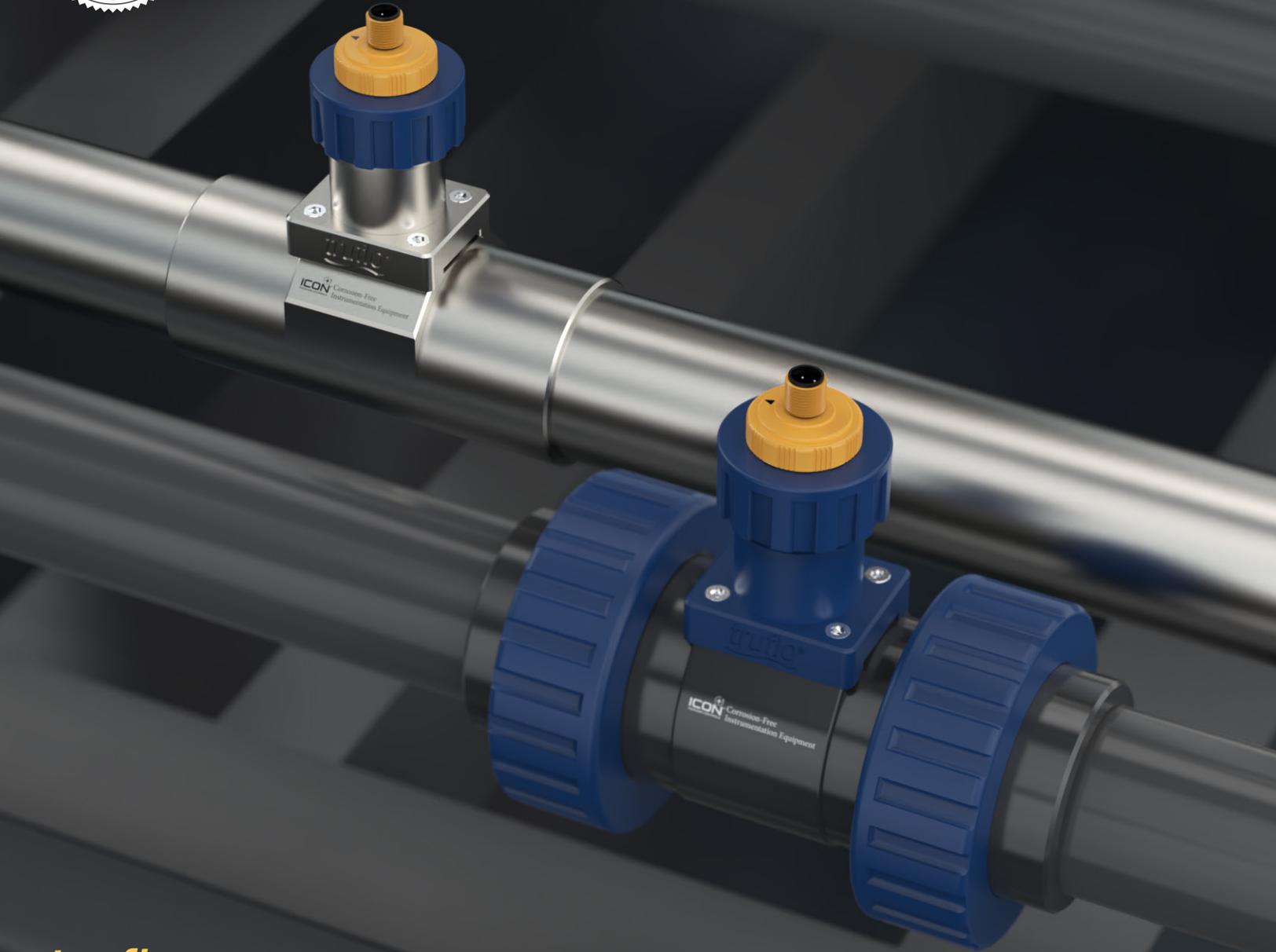


# Truflo® — TIW | TI3W Series Insertion Paddle Wheel Flow Meter Sensor

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

Frequency Pulse Output

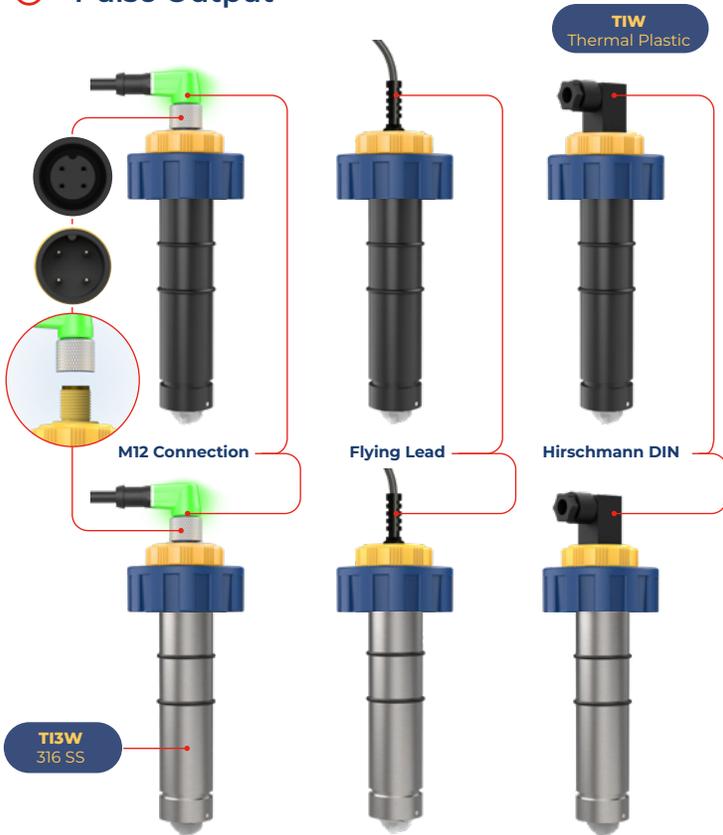


# Industry's **Longest Lasting** Paddle Wheel Flow Meter

# Truflo® — TIW | TI3W Series

## Insertion Paddle Wheel Flow Meter Sensor

- ✓ Lifetime Warranty
- ✓ ½" – 24" Line Sizes
- ✓ Pulse Output



### Features

- ✓ M12 | Flying Lead | Hirschmann DIN
- ✓ Industry's Highest Accuracy: ±0.5% F.S
- ✓ Retrofits into Signet® Type Fittings
- ✓ Double O-Ring Seal
- ✓ Available in PVC | PP | PVDF | 316SS

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

The TIW 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.

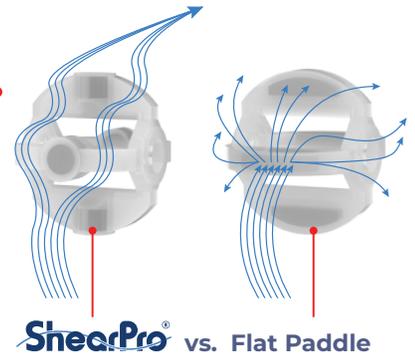
The paddle wheel assembly consists of an engineered high performance Tefzel® paddle and micro-polished zirconium ceramic rotor pin and bushings, providing excellent chemical and wear resistant properties.

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

The TIW 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 & 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



On Paddle Wheel Assembly

# Truflo® — TIW | TI3W Series

## Insertion Paddle Wheel Flow Meter Sensor

### Technical Specifications

General		
Operating Range	1 to 33 ft/s	0.3 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	
Output Type	NPN or PNP with 4.7K pull high resistor	
Output Current	150mA with short circuit protection	
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	5-30 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		
Display		
Blind		
Standards and Approvals		
UL   NSF   CE   RoHS Compliant		

See Temperature and Pressure Graphs for more information

\*Optional

### Model Selection

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

Add Suffix -  
'E' - EPDM Seals

316 SS		
Size	Part Number	Material
½" - 4"	TI3W-SS-S	316 SS
6" - 24"	TI3W-SS-L	316 SS

Add Suffix -  
'E' - EPDM Seals

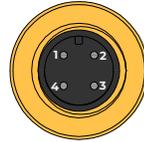
# Truflo® — TIW | TI3W Series

## Insertion Paddle Wheel Flow Meter Sensor

### Terminal Connections

**M12 Connection** (no Internal wiring required)

Terminal	Description	Color
1	5~30 VDC	Brown
2	- VDC	Blue
3	PNP Output	Black
4	NPN Output	White

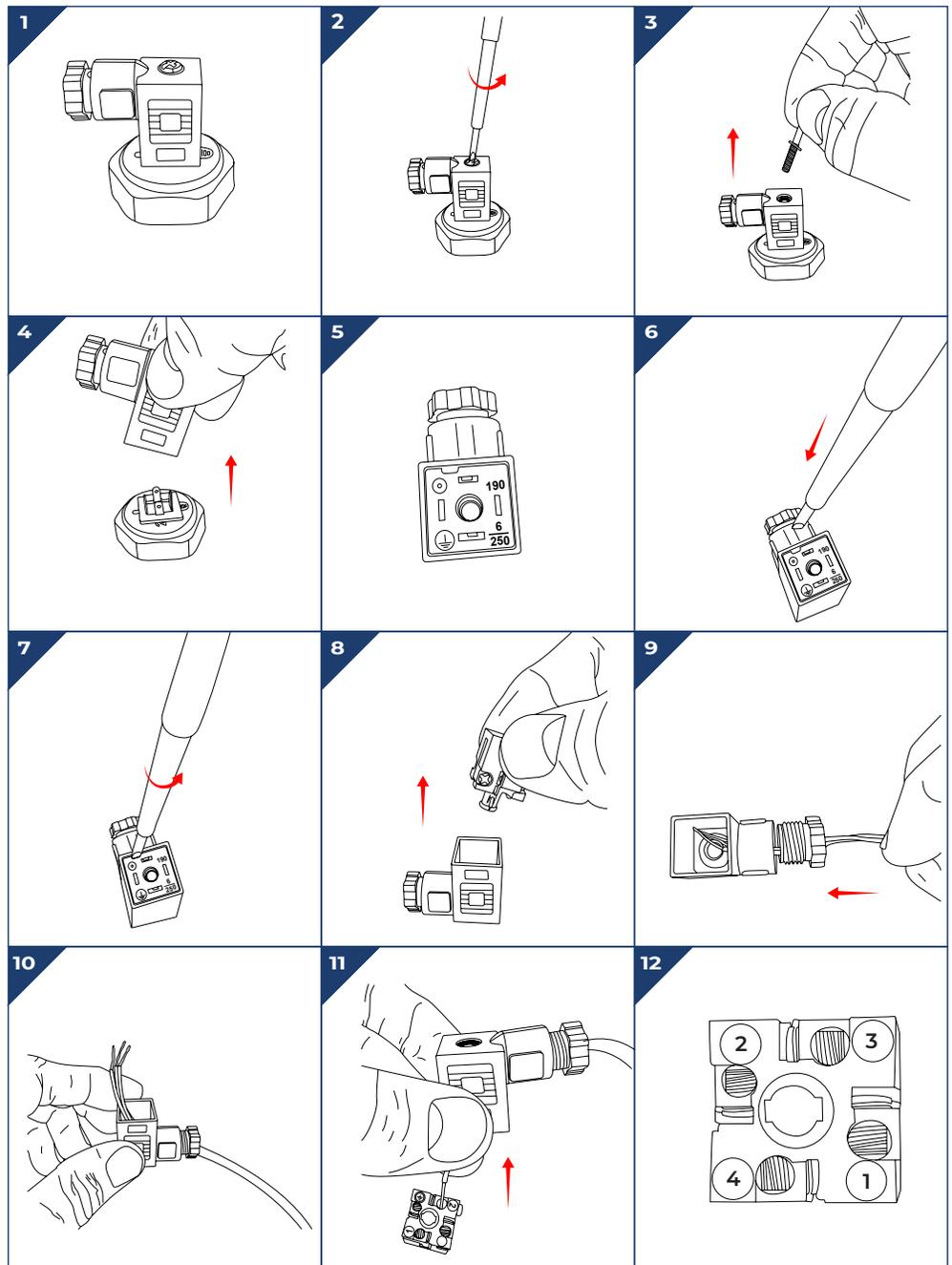
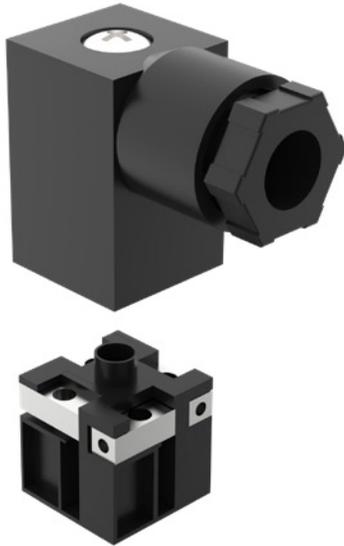


TIW - M12 Male



### Hirschmann DIN Connection

Terminal	Description
1	5~30 VDC
2	- VDC
3	PNP Output
4	NPN Output



# Truflo® — TIW | TI3W Series

## Insertion Paddle Wheel Flow Meter Sensor

### Fittings and K-Factor

#### TEE FITTINGS

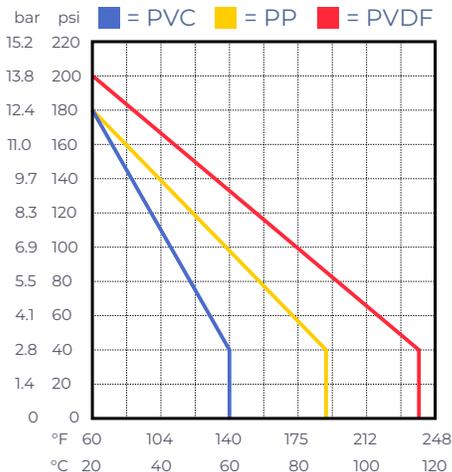


Tee Fitting		K-Factor		Sensor Length
IN	DN	LPM	GPM	
½" (V1)	15	156.1	593.0	S
½" (V2)	15	267.6	1013.0	S
¾"	20	160.0	604.0	S
1"	25	108.0	408.0	S
1½"	40	37.0	140.0	S
2"	50	21.6	81.7	S
2½"	65	14.4	54.4	S
3"	80	9.3	35.0	S
4"	100	5.2	19.8	S

#### TEE FITTINGS (V2)

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

### Pressure vs. Temperature



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

#### CLAMP-ON SADDLES

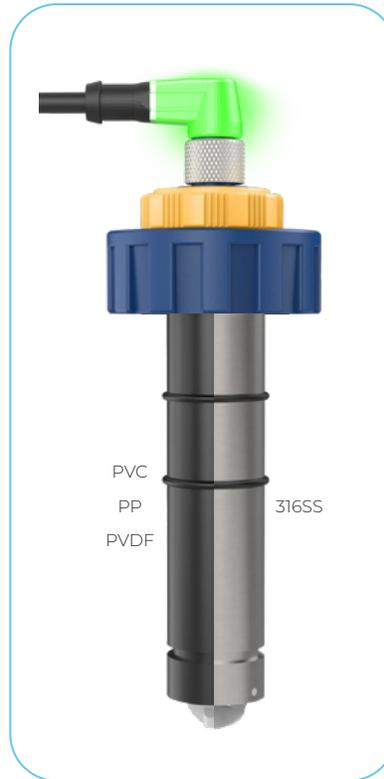


Clamp Saddles		K-Factor		Sensor Length
IN	DN	LPM	GPM	
2"	50	21.6	81.7	S
3"	80	9.3	35.0	S
4"	100	5.2	19.8	S
6"	150	2.4	9.2	L
8"	200	1.4	5.2	L

#### 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



### Min/Max Flow Rates

Pipe Size (O.D.)	LPM   GPM		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



### 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

Size	PVDF	PVC	PP
	Part Number	Part Number	Part Number
1/2"	PFT005	PT005	PPT005
3/4"	PFT007	PT007	PPT007
1"	PFT010	PT010	PPT010
1 1/2"	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 1/2"	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