

# Turbo-Flo™

## Delrin® Non-Metallic Probes



Turbo-Flo™ probes offer the precision of turbine technology with rugged construction. The practical design of the probe includes a bluff bar which protects the turbine from foreign materials in the stream as well as from over insertion. Installation is simple and does not require special fittings. The Turbo-Flo™ probe may be installed in standard pipe tees, through pipe saddles, welding spuds and 1½" full opening ball or gate valves.

### Features

- Delrin® non-metallic construction is ideal for water applications. Resists corrosion and mineral salt deposits.
- Steel or stainless steel connector fittings.
- Adjustable insertion length for 1½ to 10 inch pipe.
- Lower cost than stainless steel probes.
- Rugged construction.
- Wide measuring range with 30:1 turndown.
- Low mass Delrin® turbines offer improved sensitivity and long life as compared to metallic turbines.
- Use standard pipe fittings for installation.

### Principle of Operation

The turbine is positioned in the mid-section of the pipe with its axis of rotation parallel with the flow stream. Fluid velocity causes the turbine, which has a ring magnet inside of its hub, to rotate in proportion to flow rate. As the turbine - rotates, the magnetic field passes through a coil in the probe body, generating a pulse output in proportion to the turbine rotation speed. Flow volume is then determined from fluid velocity measurement and pipe diameter information.

### Applications

- Water
- Aqueous solutions
- Chiller and cooling tower loops
- Water treatment systems
- Irrigation systems

### Options

LCD rate/total display only. Does not require external power.  
Probe Mount option: 15895-SP  
Wall Mount: TF-15895-SP



Two wire 4-20 mA signal output with Rate/Total Display.  
Probe Mount option: 15895-LP  
Wall Mount: TF-15895-LP



Two wire 4-20 mA signal output, no display.  
Probe Mount option: 15325  
Wall Mount: TF-15385



Probe with 15 feet or more of Cable for connection to Wall Mount transmitters/display.



## Delrin® Non-Metallic Probes

Sizing Data					
Pipe Size		GPM Range		Ft/Gallon	Pulse/Gallon
(inch)	ID (inch)	Threshold	Max		
1.5	1.610	4	120	9.454	21.46
2	2.067	6	180	5.736	13.08
2.5	2.469	8	240	4.020	9.648
3	3.068	12	360	2.593	7.131
3.5	3.548	16	500	1.947	5.160
4	4.026	20	600	1.512	3.840
5	5.047	32	1000	0.962	2.60
6	6.065	46	1400	0.666	1.88
8	7.981	80	2400	0.384	1.00
10	10.020	125	3800	0.244	0.625

## Specifications

**Accuracy:** ±1.0%  
**Repeatability:** ±0.5%  
**Linearity:** ±0.5%  
**Turndown:** 30:1  
  
**Insertion Length:** 02 = 2 inches  
 06 = 6 inches  
  
**Threshold:** 0.5 ft/s or  
 1.22 x ID<sup>2</sup> = GPM  
  
**Liquid Velocity:** ft/s =  $\frac{0.408 \times \text{GPM}}{\text{pipe ID}^2}$   
  
**Point Velocity =** 2.625 pulses/ft/s  
  
**Pulse/gallon correction for uncharted pipe diameters =**  

$$\frac{\text{ID}^2 \text{ charted pipe}}{\text{ID}^2 \text{ uncharted pipe}} \times \frac{\text{Pulse/gallon charted pipe}}{\text{Pulse/gallon uncharted pipe}}$$

### Materials of Construction:

**Probe:** Delrin®  
**Connector:** Steel, 303sst  
**Turbine:** Delrin®  
**O-rings:** Buna-n or Viton®  
**Temperature Limits:** 212°F(100°C)  
**Pressure Limits:** 145 psig(10bar)@ 68°F(20°C)

## Turbo-Flo™ part number construction

**25** Series    **3** Body Mat'l    **06** Size    **A** Connector    **3** Turbine    **2** Shaft    **7** O-ring    -    **1 5 8 9 5 S P** Option

**25-Non-Metallic**    **3-Delrin®**    **02-2"**    **A-303ss 1¼"**    **3-Delrin®**    **2-316ss**    **7-Buna**  
**06-6"**    **B-303ss 1½"**    **8-Viton®**  
 Recessed  
**D-Steel 1¼"**  
 Zinc Plated  
**E-Steel 1½"**  
 Zinc Plated  
 Recessed

### Electronics available:

**TF-15895-LP** Flow Rate/Total Display, Wall Mount, 4-20mA Output, Loop Powered 4-20 mA— requires 24 VDC  
**15895-SP** Self Powered Flow Rate/Total Display, Probe Mount, Does not require external power.  
**TF-15895-SP** Self Powered Flow Rate/Total Display, Wall Mount, Does not require external power.

For probe mounted electronics, add a dash to the end of the probe model number followed by the five numeric digits for the accessory to be added.

The example depicts a 6" Delrin® probe with 1¼" 303ss connector, Delrin® turbine, 316ss shaft, buna o-rings with a probe mounted 15895-SP LCD rate/total display - no external power required.

### Electronics available for probe mounting:

**15325** 4-20 mA Transmitter, Probe Mount  
**15385** 4-20 mA Transmitter, Wall Mount  
**15895-LP** Flow Rate/Total Display, Probe Mount, 4-20mA Output, Loop Powered 4-20 mA— requires 24 VDC.



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