

# THE FLOW SENSOR THAT MAKES SHORT WORK OF YOUR FLOW MEASUREMENTS

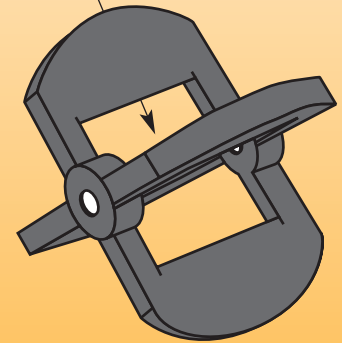
## Paddlewheel Flow Sensors

FP-5300 Series  
Starts at  
**\$300**



Patented "flow-through" rotor design ensures accurate, linear output to  $\pm 1\%$ .

FP-5300, \$300, shown actual size.



Streamline your flow measurement operation with the FP-5300 Series flow sensor. Using this compact flow sensor, a matched sensor installation fitting, an OMEGA® flow meter or controller, and ordinary handtools, you can assemble a complete flow monitoring or controlling system in minutes. Accurate to  $\pm 0.2$  fps, with repeatability at  $\pm 0.1$  fps, this insertion sensor operates on a simple electromechanical principle, proven in thousands of liquid flow applications worldwide. It all adds up to precision, dependability, and convenience—basic advantages that are quickly surpassing its in-line competition.

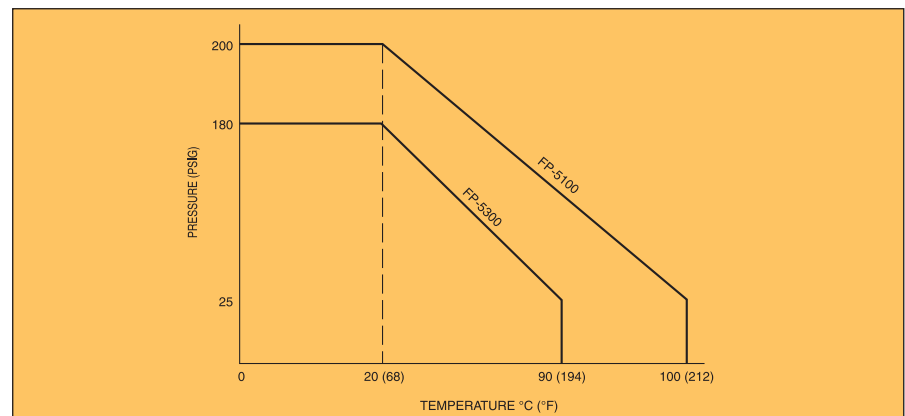
### A TIMESAVER YOU CAN BANK ON

Convert your maintenance hours into minutes with the FP-5300. Should a sensor, rotor, or O-ring need to be replaced, it takes only seconds. Reduce your system downtime substantially with a stand-alone FP-5300 sensor, or simply add a Wet Tap Assembly and eliminate downtime completely. Combined with the FP-5300 during initial installation, the Wet Tap allows sensor removal without system shut-down. Optional local or remote capability lets you place your meter up to 200 feet away

without signal amplification, and you can install the FP-5300 in pipe sizes ranging from  $\frac{1}{2}$  inch to 36 inches without a lot of additional cost, because the price of the FP-5300 increases only slightly for larger pipe sizes.

### RUGGED CONSTRUCTION FOR LONG WEAR

Available in a choice of chemically resistant, non-contaminating housing materials, the FP-5300 stands up to the harshest environments. The glass-filled polypropylene housing version is lightweight but strong, which makes it ideal for handling a wide range of liquids, including corrosive fluids in chemical processing. For processes involving acids and solvents, the PVDF (polyvinylidene fluoride) housing version is a tough fluorocarbon that is highly resistant to more severe fluids. (Visit [omega.com/fp5100](http://omega.com/fp5100) for more information on OMEGA's all-PVDF flow monitoring systems.)



## Flow Measurement Simple and Accurate

The sensor works on a simple but precise electromechanical principle based on measuring the rate and volume of flow in your pipe. Four permanent magnets, imbedded in the rotor blades, spin past a coil in the sensor body. As the fluid flow causes the rotor to move, a sine wave signal is produced, directly proportional to the flowrate. The patented "open cell" feature of the rotor ensures a linear, repeatable output, up to 23 fps, with accuracy of  $\pm 0.2$  fps. The result is minimal head loss and no cavitation.

## COMMON SPECIFICATIONS

**Accuracy:**  $\pm 1\%$  full scale

**Output Signal:** 1 V p-p/fps

**Output Frequency:** 6 Hz/fps nominal

**Flow Rate Range:** 1 to 20 fps

**Source Impedance:** 8 K $\Omega$

**Maximum Pressure:**

FP-5300 Series: 180 psig max @ 20°C (68°F)

FP-5100 Series: 200 psig max @ 20°C (68°F)

**Minimum Temperature:** 0°C (32°F)

**Maximum Temperature:** See chart on previous page for complete temperature and pressure rating

**Pressure Drop:** Equal to 2.5 m (8') of straight pipe

**Material:** Transducer Housing: glass-filled polypropylene; O-Rings: FKM;

Shaft: Titanium (PVDF opt.); Rotor: PVDF

**Maximum % Solids:** 1% of fluid volume, non-abrasive, nonmagnetic, <100 micron diameter and length standard

**Cable Length:** 7.5 m (25')

**Max Viscosity:** 1 centipoise (water); up to 5 cp above 5 fps velocity

See pages F-35 and F-36 for compatible fittings.



DPF701, \$260, see page M-5.  
Visit [omega.com/dpf700](http://omega.com/dpf700)

## Paddlewheel Flow Sensors

**MOST POPULAR MODELS HIGHLIGHTED!**

### To Order (Specify Model Number)

Part No.	Price	Housing Material	Shaft Material	Pipe Size (in)	Weight g (oz)	Sensor Length mm (in)	Compatible Meters†
FP-5300	\$300	Polypro	Titanium	½ to 4	341 (12)	89 (3.50)	DPF701, DPF402, DPF70W/FLSC-AMP, FPM-5500, FPM-5740 FP90 FPM-9020A
FP-5301	315	Polypro	Titanium	5 to 8	341 (12)	127 (5.00)	
FP-5302	340	Polypro	Titanium	10 or larger	454 (16)	197 (7.75)	
FP-5100	510	PVDF	Hastelloy C	½ to 4	341 (12)	89 (3.50)	
FP-5101	555	PVDF	Hastelloy C	5 to 8	341 (12)	127 (5.00)	

† See section M for the complete selection of compatible meters available from OMEGA.

## Wet Tap Assembly\* (Details Available at [omega.com/fp319](http://omega.com/fp319))

Part No.	Wet Tap Valve Assembly Material	Sensor Housing Material	Shaft Material	Pipe Size (in)	Weight kg (lb)	Sensor Length mm (in)	Price	Wet Tap Max Operating Temperature/Pressure
FP-3193	PVC	Polypro	Titanium	½ to 4	2.4 (5.25)	298 (11.75)	\$885	100 psig @ 20°C (68°F); 60°C (140°F) @ 25 psig
FP-3194	PVC	Polypro	Titanium	5 to 8	2.4 (5.25)	330 (13.00)	930	
FP-3195	PVC	Polypro	Titanium	10 and up	2.4 (5.25)	406 (16.00)	975	

\*Pipe installation fitting not included. See pages F-35 to F-36 for required fittings.

Comes complete with operators manual.

**Ordering Examples:** FP-5300, paddlewheel sensor, plus FP-5310M, 1" PVC fitting (see page F-35) \$300 + 177 = \$477.

FP-5301 sensor, plus FP-5350GI, 5" Galvanized Iron saddle fitting (see page F-36), \$315 + 270 = \$585.

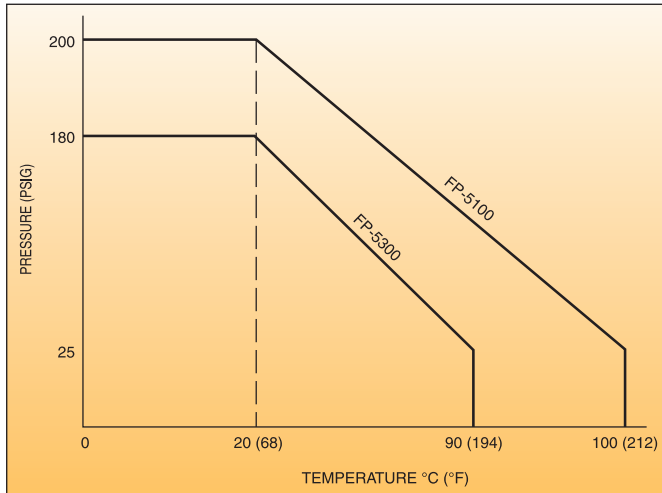
Recommended Reference Book: Piping Calculations Manual, FW-304, \$100. Visit [omega.com/bobi](http://omega.com/bobi) for Additional Books

# PRESSURE/TEMPERATURE CHARTS

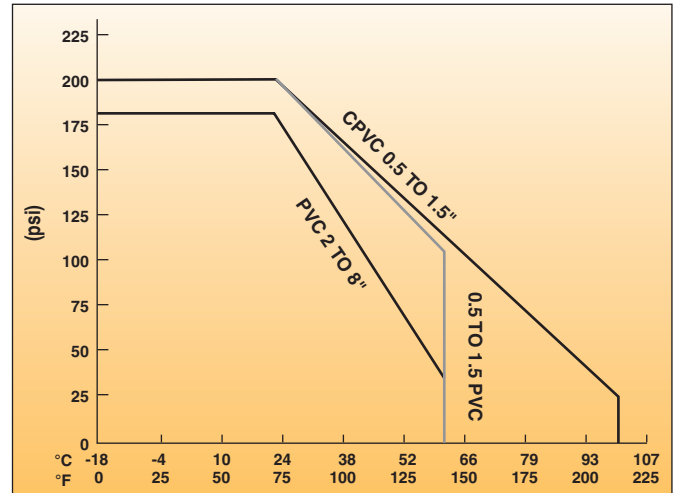
## For FP-5100, FP-5200, FP-5300 and FP-8500 Series Sensors and Associated Fittings

**NOTE:** All pressure/temperature ratings listed are for water under non-shock conditions with no pressure cycling. Various chemicals and cycling pressures up and down can weaken plastics. Fittings must be installed so that the fitting does not carry the weight of the piping and does not suffer from thermal expansion stresses. Water hammer, fluid surges, and cavitation must always be avoided. If the end user elects to thread the plastic fittings with socket ends, the pressure rating will be substantially decreased.

### FP-5100, FP-5300 and FP-8500 Series Sensors Pressure/Temperature Ratings

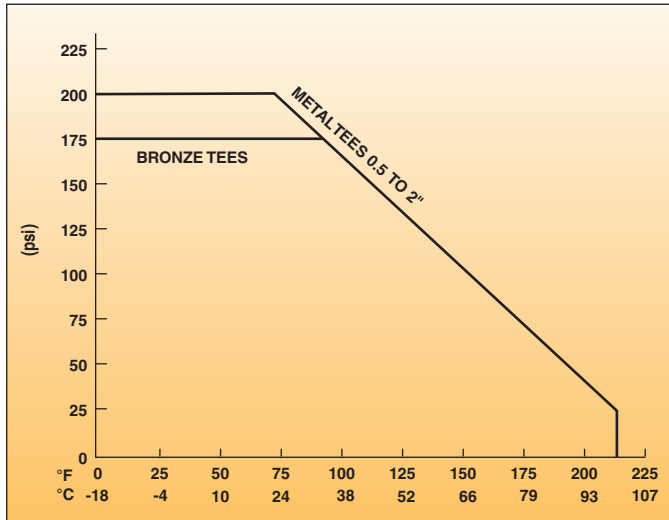


### PVC and CPVC Tees and Saddles

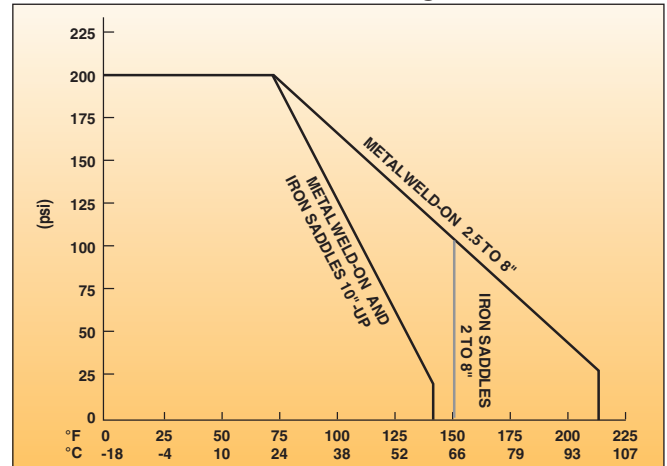


**WARNING:** THE ABOVE PRESSURE/TEMPERATURE CURVES ARE SPECIFICALLY FOR THE FP-5100, FP-5300, AND FP-8500 SENSORS. DURING SYSTEM DESIGN, THE SPECIFICATIONS OF ALL COMPONENTS MUST BE CONSIDERED. IN A METAL PIPING SYSTEM, A PLASTIC SENSOR WILL REDUCE THE SYSTEM SPEC. ON THE OTHER HAND, IF USING A PVDF SENSOR IN A PVC PIPING SYSTEM, THE FITTING WILL REDUCE THE SYSTEM SPEC.

### Metal Tees



### Metal Weld-On and Saddle Fittings



These ratings are for PVC and PVDF fittings. For all metal fittings 10" and larger, a PVC insert is used; for 8" and below, a PVDF insert is used. Use the appropriate curve to determine the maximum pressure rating of these fittings.



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