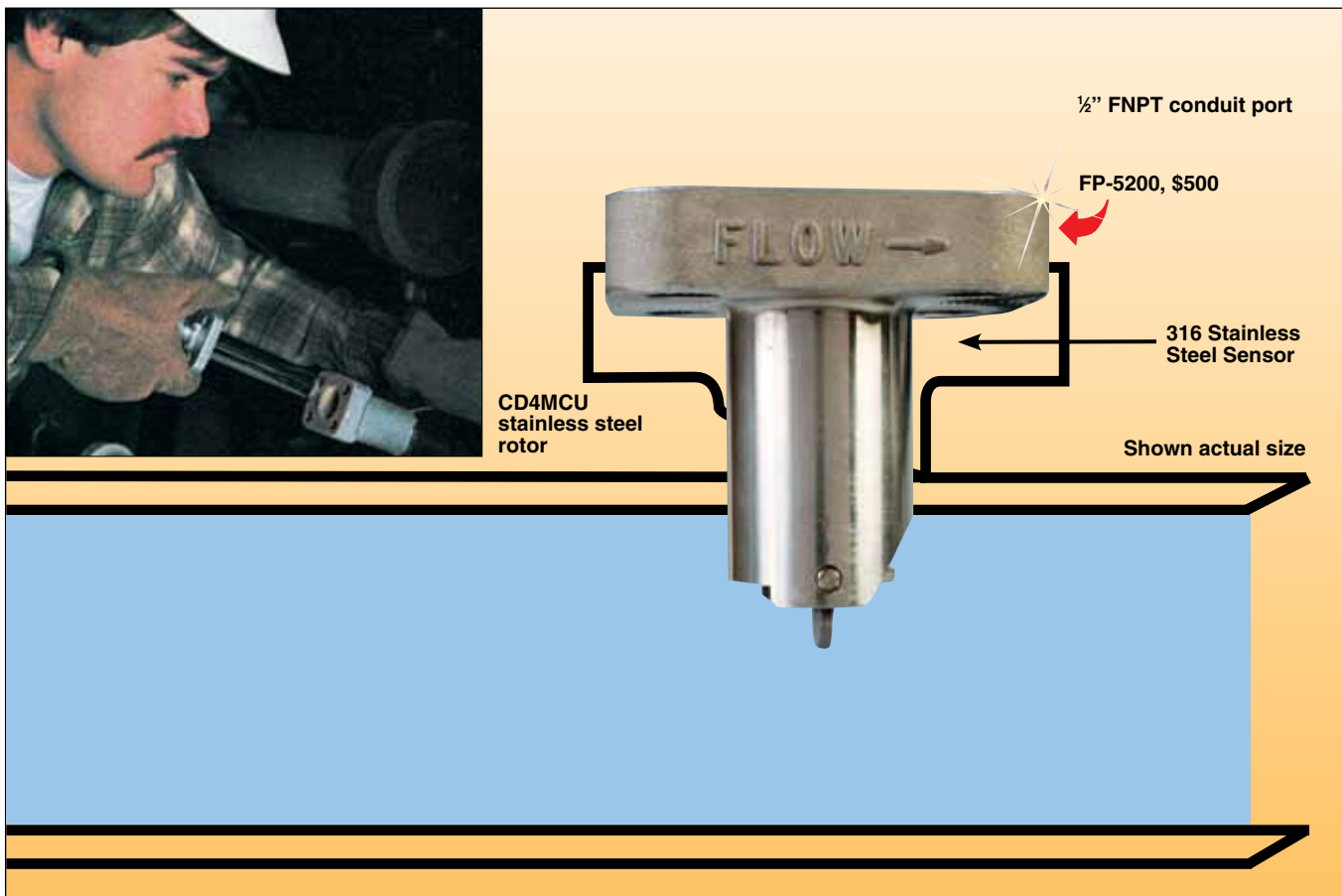


# RUGGED, RELIABLE ALL-METAL SENSORS



## FP-5200 Series



Use the Metal Flow Sensor for Monitoring or Controlling Flow in:

- ✔ Secondary Oil Recovery
- ✔ Boiler Water Feed Lines
- ✔ Turbine Steam Condensate
- ✔ Energy Management Systems, HVAC

### ACCURACY THAT PAYS OFF

In the FP-5200 sensor housing, a magnet is surrounded by a coil, creating a magnetic field. As the liquid flow causes the rotor to spin, each blade passing this coil concentrates the lines of magnetic force, producing a repeatable AC sine wave output. The FP-5200 also features Trodex's patented "open-cell" rotor, for increased linearity at  $\pm 1\%$  over the full dynamic range of 1.6 to 20 fps, with negligible head loss.

### COMPATIBLE, VERSATILE INTERFACING

The FP-5200 is completely compatible with FPM Series powered flow indicators, controllers, and totalizers, to give increased flexibility in system design. It also interfaces easily with digital computers and with a variety of other external equipment.

### FP-5200 FLOW SENSOR

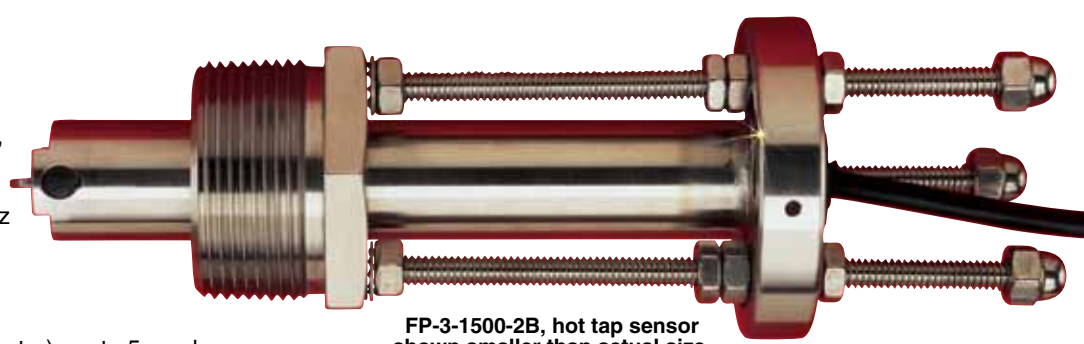
When you're looking for the added strength of an all-metal flow sensor, make it the FP-5200. It permits the high degree of accuracy and reliability you demand, without added cost. Compare it to traditional metal flowmeters, where the price increases dramatically with pipe size. In contrast, you can install the FP-5200 insertion flow sensor in pipe sizes ranging from  $\frac{1}{2}$  to 12" without a lot of additional cost, because the sensor price increases only slightly for larger pipe sizes. Furthermore, it's accurate to  $\pm 1\%$  of full scale.

Installation is easy. Use the FP-5200 locally, or in a remote area up to 100 feet from the meter or controller without signal amplification. It needs no external power or battery. Just one operator, simple tools, an FP-5200 Flow Sensor, a few minutes . . . and you're on-line.

Additionally, the all-stainless-steel flow sensor accurately measures a wide variety of fluids, even under high pressure and temperature conditions [pressures up to 1500 psi, temperatures up to 150°C (300°F)].

## SPECIFICATIONS

**Output Signal:** Sine wave  
**Output Frequency:** 12 Hz per ft/sec,  
 80 mV peak-to-peak per fps nominal  
**Flow Rate Range:** 1.6 fps to 20 fps  
**Output Amplitude:** 5 to 8 mV/P-P/Hz  
**Source Impedance:** 10 kΩ  
**Accuracy:** ±0.2 fps  
**Linearity:** ±1% of full range  
**Repeatability:** ±0.5% of full range  
**Maximum Viscosity:** 1 centipoise (water); up to 5 cp above  
 5 fps velocity  
**Materials:** Rotor: CD4MCU SS; Rotor Housing: 316 SS;  
 Rotor Shaft: Tungsten Carbide; Transducer Body: 347 SS;  
 Top Flange: 316 SS; Cap: 316 SS  
**Rotor Bearing:** Fluoroloy B (PTFE-based fluoroplastic)  
**Cable Length:** 7.5 m (25'), can be extended up to 30 m  
 (100') with copper wire  
**Maximum % Solids:** 10%, with particulate size not  
 exceeding 5 mm cross section or length  
**Weight:** 0.9 kg (2 lb)



FP-3-1500-2B, hot tap sensor  
 shown smaller than actual size.

## METAL HOT-TAP FLOW SENSOR

The metal hot-tap sensor allows the user easy sensor installation and removal without shutting down the process stream. Compatible with Mueller drill assemblies, this new hot-tap sensor can be quickly installed into pipe sizes from 1½ to 24". This hot-tap assembly is compatible with any 1½ NPT female pipe fitting such as weldolets and saddles. Installation fitting not supplied.

## Metal Flow Sensors

### To Order

Model No.	Pipe Fitting Size/Style	Sensor Length mm (inch)	[Minimum -46°C (-50°F)]	
			Maximum Temperature °C (°F)	Maximum Pressure
FP-5200	½"-1" mini-tap	38.4 (1.512)	149 (300)	1500 psi
FP-5201	1¼"-12" mini-tap	63.5 (2.50)	149 (300)	1500 psi
FP-5202	2"-12" saddle	114.3 (4.50)	149 (150)	300 psi

Comes complete with operator's manual

**Ordering Example:** FP-5200 paddle wheel sensor, FP-5205, fitting.  
 See Page F-40 for FP-5200 Fittings. Complete replacement rotor/  
 paddlewheel kit for FP-5200 series: FP-52509.  
 Cap kit with gasket and bolts: FP52628. Gasket only: FP-52618.

## SPECIFICATIONS

**Flow Range:** 0.3 to 20 fps  
**Wetted Parts:** 316 and CD4MCU stainless steel;  
 FKM and PEEK  
**Power Input:** 5 to 24 Vdc @ 10 mA maximum  
**Maximum Pressure/Temperature:** 82°C (180°F)  
 up to 250 psig

Model No.	Description
FP-3-1500-2B	1½" MNPT sensor

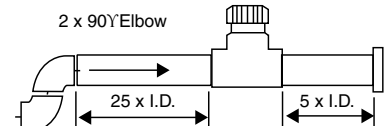
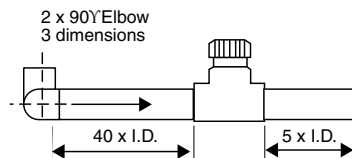
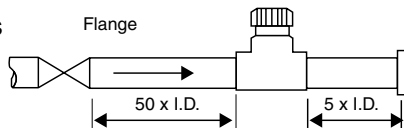
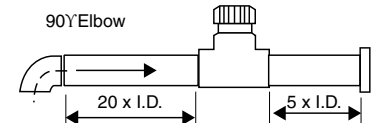
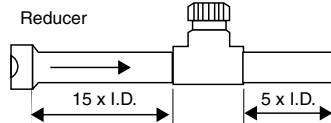
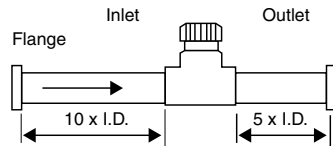
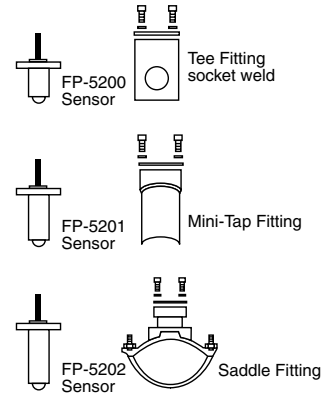
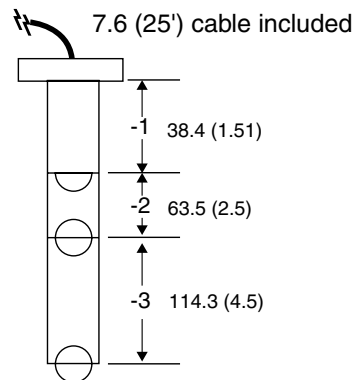
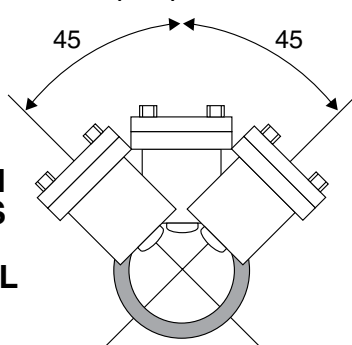
Comes complete with operator's manual.

**Ordering Example:** FP-3-1500-2B, hot tap sensor.

## Installation Dimensions: mm (inch)

### INSTALLATION SUGGESTIONS FOR PADDLEWHEEL SENSORS

For maximum linearity and accuracy, the sensor should be located in a straight run of pipe upstream and downstream of the sensor. Major obstructions such as pumps or throttle valves require longer straight runs.

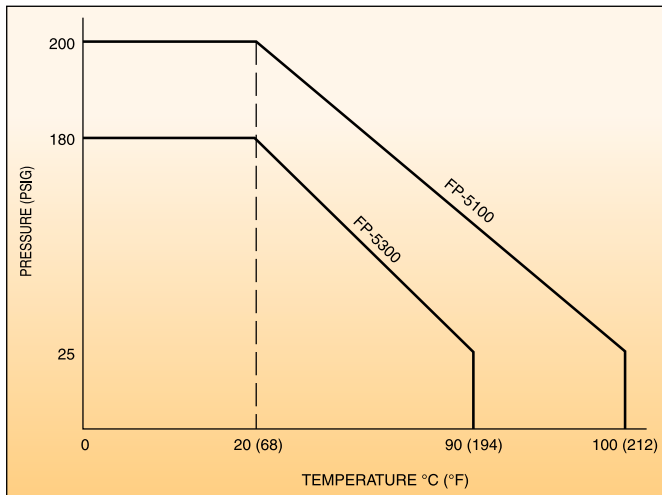


# PRESSURE/TEMPERATURE CHARTS

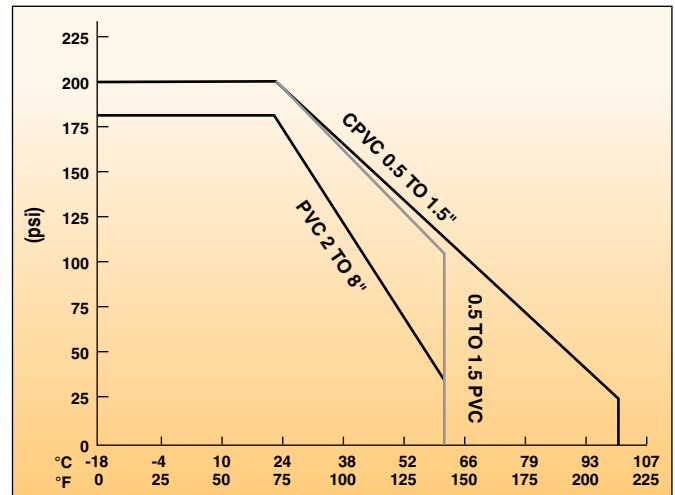
## For FP-5100, FP-5200, FP-5300 and FP-8500 Series Sensors and Associated Fittings

**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

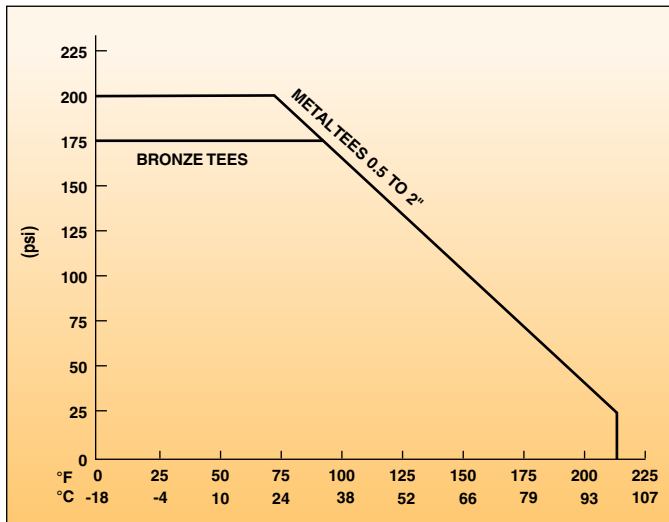


### PVC and CPVC Tees and Saddles

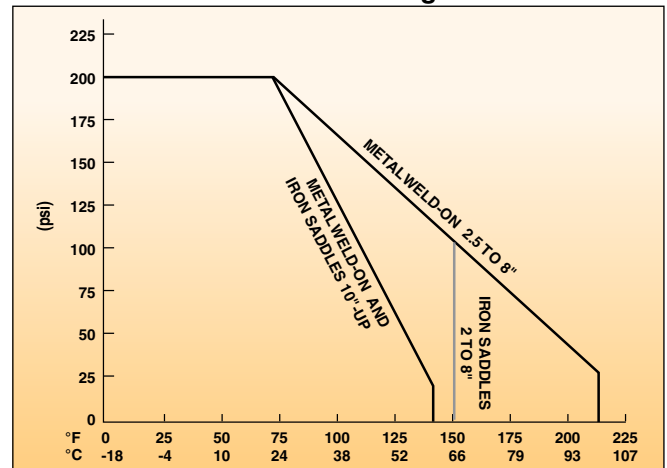


**WARNING:** THE ABOVE PRESSURE/TEMPERATURE CURVES ARE SPECIFICALLY FOR THE FP-5100, FP-5300, AND FP-8500 SENSORS. DURING SYSTEM DESIGN, THE SPECIFICATIONS OF ALL COMPONENTS MUST BE CONSIDERED. IN A METAL PIPING SYSTEM, A PLASTIC SENSOR WILL REDUCE THE SYSTEM SPEC. ON THE OTHER HAND, IF USING A PVDF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