Read McCrometer recommends using a sensor insertion tool (P/N 75031) to help with inserting the sensor and avoid any damage to the sensor.

Place the profiling insertion tool over the captive nuts and lock it into place with a provided wrench. Rotate the high gear shaft clockwise until the bottom of the sensor reaches the far wall of the pipe.
FLOW CALCULATION
To calculate the flow, two things are needed. The cross-sectional area of the pipe and the average velocity.

Cross-sectional area is found using the inside diameter of the pipe. Average velocity is found using the sensed velocity (measured by the sensor). A site performance is performed to determine the velocity profile. This allows the flow meter to calculate the average velocity from the sensed velocity.

Flow is calculated by using the Continuity Equation: Flow = Average Velocity x Area

FULL PIPE SENSORS
The full pipe sensor makes use of Faraday's Law of Electromagnetic Induction to measure water velocity. Faraday’s Law states: A conductor, moving through a magnetic field, produces a voltage. Because water is a conductor, water moving through a magnetic field produces a voltage. The magnitude of the voltage is directly proportional to the velocity of the water. The sensor generates an electromagnetic field, creating a voltage in the water. The two velocity electrodes, along with the ground electrode measure this voltage. A faster water velocity produces a higher voltage. By accurately measuring this voltage, the velocity is determined.

The sensor assembly uses a compression seal, which keeps the sensor watertight when the pipe is under pressure. Care must be taken when installing the sensor, to avoid leaks.

Visually inspect all elements of the installation to ensure they are structurally sound and of high quality materials, including all welds, couplings and nipples.

NOTE: If pipe sealant gets on the sensor electrodes the velocity signal may be lost.

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