



get to the point ... with the *smart meter* the adjustable flow meter for pipes up to 24" ID

...utilizing the 1/7 law

flow-captor *smart meter* 4115.30 sm



smart meter - the solutions for big pipe flow metering

The flow-captor *smart meter* is the answer to the problems with insertion type flow meters.

Flow rate through a pipe diameter will vary depending upon the nature of the flow profile (laminar or turbulent) and the insertion depth of the flow sensor.

If the flow profile were known,

then the flow rate at the insertion depth could be calculated and the flow rate accurately determined.

In most instances, however, the flow profile is not known and measurement accuracy suffers.

The flow-captor *smart meter* solves this problem by utilizing the 1/7 law.

The variable insertion depth allows precise placement of the sensing tip at the optimum measuring depth for both laminar and turbulent flow.

Each flow-captor *smart meter* comes with easy to follow installation instructions and a detailed explanation of the 1/7 law, allowing you to quickly... **get to the point.**

Evolution of the flow-captor *smart meter*

Flow metering began with orifice blends, followed by magnetic inductive flow sensors, vortex shedding flowmeters, and other technologies.

To utilize these principles of operation, the whole cross section of the pipe becomes the metering field. Thus, the sensor becomes, in effect, part of the pipe itself, mandating a different sensor for each pipe size. As a result these types of sensors are expensive to produce, difficult to install, and require excessive inventory.

The solution to this problem was insertion flow sensors. They are much smaller, more cost effective, and easy to install. However, because they do not address the flow profile, due to their fixed insertion depth, accurate metering is nearly impossible to obtain.

Despite this shortcoming they became very popular due to their simplicity and lower cost.

Now the flow-captor *smart meter* using the 1/7th law has solved this accuracy problem.



However, the advantages don't stop here.

What makes the flow-captor *smart meter* unique is the *calorimetric principle* developed by weber Sensors.

This provides high accuracy measurement of flow (including very low flow rates) using a solid state design with no moving parts.

The flow-captor *smart meter* sets the standard for flow metering.

Extrem accurate at low flow rates

The application of the 1/7th law combined with the *calorimetric principle* technology, makes the flow-captor *smart meter* the flow sensor of choice for all industrial applications.

It can measure flow of clean or dirty water, oil, glue, pastes, even wastewater and slurry.

Because the smart meter does not contain any moving parts, such as paddlewheels or turbines, there is no risk of clogging or mechanical damage, the smart meter operates maintenance free.

An optional hastelloy or titanium body construction is available for aggressive media.

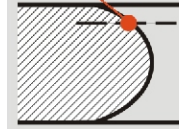


- 1 connection and output cable
- 2 adjustment of insertion depth
- 3 fitting 1-1/2" BSP or NPT
- 4 sensor

The 1/7th law

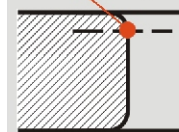
Laminar flow is the ideal flow condition with no obstruction or bends.

1/7th diameter point Under this condition the flow rate at an insertion depth of 1/7th of the pipe diameter represents the average flow speed across the pipe diameter.



Turbulent flow is a very common flow condition characterized by a flat flow profile across the pipe diameter starting almost

1/7th diameter point immediately after the pipe wall. Applying the 1/7th law creates the same accurate metering as under laminar flow conditions.



The 1/7th diameter insertion law, applicable with the flow-captor *smart meter*, ensures high measurement accuracy under almost all conditions.

Key features:

Accurate flow metering even at very low flow rates

Linearized analog output for interfacing with recorders, ratemeters, PLC's

Easy insertion depth adjustment for pipes from 1.5" to 24" diameter

Solid State design. No maintenance as there are no moving parts to stick or wear out

Ideal for handling aggressive and hard to measure media

Compact, rugged industrial design

Minimal inventory requirements - one smart meter fits all pipe sizes up to 24"

Cost effective alternative to other

To get more information about the new flow captor smart meter, please ask for technical data sheet # 4115.30 sm



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