AperCal

Calibration rig for FLEXIM clamp-on ultrasonic transducers

Patented technology

Equal precision to FLEXIM factory calibration

Faster and more accurate than conventional wet flow calibration

Traceable to national standards

Highly automated and software-controlled calibration process

Easy to operate

Saves shipping of transducers, time and money

FLEXIM Sets Standards when measuring matters
Autonomous calibration of FLEXIM clamp-on ultrasonic transducers at your site

Measurement accuracy relies on calibration and in many applications demands on accuracy are high. This means that periodic calibrations with well-documented results are needed. With FLEXIM’s AperCal, this can be easily done at your site.

AperCal stands for aperture calibration. This patented technology is nothing less than a revolution in ultrasonic flow calibration.

Aperture calibration vs. wet flow calibration

Commonly, calibration consists of a comparison of the device under test (DUT) with a reference measuring instrument, similar to comparing the time a known and accurate clock reference. Accordingly, the calibration of flow meters is usually done on a wet flow calibration rig. But the flow profile in every flow rig is influenced by pipe characteristics and installation conditions, leading to increased measuring uncertainty.

FLEXIM’s AperCal eliminates these uncertainties by basing the calibration process on the fundamentals of clamp-on ultrasonic flow measurement according to the transit-time principle: When an ultrasonic signal is conducted through a flowing medium, it gets carried by the flow and experiences a spatial shift. This shift results in a change of the signal path length and therefore in a change in the transit time.

FLEXIM’s AperCal produces the same effect without flow through a precisely defined and controlled displacement of the transducers. This reduces the calibration procedure to the measurement of length and time. Both can be performed with extreme precision. This results in an extremely accurate calibration that is not influenced by pipe or installation characteristics.

Exact and efficient

FLEXIM’s advanced AperCal system comes with some additional benefits: The calibration process is simple and fast. There is no need to pump tons of water around. One trained person is sufficient to execute the computer-controlled operation.

By applying the patented, PTB and NIST traceable certified Aperture Calibration method, FLEXIM once again sets the standard in terms of accuracy of non-intrusive flow measurement instrumentation.

Technical specification

Calibration system for FLEXIM clamp-on ultrasonic transducers

- Accuracy of acoustical calibration factor 0,15 %
- Dimensions 32” x 51” x 115”
- Weight 1,200 lb (without water) 2,750 lb (with water)
- Operating system Windows PC (by customer)
- Scope of delivery FLEXIM AperCal Control cabinet Label printer 50 transducer modules (Sensproms)

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