

Applications

OKS buffer systems are used with clamp-on ultrasonic flowmeter installations for extreme-temperature applications such as:

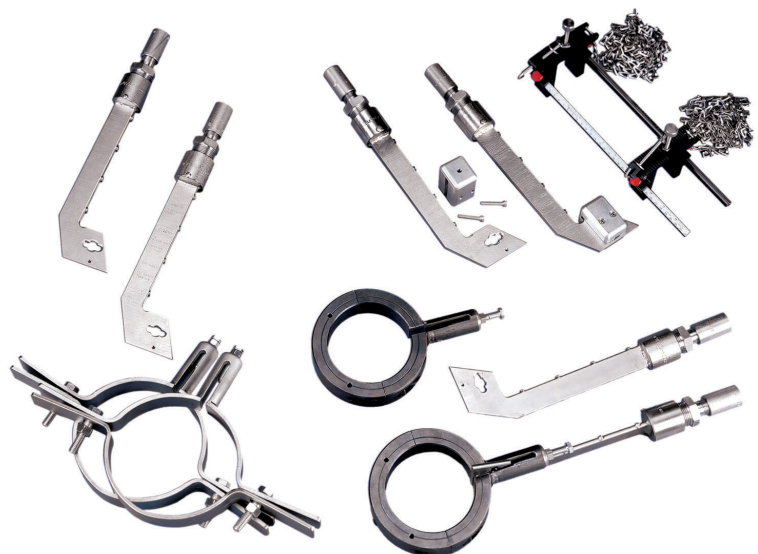
- High-temperature hydrocarbon liquids
- Superheated water
- Cryogenic liquids

Features

- Extremely high and extremely low temperature use
- Clamp-on non-intrusive system
- Permanent high-temperature couplants
- No pressure drop
- Low maintenance
- Measure wide range of flow rates and pipe sizes
- Accurate, drift-free measurements
- Easy serviceability
- Unlimited transducer life

OKS Clamp-On Buffer Transducer System

OKS is a Panametrics product. Panametrics has joined other GE high-technology sensing businesses under a new name—GE Industrial, Sensing.



GE Sensing

Buffer Technology Handles Tough Flow Measurement Applications

The OKS clamp-on transducer system is designed for extremely high and extremely low temperature applications in liquid flow measurement. The OKS buffer transducer system overcomes the problems of traditional clamp-on methods at high temperatures, extending the range of measurement up to 680°F (360°C), with even higher temperatures possible. In addition, the OKS transducer can be used for very low cryogenic temperature applications to -328°F (-200°C).

Designed for use with GE DigitalFlow™ ultrasonic flowmeters, the OKS clamp-on transducer consists of an ultrasonic transducer mounted on a steel buffer. The buffer removes the transducer from the application temperature extremes, allowing it to be used where measurements were previously not possible.

The OKS Buffer

The OKS buffer is a solid waveguide that resembles a thin ice hockey stick. It conveys ultrasound very effectively into the pipe wall and into the liquid. This allows better signal-to-noise ratio and more accurate flow measurement.

With ultrasonic operating frequencies of 1 and 2 MHz, the OKS buffer transducer system can be used on a variety of liquids, from superheated water and hot, heavy hydrocarbons, to cryogenic liquid natural gas. The buffer will keep the piezoelectric element at approximately ambient temperature, thus ensuring an indefinite life for the transducer.

Installation Options— Choices for All Applications

The OKS transducer system can be used not only in a variety of applications, but can also be installed in numerous convenient ways.

For quick evaluation or portable work, use the GE universal clamping fixture (UC-F) with chains or straps and a temporary grease-type couplant. With the adapter block, fitting the OKS transducer to the standard fixture is easy and results can be obtained for minutes or up to several hours.

For a longer term installation or when pipe or fluid conditions demand it, a stronger clamping fixture is used. This allows a much higher coupling pressure on the transducer to the pipe wall. For long-term use, metal foil couplants are used. Installation is accomplished without flow shutdown or pipe wall penetration.

Advanced Technology OKS Buffer Systems

When combined with any of the DigitalFlow ultrasonic flowmeters, the OKS transducer system takes advantage of the patented Correlation Transit-Time™ technique and advanced digital-signal processing. The OKS transducer system and DigitalFlow flowmeters provide the proven technology and accuracy that have made GE a leader in innovative instrumentation technology.

OKS Specifications

Operation and Performance

Pipe Sizes

2 in to 24 in (51 to 600 mm) NB and larger

Pipe Wall Thickness

Up to 3 in (80 mm)

Pipe Materials

Carbon and stainless steel. Consult GE for other materials.

Flow Accuracy (Velocity)

±2% to 5% of reading typical

Accuracy depends on pipe size and whether measurement is one-path or two-path. Accuracy to ±0.5% of reading may be achievable with process calibration.

Specifications assume a fully developed flow profile (typically 10 diameters upstream and 5 diameters downstream of straight pipe run) and flow velocity greater than 1 ft/s (0.3 m/s).

Clamp-On Ultrasonic Flow Transducers

Temperature Range

-328°F to 680°F (-200°C to 360°C)

Materials

- Standard: Nickel-plated steel
- Optional: Stainless steel

Mountings

- Split-collar type for 2 in (51 mm) and larger pipes
- Adapter block for fitting to UC-F universal clamping fixture
- Welding directly to pipe

Area Classifications

- Standard: General purpose
- Optional: Weatherproof Type 4X/IP66



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