Product Sheet

INDUSTRIAL TOMOGRAPHY SYSTEMS plc

ERT Circular Sensors

Sensors

ERT sensors comprise of multiple electrodes which must make electrical contact with the fluid within the process volume. The most common geometry is a circular sensor with the electrodes arranged uniformly around the circumference. This approach is suitable for pipeline based sensors for both R&D and industrial applications. Circular sensors can also be fitted to the circumference of process vessels although this tends to be limited to R&D applications. These sensors can be designed to minimise or eliminate any disturbance of the flow through the pipe by making the electrodes non-intrusive.

Circular Sensors

Suitable for vessels & pipes

Materials:

- Acrylic
- PVDF/PTFE
- Polymer Lined Stainless Steel
- Glass

Electrodes:

- 316 Stainless Steel
- Hastelloy
- Platinum
- Copper

Cable specification : 1.5 m standard 18-core low fluoride coaxial cable (please contact ITS for suitability of longer cable lengths).

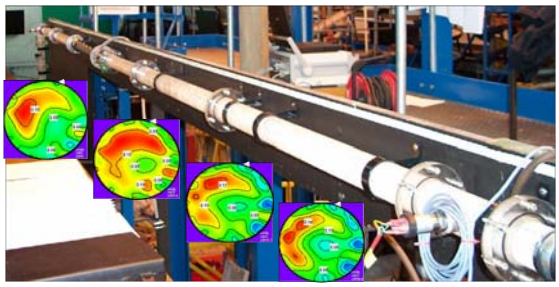
Expertise:

Diameter:	20 mm to 2m
Temperature:	150ºC Max
Pressure:	20 barg Max

Circular sensors can be used for measurements taken by both the P2000 and M3000 instrumentation. Single ERT, ECT and Dual ERT/ ECT sensors are available

Laboratory Flow Loop

A typical laboratory sensor for low pressure and medium temperature applications would be of simple acrylic construction with electrodes fitted through the walls of the acrylic pipe as shown below. This type of construction allows for flow visualisation.

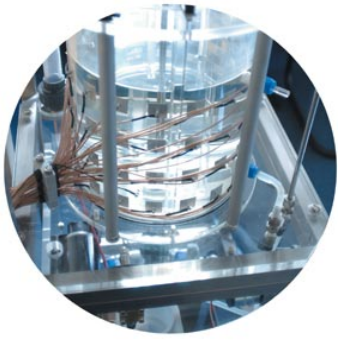


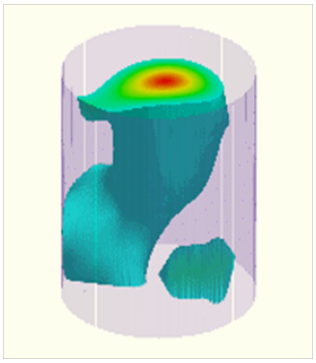
Integrated Tomography Rig

ITS is able to provide a full service tomography rig for mixing research. This can encompass any, or all of the following features:

- gas injection points
- Baffles
- flat or rounded base
  wall or baffle mounted linear sensor arrays
- stacked circular sensor arrays
- recirculation loop pipeline based arrays

The vessel can be fitted with top or bottom driven mixers and other sensor technology to meet user requirements.





Industrial Pipeline

ITS have developed polymer lined stainless steel pipeline sensors for more demanding conditions which can be provided with materials certificates if required.

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Product Sheet

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ERT Linear Sensors

Sensors

ERT sensors comprise of multiple electrodes which must make electrical contact with the fluid within the process volume. The most common geometry is a circular sensor with the electrodes arranged uniformly around the circumference. This approach is suitable for pipeline based sensors for both R&D and industrial applications. Circular sensors can also be fitted to the circumference of process vessels although this tends to be limited to R&D applications. These sensors can be designed to minimise or eliminate any disturbance of the flow through the pipe by making the electrodes non-intrusive.

Linear ERT sensors were developed as a more industrial deployable configuration. The electrode array is mounted on a probe which is typically inserted into a process vessel through a nozzle or port.

Linear Sensors

Suitable for vessels

Materials:

- PVDF
- PTFE
- Glass lined stainless steel

Electrodes:

- Stainless steel
- Hastelloy
- Platinum

Expertise:

Diameter:	20 mm to 100 mm
Temperature:	150ºC Max
Pressure:	20 barg Max

- Linear sensors can currently only be used for measurements taken by the P2000 ERT instrumentation
- Probes can be designed to be resistant to abrasive, chemicals and radiation

Laboratory-scale sensors

These are typically manufactured from 18 mm diameter PTFE rod and the sensing length can be designed to make them suitable for insertion into vessels ranging in volume from approximately 1 to 10 litre. They are compatible with standard glass fittings.

Pilot-scale sensors

There are made from large diameter PTFE rod which can be re-enforced with a metal internal if required. These are deigned specifically for customers' vessels with appropriate flange arrangement to fir the available nozzle and main pressure integrity of the vessel.

Glass-lined Stainless Steel Sensors

In co-operation with our partner, Pfaudler-Balfour, we have developed a linear ERT sensor integrated onto a glass lined finger baffle for use in glass lined stainless steel vessels which are commonly used in the pharmaceutical sector.

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