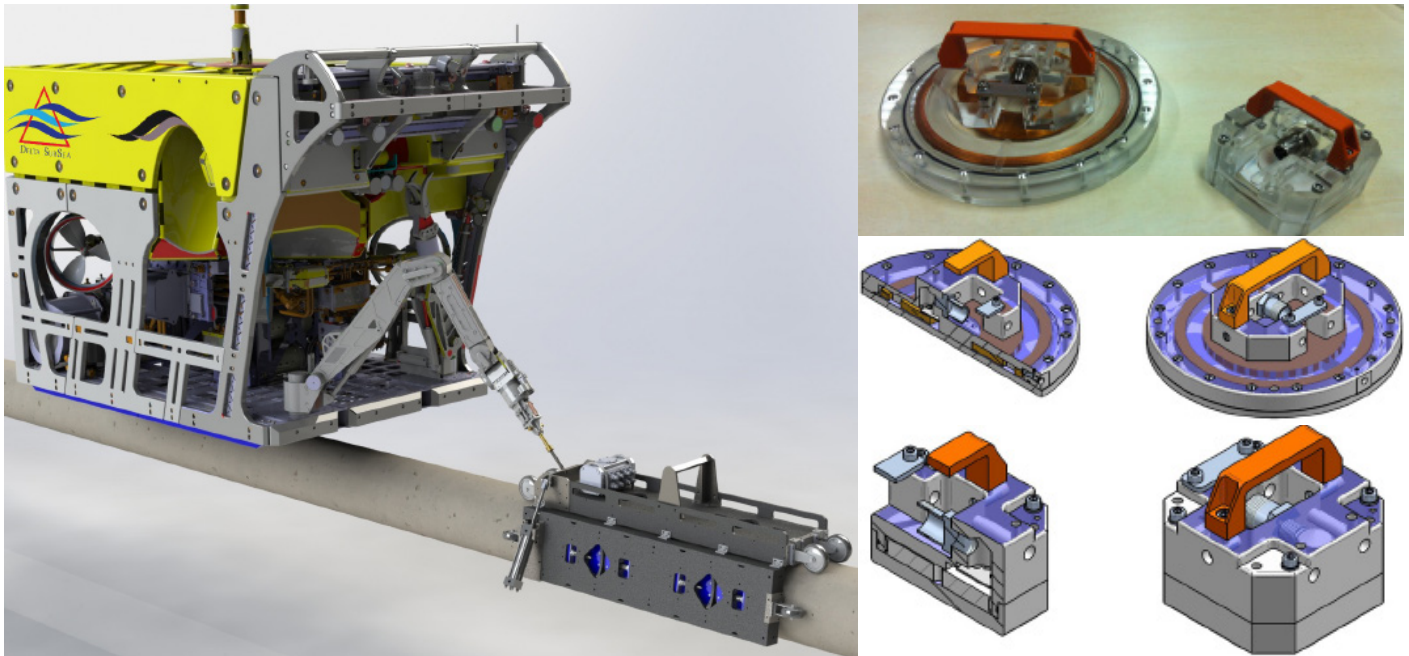


# Subsea INCOTEST tool

For corrosion detection



*A pioneering tool for the ROV deepwater inspection of non-piggable pipelines, called RTD INCOTEST, is proving to be a more cost-effective, faster and a safer way to detect corrosion. Through a new partnership between Applus RTD and Delta SubSea, this new one-of-a-kind deepwater tool is being introduced in the marketplace. The Applus RTD INCOTEST tool uses Pulsed Eddy Current testing to detect surface and subsurface corrosion in thin and thick-walled pipelines and vessels.*

## How RTD INCOTEST works

The Applus RTD INCOTEST (INSulated COmponent TESTing) is based on the Pulsed Eddy Current principle and is a reliable way to survey ferrous pipes and vessels through their thermal insulation and protective coatings. The detailed Pulsed Eddy Current technology is an excellent tool for prioritizing further inspections.

The benefits of Pulsed Eddy Current Testing and RTD INCOTEST are:

- Detection of surface and subsurface corrosion
- Measurements of average remaining wall thickness within the interrogated area (footprint)
- No contact needed for the measurement
- No special surface preparation needed
- Measurement through marine growth, fouling and concrete
- Measurements performed in-line and done in depths down to 3000 meters (9842 feet)
- Component evaluation at variable depths achievable through measurement at a range of frequencies or through different coil sizing
- No consumable chemicals required

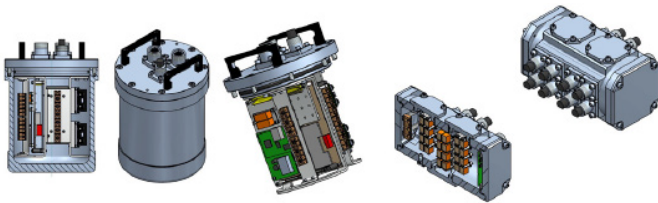
- Fast: up to 1,000 measurements a day
- Operates on batteries or mains power

## Technique

The low frequency pulsed magnetic field generates an eddy current at the surface of the material. Every time the magnetic field changes, eddy currents are generated in opposition to the changes. As they diffuse, they generate a magnetic field that is detected by the receiver coil in the probe. The average remaining wall thickness within the enclosed magnetic field can be calculated.

*Delta SubSea, headquartered in Montgomery, Texas, has global centers in Europe (Belgium), Trinidad & Tobago and Saudi Arabia to support its customers. Delta SubSea provides a range of ROV services and turnkey integrated solutions that are Best In Class for its customers all over the world. Delta SubSea's ROV Services business unit focuses on the inspection, repair, maintenance, construction, drilling and decommissioning market segments. These solutions enhance productivity in the most challenging subsea environments.*

The Applus RTD INCOTEST equipment is 'plug and play.' The equipment can be set up easily and be ready for inspection within minutes. The removal of marine growth such as barnacles is not required. The inspection data can predict lifetimes and ideal inspection intervals.



The more traditional inspection techniques are visual inspection and ultrasonic testing. There are several advantages of Applus RTD INCOTEST when compared to Ultrasonic Testing:

#### **RTD INCOTEST**

- No need for grinding/surface cleaning
- High production rate
- Average wall thickness on footprint area
- Measurement of the full material volume thickness through lamination
- Geometric influence
- Material magnetic permeability variation influence

#### **Ultrasonic**

- Clean, smooth surface
- Low production rate
- Wall thickness local value
- No geometric influence
- Measures until lamination interface, no information about total remaining wall thickness
- Material sound speed variation limited

RTD INCOTEST is a cost saving alternative because there is no need for special surface cleaning and preparation and the system optimizes maintenance activities.

#### **Characteristics of System Performance**

- Nominal wall thickness to 6-65 mm (0.236" - 2.559")
- Insulation/coating thickness up to 200 mm (7.874")
- Diameter down to 50 mm up to flat plates (1.968")
- Temperatures: -150° centigrade to 500° centigrade (-238F - 932F)
- Accuracy +/- 5%
- Duration of one measurement between 4-10 seconds depending on wall thickness

The technology is an efficient screening method to localize corrosion areas under insulated objects and through the insulation, coating and/or fireproofing and in general through any electric non-conductive and non-magnetic material. The object under examination needs to be made of low-alloyed carbon steel. Areas of suspected corrosion would be further examined with quantitative technology, such as ultrasound technologies.

RTD INCOTEST can be applied on piping and vessels, offshore platforms, risers and jacket construction piping, subsea piping, flow accelerated corrosion in liquid systems, corrosion under the installation layer on distillation columns and piping and vessels in process plants.

*Applus RTD is a leading global energy service provider that delivers technical assurance through NonDestructive Testing, inspection and certification to the capital-intensive high-risk energy, utility and infrastructure industries. Based in over 30 countries, Applus RTD is the global leader in Non-Destructive Testing, setting standards, developing technology and delivering the highest quality service worldwide for more than 75 years.*