

UniWest - Speciality EC Probes



Since 1985, employee-owned UniWest has engineered and manufactured eddy current (EC) testing solutions and instruments with unparalleled flaw detection capabilities for safety-critical and high-performance components in industries around the globe.

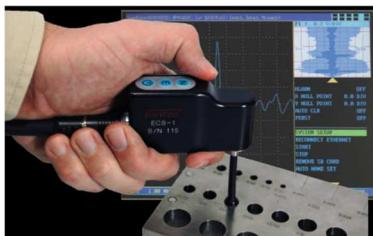
Theory

When a coil of conductive wire is excited with an alternating electrical current an alternating magnetic field is produced. The magnetic field oscillates at the same frequency as the excitation source. When placed near a conductive material, currents opposed to the ones in the coil are induced in the material. These are referred to as eddy currents.

In the case of variations in the electrical conductivity and/or magnetic permeability causes a change in eddy current. Additionally, the presence of defects will precipitate a change in phase and amplitude that can be detected as a measurable change in the impedance. Eddy Current testing is generally used on conductive materials to detect surface defects.

ECS-1 Mini Rotating Scanner

The ECS-1 Mini Rotating Scanner is specially designed for bolt hole inspections. It has the ability to synchronize and record the circumferential location and defect amplitude. Null and erase buttons are ergonomically placed by the thumb.



Scanner Specifications

Speed	1500RPM
Freq Range	30kHz-6MHz
Probe Connector	4-pin Fischer with O-rings
Coil Type	Differential and Reflection
Signal Coupling	Rotary Transformer
Operating Voltage	24 VDC
On/Off	Push Button
Stall Torque	0.07Nm
Encoder	RPM Control
Weight	500g
Size	129x43x92mm
Mounting	Handheld and special fixture
Controls	Rotate, Translate, Load Probe, Jog Up, Jog Down
Modes	Automatic & Manual
Indicators	– Green LED for probe extension – Red LED for probe retraction
Linear Encoder	25micron resolution
Rotational Encoder	50micron resolution in a 25mm dia hole

Cable Specifications

Removable	Yes
Connector	12 pin
Connector at Inst	19
Length	9.5

Probe Specifications:

- UniWest URB Style: Nonmetal, specify frequency, coil type and diameter
- UniWest RD 2002 Nonmetal Expandable, specify frequency, coil type and diameter range.

Instrumental Specifications:

- UniWest US-450 with the HRO option and E-Lab operating software
- EddyView Pro or Premium Eddy Current Instrument

ECS-5 Bolt Hole Scanner

Requiring the EVi controller to operate this Bolt hole scanner has improved capabilities versus the ECS-1. The URB probes are compatible with this hand-held scanner.



Scanner Specifications

Speed	Adjustable 500-3000 RPM with 10 RPM resolution
Scan Depth	32mm
Coil Type	Absolute & Differential in Reflection or Bridge Configurations
Operating Voltage	24 VDC
Scan Motion Indexing	Rotary and Linear
Scan Resolution	25 to 750 microns in 25 micron resolution
Stall Torque	0.07Nm
Encoder	RPM Control
Weight	500g
Size	129x43x92mm
Mounting	Handheld and special fixture
Controls	Rotate, Translate, Load Probe, Jog Up, Jog Down
Modes	Automatic & Manual
Indicators	– Green LED for probe extension – Red LED for probe retraction
Linear Encoder	25micron resolution
Rotational Encoder	50micron resolution in a 25mm dia hole

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Flexible Extended Technology (FET)

FET probes are a perfect for inspecting hard to access areas. The probes have a radius but a flexible to allow them to adjust to edges etc.



FET Probes come in a variety of configurations with extension rods, 30 and 90 degree arrangements. FET probes generally have a radius of 3-6mm and are compatible through an amplifier and adaptor to the Olympus controllers.

ECS-3 Surface Scanner

The ECS-3 Scanner is a handheld eddy current scanner that enhances the inspection of surfaces by providing fast NDI inspections and detailed, real-time C-scan imaging.



Features include:

- Scrollable C-scan imaging in colour or grey scale
- Colours depict shape, size, and depth of discontinuities
- Included Colour Palette Tool allows creation of application specific colour scales
- Data and images can be saved and reviewed later for verification of defects or used for reports
- Save up to 24m of continuous data
- On/Off switch on the handheld scanner coordinates
- the null and erase functions automatically
- Can be used with both non-magnetic and magnetic fasteners in aluminium and other materials
- Limited Subsurface scanning
- Removable, easy to exchange probes
- Simple to setup, calibrate, and operate
- Ideal in finding defects around flush fasteners

PROBE SPECIFICATIONS

- Replaceable
- Absolute coil arrangement
- 20 kHz for deeper penetration
- 200 kHz for standard surface inspection such as aluminium

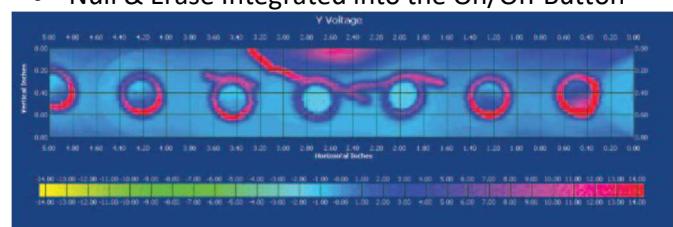
- 2MHz for surface inspection of low conductivity alloys such as titanium
- Other frequencies available depending on application

SYSTEM COMPONENTS

- ECS-3 Scanner – The Operator's hand controls the start and stop of the scans as well as the motion of the scanner. Designed to fit in the hands of an average adult.
- C-Scan Display and Controller – Collects the data and displays it as a C-scan for further evaluation.
- Compatible with the EVi system

SCANNER SPECIFICATIONS

- Scan Width 19mm
- Weight 0.54 kg
- Size of Scanner 145 x 76 x 61 mm
- Cable Length 2.4 m
- Scan Motion Circular
- Coil Type Absolute or Differential
- Operating Voltage 24 Volts DC
- On/Off Handy push-button control on the front of the scanner
- Null & Erase Integrated into the On/Off Button



Defects above fastener holes.

Probe Kits

UniWest can assemble probe kits for most EC applications. Standard ones available are:

- Airframe surface
- Raised Head
- Standard Probes
- Standard Encircling
- High Speed

About PCTE

PCTE have over 30 years' experience in the measurement and testing of construction materials. PCTE can provide more than just the equipment, they can provide expert training. PCTE have a service centre in Sydney in which they can provide calibration, repairs and warranty repairs.