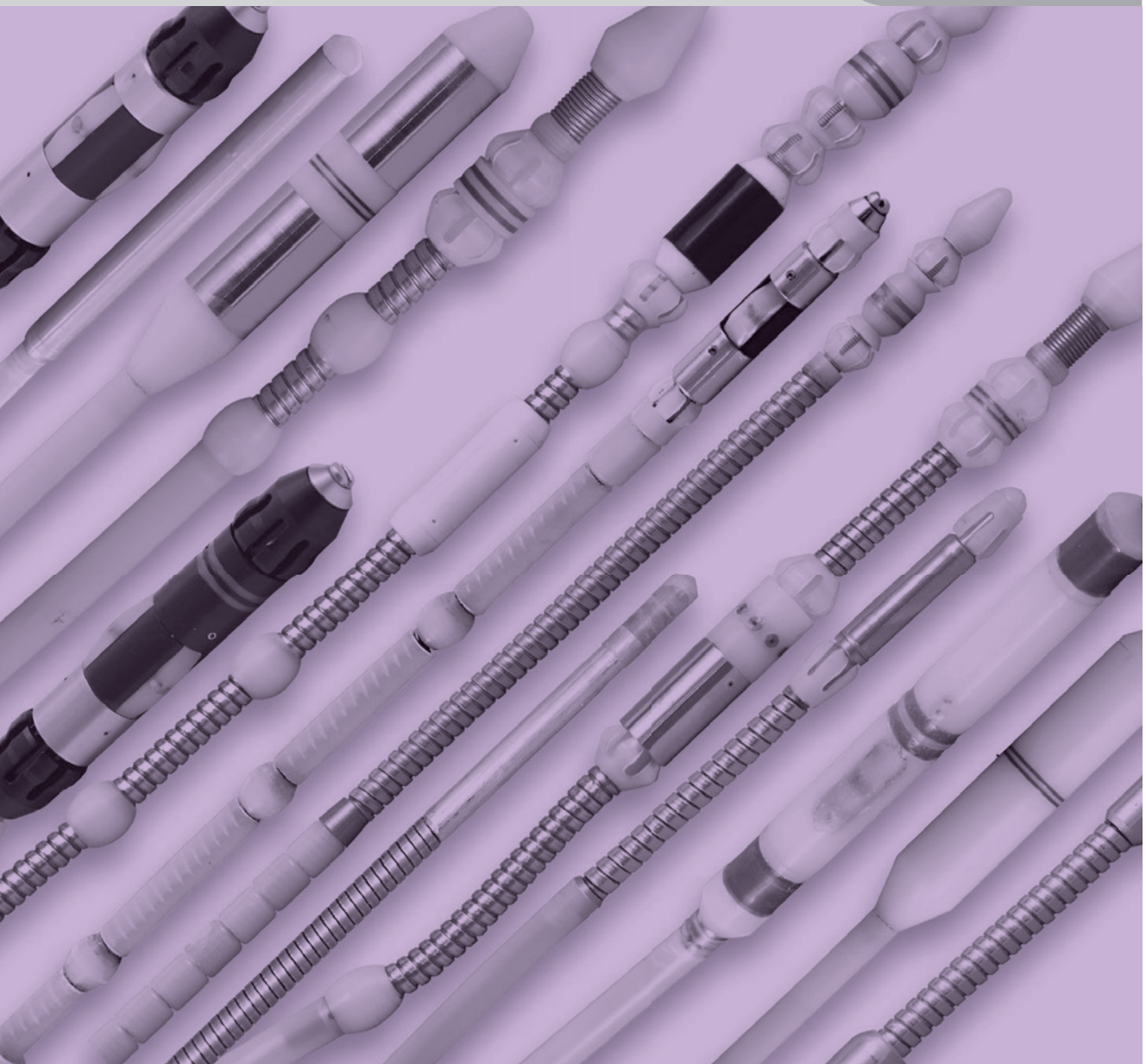
Ready for the future,
caring for the customer



Eddy Current Probes

EC PROBES

tecnatom

www.tecnatom-ndt.com

CE

EC PROBES for the inspection of tubes installed in heat exchangers, steam generators, condensers, heaters, coolers and others components

Basic bobbin probe

Protected bobbin probe

Flexible bobbin probe

T-Probe Array probe

Multicoil probe

Small U-bend tube radius bobbin probe

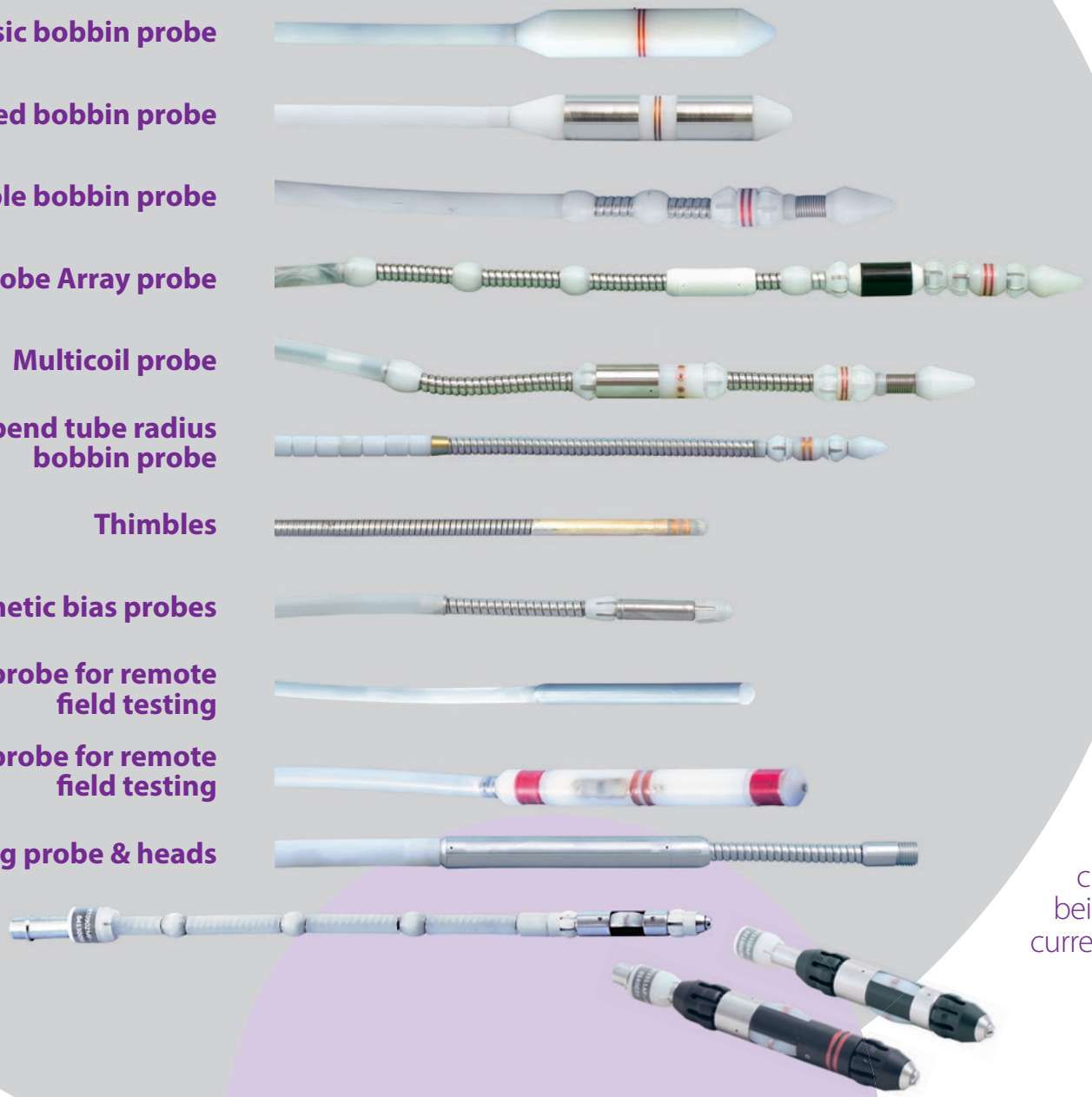
Thimbles

Magnetic bias probes

Protected probe for remote field testing

Active probe for remote field testing

Rotating probe & heads



Eddy current probes are used for detect and size defects such freeting, steam erosion, cracking and more along tubes of a large variety of conductive materials ferrous and non-ferrous (stainless steel, carbon steel, titanium, all-brass, copper, seacure, among others) present in nuclear power plants, oil refineries, thermal plants, etc.

A standard bobbin probe works creating a magnetic field with their coils that it is transformed in eddy currents in the material to inspecting. When a defect is present it disturb the eddy currents wich that change the impedance of the coils and being possible to measure with an eddy current instrument.

Ready for the future,
caring for the customer

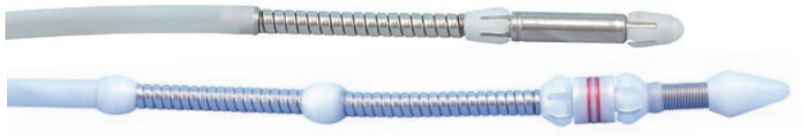
Non-ferromagnetic tubes

A full range of frequencies for the inspection of the big variety of materials presents in the industry.

Standard bobbin probe for straight tubes

Standard protected bobbin probe

High magnetic bias bobbin probe for U-bend tubes



Small U-bend tube radius bobbin probe

Bobbin for instrumentation tubes in PWR nuclear plants

CODE	FREQUENCY RANGE
VF	Ultra high Frequency (700-1200 KHz)
AF	High Frequency (350-700 KHz)
MF	Medium Frequency (50-350 KHz)
BF	Low Frequency (30-50 KHz)
EF	Extra Low Frequency (10-30 KHz)
IF	Infra Low Frequency (0.2-10 KHz)

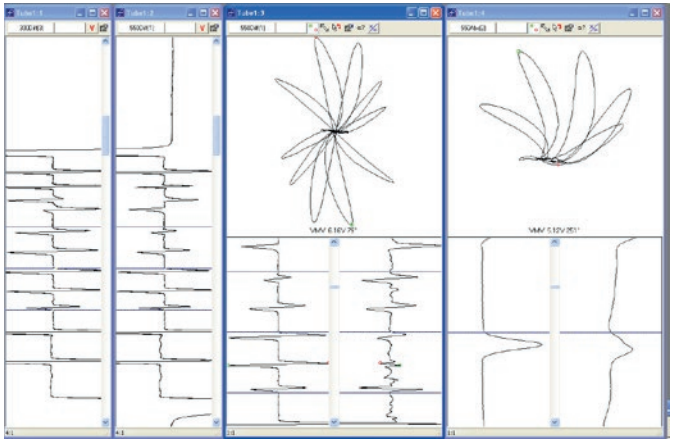
APPLICATIONS

Components

- Steam generators
- Heat exchangers
- Condensers
- Coolers
- Heaters
- Thimbles

Materials

- Stainless steel
- INCONEL
- INCOLOY
- Titanium
- All brass
- Duplex (lightly ferromagnetic)
- Monel (lightly ferromagnetic)
- Admiralty
- Copper
- Aluminium …and more



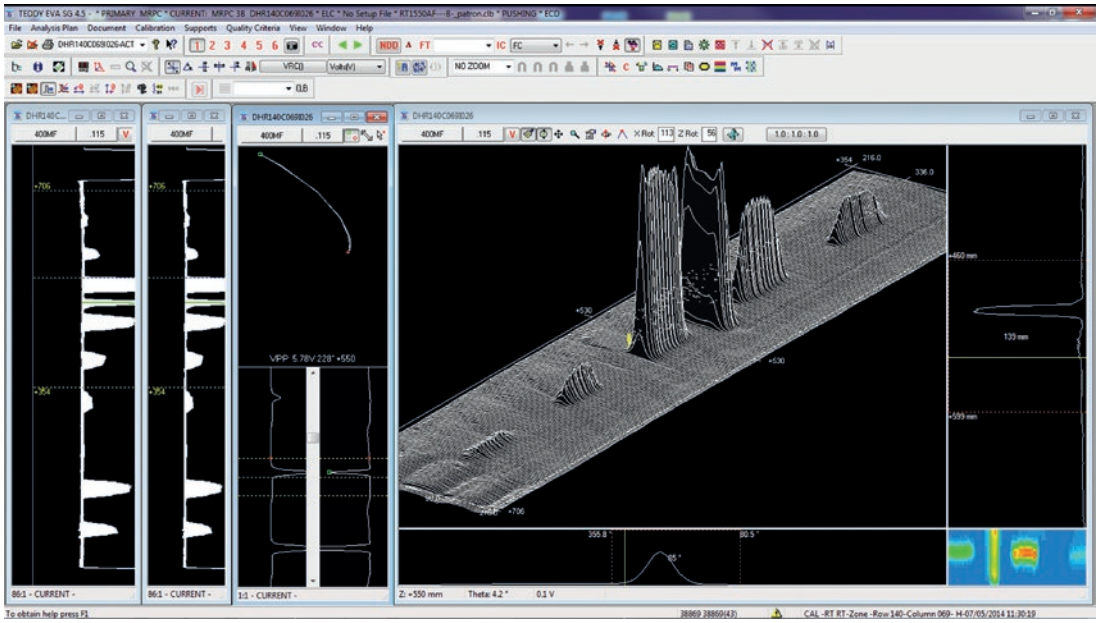
FEATURES

- Designed for straight tubes or U-bends
- Differential and absolute signal
- Permanent magnets for saturation as option
- Special designs for small radius of U-bends
- Multicoil/Array for perfilometry
- Large diversity of diameters since 4.9 mm up to 50 mm
- 6 range of inspection frequencies
- Low noise or lift-off effect

Non-ferromagnetic tubes

Rotating Probes

Helicoidal trajectory for the inspection of the whole inner surface of the tube for detection of cracks in the expanded transition area and for characterizing defects (shape, length, arc, depth, etc).



FEATURES

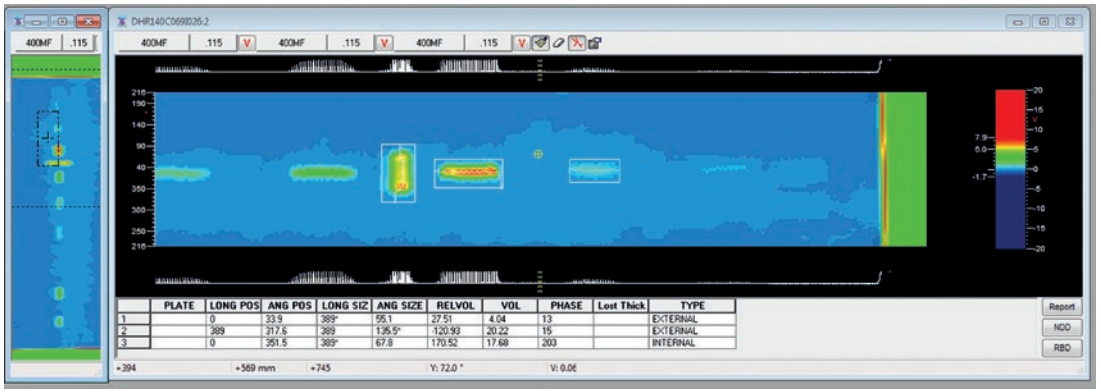
- Posibility to 3D or CSCAN representation
- Specific head for each type of defectology (3 punctual coils, 2 punctual coils + 1 differential coil, 1 only punctual coil, etc)
- Spring loaded shoe
- Direct compatibility with Zetec MRPC motors and 7 pin connector
- Rotating speed up to 1200 rpm

Tecnatom's motor for rotating heads

Three sensors standard head

Dual head

Head for small tube diameter

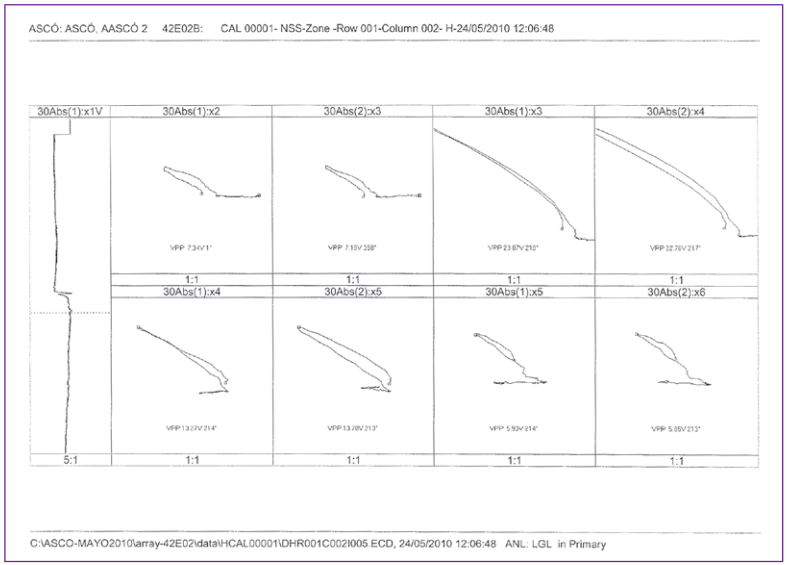


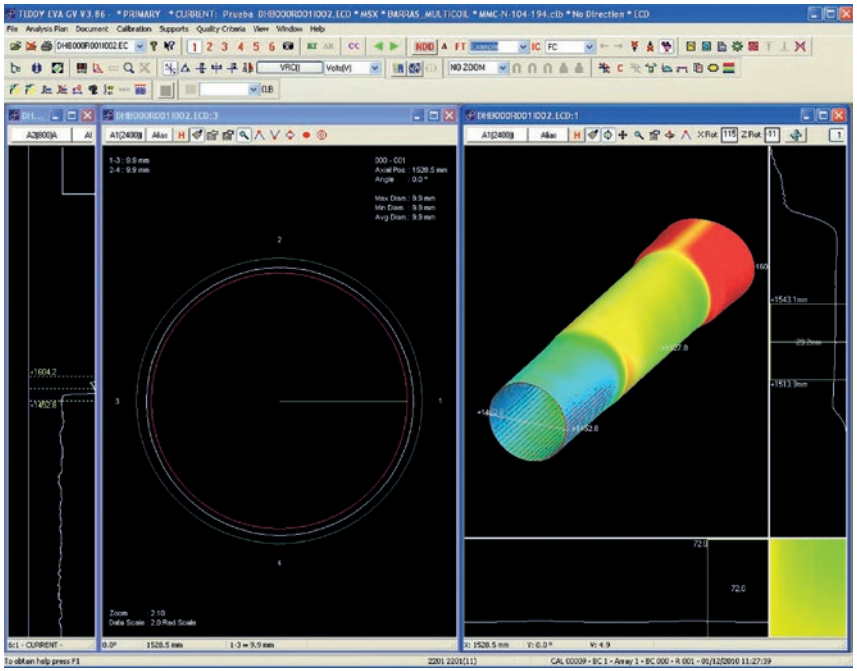
Multicoil Probes

FEATURES

- For diameters from 9 mm to 22 mm
- 5, 6, 8 sensor element regarding the tube inner diameter
- Pick-up mode and Absolute mode
- Multiplexer device needed
- Optional circular bobbin coil

Measuring of diameters in denting or expansion areas in steam generators tubes.

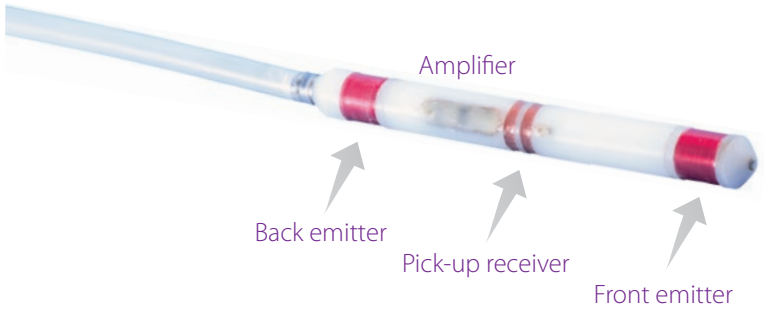




Inspection of the expansion area of the tubes of the condensers and heat exchangers, for the detection of circumferential cracks.

Ferromagnetic tubes

RFT Probes

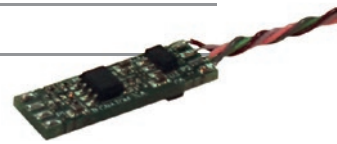


FEATURES

- Dual emitter
- Pick-up coil receivers
- Differential and absolute signal
- Configurable emitters by software (only front, only back or both) useful for locating defects at each side of the support plates
- High sensibility due 43 dB built-in amplifier
- 3 ranges of frequencies (high, medium and low frequency) for each type of material and tube thickness
- Direct connection to ETbox® instruments
- Specific adpater needed on demand to the connection to other eddy current intrument manufacturers
- Stainless steel protection as standard

CODE	FREQUENCY RANGE FOR RFT
AF	High Frequency (10000-30000 Hz)
MF	Medium Frequency (1000-10000 Hz)
BF	Low Frequency (20-1000 Hz)

BUILT-IN AMPLIFIER	
Power supply	±15 VDC
Operating temperature	Up to 60°C
Bandwith range	10 Hz to 30 KHz
Inputs	2 coils to differential signals
Standard gain	43 dB
Size	Miniature



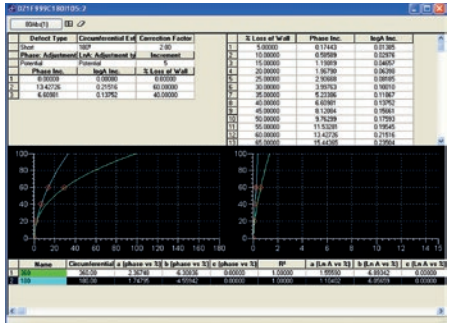
Analysis

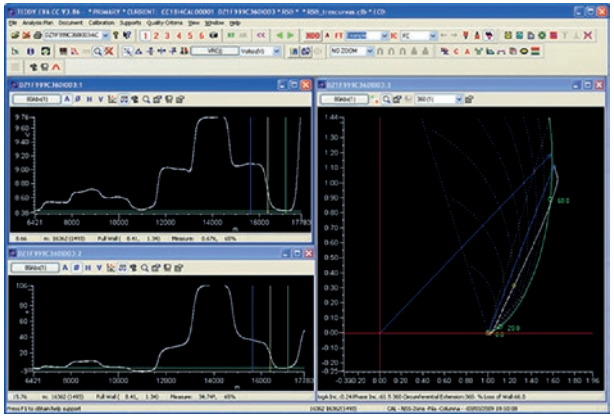
Punctual defects

- Multiple stripcharts
- 1D view
- Lissajous
  - Amplitude/phase

Short & long defects

- Voltage polar plane
  - % Wall loss
  - Circumferential wall loss extension





Protected RFT

Flexible RFT

Special applications (under customer specifications)

Fuel rod & control rod

Encircling types of bobbin probes

Rotating probe

Bolts, nuts, dowel tails

Inspection of the dowel tails of a gas turbine

Shoe with sensor coil for bolt with large diameter

Shoe with sensor coil for nut with large diameter

Surface inspection

BMI (Bottom mount instrumentation)

Inner and outer surface for pressure tubes

Inspection of CRD's

Tecnatom S.A.
Av. Montes de Oca, 1
28703, San Sebastián de los Reyes / Madrid- Spain

www.tecnatom-ndt.com