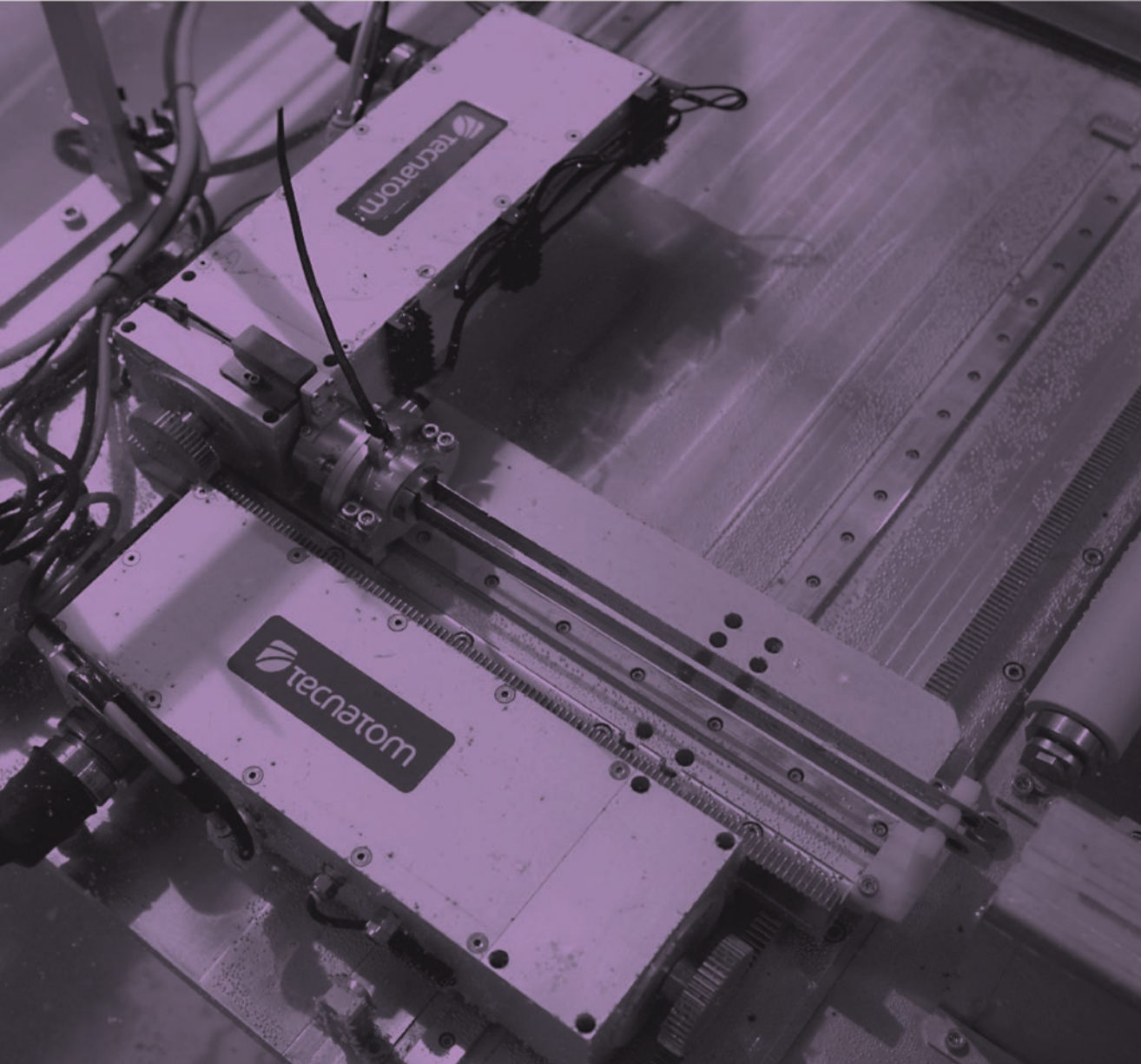


Ready for the future,
caring for the customer



Ultrasonic Inspection
Technologies

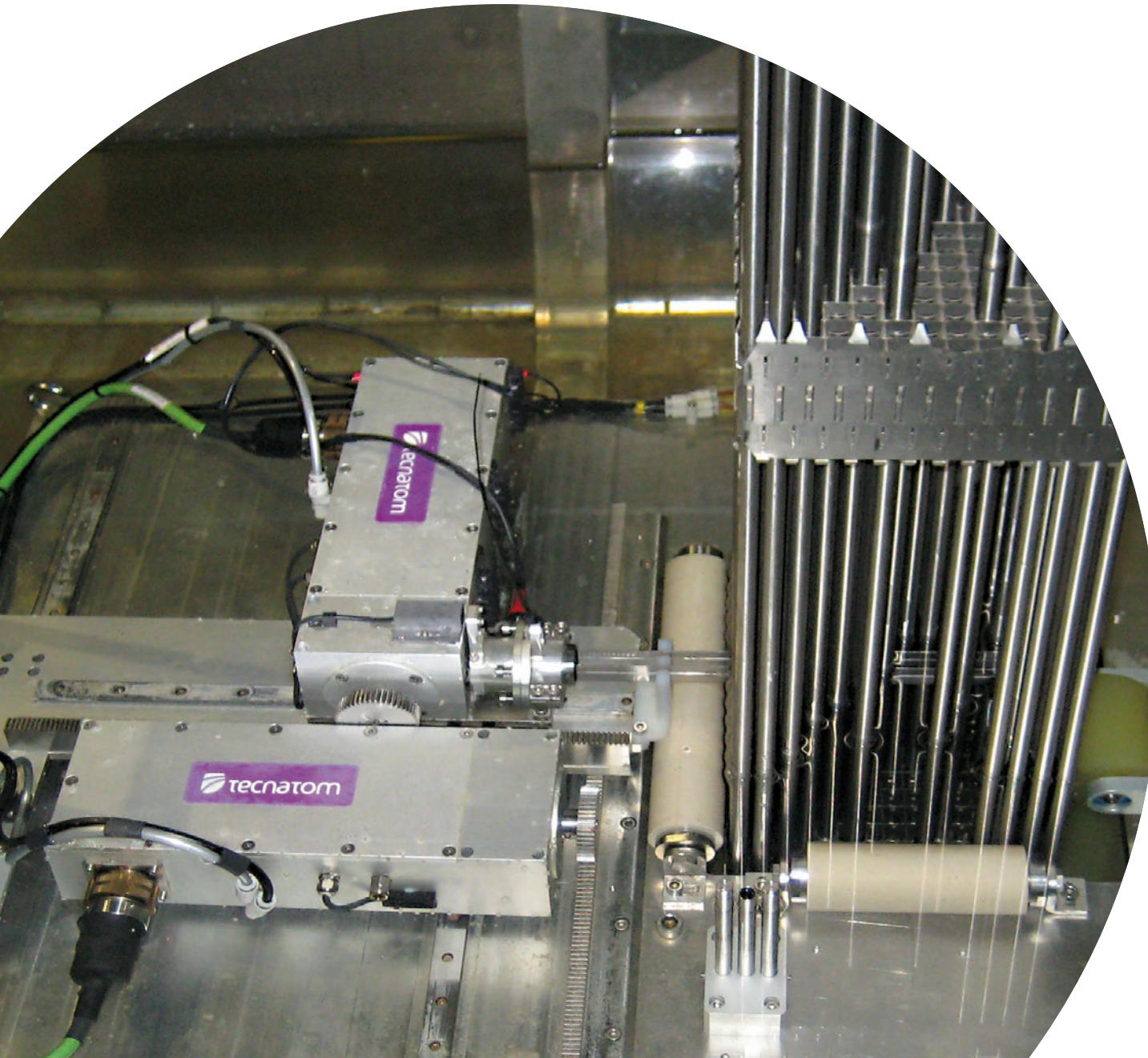
SICOM UT

Ultrasonic Inspection
for Spent Nuclear Fuel

 **tecnatom**

www.tecnatom-ndt.com

CE



SPECIAL FEATURES

- Detection of leaking rods by presence of water into the fuel rods without disassembling fuel assembly (FA).
- Equipment placed on three empty racks.
- Location structure based on two adjacent rack cells.
- 2D Centering rollers.
- Shielded High radiation camera for monitoring and setting up purposes.
- Double blade probe assembly.
- High frequency UT probe.
- Transducers endure and qualified for high radiation.
- Scratch safe probe design.
- High sensitivity and precision.
- On-line and off-line analysis.
- Semi-automatic algorithms analysis.
- Redundant re-iteration and retest capabilities.
- Axis encoder and motorized motion.
- SONIA data acquisition system.
- Specific InspectView Acquisition and Analysis Software.
- Part of SICOM range for Fuel Assembly.
- Technology proved in NPP.
- Operational experience in Nuclear Power Plants.

Ready for the future,
caring for the customer



System operation

- Fast assembly and simple configuration
- Simultaneous measurements of proprieties
- Fuel rod manipulator speed: 10-30 mm/ sec
- Four sides inspection and combined analisys capabilities of FA.
- Measurement in one generatrix 4-10 minutes



SONIA COMPACT

- Based in a modular ultrasonic technology.
- Fiber Optic communication.
- Robust and low weight desing.
- No air/water intake, No fans.
- Ideal for use in a contaminated areas
- Used in several inspection types in the industry.

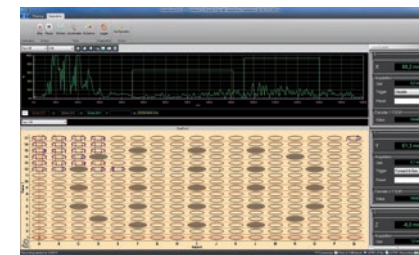
FEATURES

Electronic type	Conventional, modular, distributed, devoted to automated inspections	
No. of channels	8 – 128	
Pulser	Quad. Negative wave 100 - 300 V	
Amps.	LINEAL & LOG.	
Bandwidth	0.5 - 25 MHz (@-3dB)	
dynamic range	85 dB	
Signal conversion	125 MSPS/14 bits	
HW gates	8 AT + 1 Interface	
DSP functions In real time	Rectification + smoothing Envelope Filter FIR programmable	Signal averaging EMI filter Compression of signal

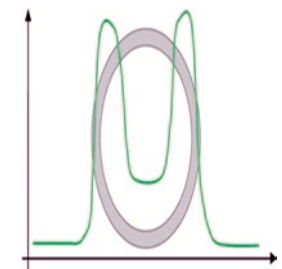
Specific InspectView Acquisition and Analysis Software

- Tecnatom proprietary ultrasonic software.
- Semi-automatic analysis.
- Automatic report results.
- Records can be reanalyzed later.
- Retest capabilities of full or reduced FA areas.

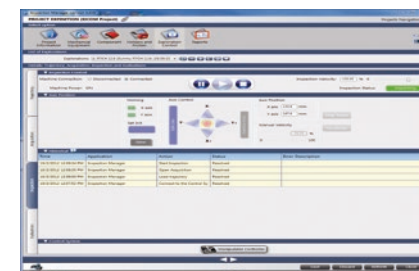
InspectView



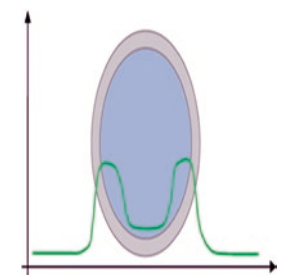
Normal signal at rood



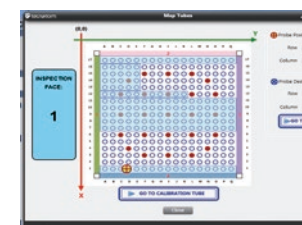
Acquisition Control



Signal attenuation in damage rod

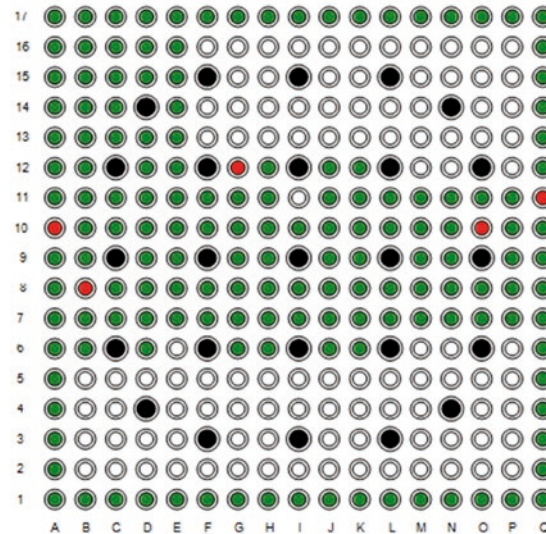


Operation Control





Easy analysis representation map



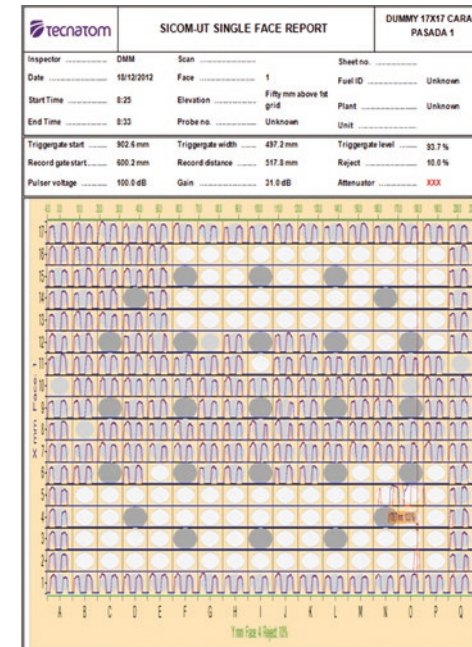
- REPRESENTATION WITHOUT DEFECT.
- REPRESENTATION WITH DEFECT.
- UNVALIDATED.
- UNEXPLORED.

SICOM-UT is a very workable tool to detect failed rods, in conjunction with other fuel integrity equipments, such as Sipping.

The existing design may be easily adapted to the specific dimensions of a wide range of fuel types.

ENUSA and TECNATOM are in position to deliver this equipment to and carry out any design evolution upon request.

Automatic analysis report



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