

ADVANCED NDT LTD

RAPTOR

ULTRASONIC FLAW DETECTOR AND IMAGING SYSTEM



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RAPTOR

High Performance Ultrasonic Flaw Detector

- Tunable Spike & Square Wave Pulsers
- Selectable Band Pass Filtering
- Up to 10KHz PRF
- Dual Gates
- DAC/TC



COST EFFECTIVE SCANNING

In built Imaging System:-

A-Scan, B-Scan , C-Scan, Spreadsheet View, Pan & Zoom, 3D and Histogram.

Zoom to show actual values at any point.

Export results to commercial spreadsheets.

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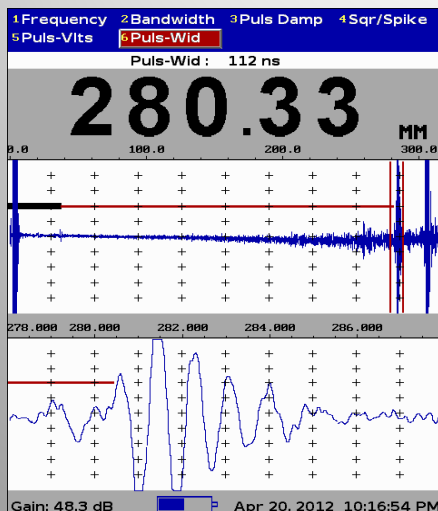
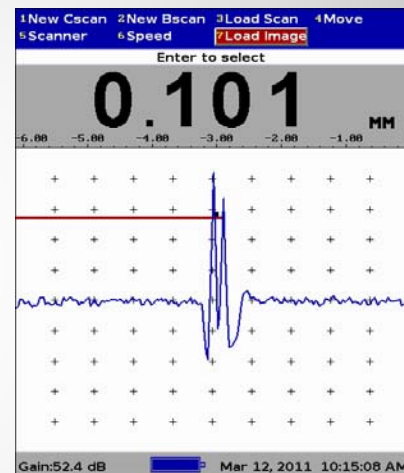
RAPTOR

THE RAPTOR FLAW DETECTOR KEY FEATURES

PULSER RECEIVER

The ability to choose a Spike or Tuneable Square Wave Pulsar allows the Raptor to drive any type of probe at its optimum, whether it be to resolve small defects or punch through difficult materials.

Selectable Band Pass filters on the Receiver ensure the best signal to noise in any situation. This screenshot shows the Raptor resolving and measuring a 0.1mm step in aluminium.



SPLIT SCREEN

The Raptor can display two A-Scans simultaneously.

This may be used to automatically Zoom echoes from a distant target, giving further information on the defect.

The Screenshot shows the response from five holes at the far end of the IOW Beam Profile Block.

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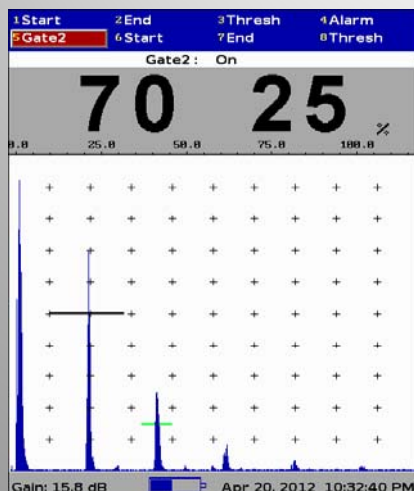
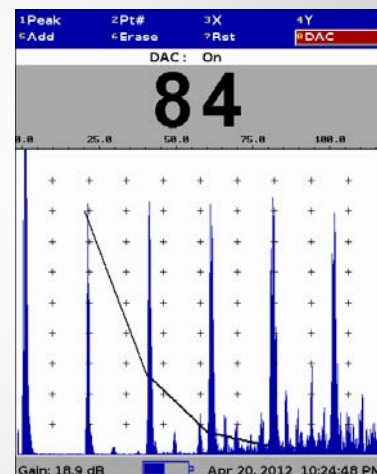
DAG / DAC / TCG

The Raptor can display a Distance Amplitude Curve using up to 20 points. This may be used for defect evaluation or the curve may be used as a Gate Threshold to give a uniform sensitivity irrespective of defect depth

– **Distance Amplitude Gating.**

The Amplifier Gain may be changed in line with the curve to level out defect responses irrespective of Depth.

- **Distance Amplitude Correction/Time Corrected Gain.**



DUAL FLAW GATES

The Raptor has two independent Flaw Gates, marked by different colour bars.

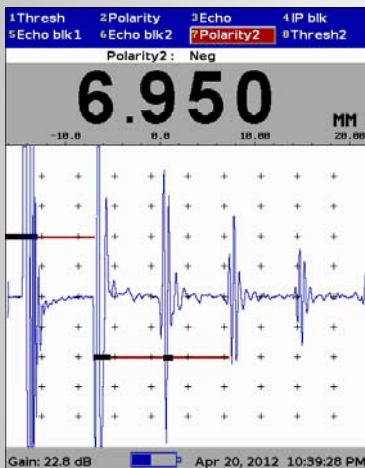
These may be set anywhere over the display area and have separate alarm logic.

The peak signal amplitude in each gate is displayed on the screen

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THE RAPTOR FLAW DETECTOR KEY FEATURES



THICKNESS GAUGING /TIME of FLIGHT

The Raptor has three thickness gauging gates:
Initial Pulse to 1st Echo, 1st Echo to 2nd Echo,
2nd Echo to 3rd Echo

These may be set at different thresholds, polarities and with
different Blocking Gates to mask interface noise, etc.

The Gates are auto ranging to find the target echo.

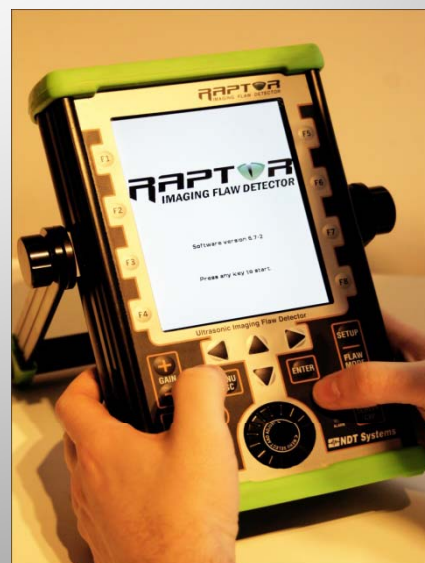
The thickness resolution is selectable.

This Screenshot shows a measurement between the 2nd & 3rd
echoes and the individual blocking gates.

EASE OF CONTROL

The Raptor has clear menus of the control options
plus 'Direct Access Keys' for major functions - e.g.
Gain, Cal, etc.

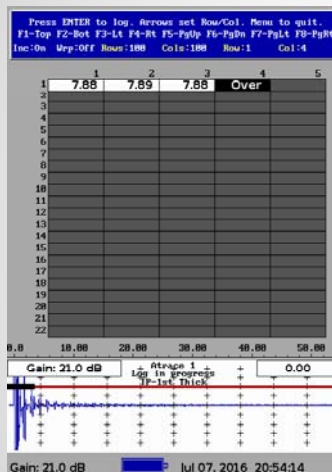
Settings may be changed using a Rotary Control,
Arrow Keys or Function Keys.



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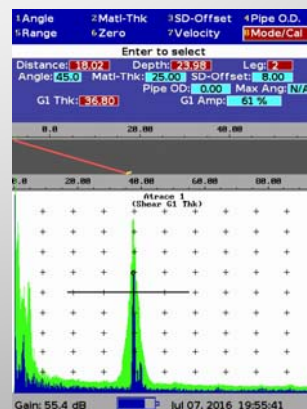


DATA LOGGER

The RAPTOR has an inbuilt data logger to store thickness readings

DEFECT LOCATION

When using angle beam probes, the Raptor shows the location of the defects in the material.



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RAPTOR IMAGING

Having detected a defect using the Raptor, it may be desirable to record it.

The Raptor has a complete imaging facility built in as standard.

Simply connect one of the range of scanners to record the area scanned as a live C-scan.

On completion of the scan, the image may be viewed as a B-Scan, a 3-D projection or Zoomed to show the actual reading at any point.

Data may be exported directly into a commercial spreadsheet.



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SCANNING

The Raptor captures either Time of Flight/Wall Thickness or Amplitude information as the probe is scanned over the surface.

As the Raptor can operate up to 10KHz PRF, the scanning can be very fast.

The Scan index is fully adjustable from 0.1mm to 50mm

A variety of Scanners are available to suit most applications.

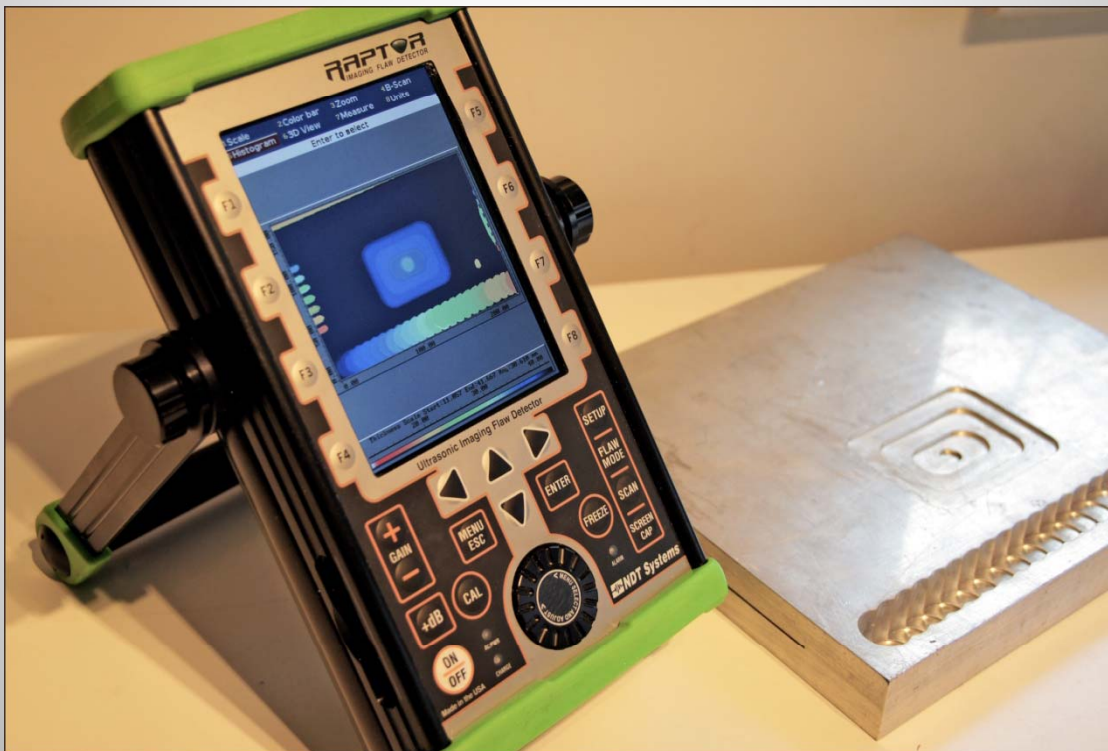
These can be manually driven, battery or mains powered.



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*THE RAPTOR FLAW DETECTOR
IMAGING*

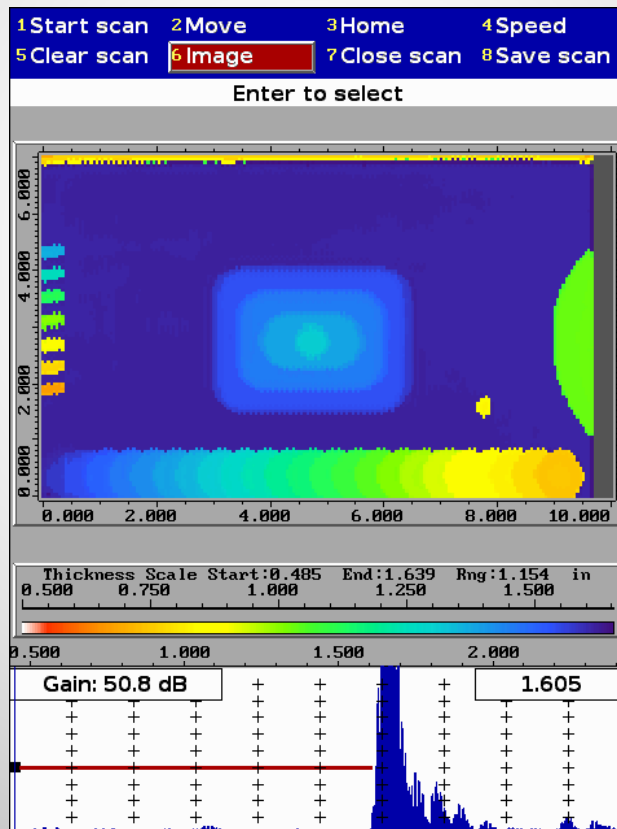


***The Raptor with a test block (inverted)
showing the area scanned.***

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THE RAPTOR FLAW DETECTOR KEY FEATURES



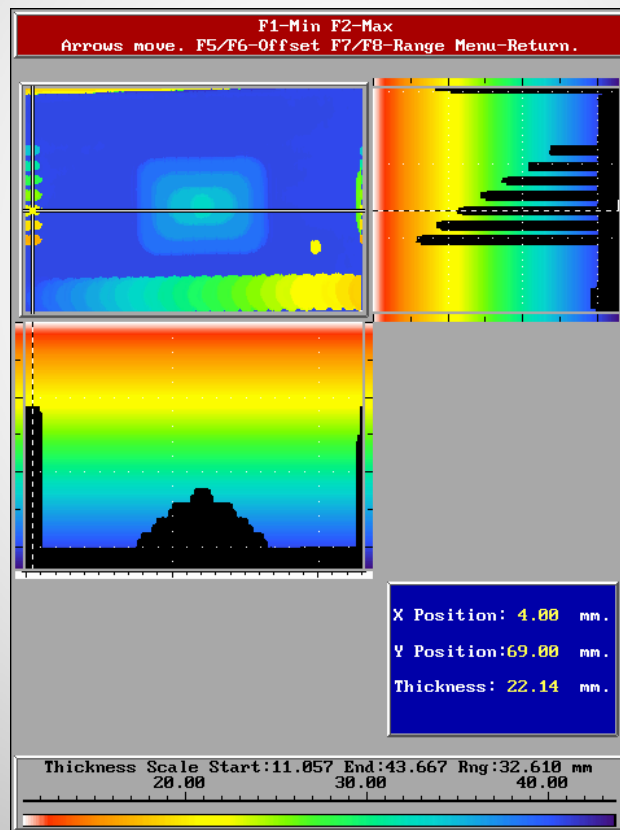
C-SCAN

This screen capture is a C-scan of an Aluminium Test Block with side drilled holes and milled slots simulating defects.

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THE RAPTOR FLAW DETECTOR KEY FEATURES



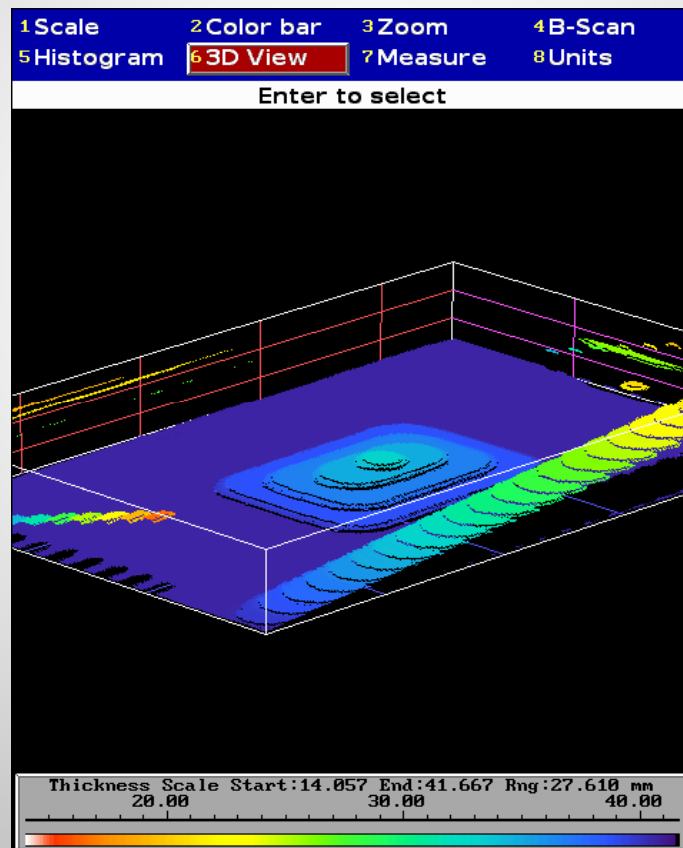
B-SCAN

This screen capture is a B-Scan presentation of the Test Block along the cursor lines, showing the side drilled holes and the pyramid profile.

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THE RAPTOR FLAW DETECTOR KEY FEATURES



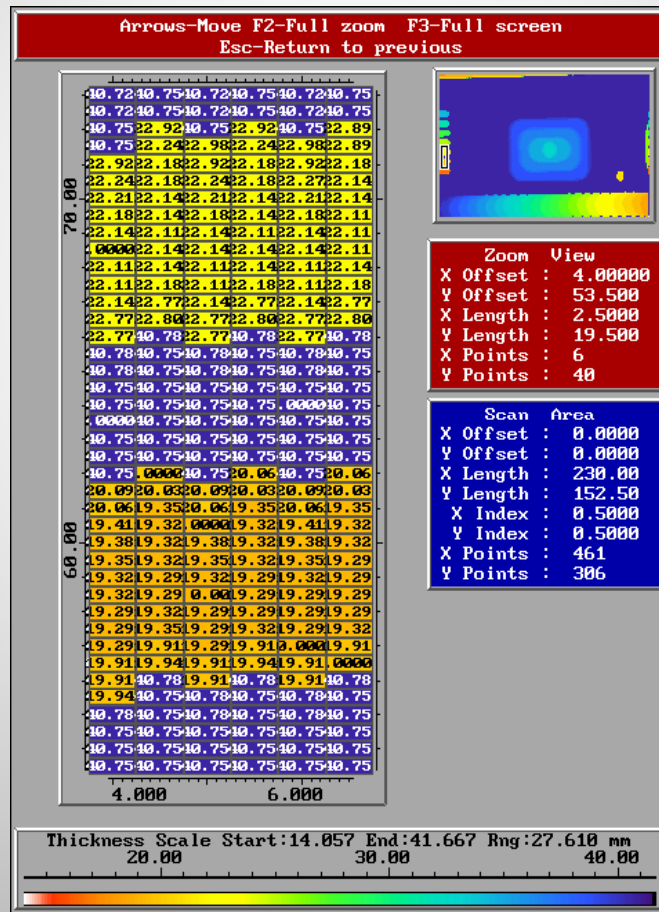
3-D IMAGE

This Screenshot shows a 3-D Image of the Test Block.
This may be rotated to view the “Defects” from any angle.

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ZOOM

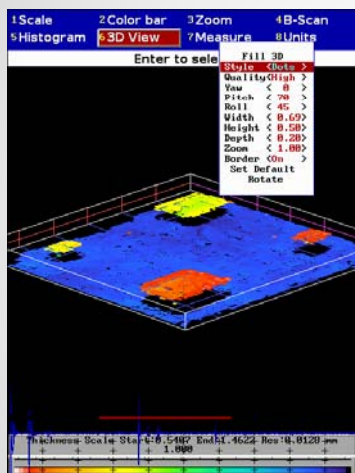
The image may be zoomed to show the actual reading stored at any point.

This data may be exported to commercial spreadsheets.

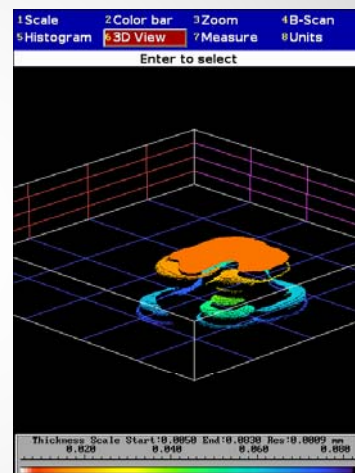
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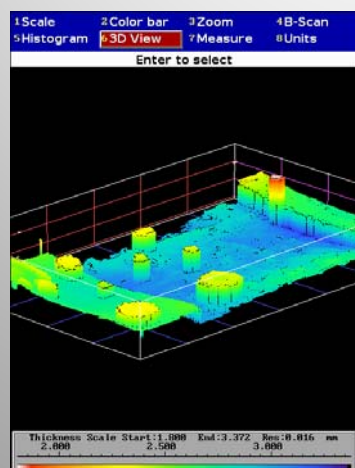
THE RAPTOR FLAW DETECTOR SAMPLE IMAGES



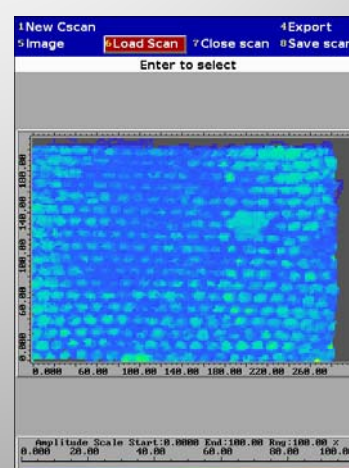
3MM CRP LAMINATE



IMPACT DAMAGE



COMPOSITE PANEL



HONEYCOMBE

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RAPTOR ULTRASONIC FLAW DETECTOR SPECIFICATION

Feature	RAPTOR
Display	86 x 116 mm 3.4" x 4.55" 480 x 640 Full colour VGA display
Display Update	60Hz
Operating Mode	Single, Dual, Through Transmission.
Display Range	0 to 1.4mm to 0 to 12,704 mm 0.056 to 500.16 inch
Delay	0 to 12,700mm 0 to 500" 0 to 4,291us
Zero	-100us to +100us
Velocity	1,790 to 15,000 m/sec 0.0070 in/sec to 0.5906 in/sec
Sensitivity	0 to 100 dB in 0.1 to 24dB selectable increments Additional dB increase (re scanning etc) 0.1 to 24dB in 0.1 dB increments
Pulser	Selectable Spike or Tuneable Square Wave
Pulse Repetition Frequency	0 – 10,000 Hz
Damping	25, 50, 75, 100, 125,150, 175, 375 ohm steps
Pulser Volts	50 to 450V in 1V increments.
Pulse Width (Square Wave)	20ns to 20,000ns
Reject	0 to 100% FSH Linear
Bandwidth (-3dB)	0.50 to 20.0MHz BB and selectable frequencies of 0.5MHz, 1.0MHz, 2.5MHz, 5.0MHz, 10.0MHz, 15MHz. with selectable bandwidth.
Rectification	RF, +HW, -HW, FW Hollow and filled presentation.
Distance Readout	Auto setting Thickness/Range measuring gates. PE to 1 st , 1 st to 2 nd , 2 nd to 3 rd . Angle Beam Soundpath Surface distance & depth. Flank measurement. TOF in inch or mm.
Refracted angle setting for angle beam probes	0 to 90 in 0.1 deg increments.
Gate Start	Dual flaw detection gates adjustable over the entire displayed range
Gate Width	From Gate start to anywhere in the displayed range
Gate Level	0 to 100%
Alarms	Selectable logic. Amplitude or Thickness violations

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RAPTOR ULTRASONIC FLAW DETECTOR SPECIFICATION

DAC	DAC - Distance Amplitude Curve (20 Points) DAG – Distance Amplitude Gating – The DAC curve becomes a curved gate threshold. DAC/TCG – Distance Amplitude Correction. The response from a certain size defect stays the same irrespective of depth.
Operating Modes	Thickness – Automatic Gating to measure the range of any echo or between echoes. Resolution selectable: Low - 0.001" 0.01mm High – 0.0001" 0.001mm Flaw Detection Two independent gates, monitoring the maximum amplitude signal in the gate.
Memory	75Mb on Board plus up to 32 GB SD memory card.
Freeze Functions	Freeze the display to assist evaluation. Freeze the Peak Echo Envelope to assist defect characterisation. Hold for a few seconds so transient signals are not missed.
Operating Temperature	0 to 50 C
Storage Temperature	0 to 50 C
Battery	Rechargeable Li-ion
Operating Time	8 Hours
Recharge Time	4 Hours
Battery Status	Low Battery Alarm
Charge Indicator	On - Screen display
Power Supply	110/230VAC 50Hz
Voltage	Stabilised
Connecting Port	USB I/O and SD card
Language	English

*All Specifications Subject to Change Without Notice
E. & O.E.*

