GE
Measurement & Control

Mentor EM

More experience in every inspection.

Remotely collaborate with experts in real time. Introducing Mentor EM for eddy current weld inspection.

imagination at work

This powerful new technology makes eddy current weld inspections easier, more accurate, and faster. By allowing the workflows to be instantly accessible on the device, Mentor EM helps to ensure strict compliance with codes, guidelines, and standard practices.

Transforming Nondestructive Testing

- Portable eddy current testing instrument with industry-defining signal-to-noise ratio
- Reduces need for paper and manuals
- Large, bright, high-definition touchscreen that can be used while wearing gloves
- No knobs, dials, or switches to mistakenly adjust during use
- Superior IP rating and rugged cast magnesium housing to withstand harsh work environments
- Multiple alarm gates, which can be set to color or sound, to warn of possible defects

Specifications	
Battery Size	62 watt-hours/air transport compliant
Battery Life	4 hours for most conditions 90-minute charge time Extended battery pack adds 6 hours
Generators	2 generators and 2 connectors 2 time slices max per generator 4 frequency simultaneous injection
Display	10.4" XVGA 1024 x 768 Projected capacitive touch
Frequency Range	10 Hz–6 MHz
Sample Rate (max)	50 kHz
Receiver Gain	0–34 dB
Gain	0–120 dB in 0.1 dB steps
Drive Voltage	0.5, 1, 2, 4, 8, and 16 VPP
Gates Output	2 per channel
Alarm Outputs	2 total, TTL levels, one per input One LED on instrument face, audio through Bluetooth (headset protocol)
Operating Temperature	-20 to 55°C
Storage	8 GB SSD
Connectivity	Wi-Fi; 6 Bluetooth channels
Dimensions	2.5 kg without modules; 295 mm x 230 mm x 60 mm 2.9 kg with 2-probe connector module and connectivity module
Image Formats	BMP, JPG
Video Formats	MPEG 4, Type 10

Workflow-On-Device

Workflow Launcher

Workflow Description

Equipment Used

Calibrate for Paint Layer

Calibrate for Weld

Picture/Video Instruction

Instantly Collaborate and Access Information

- Connect to local network to share data and collaborate remotely with experts in real time
- Immediately download the most up-to-date procedures and workflows
- Bluetooth enabled

Perform Inspection

Mentor Create Software

- Tailor on-device inspection workflow applications for technicians of all levels
- Aid inspectors by placing photos, procedures, and videos on device for reference while setting up, acquiring data, or analyzing data
- Limit range of adjustments available to the operator; and therefore limit the opportunity to make errors
- Use in "Expert Mode" as well as "Workflow-on-Device" mode

Weld Probes for All Use Conditions

Straight Probes	Frequency	Cable Length		Disconnect
7/32" Straight	450 kHz–2.5 MHz	6"	632-267-002	Probe
		12"	632-267-012	
3/8" Straight	60 kHz–1.2 MHz	6"	632-266-002	632-266-008
		12"	632-266-012	
5/8" Straight	60 kHz–700 kHz	6"	632-265-002	632-266-009
		12"	632-265-012	
90° Tipped Probes				
7/32" inline, 1/4" drop	450 kHz–2.5 MHz	6"	632-267-102	632-267-108
		12"	632-267-112	
3/8" inline, 1/4" drop	60 kHz–1.2 MHz	6"	632-266-102	632-266-108
		12"	632-266-112	
5/8" inline, 1/4" drop	60 kHz–700 kHz	6"	632-265-102	
		12"	632-265-112	
5/8" 90°, 1/4" drop	60 kHz–700 kHz	6"	632-265-102	
		12"	632-265-112	
High-Wear Straight Probes				
3/8" High-wear (ceramic tip)	60 kHz–1.2 MHz			632-266-011
5/8" High-wear (ceramic tip)	60 kHz–700 kHz	6"	632-265-003	632-265-011
5/8" High-wear (SST)	60 kHz–700 kHz			632-265-018
High-Temperature Probes				
5/8" Straight Handle Length 6"	60 kHz–700 kHz			632-265-008

Complete Line of Wide-Frequency Probes

Standard, high-wear, high-temperature, and cableized models for all job requirements

Straight

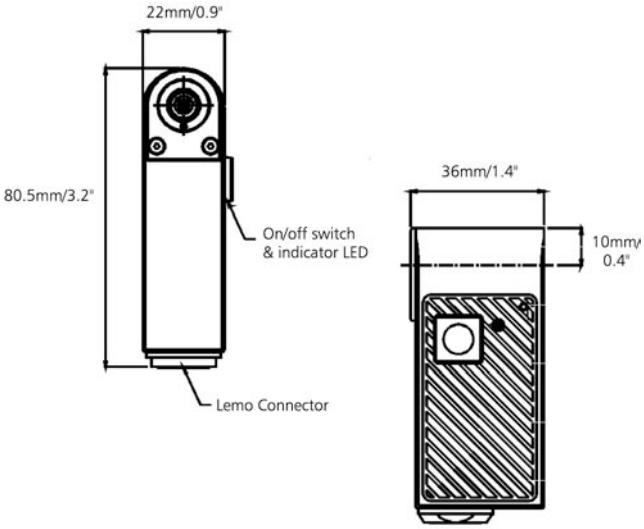
90° Inline Tip

90° Right Angle Tip

GEA31023 11/2013

Hocking MiniDrive

Lightweight Rotating Probe Drive



Flexibility

The GE Hocking MiniDrive is a small, lightweight, rotating eddy current probe drive. It has been designed to make the inspection of fastener holes in confined spaces simple and accurate. Its lightweight design (only 150 g/5 oz) prevents fatigue when a large number of fastener holes need to be inspected.

The MiniDrive utilises a rotary transformer to allow transference of signals between the instrument and probe. Probe type used is generally a reflection differential.

Operating at a range of speeds from 600 rpm to 3000 rpm, over a frequency range of 200 kHz to 2.5 kHz, the MiniDrive offers the flexibility needed to satisfy a wide range of inspection requirements.

Compatibility

The MiniDrive is compatible with the following Hocking instruments:

- Phasec 2200
- Phasec D62 and D62s
- Phasec 2s
- Phasec 2d

It can also be used with a range of eddy current instrument made by other manufacturers providing the correct adapter and cable is used.

Specifications

Weight:
150 g (5 oz)

Power:
Supplied by instrument

Dimensions:
82 x 22 x 36 mm
3.2 x 0.9 x 1.4"

Clearance:
11 mm/0.4" (Distance from top of case to centre of probe)

Speeds:
600, 1000, 1500, 2200, 3000 rpm

Motor:
12 V

GEInspectionTechnologies.com

SigmaCheck

Fully Featured Eddy Current Conductivity Meter

ETHER NDE

Introducing The SigmaCheck

SigmaCheck

APPLICATIONS

- Material Verification / Metal Sorting.
- Heat Treatment Verification.
- Heat or Fire Damage Investigation.
- Non-conductive Coating Thickness Measurement.
- Determining the Purity Composition of Materials. I.e. Gold Bullion and Coins, Bar Stock.
- Aircraft Structures. E.g. Paint Thickness Measurement
- Assessment of Ageing of Aluminium Profiles.

The SigmaCheck Eddy Current Conductivity Meter is designed to give accurate conductivity measurements while offering the user the very best in reliability, usability, technology and cost-effectiveness.

The SigmaCheck is extremely user friendly and can just as easily be operated by a semi-skilled Operator as by Experts. It will be equally at home in the Aerospace, Metals Processing, Casting, Maintenance and Quality Assurance industries as well as appealing to Heat Treatment Specialists and those determining the purity of materials such as gold bullion and coins.

SigmaCheck

1:1 Image

This image shows the SigmaCheck at its actual size.

Calibration Blocks.

Width: 85mm with rubber boot on. 80mm without rubber boot.

Thermal Bridge for Stability.

USB Connection for easy PC link. Also acts as Charger connection.

Temperature Readout.

Programmable High Resolution Colour Display.

Alarm Indicators.

Length: 168mm with rubber boot on (163mm without rubber boot). With Calibration Blocks and rubber boot the length is 179mm.

Simple, Easy-To-Navigate keypad.

Depth: 30mm with rubber boot on (25mm without rubber boot).

SigmaCheck

Advantages

ADVANTAGES

- High Resolution Colour Display (2.8", 320 pixels by 240 pixels).
- Accurate Conductivity Range (0.5% IACS to 110% IACS, 0.28-64 MS/m).
- Wide range of Frequencies for testing thin materials (60kHz, 120kHz, 240kHz, 480kHz). Option of 960kHz.
- Non-conductive Coating Thickness Measurement display up to 0.5mm.
- Lightweight (350 grams / 12 oz). Ergonomic Slim-Line Case design and easy to hold Probe with adjustable finger-grip.
- Two-Year Warranty on Instrument (excludes batteries).

KEY BENEFITS

- User programmable display.
- 2GB of data storage. Able to store over one million data points.
- Uploaded data can be viewed using MS Excel.
- Intelligent charger via USB Port or AC Supply.
- Multiple languages available. E.g. English, German, French, Spanish.
- Excellent resistance to "edge effect".
- Rapid Display of Conductivity Results.
- Battery life (upto 6 hours).
- Firmware can be upgraded in field.
- Different probes may be configured by loading the appropriate probe map from SD Card.
- Real-time clock for time and date so that readings can be "stamped".
- Real-time PC control via USB or optional RS232 link.

Key Features

SigmaCheck

HIGH RESOLUTION DISPLAY

The full colour 2.8" LCD display screen is 320 x 240 pixels providing excellent resolution and displaying conductivity and lift-off results with up to three decimal places precision. The display features an adjustable LED backlight allowing the Operator to set their required screen brightness. The Operator can also customise both the background colours and text colours to meet their personal preference.

RAPID DISPLAY OF CONDUCTIVITY RESULTS

The SigmaCheck offers a choice of five frequencies (60, 120, 240, 480 and 960kHz) to allow the testing of a wide range of material thicknesses. The SigmaCheck is noted for rapid display of conductivity results.

EXCELLENT DATA REPORTING AND BATTERY LIFE

Ether NDE also offer Field Exchangeable Probes with their configuration provided via micro SD Card or PC download via USB for the SigmaCheck. This removes the need for the Instrument to be sent back for matching with the Probe. By using a card reader or our PC Software, the new data for the Probe can simply be copied onto the SD Card in the Instrument, speeding up this process even further.

USB PC Connectivity is built into the SigmaCheck for remote control and data logging. The USB Connection also offers real time data acquisition as well as eliminating any complicated driver installation. In addition, the USB Connection allows easy charging of the Instrument without having to swap the batteries.

LIGHTWEIGHT AND ERGONOMICALLY DESIGNED

Weighing 350 grams (0.77 pounds) including batteries and measuring 163mm Long, 80mm Wide and 25mm Deep, the SigmaCheck is compact and extremely lightweight. Housed in a sculpted case with a detachable flexible open-faced removable silicon rubber boot, the SigmaCheck is designed to be fully hand-held. Further, the standard Probe has been designed to fit the hand well. Not only is the SigmaCheck very accurate, its ergonomic design makes it a delight to use.

Understanding Conductivity

Electrical conductivity is the measurement of a materials ability to conduct an electric current. This is the inverse of electrical resistivity, measuring a materials ability to resist an electric current.

Conductivity in metal is established using Ohm's Law, which states that current through a conductor between two points, is directly proportional to the potential difference across the two points. The resistance of the material, which is a constant for that material, allows the usual mathematical equation for this relationship to be true.

Conductivity Test BLock Holder.

Holds 5 Conductivity Test Blocks and 1 Dual Conductivity Reference Standard (Part number: ASIG003).

Ohms Law Equation:

$$I = \frac{V}{R}$$

I = Current (Amps)

V = Voltage (Volts)

R = Resistivity (ohms)

Electrical Conductivity Equation:

$$\sigma = \frac{l}{RA}$$

OR

$$R = \frac{l}{\sigma A}$$

l = length (cm)

A = Area (cm^2)

R = Electrical Resistance of a uniform specimen of the material (ohms)

σ = Conductivity ($ohm^{-1} cm^{-1}$)

Conductivity is widely used to indicate material type and determine the state of heat treatment.

In order to give accurate readings the SigmaCheck uses a three-point reference method. The first measurement with the probe in the air and then two further measurements are required which span the range of interest.

The SigmaCheck is supplied with a detachable reference piece with two standards that span the range of commonly used metals.

Ether NDE also manufacture individual conductivity test blocks which may be used to match the clients own testing requirements. We can also provide a handy test block holder that can house up to five of these test blocks at any one time as shown above.

Standard Kit

Optional Extras Available

Inspection Technology	Eddy Current.
Operating Frequencies	60 kHz, 120 kHz, 240 kHz, 480 kHz, 960 kHz.
Conductivity Range	0.5 % IACS to 110 % IACS, 0.28-64 MS/m
Accuracy	At 20 °C. At 10 % IACS: ±0.1 % IACS. At 100 % IACS: ±0.5 % IAC Over Range 0-40°C: At 10% IACS: ±0.2% IACS. At 100% IACS: ±0.8% IACS Probe in thermal equilibrium with metal.
Display Resolution	Up to 3 decimal places
Lift Off	13 mm probe compensated to 0.020" (0.5mm) 7 mm probe compensated to 0.010" (0.25 mm)
Temperature Measurement	In-probe sensor (accurate to 0.5 °C) Range 0 °C to + 50 °C
Automatic Temperature Compensation	Conductivity measurements are corrected to the 20°C value.
Environmental Range	0 to 95% relative humidity, 0°C to + 50°C for reliable operation
Display	2.8" (70mm) 320 x 240 pixels colour display. LCD with selectable backlight.
Construction & Storage	High impact, splash-proof, moulded UL94-5VA flame-retardant ABS case. Protective rubber boot to protect the unit, probes, probe cable, operator manual on USB, and removable stand.
Conductivity Standards	On top of unit. Removable for value verification, and when attached ensures thermal equilibrium.
Power	2 x 1.5 V AA NiMH Batteries, Approx up to 6 hrs life. Can also use non-rechargeable AA cells.
Size	163mm Long x 80mm Wide x 25mm Deep
Weight	350g (0.77 pounds) including batteries
Data Logger Memory	Removable 2GB micro SD Card allowing over 1 million readings to be stored.
PC Connectivity	USB port for charger and PC communications
Probes	12.7 mm diameter for 60 kHz to 480 kHz. 7 mm probe operates at 480 kHz & 960 kHz. Probes are interchangeable with simple operator resetting procedure. Probes are field exchangeable and do not require return to manufacturer for calibration.
Accessories	Settings Reference Blocks - A range of conductivity references standards traceable to US and European standards are available for in-field use. Up to five can be mounted on an aluminium anodised holding plate.

Product Part Numbers

KISIG001: Kit, Instrument, SigmaCheck Conductivity Meter.
ASIG001: Accessory, Dual Conductivity Reference Standards, Nominal Values 2.5% and 102% IACS (SigmaCheck).
ASIG002: Accessory, Instrument Stand (SigmaCheck).
ASIG004: Accessory. Hard Peli 1400 Case with custom shaped foam inserts (SigmaCheck).
PSIG001: Probe, Conductivity, Dia 13.00mm, Straight, Lemo 5-Way (SigmaCheck).
ALL05-L05-012-SIG: Accessory, Lead, 5-Way Lemo to 5-Way Lemo, 1.2m (SigmaCheck).
PSIG002: Probe, Conductivity, Dia 7.00mm, Straight, Lemo 5-Way (SigmaCheck)

EDDY CURRENT FLAW DETECTORS

AeroCheck Single Frequency
AeroCheck+ Dual Frequency

AeroCheck - Single Frequency

AeroCheck+ - Dual Frequency Plus

- Large, Crisp Daylight Readable Display
- User Friendly Interface and Ergonomic Lightweight Design
- Rotary Capabilities As Standard
- Industry Standard Probe Connectors
- Eight Hour Battery Life
- Rapid 2.5 hour charging time
- Two-Year Warranty
- Advanced Features 'Loop', 'Guides' and 'Auto-mix' (AeroCheck+ only)

ETHER NDE

AeroCheck
AeroCheck+

"The AeroCheck Flaw Detector offers the very best in Eddy Current performance with rotary inspection capabilities as standard."

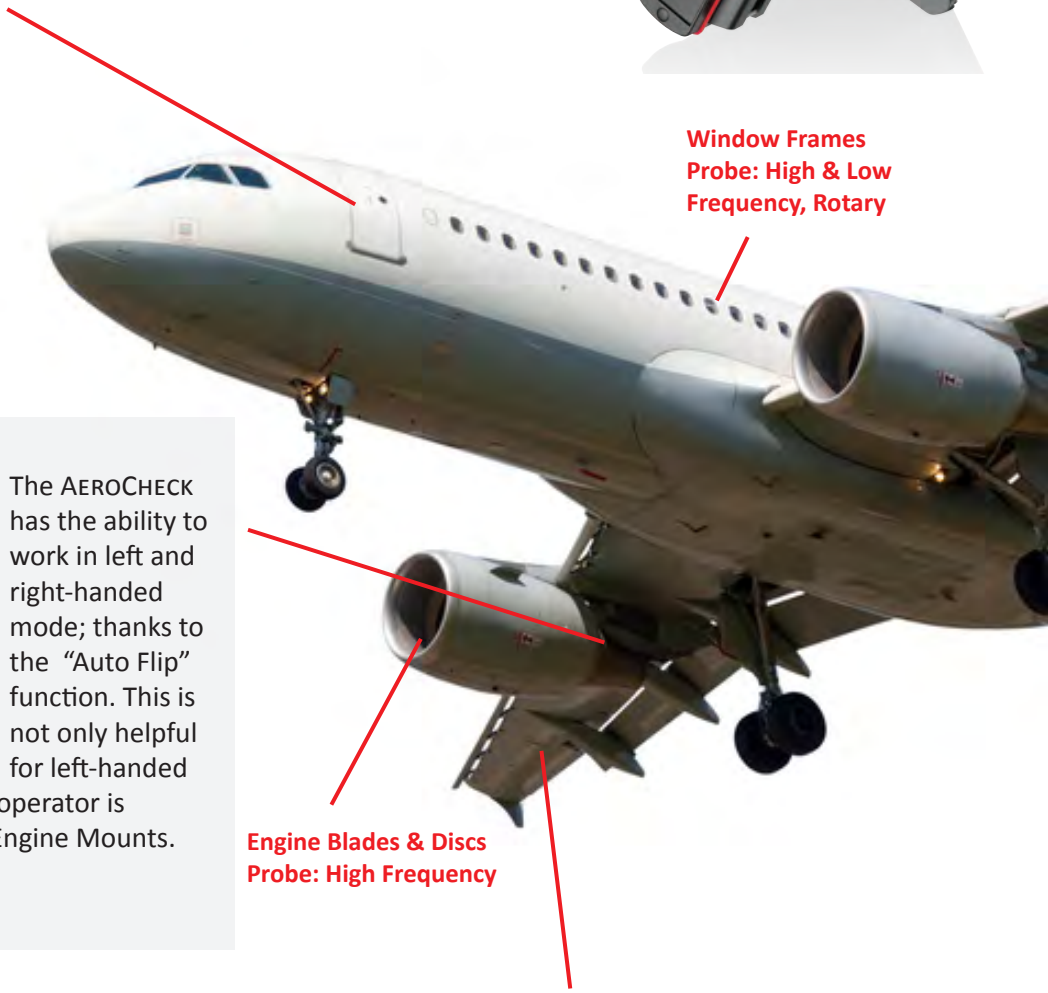
INDUSTRY STANDARD PROBE CONNECTORS

The AeroCheck is able to use a wide range of eddy current probes meeting all the needs of the Aerospace Eddy Current Inspector. Absolute, bridge and reflection connected probes can use the industry standard 12 Way LEMO Connector and a LEMO 00 Connector is also provided for simpler connection of absolute probes.

WIDE FREQUENCY RANGE

The single frequency AeroCheck has a frequency range of 20Hz to 20MHz, whereas the dual frequency AeroCheck+ offers 10Hz -12.8MHz, ensuring a diverse range of real world applications can be met.

Area of Inspection: Fasteners
Probe: Low Frequency, Slider



WORKS THE WAY YOU DO!

The AeroCheck has the ability to work in left and right-handed mode; thanks to the "Auto Flip" function. This is not only helpful for left-handed technicians but especially useful if the operator is inspecting in a restricted area like the Engine Mounts.

Area of Inspection: Engine Mounts
Probe: Surface

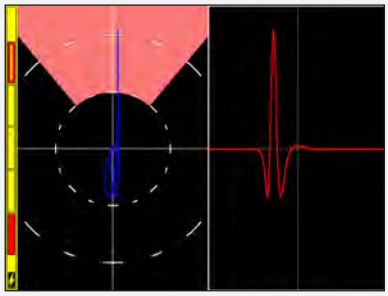
Area of Inspection: Wing Surface & Hinges
Probe: High & Low Frequency

LIGHTWEIGHT, RUGGED, "SURE GRIP" & ENHANCED PROTECTION

Weighing just 1.2kg (2.7lbs), housed in a tough aluminium alloy Mg Si 0.5 powder-coated outer case and fitted with rubber feet to aid grip, the AeroCheck is as stable on a wing of an aircraft as it is on a laboratory bench.

Both Instruments have two integrated moulded "Sure Grip" handles on the rear of the case.

The AeroCheck+ has enhanced durability through a fully-fitted, custom-designed outer "protective boot" and integral hand-strap for even greater ruggedness and easier grip in use (this is an Option on AeroCheck).



ROTARY CAPABILITIES AS STANDARD

The AEROCHECK includes rotary capabilities as standard and can be used with the ETHER Mercury (mini) ARD002, Hocking 33A100 or the Rohmann MR3/SR1 and SR2 Drives (with special adapter cable).

Area of Inspection: Door Access Points & Window Frames
Probe: Rotary

DAYLIGHT READABLE, CLEAR, LARGE, CONFIGURABLE COLOUR SCREEN

The AEROCHECK has a large 14.5cm (5.7 Inches) LCD Colour Screen of 640 x 480 pixels providing the Operator with excellent signal resolution and presentation and with the choice of configuring their own colour schemes and display types. It is easy to optimise the screen presentation regardless of the light conditions and it is possible to view a choice of up to two spot, time-base, waterfall or meter display types.

Not all NDT inspection on aircraft takes place in the comfort of an aircraft hangar so the daylight readable display is readily viewable outdoors.

Area of Inspection: Bulkhead

Probe: Low Frequency

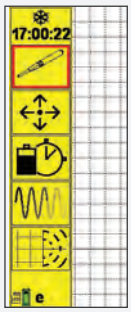
Area of Inspection: Horizontal Stabilisers
Probe: High & Low Frequency

Wheels, Wheel Brakes, Landing Gear
Probe: High Frequency, Rotary

RECORD AND REPLAY

Up to 164 seconds of live data may be recorded in real-time and then played back either on the instrument or on a PC. Using the desktop application ETHERAnalyser for subsequent analysis and review. The recorded data may be further optimised by adjusting many settings including phase, gain, filters, display and spot position.

Area of Inspection: Fuselage
Probe: Surface & Sub-Surface



EASY TO USE MENUS & ICON SYSTEM

The AEROCHECK menu system is simple and fast to navigate with the ability to add individually selectable soft key menu items to the sidebar as recognisable icons for rapid function access and a quick setting menu for easy set-up, review and adjustment.

With four operator-selectable soft keys and a fifth slot for the last menu function used, Technicians can quickly set up the system with their preferences. Each saved instrument setting can be associated with a unique, single press set of quick access soft keys. There are also two front panel hard keys that can be readily programmed for rapid single press access to frequently used functions.

“Both the AeroCheck and AeroCheck+ are supplied with a standard “Two-Year Manufacturers Warranty”. This covers all components of the Instruments and only excludes customer damage or misuse.
The “Two-Year Warranty” can be extended to “Five Years” through purchase of “EtherCover” extended warranty protection.”

Specifications

		AeroCheck	AeroCheck+
Probe	Connectors	12 Way Lemo 2b (Absolute, Bridge and Reflection) and Connection Lemo 00 (for single element absolute probes).	Simultaneous probe operation possible using Lemo 12 way and Lemo 00.
	Rotary	600-3000 rpm - Ether Mercury Drive (ADR002), Hocking 33A100, Rohmann MR3, SR1 and SR2 Drive (special adapter needed)	
Frequency		Single Freq. = 20Hz – 20MHz with range variable resolution.	Dual Freq. = 10Hz - 12.8MHz
Gain	Overall	-18 to + 100 dB, 0.1, 1 and 6dB steps (100dB maximum)	
	Input	0dB or 12dB	
	Drive	0dB or 6dB (0dB reference 1mW into 50 ohm).	0dB, 6dB and 10dB (0dB reference 1mW into 50 ohm).
	Max X/Y Ratio	+/-100.0 dB	
Phase	Range	0.0-359.9°, 0.1° steps	
	Auto Phase	Allows phase angle to be automatically set to a pre set angle	
Filters	Normal High Pass	DC to 2kHz or Low Pass Filter, which ever is the lower in 1 Hz steps. Plus variable adaptive balance drift compensation 0.01 - 0.5 Hz (6 steps).	
	Normal Low Pass	1Hz to 2kHz or a quarter of the lowest test frequency, which ever is lower in 1 Hz steps.	
Balance	Manual	14 internal balance loads; 2.2µH, 5.0µH, 6.0µH, 6.5µH, 7.0µH, 7.5µH, 8.2µH, 12µH, 15µH, 18µH, 22µH, 30µH, 47µH, 82µH	
	Automatic	Optimised balance load selection.	
Alarms	Box	Fully configurable, Freeze, Tone or visual.	
	Sector	Fully configurable, Freeze, Tone or visual.	
	Output	Open collector transtor (50v dc at 10mA max) available on 12 way lemo.	
Display	Type	5.7” (145mm), 18 bit Colour, daylight readable.	
	Viewable Area	115.2mm (Horizontal) x 86.4mm (Vertical)	
	Resolution	640 x 480 pixels	
	Flip	Manual or automatic screen orrientation change to enable left or right handed use.	
	Colour Schemes	User configurable Dark, Bright and Black & White	
	Configurable Screen	Full Screen, Single, Dual Spot or Dual Pane with variable size and location and function e.g. XY, Timebase, Waterfall and Meter.	
	Display Modes	Spot, Time base (0.1-20 seconds x 1-200 sweeps and up to 55 seconds), Waterfall and Meter with peak hold and % readout.	
	Graticules	None, Grid (4 sizes 5, 10, 15 and 20% FSH), Polar (4 sizes 5, 10, 15 and 20% FSH)	
	Offset	Spot Position: Y =-50 to +50, X =-65 to +65%	
	Digital Spot Position Readout	Display in X,Y or R,θ	
	Summary	Display of all settings in Legacy Format	
Removable Data Storage	Setup Storage	microSD up to 2GB, holding over 500 saves.	micro SD up to 32GB, holding over 10,000 settings)
	Stored Screen Shots	microSD up to 2GB, holding over 500 saves.	micro SD up to 32GB, holding over 10,000 screen shots)
	Record Replay	Comprehensive Record Replay and Storage Real-time recording of trace data and Replay on instruments and desktop PC up to 164 seconds	
Outputs	PC Connectivity	USB (Full PC remote control plus Real Time data)	
	Digital volt free alarm	On Lemo 12 way Open collector transistor (36v dc at 10mA max).	
	VGA	Full 15 way VGA output	
Languages		English, French, Spanish, Russian, Japanese, Chinese, Turkish.	
Verification Level		The system includes on delivery a 2 year validity Verification Level 2 detailed functional check and calibration as per ISO 15548-1:2013	
Power on Self Test		The system performs a self test on start up of external ram, sd ram, accelerometer, Micro SD card, LCD screen buffer.	
Power	External	100-240 v 50-60Hz 30 Watts	
	Battery	Internal 7.2V nominal @ 3100mAh = 22.32 watt.hr	
	Running Time	Up to 8 hours with a 2MHz Pencil Probe 30% Back Light and up to 6 hours with a Rotary Drive at 3000rpm 50% duty cycle.	
	Charging Time	2.5 hrs. charge time, Simultaneous charge and operation.	
Physical	Weight	1.2 kg, 2.7 lbs.	
	Size (w x h x d)	223 x 141 x 50 mm / 8.8 x 5.6 x 2.0 inches	237.5mm x 144mm x 52mm / 9.4” x 5.7” x 2.1”
	Material	Aluminium alloy Mg Si 0.5 powder-coated	
	Operating Temp	-20 to +60 °C	
	Storage Temp	Storage for up to 12 months -20 to +35 °C Nominal +20 °C	
	IP Rating	54	

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AeroCheck+ Advanced Features

Advanced Features	Guides	Create and display a slide show containing instructions, tutorials and procedures using Microsoft PowerPoint.
	Attachments	Screenshots and Data Recordings are saved in a folder with the name of the Settings.
	Loop	Capture a live repetitive signal and then optimise the instrument settings (Phase, Gain, Filters) to simplify optimising the parameters
	Trace	Allows a calibration reference signal to be stored on the screen and then compared with the live signal
	Data Output	6 channel real-time post processed over USB at 8kHz overall for all 3 data pairs (X, Y and Mix) with DLL for embedding functionality into software.

Conductivity Specification (AeroCheck+ Only)

Frequency	One frequency only 60kHz standard (choice of 120, 240 and 480kHz)
Acccuracy	0.5%-10% IACS better than +/-0.05% IACS 10%-25% IACS better than +/-0.25% IACS 25%-60% IACS better than +/-0.5% IACS 60%-110% IACS better than +/-1% IACS Lift Off corrected to 1.0mm No temperature compensation All Errors at 90% Confidence Level
Resolution	3 decimal points max Auto Resolution Mode AutoS = Legacy Instrument, Auto = SigmaCheck

Equipment Kits

Standard AeroCheck Series Kit

IAER001 Instrument, AeroCheck, Single Frequency (20Hz-20MHz), Hand Held Portable Flaw Detector, Software + Manual on USB Stick
AWEL002 AeroCheck, Power Adapter + Input Plugs (UK, EU, US & Australia)
AWEL003 Adjustable Shoulder Strap, Padded with Quick-Release
AC006 Instrument Soft Carry Case
A090 USB Cable, A to MIN B
40449 Quick Reference Card – AeroCheck
ALLCX-M02-015A Lead, Lemo 00 to Microdot, 1.5m (Absolute)
ALL12-L04-015R Lead, Lemo 12-Way - Lemo 4-Way (Reflection)

Optional Accessories

AWEL004 Hard Transit Case
AWEL005 Protective Splash Proof Cover / Rope Access (AeroCheck only)
AWEL006 External, 8 x AA Battery Holder with On/Off Switch
AWEL007 Wrist Strap
AWEL008 In car Power Adapter
ALL12-L04-015R Lead, Lemo 12-Way - Lemo 4-Way, 1.5m (Reflection)
ALL12-L04-015B Lead, Lemo 12-Way - Lemo 4-Way, 1.5m (Bridge)
ALLCX-M02-015A Lead, Lemo 00 to Microdot, 1.5m (Absolute)
ALLCX-B02-015A Lead. Lemo 00 to BNC, 1.5m (Absolute)
ARD002 Mercury (mini) Rotary Drive
ALL12-L12-020M Lead to connect Mercury (mini - ARD002) Rotary Drive, Lemo 12-Way, 2m
ALL12-F08-020ETH Adapter, lead to connect Rohmann Rotary Drive MR3, SR1 and SR2, Lemo 12-Way, 2m.
40470 Tripod Bracket To fit 1/4” Camera Tripod Mount with Male Screw
AAER003 Enhanced protection kit with hand strap(AeroCheck+ only)
A244 Hand Strap for Enhanced Protection Kit (AeroCheck+ only)

Probe Kits

KASUR001 KIT Surface Inspection (4 probes, lead and Al and Fe Test Block)
KASUBS001 KIT Sub Surface Inspection, Low Frequency (2 probes, lead and test piece)
KAROT001 KIT Mercury Rotary Drive and Cable Only
KACON001 KIT Conductivity Kit (Probe, Calibration and Cable) - (AeroCheck+ only)

AeroCheck
AeroCheck+

"The AeroCheck offers the right mix for features for any Eddy Current application need in an easy-to-use package designed entirely with the end user in mind."

All Possible Applications Covered!

The AeroCheck and AeroCheck+ offers maximum flexibility when deciding which features are needed for your application. As well as the hand-held WeldCheck, AeroCheck and AeroCheck+ instruments, the range also includes the Victor 2.2D for inline component testing solutions.

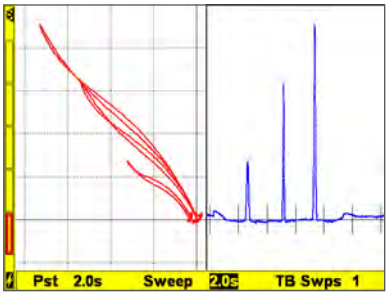
Key Differences

Features

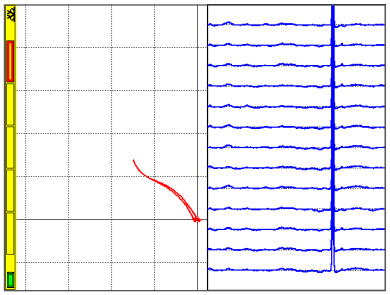
Equipment	Rotary	Data Recording	Dual Frequency With Auto-Mix	Conductivity	Guides	Loop	Trace	Enhanced Protection	Frequency
AeroCheck	●	●						✳	20Hz-20MHz
AeroCheck+	●	●	●	●	●	●	●	●	10Hz-12.8MHz

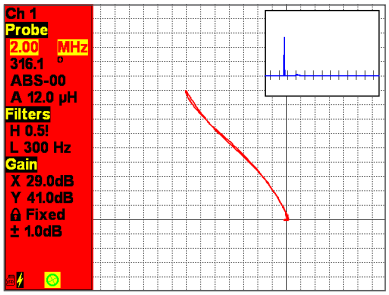
● = As Standard ✳ = Optional Extra

Exceptional Screen Clarity For Any Application

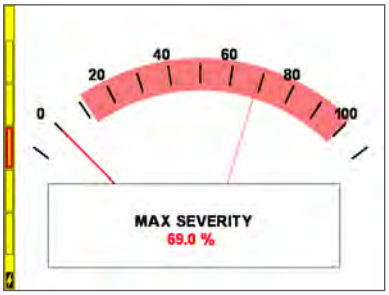


50/50 XY & Timebase

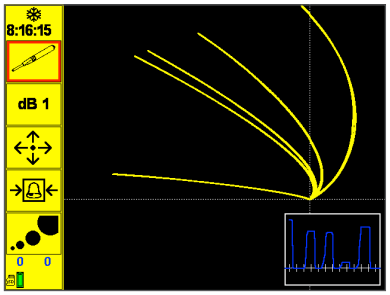

50/50 XY Waterfall with 12 2s time sweeps



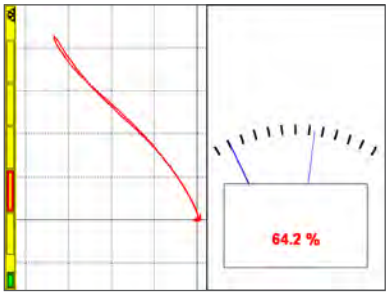
XY with small timebase and Quick Menu



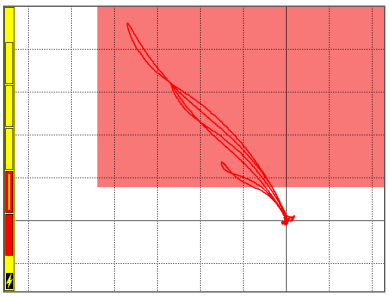
Meter Full Screen

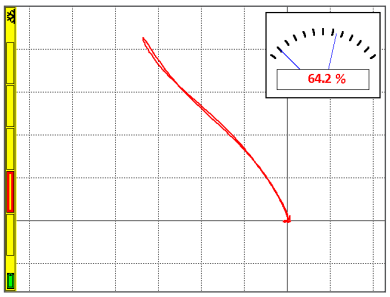


Dark background polar graticule and soft-keys

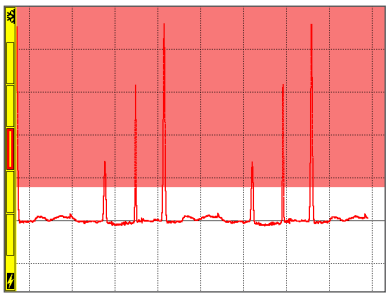


XY and Meter 50/50


XY Full screen with Box Alarm



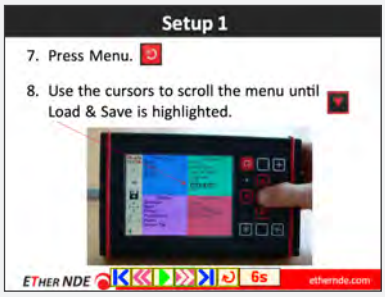
XY with Small Meter


Timebase Full Sceen with level arm

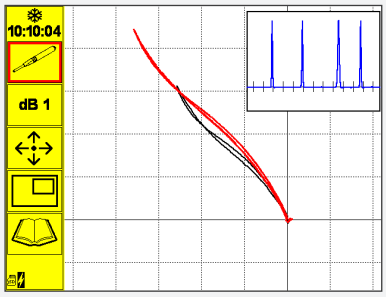
AeroCheck+

The AeroCheck+ offers all the great features of the AeroCheck plus Dual Frequency and Conductivity Measurement, with useful additions such as Auto-Mix, Guides, Loop and Trace.

Additional Features Available On The AeroCheck+



Guides Feature: "Guides", allows the user to display a slide show that can be created easily with commonly used desktop software. The benefit of this feature is that instructions, tutorials and procedures for an inspection can be added to the AeroCheck+ very quickly and the NDT inspector can easily switch between the inspection itself and the "Guides" while performing a live test.

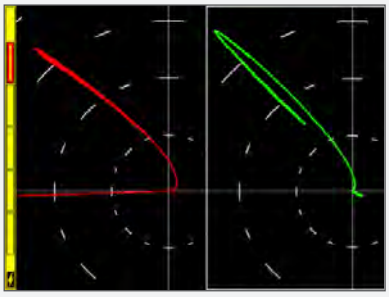


Trace Feature: The trace function allows a reference waveform to be stored on the screen and appears along with the graticule behind the live spot. This allows the operator to readily compare the live data with the reference calibration.

"Loop" Feature: "Loop" is a convenient way of capturing a short live repetitive signal and then optimizing the instrument settings through real time adjustments of the Phase, Gain, Balance, Filters and Display Configuration in order to simplify the task of optimising the parameters.

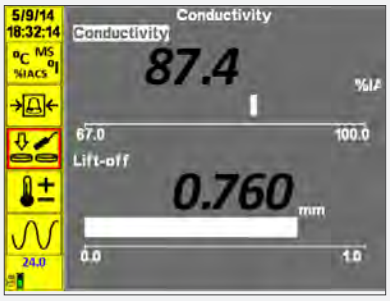
The "Loop" function is excellent for calibration set up especially for setting the filters for Rotary and Dual Frequency mix.

Dual Frequency Feature: At different frequencies, different signal indications (e.g. lift off and defect) have a different relative phase and amplitude response. By means of phase rotation and Gain change of the X Y signal components one of these indications can be manipulated to be almost identical in phase and amplitude as the other and then by subtraction (mixing), the unwanted component is minimised, giving an improved detection of the wanted signal.



Auto-Mix Feature: A dual frequency mix exploits the phase and sensitivity change between two different types of indication to supress one and enhance the other.

Auto-mix simplifies the sometimes complex procedure of mixing two different frequency signals and can be achieved on the AeroCheck+ through a series of easy steps. Ultimately once set up, the Auto-mix itself is as simple as pressing one key.



Conductivity Measurement: Many of the Aerospace procedures require that Conductivity Measurement is available on the designated Eddy Current Flaw Detector.

When connecting the Conductivity Probe, the AeroCheck+ auto-detects the probe and seamlessly switches into conductivity mode. Removal of the probe switches the instrument back to flaw detection mode.

NB: The Conductivity Measurement Option is available through the purchase of the KACON001 KIT.

VEESCAN

EC Wheel Inspection Systems

ETHER NDE

Introducing The Veescan

Veescan

> **"Our Veescan product range offers our clients the choice of systems for both optimised productivity and value for money or maximum flexibility combined with lowest capital cost."** John Hansen, MD

Ether NDE is pleased to offer a range of solutions for aircraft wheel inspection. We understand that the key criteria for Aircraft Wheel Inspection Systems are the need to guarantee detection of defects, the requirement to operate reliably for twenty-four hours per day, 365 days per year, the demand for a simple and user-friendly interface and the business need to maximize speed of inspection and output. Balancing these objectives can be difficult, but we believe the Veescan measures up to the task.

The Veescan is available in a choice of models and can be configured with a wide choice of probes. This allows any Wheel Shop to select the system most compatible with their workload. The "Model H" is a proven design allowing maximum flexibility, while the "Model R" (Rapid) offers the potential for greater throughput due to the incorporation of the special WideScan probe with a scanning helix of 5mm.

CUSTOMER BENEFITS:

- Proven mechanical design with established record of breakdown-free operation for 365 days or more.
- Choice of two probe configurations: “Model H” or “Model R” (Rapid) offering choice of maximum flexibility or optimised productivity.
- Adjustable-height Control Station on “Model H” - Allows Operator the most flexible and comfortable usage.
- Full choice of Operation Modes maximising Probability of Detection.
- Easy to operate with basic training.
- Easy to service - Manufactured from heavy-duty aluminum extrusion and incorporating standard readily available branded control and automation products.
- Intuitive set-up - A “teach and learn” system allows the machine to be trained to inspect a wheel, then manually adjust values to fine tune the setup and then save the setup for similar / the same wheels in the future.
- Versatile - the VeeScan has been designed to test the widest range of Aircraft Wheels from Helicopter Nose Wheels to A380 Main Wheels.
- Rapid and Reliable - Automated inspection allows the wheel to be inspected much more quickly than for a manual inspection whilst ensuring the required area of inspection is scanned 100%.
- Reporting - The fully digital reporting system archives the data for analysis and review either on the VEESCAN itself or remotely over a network. A simple 1 page A4 report may be saved and printed.
- Safety - A separate control plinth with dual push button activated start means the operator is not near the rotating wheel during the test. Both the “Model H” and “Model R” versions use systems of Wheel Clamping that are proven in the field over extended periods of time.

Veescan Model H

Veescan H is designed to lift the wheel and fix it with an automatic adaptor that uses the wheel inertia to centre it. Veescan H offers an integrated roller tray for easy manoeuvrability and integration into a conveyor system and also features an automatic hub size adaptor. Veescan H can test wheels up to 900mm diameter.

The H is designed with an adjustable-height Control Panel for operator comfort and can be positioned at a convenient distance from the main machine. Open on three sides, the VEESCAN H offers easy wheel loading as standard.

A circular absolute probe is positioned perpendicular to the surface to ensure uniform sensitivity regardless of wheel surface profile as the probe progresses through the wheel bead seat area. Recommended frequency is 200kHz.

Main Characteristics Of Model H

- Extruded aluminium structure covered with black Perspex panels.
- Separate Control Panel that may be positioned at a convenient distance from the main machine, which is height and angle adjustable.
- Teflon rotating table with three open sides for easy wheel loading.
- Roller tray to facilitate the wheel movement.

Veescan

Veescan Model H ISO with wheel in place

Veescan Model H with moveable control panel

Veescan Model H Control Panel

Specification

Unit Size	112.5cm x 120cm x 95cm
Instrument	ViCTor 1 Channel WI
Probe	Differentially connected absolute(integral balance load) with circular head. Recommended Frequency 200kHz option 100kHz, 500kHz and 1.5 MHz. Recommended diameter 6mm (mm also available and narrow shaft for large wheels)
Max Wheel Diameter	900mm
Typical Inspection Helix	1.5mm
Probe Position	Adaptive contour following using dual axis pressure sensors
Max Wheel Height	400mm
Power Supplies	110- 240v ac 50/ 60Hz
Max Load	150Kg
Pneumatic Pressure	None (electric wheel raise) 250mm stroke
Alarms	Acoustic and visual
Rotation Speed	15-120 rpm, via surface speed control eg 250mm/s
Frame	Extruded Aluminium
Wheel Position	The wheel is lifted clear of the roller tray using a 250mm stroke electric actuator and then held under its own weight by an adaptive automatic grip mechanism
Data Recording and Storage	Yes
Manual Hand-Held Inspection	Yes, probe socket and switch on control station
Automatic Calibration	Yes, by means of dynamic standard option
Automatic Stop on Defect	Yes
Turntable	Roller Tray / Outer stainless steel, inner plastic. Easily adjustable end stops at both ends to prevent wheel falling off.
Control Station	External free standing. Height adjustable with machine and eddy current control. 7” screen. Use Uses virtual keyboard. Touch Pad 750 - 900mm adjustable.
Operation Modes	Automatic, Stop on defect and full manual

Veescan Model R

The Veescan R clamps the wheel with a pneumatic cylinder. With pneumatic control and electronics incorporated within the frame it allows access to the rotating table from three open sides. On the rotating table, three rollers assist the wheel movement. It is designed to be used with probes with both high and low inspection frequencies simultaneously.

The R is easily adaptable for use with the eddy current instrument plus an auxiliary computer for data storage and further evaluation.

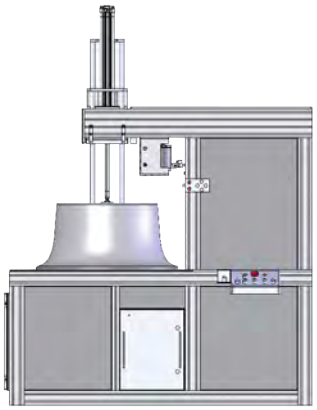
The Model R is manufactured in two sizes to accommodate two different wheel size categories; for wheels under 600mm in diameter and for wheels under 900mm in diameter.

Main Characteristics Of Model R

- Extruded aluminium structure and outer black Perspex panels.
- Compact design with pneumatic control and electronics fitted in a frame with complete access to the rotating table from three open sides.
- The control/handling post can be installed on the lateral sides or on the front side.
- Rotating table with three rollers to help wheels to move from the three open sides.
- Four bar guided wheel-centring device with removable Teflon cone (standard size) and stiffened support structure (horizontal) on top of the tower.
- Possibility to install encoders for vertical and turning movements in order to facilitate the synchronisation with software applications.
- Safety elements include two emergency stops (one fixed, the second free, positions to be fixed by the user), dual push button for safe activation of wheel centring movement and probe protection (emergency arm retraction.

Veescan

Veescan Model R



Veescan Model R side

Veescan Model R
in factory situation

Specification

Unit Size	a) 85cm x 220cm x 145cm or b) 120cm x 230cm x145cm*
Instrument	ViCTor 1 Channel WI
Probe	Differential - High Frequency multi-purpose bead seat
Max Wheel Diameter	a) 600mm or b) 900mm*
Typical Inspection Helix	5mm
Probe Position	Touching the wheel
Max Wheel Height	400mm
Power Supplies	110 - 240V AC 50 / 60Hz
Max Load	150Kg
Pneumatic Pressure	40 - 150 psi
Alarms	Acoustic and visual
Rotation Speed	5 - 50 rpm
Frame	Extruded Aluminium
Wheel Position	The wheel is clamped against the turntable face during the inspection by a pneumatically actuated cone
Data Recording and Storage	Yes
Manual Hand-Held Inspection	Yes, probe socket and switch on control station
Automatic Calibration	Yes, by means of dynamic standard option
Automatic Stop on Defect	Yes
Turntable	Option - Spring loaded ball rollers on the rotating plate to allow the inspection of wheels in trays.
Control Station	Control panel, integrated with main unit
Operation Modes	Automatic, Stop on defect and manual

Please note:
*** highlights that a) represents Model R with 600mm max wheel diameter and b) represents Model R 900mm max wheel diameter.**

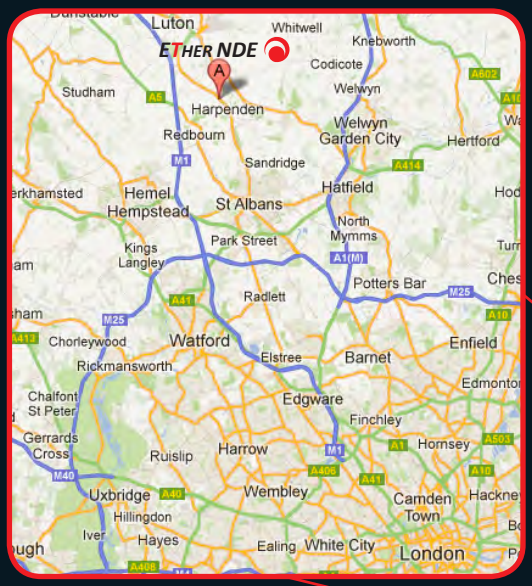
ETHER NDE continually strives to provide innovative solutions to eddy current testing in all possible inspection conditions.

Offering a range of innovative eddy current testing instruments and probes, *ETHER NDE* will endeavour to find the solution that best fits our clients specific needs.

At *ETHER NDE* we pride ourselves on our ability to remain client focussed, conducting our business with three simple promises to you:

1. The ability to speak to someone who understands our products and your application.
2. Industry leading delivery on goods and the ability to respond to your challenges.
3. That our products are second to none in both performance and quality.

Founded by John Hansen and Mike Reilly and supported by a skilled team, *ETHER NDE* boasts over 150 years of collective experience in non-destructive testing. Forward thinking and client responsive, *ETHER NDE* is the wise choice for all your eddy current testing needs.



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