



MIZ[®]-21B

The Most Powerful Handheld Eddy Current Tester

FEATURES & BENEFITS

▶ Wheel Bead Seat Inspection

Early crack detection allows you to repair or replace damaged wheels before bigger problems develop. With Zetec's Bead Seat Probes, you can inspect this region with only one pass around the wheel, greatly increasing throughput.

▶ Airframe Fastener Row Inspection

Rapidly detect longitudinal fatigue cracks between fastener holes, such as at lap splices, with the MIZ-21B and the Reflection (Driver-Pickup) Sliding Probe.

▶ C-scan Display for Fastener Holes

The C-scan display is a unique way to present the "big picture" in fastener hole inspection. This method works exceptionally well with an indexing rotating scanner when fasteners are removed.

▶ Probe Optimization

The MIZ-21B also includes a Probe Plot feature that plots probe response to both the test and reference specimens over a range of frequencies. This feature helps you choose the probe's optimum operating frequency for each application.



Superior Flaw Detection and Faster Aircraft Inspections

Take advantage of the reliable eddy current technology in a convenient handheld package that gives you more ways to find more defects in less time. Test for cracks, corrosion, heat damage, and more. Dual frequency capability and digital conductivity testing are included in the MIZ-21B.

The MIZ-21B incorporates the power of dual-frequency testing, digital conductivity testing, and nonconductive coating thickness measurement. Its industry standard 50-ohm probe drive provides the optimum balance between probe input and instrument output. Yet it's priced to provide excellent value when you need a dedicated eddy current instrument.

The MIZ-21B has seven different eddy current data display modes. Choose XY Impedance Plane, Bar Graph, Triggered Sweep, Auto Sweep (slow or fast), C-scan, and digital conductivity. For rapid analysis, the dual display feature can present signals side-by-side in sweep and XY modes. Or, you can view a reference signal and a live test signal simultaneously.

The MIZ-21B's dual-frequency mixing capability suppresses undesirable variables to let you more easily identify and size flaws. Digitally mark up to 10 display points on the screen. Signal size is identified as a percent of screen height using the ruler on the electronic graticule.

MIZ[®]-21B

The Most Powerful Handheld Eddy Current Tester

Specifications

Case

- Dimensions: 11 L x 5 W x 2.5 D inches (28 x 13 x 6 cm)
- Weight: 3.9 lb (1.7 kg)

Power

- Batteries: internal, rechargeable, memory-free long-life nickel metal hydride (NiMH)
- 12-hr operation without additional accessories; more than 9 hours with backlight on
- On-screen message area for low battery and signal saturation
- Less than 2.5-hr quick charge
- Universal charger power input: 85-264 VAC / 47-63 Hz
- Optional external 12 VDC alkaline battery power pack

LCD Display with Backlight

- 240 x 320 pixels
- 2.25 x 4.50 inches (5.7 x 11.4 cm)
- Fast-responding, high-contrast
- Wide viewing angle (60°)
- Extended temperature range maintains clear visibility and speed at temperatures below freezing
- Backlight with long-life LED
- Operates in total darkness
- Maintains full contrast in brightest sunlight
- High-strength polycarbonate window with scratch-resistant coating

Inputs/Outputs

- Remote Connector (serial port) for PC interface, supports:
- Printing via Hewlett-Packard, Epson emulation, or Seiko DPU-414 Type II thermal printer
- Screen capture to PC
- Store or recall test configurations to PC
- Software revision updates
- Selectable horizontal and vertical analog outputs
- Probe Connector – auto-switches to interface with all standard probe configurations
- Battery Connector – charging and external power

Environmental

- Operating temperature range: 14° to 131°F (-10° to 55°C)
- Storage temperature range: 0° to 140°F (-17.7° to 60°C)
- Humidity: 0 to 100% noncondensing

Certification

- MIL-STD-810
- CE Mark
- ISO 9001

Flaw Detection

- Programmable analog drive and gain stages
- Noise-suppressing synchronous demodulation circuitry
- 16-bit A/D converter
- High-gain analog circuitry

Display Modes

- XY Impedance Plane
- Bar Graph
- Triggered Sweep
- Auto Sweep Slow
- Auto Sweep Fast
- C-scan (Plotted Waterfall)
- Screen data clearing is manual (CLR button) or automatic (variable persist mode)
- 2-signal display can show two signals side-by-side in sweep and XY modes

Scanner Support

- Supports HS Scanners
- Support for other manufacturers' scanners is available, consult Zetec for details

Memory

—Non-volatile (data retained with power off):

- Stores 50 test configurations
- Stores 10 screen images for review or comparison
- 8-second buffer memory: adjustable cursor scrolls through entire data buffer to select a range of data points for more in-depth review
- Stores up to 10 reference points

Conductivity Testing/Metal Sorting

- Conductivity and coating thickness measurement at 4 frequencies: 60, 120, 240 and 480 kHz
- Digital readout in 1 to 102 %IACS (0.5 to 70 MS/m)
- Meets BAC 5651 requirements

Autoset Phase/Autoset Gain

- Quickly and automatically set values for probe drive, gain, scale, and rotation. Autoset Phase sets the rotation so that the lift-off signal deflects horizontally to the left from the reference signal.

Frequency

- 50 Hz to 8 MHz
- 2 independent frequency selections to support dual frequency testing

Phase

- Manually adjustable in one- and ten-degree steps from 0° to 359°

Gain Adjustment Range

- Vertical and horizontal scale independently adjustable from 1 to 99

Probe Drive

- Adjustable to six output drive levels
- 50-ohm probe drive (industry standard) provides optimum balance between probe input and instrument output

Filters

- Adjustable high-pass, low-pass, and bandpass filters
- On-screen numeric read-out of cutoff frequency

Alarms

- Audio alarm with adjustable volume
- Visual LED alarm
- Alarm area is shown on the display; alarm box size and positioning are independently adjustable
- Alarms can be set for all display modes, as well as for conductivity limits
- In XY, YT, and Bar Graph display modes, alarm can trigger either inside or outside of the gated area
- TTL, visual, and adjustable audio output alarms are provided
- Headphone outputs

Probe Configuration

—Internally switches to interface with all standard probe configurations

- Single
- Differential (selectable internal or external balance load for single-coil operation)
- Reflection (Driver-Pickup)
- Differential Driver-Pickup



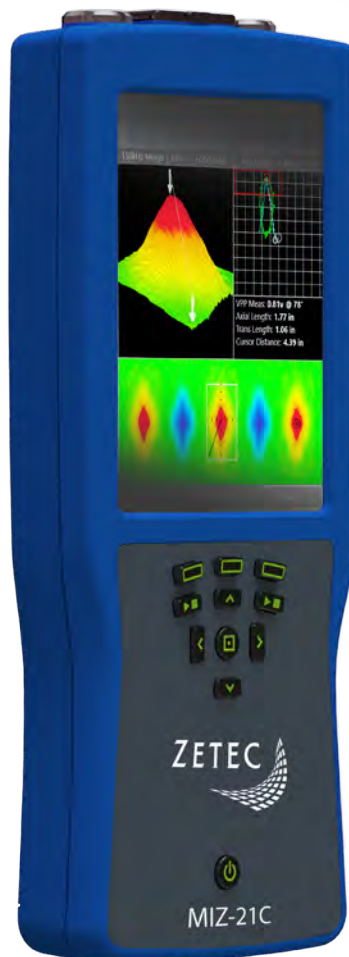
Zetec holds ISO 9001 and ISO/IEC 17025 certifications



— **MIZ[®]-21C** —

The Most Advanced Handheld With Surface Array Capability

**TRULY AFFORDABLE
EDDY CURRENT**



Truly Affordable Eddy Current

Introducing MIZ[®]-21C, the most advanced handheld instrument with surface array capabilities. The truly affordable MIZ-21C is ideal for aerospace, oil & gas, manufacturing and power generation applications. Its ergonomic design, long battery life and intuitive touchscreen mean you can inspect more areas faster than ever without fatigue. The MIZ-21C is compatible with a wide range of probes and scanners and comes in three models to meet your unique inspection needs and budget.

Designed for a Wide Range of Applications.

MIZ-21C delivers an inspection advantage across numerous inspection applications including:

Detecting Cracks Near Fastener Holes. Pencil probes are ideal for detecting small cracks in close proximity to fastener holes. The inspector uses a known crack or notch standard to set up the MIZ-21C signal display. Then, while scanning the test piece, the inspector can estimate the depth and length of surface cracks by comparing the phase and amplitude of the generated eddy current signal to the standard's signal.

Multi-Layer Corrosion Inspection. Identifying corrosion is one of the most critical and complex aspects of airframe inspections. Changes in skin thickness as well as varying multi-layer structures usually make it difficult to recognize signals. The MIZ-21C has the power to penetrate thick sections. Exceptional signal-to-noise ratio helps inspectors distinguish even a small loss of material. Dual-frequency with mixing nearly eliminates the unwanted signals caused by varying air gaps between layers that can "mask" the signal of interest.

Conductivity and Coating Thickness Measurement. Use digital conductivity measurements (resistivity) to characterize/sort materials. Directly measure the conductivity of metals and alloys, such as aluminum structures, using dedicated conductivity probes that have a broad operating frequency range. Or measure a nonconductive coating such as paint. The MIZ-21C offers a wide measurement range for both conductivity and thickness.

Save Time & Money.

MIZ-21C is a fast, highly portable and cost-effective replacement for Liquid Penetrant Testing (PT) and Magnetic Particle Testing (MT) inspections. The surface array option can reduce inspection time by up to 95% versus pencil probes. MIZ-21C's intuitive touchscreen and simple, yet powerful embedded software gets users inspecting in no time, offering quick set-up and hassle-free operation.

Inspect More Areas.

The MIZ-21C is designed for user comfort. It can be held for twice as long as other Eddy Current portable devices. The small form factor enables users to inspect hard-to-reach areas and components that other instruments can't. MIZ-21C brings the power of surface array to places it has never been before.

Improve Flaw Detection.

MIZ-21C features an industry-leading signal quality providing up to 25% better flaw detection capability. When coupled with surface array, users can be confident that MIZ-21C will deliver the most thorough inspection in its class.

Specifications

Specifications in this document are subject to change

FEATURE	
Size (H × W × D)	267 × 122 × 38 mm (10.5 × 4.8 × 1.5 in)
Weight (including batteries and cover)	1.13 kg (2.5 lb)
Multi-Touch Display	5.7 in (480 x 640 pixels)
Battery Life	8 hr per charge
Cooling	Sealed and fanless
Eddy Current Connector	18-Pin Lemo
Eddy Current Array Connector	26-Pin Lemo
Connectivity	USB 2.0, Wi-Fi, Bluetooth
Encoders	2 axes, quadrature
Probe Recognition and Setup	Automatic, Zetec Coil ID Chip
Coil Inputs	MIZ-21C-SF: 1, MIZ-21C: 1, MIZ-21C-ARRAY: 3
Frequencies Per Timeslot	MIZ-21C-SF: 1, MIZ-21C: 2, MIZ-21C-ARRAY: 2
Data Channels	MIZ-21C-SF: 32, MIZ-21C: 64, MIZ-21C-ARRAY: 192
Maximum Probe Coils	MIZ-21C-SF: 2, MIZ-21C: 2, MIZ-21C-ARRAY: 32
Frequency Range	5 Hz to 10 MHz
Generator Output	Up to 19 Vpp
Injection Modes	Continuous and Super-Multiplex
Receiver Gain	10 – 53 dB, 43 dB range
Data Resolution	16 bits
Acquisition / Sampling Rate	Up to 25,000 per second
Probe Drive	50 Ohm
Filters	Adjustable CC, Median, High Pass, Low Pass, Bandpass, Spike
Alarms	Adjustable Box, Audio adjustable volume, Headphone support
Conductivity Frequency	60, 120, 240 and 480 kHz
Conductivity Specification	Digital readout in 0.9 to 110 %IACS (0.5 to 70 MS/m), Accuracy within ±0.5% IACS from 0.9% to 65% IACS and within ±1.0% of values over 65%
Non-Conductive Coating Thickness	Can measure non-conductive coating thickness from 0 mm to 1.000 mm. Accuracy of 0.025 mm (±0.001 in.) over a 0 mm to 0.64 mm range
Rotating Scanner	MIZ-21C-SF: No, MIZ-21C: Yes, MIZ-21C-ARRAY: Yes Zetec Rotating Scanner, Others
Maximum Data File Size	60 MB
Languages	English, Spanish, French, German, Chinese
Storage	8 GB SSD Internal, Any size through USB expansion
Instrument Calibration	Compliant with ISO 15548-1 / EN 61010-1

Smart Features

MIZ-21C is Packed With Features for an Inspection Advantage.

- **Surface Array in a Handheld.** Cost-effective, highly portable solution that delivers significant advantages over Liquid Penetrant Testing (PT) and Magnetic Particle Testing (MT).
- **Increase Uptime, Wherever You Go.** Features a minimum eight-hour battery life so users can operate the unit for an entire shift without recharging.
- **Ergonomic Design.** Small, lightweight and comfortable to handle in tight spaces. MIZ-21C minimizes arm fatigue common with other portable instruments.
- **Intuitive Touchscreen.** Quickly rotate, zoom and pan using the two finger capacitive display. The onscreen keyboard further increases user efficiency.
- **Universal Symbol Buttons & Multi-Language Software.** One model for worldwide use and deployment. Universal symbol buttons handle all functions and are ideal for gloved inspections.
- **Flexible Connectivity.** Interface and transfer files through USB, Wi-Fi, and Bluetooth technology.
- **Built for Demanding Environments.** Fully sealed and temperature rated for most outdoor conditions. Drop and vibration tested for rugged use.
- **Standard 1/4-20 Fitting.** Connect thousands of off-the-shelf accessories for expanded functionality.

AVAILABLE IN THREE MODELS

Feature	MIZ-21C-SF	MIZ-21C	MIZ-21C-ARRAY
Conductivity	✓	✓	✓
Single Frequency	✓	✓	✓
Dual Frequency		✓	✓
Rotating Scanner		✓	✓
Eddy Current Array			✓

COVER WITH STAND INCLUDED!

Removable cover with adjustable hand straps and stand is included with all models for added protection, convenience and extended operation.



Adaptable to Meet Your Needs

MIZ-21C offers a range of accessories designed to meet your specific inspection needs.

ZM-5 Rotating Scanner for Small Diameter Holes.

Zetec's ZM-5 High-Speed Scanner is a convenient handheld tool designed for rapid and thorough inspection of small diameter holes, such as bolt hole and fastener holes. With an ergonomic design, the ZM-5 enables inspection of the hardest to reach areas. A rotating transformer couples the eddy current signals for an improved operating life over conventional slip rings. The ZM-5 uses a quick-disconnect cable design for easy replacement. Through adapters the MIZ-21C can drive other manufacturers' rotating scanners.

Surf-X™ Array Probes for Faster Flaw Detection.

Introducing the Zetec Surf-X line of surface array probes. Featuring a unique flexible circuit design and proprietary X-Probe™ technology, Surf-X array probes can lower total cost of ownership while providing excellent data quality as well as faster, safer inspections when compared with other inspection methods.



Inspecting Corrosion or Cracking in Pipes, Pressure Vessels, or Tanks. Surf-X flexible array probes can conform to gradual changes in the geometry of pipes, pressure vessels, or tanks to detect surface and sub-surface flaws in a variety of materials including aluminum and stainless steel. Corrosion is a common flaw in non-pressurized components, while stress corrosion cracking is common in components subjected to sustained tensile stress in a corrosive environment. The Surf-X array probe can easily detect the locations of both types of defects using the high precision embedded encoder to track position.

Assessing and Sizing Cracks in Raised Welds and Friction Stir Welds. Surf-X flexible array probe can also conform to geometry changes associated with raised welds to simultaneously inspect for axial and transverse cracking in the weld cap, toe, and heat-affected zones. Surf-X array probes use position indicators on the probe to help with alignment to ensure the entire area of interest is inspected. The flexible nature of the Surf-X array probe allows for the inspection of flat surfaces including friction stir welds. The long-life wear surface has been tested to 10,000 ft, and is an inexpensive field replaceable component.



Small size. Easy to hold.

General Specifications

Voltage: 100 to 240 VAC, Auto-Switching

Frequency: 50 to 60 Hz

Output Voltage: 15 VDC

Maximum Power: 40 W

IP Rating: Tested to IP-64

Operating Temperature Range: -10°C to 45°C (14°F to 113°F)

Storage Temperature Range: -20°C to 70°C (-4°F to 158°F)
(w/out batteries)

Relative Humidity: 95% non-condensing

CE mark is an attestation of the conformity with all applicable directives and standards of the European Community. WEEE, RoHS.

Accessories Ordering Information

111A801-00 - ZES-ADP-MIZ-21C_26-PIN_TO_26-PIN_SURF-X_ARRAY_PROBES

6 ft detachable cable from MIZ-21C 26-Pin Lemo to 26-Pin Lemo Surface Array Probe

111A802-00 - ZES-ADP-MIZ-21C_18-PIN_TO_12-PIN_GE_SCANNER

6 ft detachable cable from MIZ-21C 18-Pin Lemo to 12-Pin Lemo Rotating Scanners

111A803-00 - ZES-ADP-MIZ-21C_18-PIN_TO_16-PIN_OLYMPUS_SCANNER

6 ft detachable cable from MIZ-21C 18-Pin Lemo to 16-Pin Lemo Rotating Scanners

111A804-00 - ZES-ADP-MIZ-21C_18-PIN_TO_MICRODOT_PROBES

6ft detachable cable from MIZ-21C 18-Pin Lemo to Coaxial Microdot Probes

111A805-00 - ZES-ADP-MIZ-21C_18-PIN_TO_TRIAX_PROBES

6 ft detachable cable from MIZ-21C 18-Pin Lemo to Triaxial Fischer Probes

111A806-00 - ZES-ADP-MIZ-21C_18-PIN_TO_3-PIN_ZETEC_PROBES

6 ft detachable cable from MIZ-21C 18-Pin Lemo to 3-Pin Zetec Probes

111A807-00 - ZES-ADP-MIZ-21C_18-PIN_TO_4-PIN_FISCHER_PROBES

1 ft detachable cable from MIZ-21C 18-Pin Lemo to 4-Pin Fischer Probes

111A810-00 - ZES-ADP-MIZ-21C_18-PIN_TO_18-PIN_ZETEC_SCANNER

6 ft detachable cable from MIZ-21C 18-Pin Lemo to 18-Pin Lemo Zetec Rotating Scanners

Environmental Tests

As per MIL-STD-810G

Cold Storage - 502.5 procedure I

Cold Operation - 502.5 procedure II

Heat Storage - 501.4 procedure I

Heat Operation - 501.4 procedure II

Temperature Shock - 503.5 procedure II

Vibration - 514.6 procedure I

Transit Drop - ISTA 1G

Drop Test - 516.6 procedure IV, 1.2 m (4 ft) with cover

Specifications included in this document are subject to change.

Ordering Information

111A901-00 - ZES-HHT-MIZ-21C-SF

Fully integrated single frequency handheld Eddy Current system featuring 1 input and 32 active channels on up to 2 coil probes. Supports Conductivity. System purchase includes: MIZ-21C unit, 6 batteries, 1 AC adapter, 1 cover with stand, 1 USB flash drive with certification and user manual, and 1 hard carrying case.

111A902-00 - ZES-HHT-MIZ-21C

Fully integrated dual frequency handheld Eddy Current system featuring 1 input and 64 active channels on up to 2 coil probes. Supports Conductivity and Rotating Scanner. System purchase includes: MIZ-21C unit, 6 batteries, 1 AC adapter, 1 cover with stand, 1 USB flash drive with certification and user manual, and 1 hard carrying case.

111A903-00 - ZES-HHT-MIZ-21C-ARRAY

Fully integrated dual frequency handheld Eddy Current system featuring 3 inputs and 192 active channels on up to 32 coil probes. Supports Conductivity, Rotating Scanner, and Surface Array. System purchase includes: MIZ-21C unit, 6 batteries, 1 AC adapter, 1 cover with stand, 1 USB flash drive with certification and user manual, and 1 hard carrying case.

111A904-00 - ZES-HHT-MIZ-21C-SF_WIRELESS_LOCKED

Wireless locked version of MIZ-21C-SF.

111A905-00 - ZES-HHT-MIZ-21C_WIRELESS_LOCKED

Wireless locked version of MIZ-21C.

111A906-00 - ZES-HHT-MIZ-21C-ARRAY_WIRELESS_LOCKED

Wireless locked version of MIZ-21C-ARRAY.



FOR MORE INFORMATION ABOUT MIZ-21C OR OTHER ZETEC PRODUCTS CONTACT US AT info@zetec.com OR VISIT www.zetec.com.

MIZ[®]-28

Eddy Current Inspection For Heat Exchanger Tubing

FEATURES & BENEFITS

- ▶ **Combines both** multiplexed and simultaneous injection (SI) technologies into one box
- ▶ **Easy-to-use controls** with built-in language selection
- ▶ **Automatic voltage switching**
- ▶ **Optional RFT Amplifier** supplies the high drive voltages that generate the stronger magnetic field necessary to find flaws in magnetic tubing
- ▶ **500 GB internal hard drive** provides mass storage of recorded inspection data
- ▶ **Included USB portable flash drive** lets you easily store, transfer, and carry your data. PC compatible USB 1.1/2.0
- ▶ **Data files are compatible** with EddyNetPC/AN, EddyNetSuite Analysis, ET Analysis for Windows, or Velocity[®]/AN Software
- ▶ **Supports test plans** created with Zetec's EIMS-BOP, EddyNetPC/DM, or Velocity/DM software that plans, tracks, and provides professional reports of the inspection
- ▶ **Supports the Zetec High Speed 3D Probe Pusher** with optional conduit gun using a Model III Probe Pusher Control system
- ▶ **Rugged enclosure** ideally suited for heavy-duty use



High-Speed, High-Efficiency

Zetec's MIZ[®]-28 delivers more technology and performance for high-speed, high-efficiency inspection of heat exchanger tubing. Its data management features lead the industry with more on-board data storage and easy file transfer. And the MIZ-28 supports existing Zetec equipment and software already deployed for eddy current inspections.

The MIZ-28 combines both multiplexed and simultaneous injection (SI) technologies into one box that tests most tube materials including magnetic alloys such as carbon steel. Testing with multiplexed frequencies provides the best detection capabilities—from surface cracks to deep flaws—with speed

and reliability. Simultaneous injection eddy current technology offers the highest testing speeds and supports remote field testing (RFT).

Data files acquired with the MIZ-28 can be transferred to a computer for analysis with Zetec's EddyNetPC/AN, EddyNetSuite Analysis, ET Analysis for Windows, or Velocity[®]/AN software. You can easily import test plans created with Zetec's EIMS-BOP, EddyNetPC/DM, or Velocity/DM software that plans, tracks, and provides professional reports of the inspection. The MIZ-28 also supports the Zetec High Speed 3D Probe Pusher with optional conduit gun using a Model III Probe Pusher Control system.

MIZ[®]-28

Eddy Current Inspection For Heat Exchanger Tubing

Specifications

Test Method: Multifrequency electromagnetic testing in multiplexed and simultaneous injection (SI) modes.

- **Multiplexed mode**—Supports 4 test frequencies.
- **SI mode**—Up to 4 frequencies or up to 8 coil pairs (number of test frequencies depends on number of boards installed and coils being used)

Weight: 16.0 lb (7.3 kg)

Dimensions: 8.0H x 11.5L x 13.5D in. (20.3 x 29.2 x 34.3 cm)

Power: 85 - 264 VAC 47 - 63 HZ 140 watts maximum, with all options

Operating Temperature Range: 32°F to 113°F (0°C to 45°C)

Storage Temperature Range: -40°F to 185°F (-40°C to 85°C)

Frequency Range: 5 Hz to 10 MHz

Display: Color 640 x 480 pixel (8.4-in.) active matrix display offers same resolution as computer monitor

Drive: 0 - 20 Vpp

Sample Rate - samples/second

- **Multiplexed mode**—Operator adjustable up to 15,600 s/s for 1 frequency; 3,900 s/s for 4 frequencies
- **SI mode**—Operator adjustable up to 15,600 s/s at 4 frequencies

Memory

- 500 GB internal hard drive
- Flash memory for configurations and firmware updates via USB key
- Non-volatile SRAM memory for storage of instrument settings

Data Recording

- USB Flash Drive, Magneto Optical Disk, Jaz Drive, Zip Drive
- 500 GB internal hard drive

User Interface Language Support

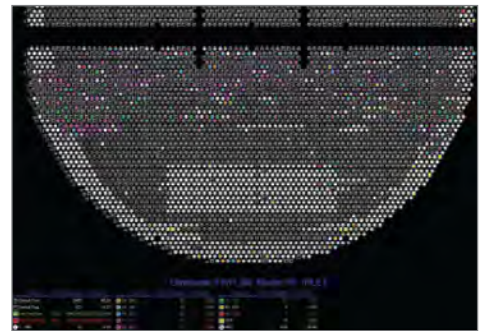
English, French, Italian, German, Spanish, others available by request

Input/Outputs

- Ethernet 10/100BaseT for network interface
- VGA—output display to VGA monitor or video output with external converter box
- RS-232—communication to Model III Probe Pusher Control
- USB for printer, keyboard, mass storage device

Purchase includes

- MIZ-28 Eddy Current Test Instrument
- MIZ-28 Operating Guide (English)
- Calibration Certificate
- Bobbin Probe Adapter
- USB 16 GB Flash Drive
- USB Keyboard
- Power Cords (US and EU versions)
- Shipping Case
- 1 Year Warranty
- MIZ-28-8 Eddy Current Test Instrument supports up to 8 coil pairs



Zetec's Velocity/DM is inspection management software for organizing, tracking, and creating reports of eddy current inspection.

CURRENT TEST PLAN			
SOURCE: /ata0b/TEST_PLAN/water_box_2.TST			
ENTRIES: 20000			
ENTRY	TEST	INFORMATION	
164	*8004	R001 T013	F/L
165	*8004	R001 T014	F/L
166	*8004	R001 T015	F/L
167	*8004	R001 T016	F/L
168	*8004	R001 T017	F/L
169	*8004	R002 T000	F/L
170	*8004	R002 T001	F/L
171	*8004	R002 T002	F/L
172	*8004	R002 T003	F/L
173	*8004	R002 T004	F/L
174	*8004	R002 T005	F/L
175	8004	R002 T006	F/L
176	8004	R002 T007	F/L
177	8004	R002 T008	F/L
178	8004	R002 T009	F/L
179	8004	R002 T010	F/L
180	8004	R002 T011	F/L

The MIZ-28 imports an inspection Test Plan and displays it for the operator.



Zetec holds ISO 9001 and ISO/IEC 17025 certifications



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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" XGA 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



Picture/Video Instruction



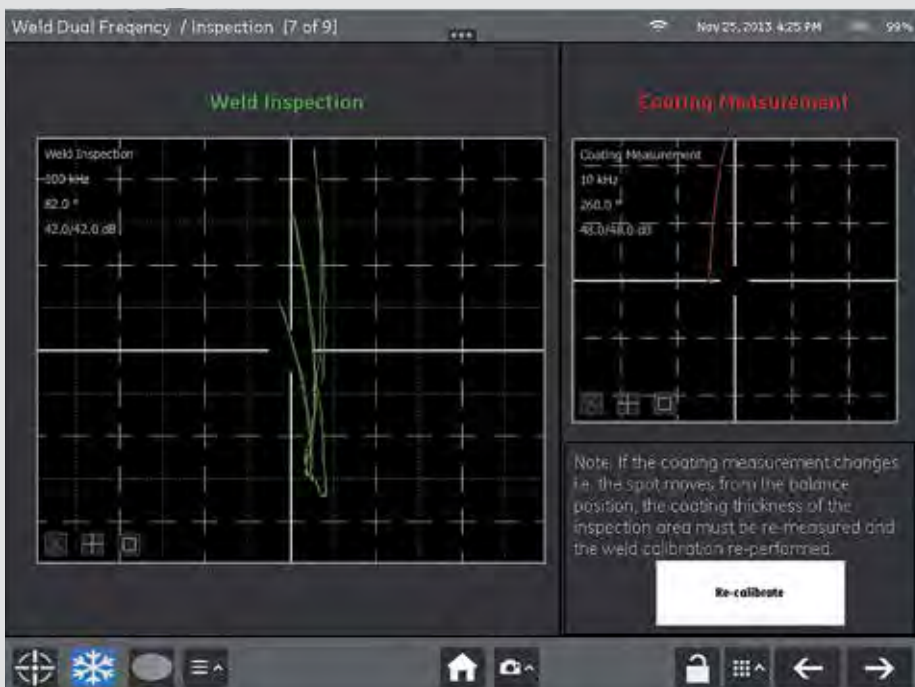
Calibrate for Weld



Calibrate for Paint Layer

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

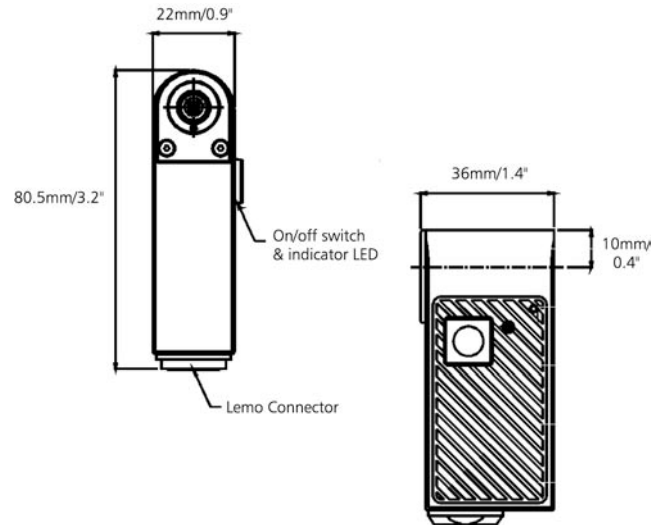


90° Inline Tip



90° Right Angle Tip

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 utilizes 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



SIGMACHECK

FULLY FEATURED EDDY CURRENT CONDUCTIVITY METER



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.

1:1 IMAGE

SIGMACHECK

This image shows the SIGMACHECK at its actual size.





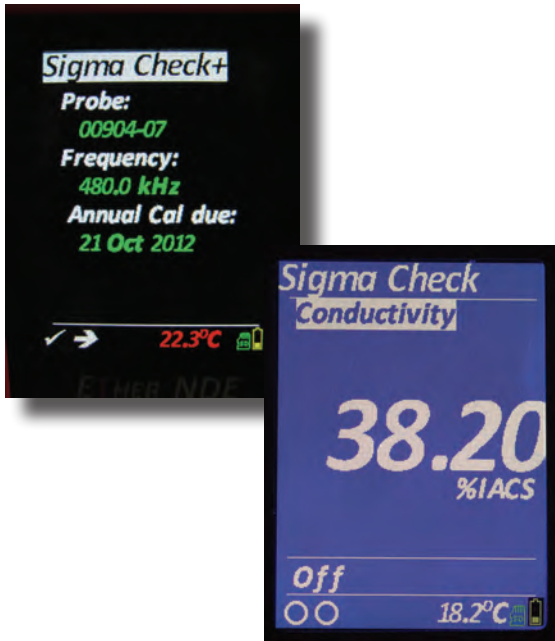
ADVANTAGES

- 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.

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.



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.

Ohms Law Equation:

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

I = Current (Amps)
V = Voltage (Volts)
R = Resistivity (ohms)

Electrical Conductivity Equation:

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

l = length (cm)
A = Area (cm²)
R = Electrical Resistance of a uniform specimen of the material (ohms)
 σ = Conductivity (ohm⁻¹ cm⁻¹)

OR

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

Conductivity Test Block Holder.

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



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.

SIGMACHECK

STANDARD KIT

Detachable, Durable Rubber Boot with Useful Belt Strap.

Calibration Blocks.

Mains Charger.

Detachable Back Stand.

Ergonomically Designed Probe.



OPTIONAL EXTRAS AVAILABLE

High-quality rugged transit case.



Small Probe (7mm) 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 % IACS 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)

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.

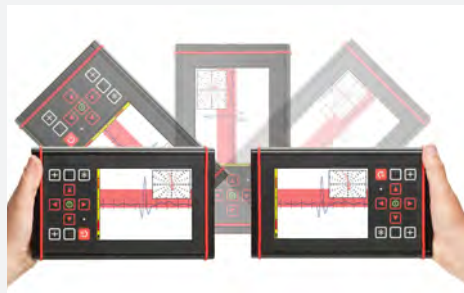


WIDE FREQUENCY RANGE

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



Window Frames
Probe: High & Low
Frequency, Rotary

Engine Blades & Discs
Probe: High Frequency

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

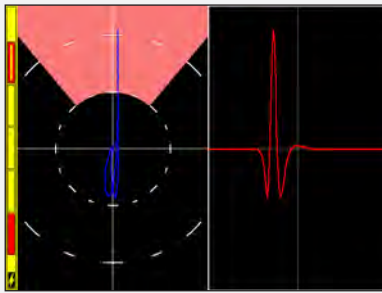
LIGHTWEIGHT, RUGGED, “SURE GRIP” & ENHANCED PROTECTION

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

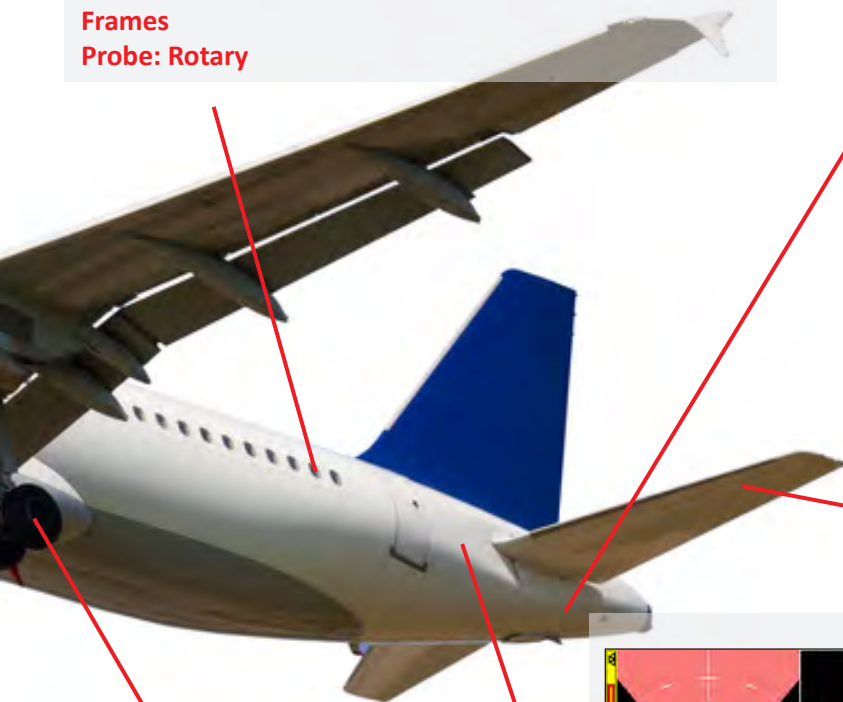
DAYLIGHT READABLE, CLEAR, LARGE, CONFIGURABLE COLOUR SCREEN

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

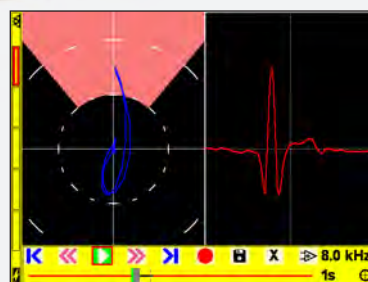


Area of Inspection: Horizontal Stabilisers

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.

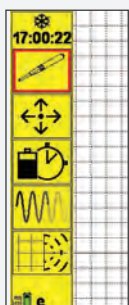
Area of Inspection: Fuselage

Probe: Surface & Sub-Surface

EASY TO USE MENU & 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 Input Drive	-18 to + 100 dB, 0.1, 1 and 6dB steps (100dB maximum) 0dB or 12dB	
	Max X/Y Ratio	0dB or 6dB (0dB reference 1mW into 50 ohm).	0dB, 6dB and 10dB (0dB reference 1mW into 50 ohm). +/-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 Output	Fully configurable, Freeze, Tone or visual. Open collector transistor (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 orientation 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	Display in X,Y or R,θ	
Position Readout		Display of all settings in Legacy Format	
	Summary		
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) On Lemo 12 way Open collector transistor (36v dc at 10mA max).	
	Digital volt free alarm	Full 15 way VGA output	
Languages		English, French, Spanish, Russian, Japanese, Chinese, Turkish.	
	VGA		
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 Battery	100-240 v 50-60Hz 30 Watts	
	Running Time	Internal 7.2V nominal @ 3100mAh = 22.32 watt.hr 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		

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)
Accuracy	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!

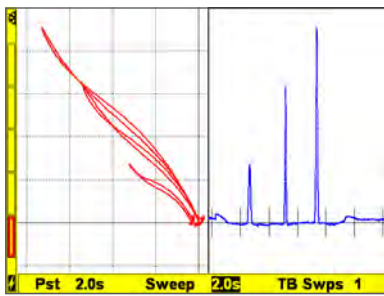
The AEROCHECK and AEROCHECK+ offers maximum flexibility when deciding which features are needed for your application. As well as the hand-held WELDCHECK, AEROCHECK and AEROCHECK+ instruments, the range also includes the VICTOR 2.2D for inline component testing solutions.

KEY DIFFERENCES

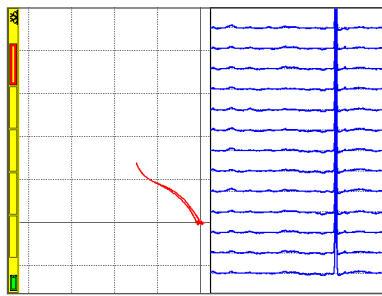
EQUIPMENT	FEATURES								
	ROTARY	DATA RECORDING	DUAL FREQUENCY WITH AUTO-MIX	CONDUCTIVITY	GUIDES	LOOP	TRACE	ENHANCED PROTECTION	FREQUENCY
AEROCHECK	●	●						✳	20Hz-20MHz
AEROCHECK+	●	●	●	●	●	●	●	●	10Hz-12.8MHz

● = As Standard ✳ = Optional Extra

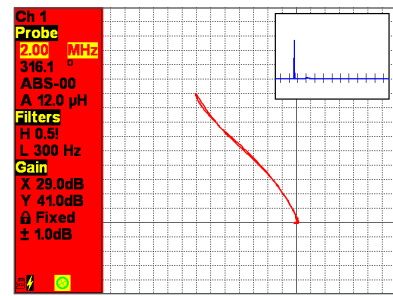
EXCEPTIONAL SCREEN CLARITY FOR ANY APPLICATION



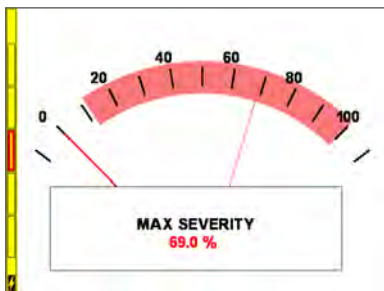
50/50 XY & Timebase



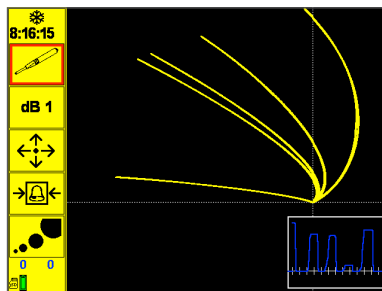
50/50 XY Waterfall with 12 2s time sweeps



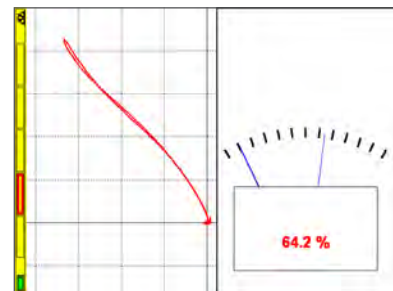
XY with small timebase and Quick Menu



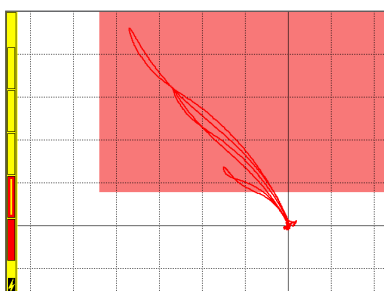
Meter Full Screen



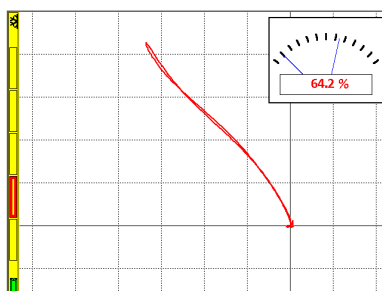
Dark background polar graticule and soft-keys



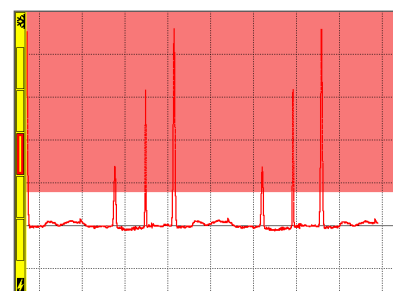
XY and Meter 50/50



XY Full screen with Box Alarm



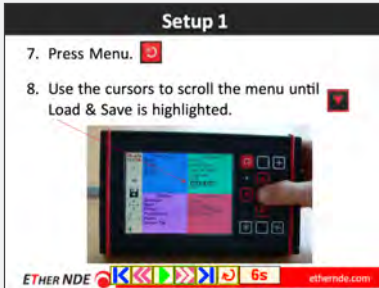
XY with Small Meter



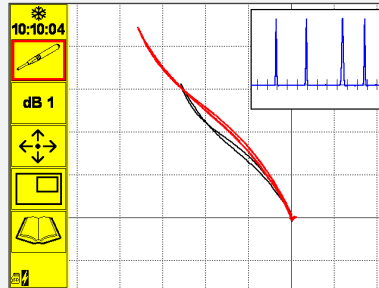
Timebase Full Screen with level arm

“ 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.

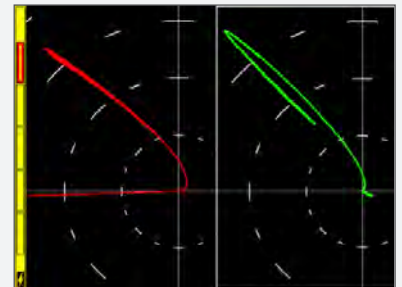


TRACE FEATURE: The trace function allows a reference waveform to be stored on the screen and appears along with the live spot. This allows the operator to readily compare the live data with the reference calibration.

“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.

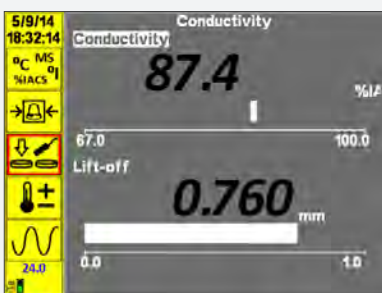
The “Loop” function is excellent for calibration set up especially for setting the filters for Rotary and Dual Frequency mix.

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 suppress 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



“ 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 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 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



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.

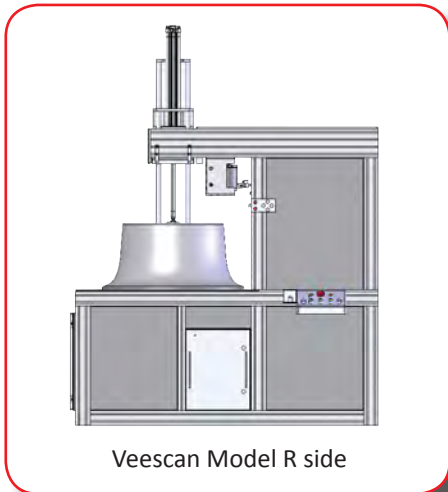
The Model R is manufactured in two sizes to accommodate two different wheel size categories; for wheels under 600mm in diameter and for wheels under 900mm in diameter.

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 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.**

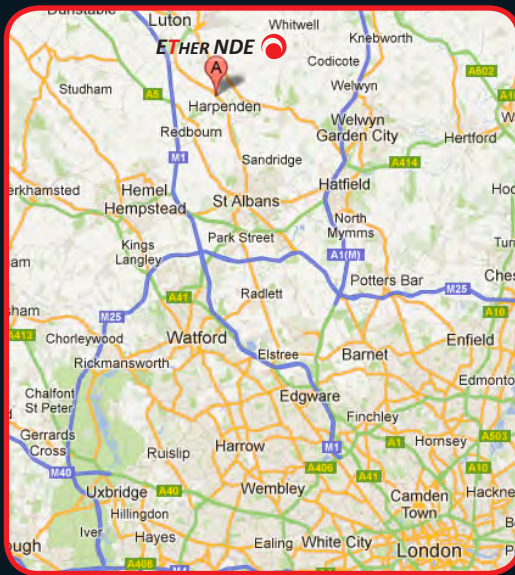
ETHER NDE continually strives to provide innovative solutions to eddy current testing in all possible inspection conditions.

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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+44 (0) 1582 767912

email: sales@ethernde.com

www.ethernde.com



PosiTector® 6000 Series

Coating Thickness Gages for
ALL Metal Substrates



Available on the
App Store



DeFelsko®

The Measure of Quality

PosiTector® 6000 Series

All Gages Feature...

Simple

- Ready to measure—no adjustment required for most applications
- Enhanced one-handed menu navigation
- Flashing display—ideal in a noisy environment
- RESET feature instantly restores factory settings

Durable

- Solvent, acid, oil, water and dust resistant—weatherproof
- Wear-resistant probe tip
- Shock-absorbing, protective rubber holster with belt clip
- Two year warranty on gage body AND probe

Accurate

- Certificate of Calibration showing traceability to NIST included
- Built-in temperature compensation ensures measurement accuracy
- Hi-RES mode increases displayed resolution for use on applications that require greater precision
- Conforms to national and international standards including ISO and ASTM

Versatile

- PosiTector body universally accepts all PosiTector 6000, 200, SPG, DPM and UTG probes easily converting from a coating thickness gage to a surface profile gage, dew point meter or ultrasonic wall thickness gage
- Multiple calibration adjustment options including 1 point, 2 point, known thickness, average zero
- Selectable display languages
- Hi Contrast backlit display for bright or dark environments
- Flip Display enables right-side-up viewing
- Extended cables available (up to 75 m/250 ft) for remote measuring
- Uses alkaline or rechargeable batteries (built-in charger)

Powerful

- Continually displays/updates average, standard deviation, min/max thickness and number of readings while measuring
- Screen Capture—save screen images for record keeping and review
- HiLo alarm audibly and visibly alerts when measurements exceed user-specified limits
- FAST mode—faster measurement speed for quick inspection
- USB port for fast, simple connection to a PC and to supply continuous power. USB cable included
- PosiSoft USB Drive—stored readings and graphs can be accessed using universal PC/Mac web browsers or file explorers. No software required
- Every stored measurement is date and time stamped
- Software updates via internet keep your gage current
- Connects to PosiSoft.net (see far right panel)

Probes available for a variety of applications



For measuring paint, powder, etc. on all metals...



...and for measuring galvanizing, plating, anodizing and more.

Gage Selection...

Select Substrate

- F — for ferrous metals (steel and cast iron)
- N — for non-ferrous metals (aluminum, copper, etc.)
- FN — for all metal substrates—Gage automatically recognizes the substrate and takes a measurement

Select Standard or Advanced Features

Standard Models

Includes ALL features as shown on left plus...

- Monochrome display with transreflective technology enhances sunlight readability
- Storage of 250 readings—stored readings can be viewed or downloaded

Advanced Models

Includes ALL features as shown on left plus...

- Hi Contrast reversible color LCD
- Storage of 100,000 readings in up to 1,000 batches and sub-batches
- Onscreen help, real time graphing, picture prompting and more
- Batch annotation—add notes and change batch names with onscreen QWERTY keyboard
- WiFi technology wirelessly synchronizes with PosiSoft.net, downloads software updates and connects with mobile devices for expanded functionality
- Data transfer via USB to a PC or via Bluetooth® Wireless Technology to a PC or printer
- Scan mode—take continuous readings without lifting the probe
- Multiple stored calibration adjustments for measuring on a variety of substrate conditions
- SSPC-PA2 feature determines if film thickness over a large area conforms to user-specified min/max levels
- PSPC 90/10 feature determines if a coating system complies with an IMO performance standard for protective coatings

Select from a variety of measurement ranges and probe styles

(see back page ordering guide)

Heavy-duty, gold-plated locking connector for industrial environments



Separate Probe Style

Removable Probes can be detached and replaced with any one of our wide variety of probes including separate probes and microprobes



Built-in Probe Style



FKS

90°

0°

45°

Regular

Rugged Features...

Sealed USB Port
for communicating
with a PC or Mac

Water and dust
resistant

WEATHERPROOF

Hi resolution color LCD

Scratch/solvent/impact
resistant lens

Multi-function
navigation button

Solvent, acid, oil
resistant, hi-grade,
industrial strength
housing

**Advanced
Model shown
in Memory Mode**

Quality high-flex
cable and strain relief

Stainless steel probe
with knurled finger grip

Strong wear-resistant
ruby-tipped probe

All Regular Separate Probes
are suitable for underwater use



Standard model shown in Statistics Mode with shock-absorbing, protective rubber holster



FHXS Probe with Alumina wear face and braided cable for hot or rough surfaces



Flip Display enables right-side-up viewing



Microprobe series for small parts and hard-to-reach areas

PosiSoft® ... FREE SOLUTIONS for viewing, analyzing and reporting data:

PosiSoft USB Drive Connect to a PC/Mac using the supplied USB cable to access and print stored readings, graphs, photos, notes and screen captures. No software or internet connection required.



PosiSoft.net A web-based application offering secure centralized management of PosiTector readings. Access your data from any web-connected device.



PosiSoft Software Newly updated version 3.0 desktop software for PC or Mac. Available as a free download.

PosiSoft Mobile Access readings, graphs, capture photos and update annotations using WiFi enabled devices such as tablets, smart phones and computers. (Advanced models only)



Universal gage body accepts all PosiTector 6000, 200, SPG, DPM and UTG probes

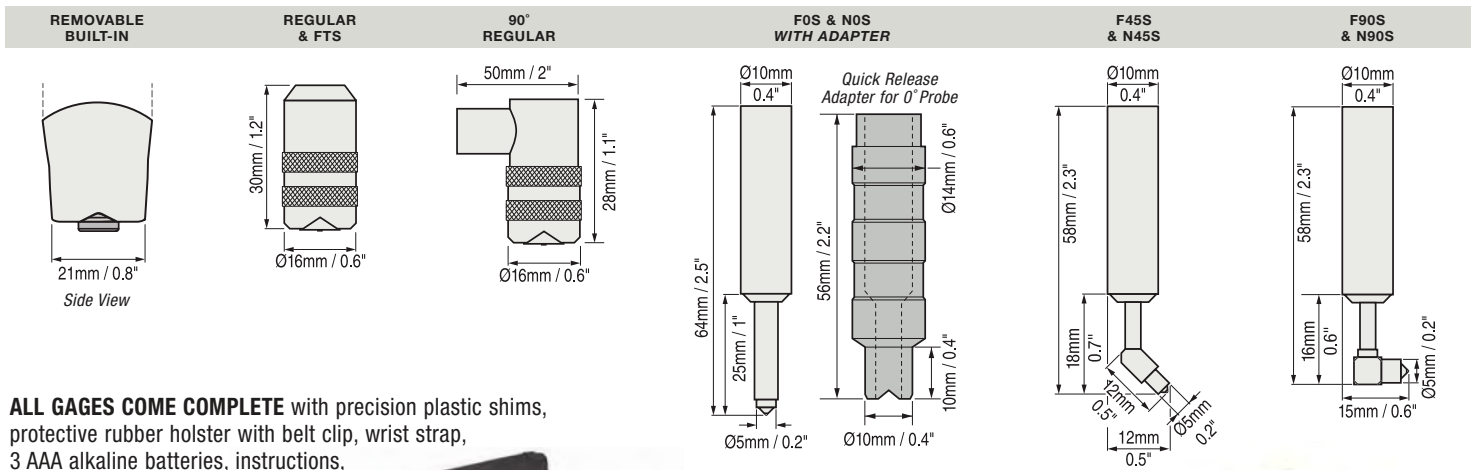


PosiTector® 6000 Series ORDERING GUIDE		Our most popular Removable Built-in and Regular Separate probe models			90° Regular probe for tight spots			Ideal for anodized aluminum			Microprobes – Our smallest probes for small parts or hard-to-reach areas			Removable Built-in and Separate probes for thick protective coatings; epoxy, rubber, intumescent fire proofing and more				
FERROUS METALS	Standard	F1	FS1	FRS1	FOS1	F45S1	F90S1	FT1	FTS1	FHXS1**	FKS1							
	Advanced	F3	FS3	FRS3	FOS3	F45S3	F90S3	FT3	FTS3	FHXS3**	FKS3							
NON-FERROUS METALS	Standard	N1	NS1	NRS1	NAS1	NOS1	N45S1	N90S1						NKS1				
	Advanced	N3	NS3	NRS3	NAS3	NOS3	N45S3	N90S3						NKS3				
COMBINATION ALL METALS	Standard	FN1	FNS1	FNRS1					FNTS1						FNGS1			
	Advanced	FN3	FNS3	FNRS3					FNTS3						FNGS3			
Range		0–60 mils 0–1500 µm			Ferrous: 0–45 mils and 0–1150 µm Non-Ferrous: 0–25 mils and 0–625 µm			0–250 mils 0–6 mm		0–400 mils 0–10,000 µm		0–500 mils 0–13 mm		0–2.5 inches 0–63.5 mm				
Accuracy*		±(0.05 mil+1%) 0–2 mils ±(0.1 mil+1%) >2 mils ±(1 µm+1%) 0–50 µm ±(2 µm+1%) >50 µm			±(0.02 mil+1%) 0–4 mils ±(0.1 mil+3%) >4 mils ±(0.5 µm+1%) 0–100 µm ±(2 µm+3%) >100 µm			±(0.5 mil+1%) 0–100 mils ±(0.5 mil+3%) >100 mils ±(0.01 mm+1%) 0–2.5 mm ±(0.01 mm+3%) >2.5 mm		±(0.1 mil+3%) ±(2 µm+3%)		±(1 mil+3%) ±(0.02 mm+3%)		±(0.01 in.+3%) ±(0.2 mm+3%)				
Matching DeFelsko Calibration Standards		STDS1 STDA1			STDS2 STDA2			STDP1		STDP7		STDP5		STDP8 (included)				

Ferrous probes measure non-magnetic coatings on ferrous metals. **Non-Ferrous probes** measure non-conductive coatings on non-ferrous metals. **Combination probes** measure coatings on all metals. **FHXS probe** measures non-conductive coatings on steel. **FNGS probe** measures non-conductive coatings on all metals and includes STDP8 standards.

*Accuracies are stated as a fixed value plus a percentage of the gage's actual reading. **Xtreme probe with Alumina wear face and braided cable. Ideal for rough or hot surfaces up to 250° C (500° F).

Probe Details (All probe details can be found online at www.defelsko.com/p6000/probes)



ALL GAGES COME COMPLETE with precision plastic shims, protective rubber holster with belt clip, wrist strap, 3 AAA alkaline batteries, instructions, nylon carrying case with shoulder strap, protective lens shield, Long Form Certificate of Calibration traceable to NIST, USB cable, PosiSoft.net account, two (2) year warranty.

SIZE: 137 x 61 x 28 mm (5.4" x 2.4" x 1.1")

WEIGHT: 140 g (4.9 oz.) without batteries

Conforms to ISO 2178/2360/2808, ISO 19840, ASTM B499/D1186/ D1400/D7091/E376/G12, BS3900-C5, SSPC-PA2 and others



Options

Bluetooth Printer receives data from Advanced models

AC Power Kit for continuous operation or battery charging—works in any country

Coating Thickness Standards to fulfill both ISO and in-house quality control requirements

Rechargeable Batteries—a set of eneloop NiMH AAA batteries

Extended Cables for under-water or remote measuring. Specify length when ordering.



PosiSoft® Solutions

Suite of Software

The PosiSoft suite of software solutions offers 4 FREE ways to view and report your data, ranging from dedicated desktop software for PC and Mac computers to cloud-based PosiSoft.net.

PosiSoft® 3.0 Desktop Software

Newly updated version 3.0 desktop software for PC or Mac computers

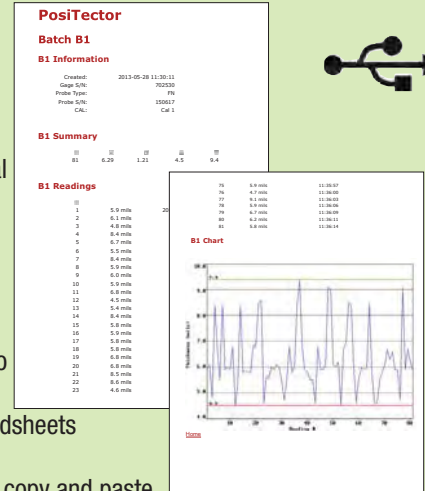
- Import (download) measurement data via USB (all gages) or WiFi (PosiTensor Advanced models only)
- Customize reports by adding pictures, logos, screen captures, notes and more
- Measurement data is copied (imported) from the instrument to a user selectable location — ideal for storing and sharing data on a network or cloud drive
- Create custom layouts using a simple drag and drop Template Design toolbox; save layouts for future use
- Downloaded data is stored in comma-separated text files which can be easily imported into supporting applications such as documents, spreadsheets and databases



PosiSoft® USB Drive

Access your PosiTensor as a flash drive

- View and print readings and graphs using universal PC/Mac web browsers or file explorers
- Measurement data is stored in comma-separated text files which can easily be imported into supporting applications such as documents, spreadsheets and databases
- Simple file management - copy and paste data from the PosiTensor to a local folder on your computer, network or cloud-drive



Preformatted HTML reports are stored in the gage.

PosiSoft®.net (formerly PosiTensor.net)

A cloud-based application offering secure centralized management of PosiTensor readings. Access your data from any web-connected device anywhere in the world.

- Synchronize measurement data when connected via USB, Bluetooth or WiFi wireless technology
- Generate reports with graphs, annotations and images
- Share measurement data with authorized users via a secure login from any computer or web-enabled device
- Export data to popular formats such as XML, .CSV (comma-separated values), and CQATK for further analysis



PosiSoft® Mobile

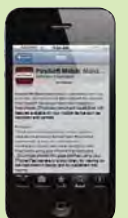
Gage-based software application featured in all PosiTensor Advanced instruments. Access readings, graphs, capture photos and update notations using WiFi enabled devices such as tablets, smart phones and computers

- Browse stored measurement data including notes, images, statistics and charts
- Update batch names/notes using your mobile device's keyboard
- Insert images directly into gage batches using your mobile device's camera or image library
- Remotely view the live display of a working PosiTensor
- Email measurement data as PDF reports or .CSV comma-separated files
- Accessible from any WiFi enabled computer or smart device using a standard web browser including PC/Mac, Windows Phone/Mobile, Blackberry, Android, Apple iOS and more



PosiSoft Mobile Manager is a discovery tool that searches your local area WiFi network for enabled PosiTensor Advanced instruments.

- Available for *Apple iOS* and *Android* users



DETEK

6805 Coolridge Drive
 Temple Hills, MD 20748-6940
 301-449-7300 FAX 301-449-7011
www.detek.com email: sales@detek.com



DeFelsko Coating Thickness Standards

Certified coating thickness standards are ideal for verifying the accuracy and operation of coating thickness gages and are an important component in fulfilling both ISO and in-house quality control requirements.

Many organizations require verification of gage accuracy at the test site each time a coating thickness gage is put into service and at frequent intervals during use. Ideal for this purpose, DeFelsko certified coating thickness standards have measured values traceable to a National Metrology Institution.

Certified Coated Metal Plates and Polystyrene Blocks

- Used to verify the accuracy and operation of any Type 1 (mechanical) and Type 2 (electronic) magnetic, eddy-current or ultrasonic coating thickness gage
- Ideal for use in the calibration lab, in the field or on the factory floor
- Standards with steel or aluminum substrates consist of 4 plates mounted in a protective binder
- Polystyrene thickness standards consist of 4 blocks supplied in a rugged acrylic storage box
- Individually serialized for traceability to NIST or PTB - includes a Certificate of Calibration
- Certified and labeled in both Metric and Imperial units

Plate Diameter: 38 mm (1.5") **Measurement Diameter:** 25 mm (1")

Polystyrene Blocks: 38 x 70 mm (1.5" x 2.75")

P8: 76 x 76 mm (3.0" x 3.0")



S1 Ferrous



A1 Non-Ferrous



Individual plates are available



P1 Polystyrene

Order Code	Ideal for	Approximate Thickness				Coating/Substrate	Accuracy
		Plate 1	Plate 2	Plate 3	Plate 4		
S1	PosiTector 6000 F, FS, FRS, FN, FNS, FNRS PosiTest F & FM	0	75 µm 3 mils	250 µm 10 mils	1500 µm 60 mils	Epoxy on Steel (Ferrous)	+/- 0.43 µm +/- 0.017 mil
S2	PosiTector 6000 F0S, F45S, F90S PosiTest DFT Ferrous & Combo	0	75 µm 3 mils	250 µm 10 mils	1000 µm 40 mils		
S3	PosiTest G & GM PosiPen A, B & C	0	15 µm 0.6 mils	40 µm 1.6 mils	100 µm 4 mils		
A1	PosiTector 6000 N, NS, NRS, FN, FNS, FNRS	0	75 µm 3 mils	250 µm 10 mils	1500 µm 60 mils	Epoxy on Aluminum (Non-Ferrous)	+/- 0.43 µm +/- 0.017 mil
A2	PosiTector 6000 NAS, NOS, N45S, N90S PosiTest DFT Combo	0	75 µm 3 mils	250 µm 10 mils	500 µm 20 mils		
A3	PosiTector 100B, 200, 200B	75 µm 3 mils	125 µm 5 mils	250 µm 10 mils	500 µm 20 mils		
P1	PosiTector 6000 FT, FTS, NTS, FNST PosiTector 200 D	375 µm 15 mils	2 mm 80 mils	4.5 mm 185 mils	6.5 mm 250 mils	Polystyrene Blocks	+/- (2.5 µm + 0.05% of thickness) +/- (0.1 mil + 0.05% of thickness)
P2	PosiTector 6000 FHS, NHS, EOC	2.5 mm 100 mils	6.5 mm 250 mils	13 mm 500 mils	19 mm 750 mils		
P3	PosiTector 100C	375 µm 15 mils	1.5 mm 60 mils	2.5 mm 100 mils	4.5 mm 185 mils		
P4	PosiTector 100D	1.5 mm 60 mils	2.5 mm 100 mils	4.5 mm 185 mils	6.5 mm 250 mils		
P5	PosiTector 6000 FKS, NKS	1.5 mm 60 mils	2.5 mm 100 mils	6.5 mm 250 mils	12 mm 480 mils		
P6	PosiTector 200C	375 µm 15 mils	1.5 mm 60 mils	2.5 mm 100 mils	3 mm 125 mils		
P7	PosiTector 6000 FHXS	1.5 mm 60 mils	4.5 mm 185 mils	6.5 mm 250 mils	9.5 mm 375 mils		
P8	PosiTector 6000 FNCS	13 mm 500 mils	13 mm 500 mils	13 mm 500 mils	19.5 mm 750 mils		

Select the Standard that most closely matches the measuring range of your gage.
All certified standards are supplied with a Certificate of Calibration traceable to NIST or PTB.



PosiTest[®] DFT

Coating Thickness Gage

New

Ideal for...

- Powder Coaters
- Paint Applicators
- Coating Inspectors
- Painting Contractors
- Automotive Refinishers

2 Models...

Ferrous for STEEL

Combo for ALL METALS



simply
measures

DeFelsko[®]
The Measure of Quality

PosiTest[®] DFT

Coating Thickness Gage

Actual Size

Two Models

- **PosiTest DFT Ferrous**
measures non-magnetic coatings on steel.
- **PosiTest DFT Combo**
measures both non-magnetic coatings on steel AND non-conductive coatings on aluminum, brass, etc. **Automatically** recognizes the substrate and takes a measurement.



Features

- Fast, repeatable measurements
- No calibration required for most applications
- ZERO feature for rough or curved surfaces
- Handy RESET feature when no zero reference is available
- Strong, wear-resistant, ruby-tipped probe
- Audible and visible measurement indication
- V-groove in probe for positioning on cylindrical parts
- Mils/Microns switchable
- Basic instructions on the back of each gage

Specifications

Measurement Range	0 – 40 mils	0 – 1000 μ m
Accuracy	$\pm(0.1 \text{ mils} + 3\%)$	$\pm(2\mu\text{m} + 3\%)$
Size	4 x 1.5 x 0.9 in.	100 x 38 x 23 mm
Weight	2.5 oz.	70 g



Gage Comes Complete with built-in probe, plastic shims, hard shell storage case, AAA battery, instructions and one (1) year warranty.

Conforms to: ISO 2178/2360/2808, prEN ISO 19840, ASTM B244/B499/B659/D1186/D1400/E376/G12, BS3900-C5, SSPC-PA2 and others. *Certificate of Calibration traceable to NIST available.*

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PosiTector® 200 Series

NEW

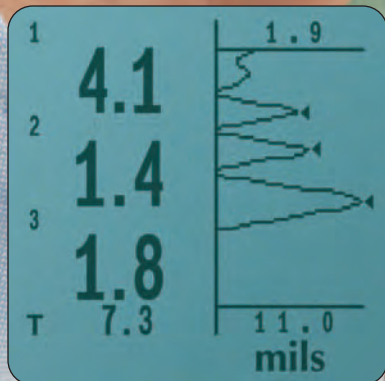
**Coating Thickness
Gages for Measuring
on Wood, Concrete,
Plastic and more...**



Standard Model



*Advanced
Model
measures
up to 3
layers with
graphics*



DeFelsko®

The Measure of Quality

PosiTector® 200 Series

Non-destructively measures a wide variety of applications using proven ultrasound technology. Measures the thickness of coatings over concrete, wood, composite materials and more.

All Gages Feature...

Simple

- Ready to measure – no adjustment required to measure most coatings
- One-handed menu navigation
- Bi-color indicator light – ideal in a noisy environment
- RESET feature instantly restores factory settings

Durable

- Solvent, acid, oil, water and dust resistant – meets or exceeds IP5X
- Scratch/Solvent resistant display suitable for harsh environments
- Shock-absorbing, protective rubber holster with belt clip
- Two year warranty on both gage body and probe

Accurate

- Responsive transducers provide fast, accurate readings (up to 40 readings/minute)
- Proven non-destructive ultrasonic technique conforms to ASTM D6132 and ISO 2808
- Certificate of Calibration showing traceability to NIST included

Versatile

- Continually displays/updates average, standard deviation, and number of readings while measuring
- Internal memory stores up to 10,000 readings in up to 1000 batches
- Built-in clock to date and time stamp each stored measurement
- USB, IR and serial output options for simple communication with printers and PCs
- Backlit display for dim or dark environments
- Mils/Microns switchable
- Selectable display languages

Select Standard or Advanced

Standard models measure the total thickness of a coating system.

Advanced models measure total thickness of a coating system or up to 3 individual layer thicknesses in a multi-layer system. Also features graphic readout for detailed analysis of the coating system.

Advanced Model Graphic Display

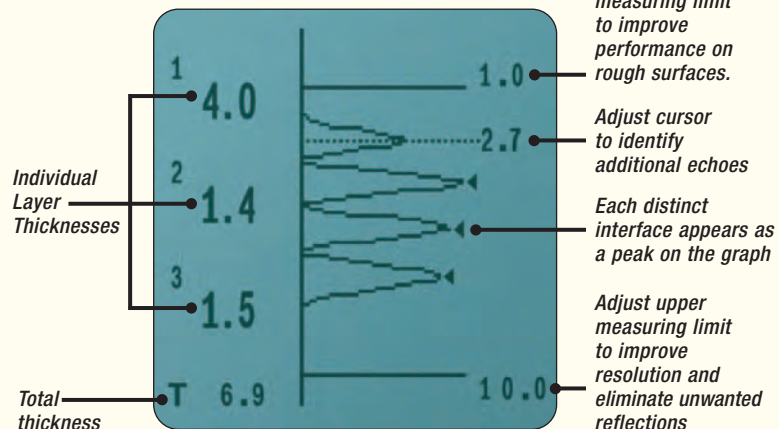


Advanced models toggle between graphic readout and statistical data displays.



Standard model measuring total coating thickness on wood

Easy-to-read graphic format provides clear, detailed analysis of coatings



Tough **NEW** Features

- USB/Serial/IR Ports for downloading to a PC, printer or data collector

- Solvent, acid, oil, water and dust resistant—meets or exceeds IP5X

- Scratch and solvent resistant lens

Standard model shown in Memory Mode

- Thick impact-resistant Lexan® display

- Bi-color indicator light

- Hi-grade, industrial strength housing

- Shock-absorbing, protective rubber holster

- Quality high-flex cable and strain relief

- Comfortable ergonomic finger grip reduces operator fatigue

- Plastic-tipped probe will not scratch surface



Easily measure single or multiple layer coating thickness on a variety of substrates.



Measure paint, varnish, lacquer, etc. on wood products including cabinetry, furniture, flooring, windows and more.



Measure thick protective coatings on concrete flooring, pipes, containment structures and more.

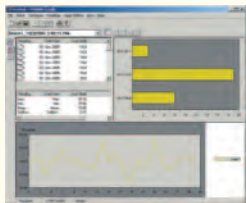


Advanced model

Measure protective finish topcoats over epoxy resin – commonly found in automotive, marine and aviation applications.

Options

PosiSoft® for Windows® analysis software



- Allows entry of notes and annotations
- Prints and displays basic charts and histograms
- Exports to a document or spreadsheet
- Includes USB cable
- Free updates

IR Printer receives data from all models via wireless infrared.

Coating Thickness Standards fulfill both ISO and in-house quality control requirements.

AC Power Cable for continuous operation.

Serial Output Cable to connect to a data collector.



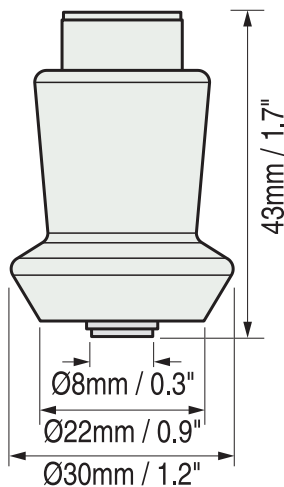
Visit www.defelsko.com/applications.htm to view **Coating Inspection Application Notes.**

SPECIFICATIONS

PosiTector [®] 200 Model	B/Std	B/Adv	C/Std	C/Adv
Measures Total Thickness	✓	✓	✓	✓
Measures Individual Layers		✓		✓
Graphic Display		✓		✓
Typical Applications	Polymer coatings on wood, plastic, etc.		Thicker coatings on concrete, fiberglass, etc.	
Range*	13 – 1000 microns 0.5 – 40 mils		50 – 3800 microns 2 – 150 mils	
Accuracy	±(2 microns + 3% of reading) ±(0.1 mils + 3% of reading)			
Minimum Individual Layer Thickness**	_____	13 microns 0.5 mils	_____	50 microns 2 mils
Calibration Standard	DeFelsko CAL-A4		DeFelsko CAL-P6	

*Range limits apply to polymer coatings only. **For multiple layer applications only. Dependent on material being measured.

Probe Details



ALL GAGES COME COMPLETE with probe, precision plastic shims, protective rubber holster with belt clip, couplant, 3 AAA batteries, instructions, nylon carrying case with shoulder strap, Certificate of Calibration traceable to NIST, two (2) year warranty.

SIZE: 146 x 64 x 31 mm
(5.75" x 2.5" x 1.2")

WEIGHT: 165 g (5.8 oz.)
without batteries

Conforms to ASTM D6132
and ISO 2808



DeFelsko[®]
The Measure of Quality

DEFELSKO CORPORATION
802 Proctor Ave., P.O. Box 676, Ogdensburg, NY 13669 USA
Toll Free 1-800-448-3835 Phone: 315-393-4450
Fax: 315-393-8471 E-mail: techsale@defelsko.com
Web: www.defelsko.com


Made in U.S.A.

PosiTest®

Worldwide Leader in Coating Thickness Gages



Accurate and Dependable



For the non-destructive measurement of non-magnetic coatings such as (paint, enamel, plastic, galvanizing, metalizing, plating, etc.) on STEEL.

▲ Easily measures small parts of almost any shape

Stable design with additional tail-end support. No annoying rocking during measurement. ►



Accurate &
Dependable

PosiTest®



For the non-destructive measurement of non-magnetic coatings (paint, enamel, plastic, galvanizing, metalizing, plating, etc.) on STEEL.

ACCURACY

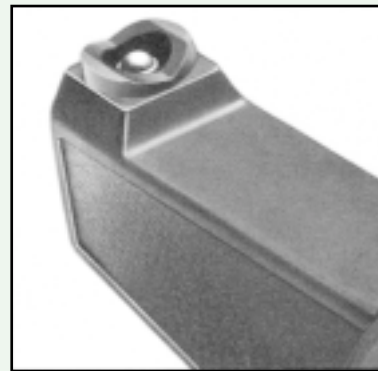
- Permanently calibrated
- Highly wear resistant Carbide Probe for longest life and continuous accuracy
- Remove center of dial cover for easy recalibration adjustment
- Modern and up-to-date Scale Ranges fit all applications

DURABILITY

- Extra rugged housing, not affected by mechanical shock, water, acid or solvents
- Unique overall design, fully supported, positive positioning, no pivoting tendencies during measurement
- Can be used fully supported or with only the front probe area contacting the surface
- Functions on a permanent rare-earth cobalt magnet, no battery
- Explosion Proof – Refinery safe
- 1 year warranty

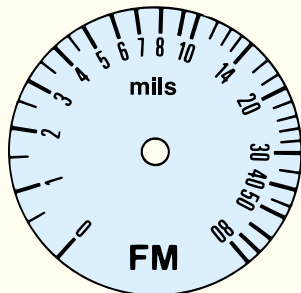
EASY TO USE

- Positive visual and audible indicators to designate when thickness reading is established
- “V” grooves in probe housing and Gage base allow correct positioning on cylindrical objects
- Compact, lightweight, precisely balanced, independent of gravity – can be used in any position
- GO/NO-GO button can be pre-set for rapid measurement
- Probe contact and dial rotation all in a one-finger operation
- Furnished with wrist strap, neck strap and instructions in a high quality leather case with belt loops for your convenience



Carbide measuring probe for long life.

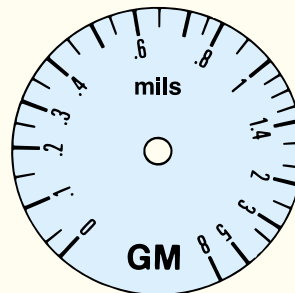
For: Hot dip galvanizing, hard chrome metalizing, paint, enamel, plastic coatings on steel



Scale FM 0–80 mils
Tolerance: ±0.2 mils up to 4 mils
±5% of the reading over 4 mils

Scale F 0–2000 microns
Tolerance: ±5 microns up to 100 microns
±5% of the reading over 100 microns

For: Electroplating, thin paint films, phosphating on steel



Scale GM 0–8 mils
Tolerance: ±0.04 mils up to 0.8 mils
±5% of the reading over 0.8 mils

Scale G 0–200 microns
Tolerance: ±1 micron up to 20 microns
±5% of the reading over 20 microns

†Based on N.I.S.T. (NBS) Standards • Conforms to ASTM and international standards

DeFelsko®
CORPORATION

802 Proctor Avenue, P.O. Box 676, Ogdensburg, New York 13669-0676
315-393-4450 or Toll Free 1-800-448-3835 (U.S.A.) Fax: 315-393-8471
E-Mail: techsale@defelsko.com

PosiPen®

Measures Coating Thickness



Measures non-magnetic coatings such as paint, enamel, plating, hot-dip galvanizing on steel.

Ideal for measuring on small, hot or hard-to-reach surfaces.



PosiPen[®] Coating Thickness Gage



Measures non-magnetic coatings such as paint, enamel, plating, hot-dip galvanizing on steel.

PosiPen can be placed with pin-point accuracy on any location of the part to be measured which other Gages are not able to reach. **PosiPen** measures:

- on hot surfaces
- on small surfaces
- in different positions

PosiPen has a very small, unique magnet and therefore can measure on extremely small parts, on peaks and valleys.

Each **PosiPen** has two scales, mils (inch) and microns (metric)

Range: 0.25 to 20 mils (inch) Tolerance $\pm 10\%$ and 0.1 mil
5 to 500 microns (metric) Tolerance $\pm 10\%$ and 2.5 microns

Each **PosiPen** is calibrated to NIST calibration standards.

PosiPen is manufactured in two versions:

PosiPen Model A for measurements on surfaces with normal temperatures.

PosiPen Model B for measurements on surfaces with extreme temperatures.

(between -150°F and $+450^{\circ}\text{F}$ • between -100°C and $+230^{\circ}\text{C}$)

Triple Indicator:

1. Use the **red/silver joining line** when the Gage is horizontal (walls).
2. Use the **green line** when the Gage is pointing straight down (green/ground).
3. Use the **blue line** when the Gage is pointing straight up (blue/sky).



Easy to Use:

Place the tip of the **PosiPen** on the coated surface and allow the magnet to contact. Pull the **PosiPen** straight from the object to be measured while keeping close watch on the appropriate indicator. Note the reading when the magnet releases.

Easy to Carry:

Just like a ball point pen, it is always there when you need it!



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Web: <http://www.defelsko.com>

GE

Inspection Technologies

Eddy Current
Probes
and
Accessories
Catalogue



GE imagination at work

Eddy Current Probes and Accessories Catalogue

This catalogue features the standard range of GE Eddy Current Probes and Accessories. For ease of use, it is divided into four sections: General Surface probes, Aerospace probes, Dedicated Inspection probes and Accessories.

If you cannot find a probe or accessory to meet your inspection requirements, please contact your local GE Approved Dealer or visit the GE Inspection Technologies Website at: www.ge.com/inspectiontechnologies

Content:

General Surface Applications



- Surface Inspection – shielded (absolute).
- Surface Inspection – unshielded (absolute).

Aerospace Applications



- Fastener Hole probes and Mini Drive Unit.
- Sub-Surface Inspection - Low Frequency probes.
- Engine Blade Inspection.
- Aircraft Wheel Inspections.

Dedicated Applications



- Weld Inspection.
- ID Tube Inspection (Absolute and Differential).
- Broad Band probes (Absolute).
- Thread Inspection.
- Metal Sorting (Absolute).
- Conductivity Measurement.
- Encircling Coils.
- Differential Scanning probes.

Accessories



- Reference Blocks.
- Balance Loads.
- Adapters.
- Probe Tip Protectors.
- Probe Starter Packs.

Please Note: The measurements shown in the tables are metric with the equivalent imperial size in brackets i.e. mm (inches). The illustrations shown are for reference only and may not be to scale. Specifications are liable to change without notice.

General Surface Applications

Surface Inspection – Shielded

These probes are used to inspect for surface breaking defects.

Technical notes:

- Probes identified with a single frequency (Centre Frequency), may be operated over an extended range when used in conjunction with impedance plane instruments. Normal accepted operating range = 1/3 of Centre Frequency to 3 x Centre Frequency.
- Probes identified with Fe, NFe or Fe/NFe may be used on any suitable conductive material when used in conjunction with an Impedance plane instrument.
- Shielded surface inspection probes with delrin handles are colour-coded to indicate their centre frequency as follows:

Red = 200kHz

Yellow = 500kHz

Blue = 2MHz

Green = 6MHz

Straight – Delrin Handle (Absolute)

Part No	Tip Ø 'D'	Length 'L'	Centre Frequency	Material
104P4	4.45	114 (4.5)	200kHz	Fe/NFe
104P4F	3.30	114 (4.5)	200kHz	Fe/NFe
105P4	4.45	114 (4.5)	500kHz	Fe/NFe
105P4F	3.30	114 (4.5)	500kHz	Fe/NFe
106P4	3.30	114 (4.5)	2MHz	NFe
106P4F	2.34	114 (4.5)	2MHz	NFe
107P4	2.34	114 (4.5)	6MHz	NFe



90° Tip - Delrin Handle (Absolute)

Part No	Tip Ø 'D'	Tip Length 'TL' *	Length 'L'	Centre Frequency	Material
308P24	4.45	6.4 (0.25)	114 (4.5)	200kHz	Fe/NFe
309P24	4.45	6.4 (0.25)	114 (4.5)	500kHz	Fe/NFe
309P34	4.45	12.7 (0.5)	114 (4.5")	500kHz	Fe/NFe
310P14	3.30	2.7 (0.11)	114 (4.5)	2MHz	NFe
310P34	3.30	12.7 (0.5)	114 (4.5")	2MHz	NFe
310P24	3.30	6.4 (0.25)	114 (4.5)	2MHz	NFe
310P14F	2.34	2.7 (0.11)	114 (4.5)	2MHz	NFe
311P24	2.34	6.4 (0.25)	114 (4.5)	6MHz	NFe

* Inside tip lengths available from 5mm (0.19") to 25mm (0.98") on all probes.



45° Crank - Delrin Handle (Absolute)

Part No	Tip Ø 'D'	Crank Length	Length 'L'	Centre Frequency	Material
204P4	4.45	19.5 (0.75)	114 (4.5)	200kHz	NFe/Fe
205P4	4.45	19.5 (0.75)	114 (4.5)	500kHz	NFe/Fe
206P4	3.30	19.5 (0.75)	114 (4.5")	2MHz	NFe
206P4F	2.34	19.5 (0.75)	114 (4.5")	2MHz	NFe
207P4	2.34	19.5 (0.75)	114 (4.5")	6MHz	NFe



15° Crank, 90° Tip – Delrin Handle (Absolute)

Part No	Tip Ø 'D'	Tip Length 'TL' *	Length 'L'	Centre Frequency	Material
312P24	4.45	6.4 (0.25)	114 (4.5)	200kHz	Fe/NFe
313P24	4.45	6.4 (0.25)	114 (4.5)	500kHz	Fe/NFe
313P24F	3.30	6.4 (0.25)	114 (4.5)	500kHz	Fe/NFe
314P24	3.30	6.4 (0.25)	114 (4.5)	2MHz	NFe
315P24	2.34	6.4 (0.25)	114 (4.5)	6MHz	NFe

* Inside tip lengths available from 5mm (0.19") to 25mm (0.98") on all probes.



Straight – Metal Handle (Absolute)

Ideal for systems scanning or limited access areas.

Part No	Tip Ø 'D'	Length 'L'	Centre Frequency	Material
100P3	4.45	76 (3)	200kHz	Fe/NFe
101P3	4.45	76 (3)	500kHz	Fe/NFe
102P1	3.30	38 (1.5)	2MHz	NFe
102P3	3.30	76 (3)	2MHz	NFe
103P3	2.34	76 (3)	6MHz	NFe



These probes are fitted with a 25.4mm (1") x 6.4mm (1/4") diameter stainless steel handle to facilitate good clamping. They are similar to the probes described in the previous sections and are available with the same frequencies and shank geometries.

Adjustable Copper Shaft – Delrin Handle (Absolute)

Part No	Tip Ø	Length	Centre Frequency	Material
106P8C	3.30	203.2 (8.0)	2MHz	NFe



The flexible copper shaft makes this probe very versatile, giving it the ability to adapt its shape as required, avoiding geometry obstacles and getting to those hard to reach inspection areas.

Surface Inspection - Unshielded

Straight (Absolute)

Part No	Length	Centre Frequency	Material
120P1A	100 (4)	200kHz	Fe/NFe
121P1A	100 (4)	500kHz	Fe/NFe
122P1A	100 (4)	2MHz	NFe
123P1A	100 (4)	2MHz	Fe



Angle Tip (Absolute)

Part No	Length	Centre Frequency*	Material	Angle
350P1A	133 (5.2)	200kHz	Fe/NFe	65°
351P1A	133 (5.2)	500kHz	Fe/NFe	65°
352P1A	133 (5.2)	2MHz	NFe	65°
353P1A	133 (5.2)	2MHz	Fe	65°

* All the above probe types are also available in 6MHz in Fe.



Cables to suit the above probes:

Instrument	Part No	Cable Type
Vector 22	29A001	BNC/ Microdot
Locator 2/2s	39A002	7-way Lemo/ Microdot
Locator 3s, Phasec 2s/2d	40A001	12-way Lemo/ Microdot

Note: All probes in this section are fitted with Microdot sockets. Locator 3s, Phasec 2s/2d

Aerospace Applications

Fastener Hole Probes

These probes inspect the inner surface of fastener holes for defects.

Dynamic Rotating Metal (Differential Reflection)

Part No	Working Length	Frequency	Hole Diameter*
615P012F035	35	200kHz – 2MHz	4.76 (3/16")
615P016F035	35	200kHz – 2MHz	6.35 (1/4")
615P020F035	35	200kHz – 2MHz	7.94 (5/16")
615P024F035	35	200kHz – 2MHz	9.53 (3/8")
615P028F035	35	200kHz – 2MHz	11.11 (7/16")
615P032F035	35	200kHz – 2MHz	12.70 (1/2")

* Probes available from 1.6mm (1/16") to 25.4mm (1") for GE, Rohmann or Forster 8mm diameter fitting. All probes are shielded. These probes are available in standard working lengths of 35mm and 65mm, non-standard working lengths are available on request.

Requires Mini Drive Unit.



Dynamic Rotating Plastic (Differential Reflection)

Part No	Working Length	Frequency	Hole Diameter*
619P016F051	51	200kHz – 2MHz	6.0 – 7.0 (1/4")
619P024F051	51	200kHz – 2MHz	9.5 – 10.5 (1/4")
619P032F051	51	200kHz – 2MHz	12.5 – 13.5 (1/2")

For more options please see the data sheet on our website or contact your local GE provider.

* Probes available from 2.4mm (3/16") to 38mm (1 1/2"). Probes larger than 4.4mm (11/64") in diameter have a split tip to accommodate nominal hole sizes + 1mm. Probes available to suit GE, Rohmann or Forster 8mm diameter fittings. These probes are available in a standard working length of 51mm, non-standard working lengths are available on request.

Requires Mini Drive Unit.



For more options please see coding system.

Coding system for more options

Imperial Coding System

Please specify nominal diameter of probe (hole) in 1/64" increments.

Note: Probe/Hole clearance adjustments will be taken into account during manufacturing.

615P
Metal Rotating
Probe → **615P016F035** ← Working Length
35mm
65mm

↑
F = Imperial Ø
016F = Ø16/64" (Ø1/4")
029F = Ø29/64"

Metric Coding System

Please specify nominal diameter of probe (hole) in mm.

Note: Please **subtract 0.1 mm** from the nominal hole diameter to take into account Probe/Hole clearance.

615P
Metal Rotating
Probe → **615P063M035** ← Working Length
35mm
65mm

↑
M = Metric Ø
063M = Ø6.3mm
115M = Ø11.5mm

Mini Drive Unit

The GE Mini Drive Unit is a small, lightweight, rotating eddy current probe drive and is used in conjunction with the probes on page 8. It has been designed to make the inspection of fastener holes accurate and quick. Its size allows inspections to be performed in confined space and the lightweight design helps prevent fatigue when a large number of fastener holes need to be inspected. The Mini Drive Unit can be used with Rohmann or Forster 8 mm diameter fitting probes.

Specification:

Weight: 150 g (5 oz)

Dimension: 82 x 22 x 36 mm

(3.2" x 0.9" x 1.4")

Mini Drive Unit - Part No 33A100



Cables to suit Mini Drive Unit:

Instrument	Part No	Cable Type
Locator 3s, Phasec 2s/2d	33A103	12-way Lemo/12-way Lemo

Note: Adapter leads are available to run Rohmann, Zetec and Staveley Drive Units on Phasec 2s and 2d.

Manual Fastener Hole Probes (Absolute)

These probes inspect the inner surface of fastener holes for defects.

Part No.	Frequency	Hole Diameter	Material
504P12	2 MHz	4.5 (3/16")	NFe
501P16	200 kHz	6.4 (1/4")	Fe/NFe
504P16	2 MHz	6.4 (1/4")	NFe
504P20	2 MHz	7.5 (5/16")	NFe
504P24	2 MHz	9.5 (3/8")	NFe
504P32	2 MHz	12.7 (1/2")	NFe
504P40	2 MHz	15.5 (5/8")	NFe



Note: Probes available from 3.2mm (1/8") to 38mm (1 1/8") in all frequencies. Probes larger than 4.5mm (3/16") in diameter have a split tip, which accommodates hole sizes nominally of:

+1mm (1/24") on probes <7mm (9/32") in diameter.

+1.6mm (1/16") on probes >7mm (9/32") in diameter.

These probes have a standard working length of 76mm, non-standard working lengths are available on request.

Sub-Surface Inspection - Low Frequency Probes

These probes are used to detect sub-surface defects.

Spot Face (Reflection)

Part No.	Frequency	Diameter	Height	Body
700P07A	1kHz-100 kHz	7 (0.28)	48 (1.89)	Steel
700P11A	300Hz-100 kHz	11 (0.44)	45 (1.77)	Delrin
700P16A	300Hz-100 kHz	16 (0.62)	45 (1.77)	Delrin
700P24A	80Hz-60 kHz	24 (0.93)	58 (2.28)	Delrin
700P32A	80Hz-30 kHz	32 (1.25)	60 (2.36)	Delrin



Dual Element Sliding Probes (Absolute - Reflection)

These probes are designed to slide along rows of fasteners to detect flaws.



Part No	Frequency
851P001	400Hz - 50 kHz

Note: All probes are fitted with a 4-way Lemo socket.

Cables to suit the above probes:

Instrument	Part No	Cable Type
Locator 2/2s	39A005	7-way Lemo/4-way Lemo
Locator 3s, Phasec 2s/2d	33A130	12-way Lemo/4-way Lemo
Vector 22	45A005	16-way Lemo/4-way Lemo

Dual Element Sliding Probe (Absolute – Reflection)

This probe is designed to slide over rows of fasteners to detect flaws; it comes with 1.5, 2.5 and 3.5mm shims allowing it to accommodate different fastener sizes.

Part No	Frequency
851P002	100Hz – 500 kHz

Note: The probe is fitted with 2 Microdot sockets.



Cables to suit the above probe:

Instrument	Part No	Cable Type
Locator 2/2s	39A021	7-way Lemo/x2 Microdots
Locator 3s, Phasec 2s/2d	33A192	12-way Lemo/x2 Microdots

Low Frequency Ring (Doughnut) Probe (Absolute – Reflection)

Designed to detect surface and sub-surface flaws around aircraft fastener holes without removing the fastener, these absolute reflection probes will penetrate several layers of non-ferrous material with good sensitivity.

Note: The probe is fitted with a 4-way Lemo.



Please contact your local GE Approved Dealer for information and for our full range of sizes.

Cables to suit the above probe :

Instrument	Part No	Cable Type
Locator 2/2s	39A005	7-way Lemo/4-way Lemo
Locator 3s, Phasec 2s/2d	33A130	12-way Lemo/4-way Lemo
Vector 22	45A005	16-way Lemo/4-way Lemo

Engine Blade Inspection

GE has developed a range of special probes for compressor and turbine blade trailing and leading-edge inspection. Probes suitable for both aerospace and power generation gas turbines are available. Due to specific rotor access requirements and differences in blade profile, these types of probe are generally defined for a particular engine and stage. Please contact your local GE Approved Dealer for information about probes for specific engines.

Aircraft Wheel Inspections

Manual Inspections

GE has a large selection of aircraft bead seat probes, each of which is designed to fit the contour of each specific type of aircraft wheel. Due to the number of different types of aircraft wheels, please contact your local GE Approved Dealer for more information about probes available.

Automated Inspections (Absolute)

The requirements for aircraft wheel inspections are constantly being increased and becoming more varied. The WheelScan 5 is ready to meet all these requirements. It has a user-friendly design and incorporates a teach and learn facility. It is capable of storing instrument set-ups, recording and storing data. The unique SLIC Clamping System allows aircraft wheels to be held during inspection, eliminating the use of adapters for individual aircraft wheel types. Please contact your local GE Approved Dealer for more information.

Part No	Frequency	Diameter
50PA16/100k	100kHz	6.0 (1/4")
50PA16/200k	200kHz	6.0 (1/4")
50PA16/500k	500kHz	6.0 (1/4")
50PA16/1.5M	1.5MHz	6.0 (1/4")
50PA24/200k	200kHz	9.5 (3/8")
50PA24V1/200k*	200kHz	9.5 (3/8")

* = With thin centre shaft for use on large diameter wheels.



Dedicated Applications

Weld Inspection

WeldScan (Differential Bridge)

WeldScan probes offer a cost-effective alternative to Magnetic Particle Inspection for in-service inspection of ferrous welds. WeldScan probes are also available for non-ferrous welds.

Straight



Part No	Frequency	Diameter	Connector	Length	Body
800P01MD1P	100kHz	9.5	12-way Lemo	5.0m	Straight
800P01ND1P	100kHz	9.5	7-way Lemo	5.0m	Straight
800P04MD1P	100kHz	16	12-way Lemo	5.0m	Straight
800P04ND1P	100kHz	16	7-way Lemo	5.0m	Straight
800P06MD1P	100kHz	32	12-way Lemo	5.0m	Straight

90° Inline Tip



Part No	Frequency	Diameter	Connector	Length	Body
801P01MD1P	100kHz	9.5	12-way Lemo	5.0m	90° Inline
801P04MD1P	100kHz	16	12-way Lemo	5.0m	90° Inline
801P06MD1P	100kHz	32	12-way Lemo	5.0m	90° Inline

90° Right Angle Tip



Part No	Frequency	Diameter	Connector	Length	Body
802P01MD1P	100kHz	9.5	12-way Lemo	5.0m	90° Right angle
802P04MD1P	100kHz	16	12-way Lemo	5.0m	90° Right angle
802P06MD1P	100kHz	32	12-way Lemo	5.0m	90° Right angle

Note: Waterproof WeldScan probes are also available.

Broad Band Probe [Paint Probe] (Absolute)

This probe is used to estimate the coating thickness prior to weld inspections.



Part No	Frequency	Material	Inductance
130P3	35kHz - 250kHz	Fe/NFe	82 μ H

Cables to suit the above probe:

Instrument	Part No	Cable Type
Vector 22	5A011	BNC/BNC
Locator 2/2s	39A002	7-way Lemo/BNC
Locator 3s, Phasec 2s/2d	40A002 + 5A011	12-way Lemo Adapter/ BNC-BNC
Locator 3s, Phasec 2s/2d	40A504	12-way Lemo/BNC

WeldScan Reference Block

This Reference Block is used in conjunction with the above probes to set sensitivity levels and calibrate the instrument prior to weld inspections.



Part No	Slots	Material	Plastic Shims
31A008	0.5mm/1.0mm/2.0mm	Fe	0.5mm x4

ID Tube Inspection (Absolute and Differential.Bridge)

A comprehensive range of ID tube inspection probes and cables are available, including disconnectable and integral cable probes.



Part No	Diameter	Probe Type	Frequency
IDP138L-18k	13.8	Disconnect	18k

Example Cable:

Part No	Length	Cable	Connection
LMC-1P	10m	Rigid Push/Pull	12-way Lemo

Probe Transport System cables are available with integral end stop sprint. Cables and probes are available with switchable absolute to differential facility, balance load BNC socket for absolute operation. For special ID probe requirements, please contact your local GE Approved Dealer.

Broad Band (Absolute)

This is a range of probes for heavier industrial use with impedance plane instruments. Uses include estimates of coating thickness prior to weld inspection and measurement of crack depth.



Part No	Frequency	Material	Inductance
130P1	500kHz - 4MHz	Fe/NFe	5.6uH
130P2	150kHz - 1MHz	Fe/NFe	22uH
130P3	35kHz - 250kHz	Fe/NFe	82uH
130P4	7kHz - 60kHz	Fe/NFe	390uH
130P5	2kHz - 15kHz	Fe/NFe	1500uH

Note: Only available in 100 mm (4") length.

Cables to suit the above probes:

Instrument	Part No	Cable Type
Vector 22	5A011	BNC/BNC
Locator 2/2s	39A002	7-way Lemo/BNC
Locator 3s, Phasec 2s/2d	40A002 + 5A011	12-way Lemo Adapter/ BNC-BNC
Locator 3s, Phasec 2s/2d	40A504	12-way Lemo/BNC

Thread Inspection

Two styles of probes are available for the inspection of external (bolts) and internal (nuts) threads. Each probe has a pointed tip, which will fit into the thread root to detect cracks in the root area. They can also be used to inspect splined shafts.

Internal (Absolute)

Part No	Frequency	Material	Length
822P1B	2MHz	NFe	131 (5.2)
819P1B	200kHz	Fe	131 (5.2)
821P1B	500kHz	Fe	131 (5.2)



External (Absolute)

Part No	Frequency	Material	Length
820P1A	500kHz	NFe	100 (4)
822P1A	2MHz	NFe	100 (4)
819P1A	200kHz	Fe	100 (4)
821P1A	500kHz	Fe	100 (4)
823P1A	2MHz	Fe	100 (4)

Note: All probes are fitted with a Microdot socket



Cables to suit the above probes:

Instrument	Part No	Cable Type
Vector 22	29A011	BNC/Microdot
Locator 2s	39A002	7-way Lemo/Microdot
Locator 3s, Phasec 2s/2d	40A001	12-way Lemo/Microdot

Note: Saddle and Plug probes are available to fit the exact profile of external (saddle) or internal (plug) threads. Please contact your local GE Approved Dealer for further information.

Metal Sorting (Absolute)

These probes provide a method for general metal sorting. They have a sprung core assembly fitted to a double "V" block to provide constant perpendicular pressure onto either flat or curved surfaces.

Part No	Frequency	Material
809P1	2MHz	NFe
809P1	500kHz	Fe
809P1	200kHz	Fe/ NFe

Note: All probes are fitted with a Microdot socket.



Cables to suit the above probes:

Instrument	Part No	Cable Type
Vector 22	29A011	BNC/Microdot
Locator 2s	39A002	7-way Lemo/Microdot
Locator 3s, Phasec 2s/2d	40A001	12-way Lemo/Microdot

Conductivity Measurement

Measuring electrical conductivity is an accurate and repeatable method for checking non-ferrous metals and alloys for identity, grade and material condition.

Part No	Frequency	Diameter
47P001	60kHz - 500kHz	12.7 (1/2")
47P002	500kHz	8.0 (5/16")



Cables to suit the conductivity probes:

Instrument	Part No	Cable Type
AutoSigma 3000	47A001	5-way Lemo/5-way Lemo
Locator 2s	39A170	7-way Lemo/5-way Lemo
Locator 3s, Phasec 2s/2d	33A170	12-way Lemo/5-way Lemo

Conductivity Reference Blocks

A wide range of different Conductivity Reference Blocks are available , complete with Calibration Certificates to ensure accuracy of the inspection.



Part No	% IACS	MS/m	Material
47A012	2	1.2	Stainless Steel - 303S
47A015	24	14	Brass- LM5681
47A017	34	20	Aluminium - 7075 - TF
47A019	47	27	Aluminium - 6082 - TF
47A022	100	58	Copper
47A023	9 & 58	5 & 34	Dual Reference Sample

3 (Part No 47A025) and 5 (Part No 47A010) Sample Holders are available to house the Conductivity Reference Blocks and Dual Reference Sample.



47A010 Conductivity Sample Holder

Note: Please contact your local GE Approved Dealer for the full range of Conductivity Reference Blocks.

Encircling Coils

Cost-effective Encircling Coils (Absolute – Differential Reflection)

GE offers a cost-effective range of Encircling Coils either Absolute or Differential. They are ideally suited to inspecting small lengths of tube, wire or bar, principal applications being detecting surface cracks and metal sorting. Please contact your local GE Approved Dealer for more information.

Other diameters and frequencies available to order.



Part No	Type	Frequency	Hole Diameter
840P050G1	Absolute	5kHz – 50kHz	5.00 (0.196)
841P050G1	Differential	5kHz – 50kHz	5.00 (0.196)

Cables to suit the above probes:

Instrument	Part No	Cable Type
Locator 2/2s	39A008	7-way Lemo/x2 BNC Sockets
Locator 3s, Phasec 2s/2d	33A120	7-way Lemo/x2 BNC Sockets
Use in conjunction with x2 BNC to BNC cables 5A011		

Galaxy Encircling Coils (Differential Reflection)

GE offers a highly cost-effective and flexible range of Encircling Coils for use with the In-Line or Off-Line high-speed inspection of tubes, wires, bars, etc.

Encircling Coils within the same size range can be exchanged in a matter of seconds to suit variations in manufactured products. Please contact your local GE Approved Dealer for more information.



Instrument	Part No	Cable Type
Locator 3s, Phasec 2s/2d	GALPJL5	12-way Lemo/4-way Lemo
Vector 22	GALPJM5	16-way Lemo/4-way Lemo

Differential Scanning Probes

GE offers a range of differential probes to be used in conjunction with the inspection of the rotation of bearings houses, steering components, pins, bushes, automotive valves, bars, tubes etc.

Part No 5P501/502/503



Part No 5P495/469

Part No	Frequency	Type	Tip Dimension	Length
*5P469	400kHz - 3MHz	Bridge - Shielded (Ungrounded)	Ø 5 (0.19)	100 (4)
*5P495	400kHz - 3MHz	Bridge - Shielded (Ungrounded)	Ø 4 (0.16)	100 (4)
**5P501	200kHz - 3MHz	Reflection - Unshielded	Ø 2.5 (0.09)	91 (3.6)
**5P503	200kHz - 3MHz	Reflection - Unshielded	Ø 4.7 (0.18)	91 (3.6)
**5P502	200kHz - 3MHz	Reflection - Unshielded	2.5x4.7 (0.09x0.18)	91 (3.6)

All probes are fitted with 4-way Lemo Connector.

* Cables to suit the above differential bridge probes:

Instrument	Part No	Cable Type
Locator 2/2s	39A004	7-way Lemo/4-way Lemo
Locator 3s, Phasec 2s/2d	33A132	12-way Lemo/4-way Lemo
Vector 22	45A004	16-way Lemo/4-way Lemo

** Cables to suit the above differential reflection probes:

Instrument	Part No	Cable Type
Locator 2/2s	39A005	7-way Lemo/4-way Lemo
Locator 3s, Phasec 2s/2d	33A130	12-way Lemo/4-way Lemo
Vector 22	45A005	16-way Lemo/4-way Lemo

Accessories

Reference Blocks

GE provides a range of Reference Blocks to enable the correct sensitivity levels to be set during calibration.



Part No	Description	Material	Slot Depths
29A028	Ferrous	EN1A	0.2/0.5/1.0 mm
29A029	Aluminium	7075-T6	0.2/0.5/1.0 mm
29A032	Titanium	Ti6Al4V	0.2/0.5/1.0 mm
29A049	Stainless Steel	304	0.2/0.5/1.0 mm

Note: For the full range of Reference Blocks including Rotating Reference Blocks please contact your local GE Approved Dealer.

Balance Loads

Balance loads are necessary for using absolute probes on many differential Eddy Current Instruments.

Part No	Inductance	Centre Frequency*
5A084	1.3 μ H	6 MHz
5A083	8.2 μ H	2 MHz
5A058	47 μ H	150 kHz
5A089	120 μ H	70 kHz
5A001	5.6 μ H	1.5 MHz
5A003	82 μ H	100 kHz
5A104	390 μ H	20 kHz



* = 50 ohm Bridge Impedance.

Note: For the full range of Inductive Balance Loads please contact your local GE Approved Dealer.

Adapters

The following adapters can be used to connect cables between different types of GE instrument.

Part No	Description	Adapter Type
40A002	For connecting Locator absolute probes to Locator 3s, Phasec 2s/2d	12-way Lemo to BNC
40A003	For connecting Locator 2/2s probes to Locator 3s, Phasec 2s/2d	12-way Lemo to 7-way Lemo Socket
45A101	For connecting Phasec 2d probes and Mini-drive to Vector 22	16-way Lemo/ 12-way Lemo Socket

A range of adapters is available for using Rohmann, Forster, Zetec and Nortec probes on GE Eddy Current instruments, please contact your local GE Approved Dealer.

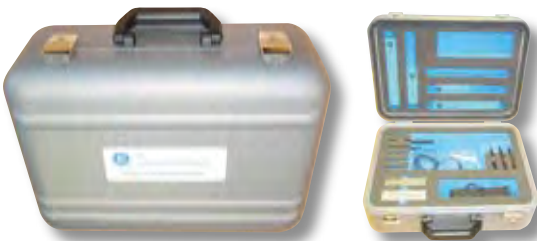
Probe Tip Protectors

Tape used to protect probe tips from wear.

Part No	Description
29A031	Shaped Teflon adhesive tape to protect probe tips from wear (packs of 30)
50A020	7mm wide by 1m long tape to protect WheelScan probe heads

Probe Starter Packages

GE provides a range of Initial Application Starter Packages, to assist in selecting probes and accessories for various inspections tasks.



Part No	Description
ASP1L2	Weld Inspection Starter Package for Locator 2s includes: 800P01NB1P Weld probe, straight, 100kHz, Ø 9.5mm 800P04NB1P Weld probe, straight, 100kHz, Ø 16mm 130P3 Broad Band probe, 35 kHz – 250 kHz 31A008 Reference Block, Fe 39A002 Cable, 7-way Lemo/BNC 29A031 Probe tip protectors 5A043V1 Hard case, with moulded inserts
ASP1P2	Weld Inspection Starter Package for probes to Locator 3s, Phasec 2s/2d includes: 800P01MB1P Weld probe, straight, 100kHz, Ø 9.5mm 800P04MB1P Weld probe, straight, 100kHz, Ø 16mm 130P3 Broad Band probe, 35 kHz – 250 kHz 31A008 Reference Block, Fe (EN1A) 5A011 Cable, BNC/BNC 40A002 Adapter, 12-way Lemo/BNC 29A031 Probe tip protectors 5A043V1 Hard case, with moulded inserts
ASP2L2	Surface Crack Detection Package for Locator 2s includes: 121P1A Unshielded Surface probe, 500kHz, straight 106P4 Shielded Surface probe, 2MHz, straight 313P24 Shielded Surface probe, 500kHz, 15° crank 90° tip 314P24 Shielded Surface probe, 2MHz, 15° crank 90° tip 352P1A Unshielded Knife probe, 2MHz, 65° tip 39A001 Cable, 7-way Lemo/Microdot 29A028 Reference Block, Fe (EN1A) 29A029 Reference Block, NFe (Al Alloy) 29A031 Probe tip protectors 5A043V2 Hard case, with moulded inserts 29A044 Probe tool roll
ASP2P2	Surface Crack Detection Package for Locator 3s, Phasec 2s/2d includes: 121P1A Unshielded Surface probe, 500kHz, straight 106P4 Shielded Surface probe, 2MHz, straight 313P24 Shielded Surface probe, 500kHz, 15° crank 90° tip 314P24 Shielded Surface probe, 2MHz, 15° crank 90° tip 352P1A Unshielded Knife probe, 2MHz, 65° tip 40A001 Cable, 12-way Lemo/Microdot 29A028 Reference Block, Fe (EN1A) 29A029 Reference Block, NFe (Al Alloy) 29A031 Probe tip protectors 5A043V2 Hard case, with moulded inserts 29A044 Probe tool roll
ASP3L2	Conductivity Measurement Package for Locator 2s includes: 47P001 Conductivity probe, 500kHz 33A136 Dual Conductivity Reference Block, 8.9% & 57.5% IACS 39A170 Cable, Conductivity 7-way Lemo/5-way Lemo 5A043V3 Hard case, with moulded inserts
ASP3P2	Conductivity Measurement Package for Locator 3s, Phasec 2s/2d includes: 47P001 Conductivity probe, 500kHz 33A136 Dual Conductivity Reference Block, 8.9% & 57.5% IACS 33A170 Cable, Conductivity 12-way Lemo/5-way Lemo 5A043V3 Hard case, with moulded inserts

Galaxy Encircling Coils

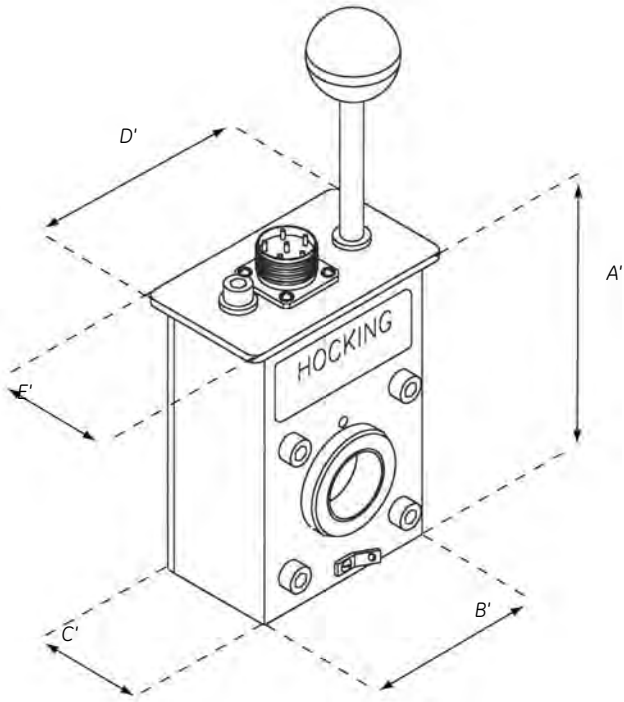
External Diameter Tube Inspection



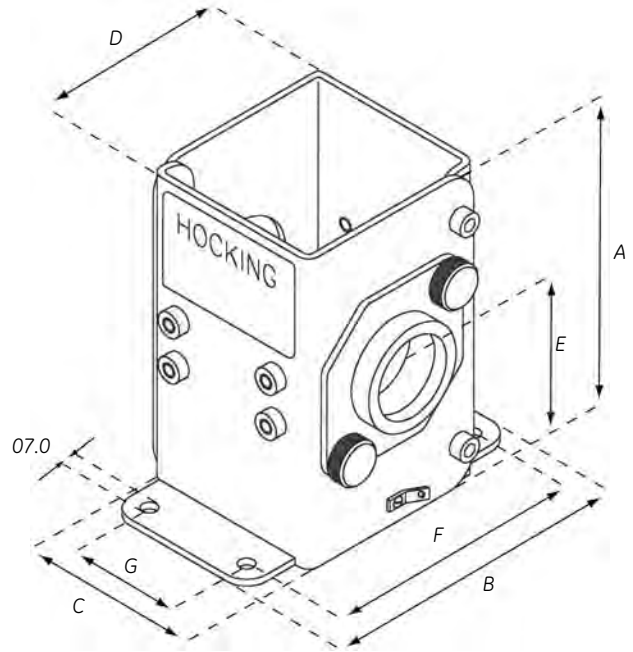
In-Line and off-line high speed inspection of tube, wire, bar etc.
Highly cost-effective and flexible
Rapid change for product size variation
Choice of hard or soft product guides
User machinable guides
Suits circular and non-circular products



Coil and Holder Dimensions



Encircling Coil



Encircling Coil Holder

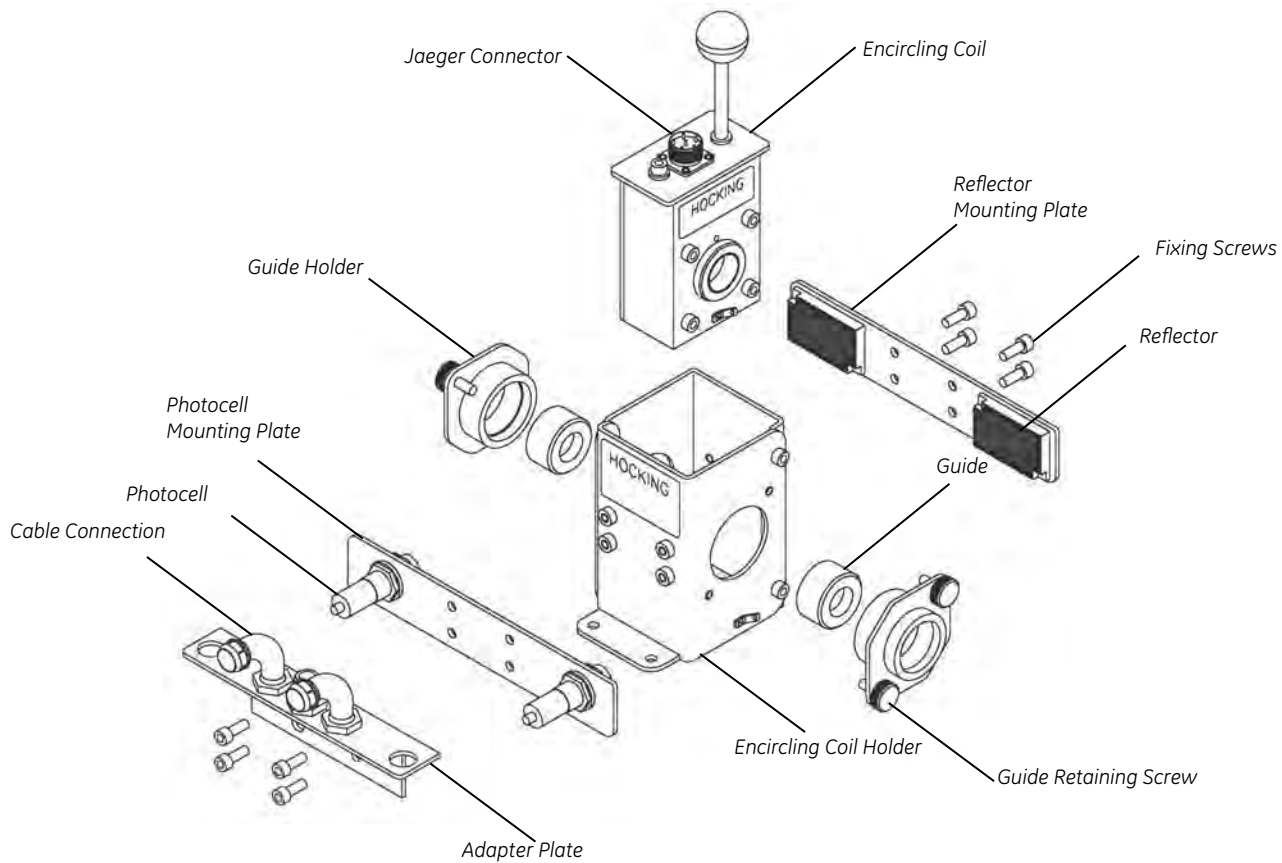
Encircling Coil Dimensions

	Size 1	Size 2	Size 3	Size 4
Aperture range (mm)	1 to 26	20 to 51	40 to 77	60 to 102
A'	115	140	TBA	TBA
B'	75	106	TBA	TBA
C'	46	46	TBA	TBA
D'	90	120	TBA	TBA
E'	52	52	TBA	TBA

Encircling Coil Holder Dimensions

	Size 1	Size 2	Size 3	Size 4
Aperture range (mm)	1 to 26	20 to 51	40 to 77	60 to 102
A	138	163	TBA	TBA
B	139	169	TBA	TBA
C	84	84	TBA	TBA
D	85	119	TBA	TBA
E	69	84	TBA	TBA
F	119	149	TBA	TBA
G	50	50	TBA	TBA

Components of a Galaxy System



Components of this system may be ordered individually.
The diagram illustrates all the components that might be assembled to form a system.

Name	PRN	Notes
Encircling Coil	GAL1CCNNN	NNN indicates the size in millimetres required for the coil aperture. e.g. if a 26mm ID was required for the coil the PRN would be GAL1CC026.
Jaeger Connector	N/A	The six way Jaeger connector is standard for all Galaxy coils. This is a standard part of the Encircling Coil above.
Encircling Coil Holder	GAL1H	One coil holder will take all coils from that size range. e.g. for a GAL2 series coil a GAL2H holder would be required.
Guide	GAL1GNNN	As for the encircling coil above NNN indicates the size in millimetres required for the product. These can be ordered in a range of materials such as Nylon or Stainless Steel in order to suit the product handling requirements.
Guide Holder	N/A	Quick release plates that hold the guides in position.
Guide retaining screw	N/A	Part of the guide assembly that allows quick exchange of guides.
PhotoCell Assembly	N/A	For detection of start and end of product entering and leaving the coil. Comprises two photo-cells, photocell mounting plate, two reflectors and reflector mounting plate.
Cable Management	N/A	Allows tidy management of all leads associated with the coil assembly. Comprises cable connection conduit, adapter plate and cable trunking as required.

Design and Performance

Modular design for rapid change

The design of the Galaxy range of probes allows the operator to rapidly switch any component of the assembly as required. Encircling coils within the same size range can be exchanged in a matter of seconds to suit manufactured product variation.

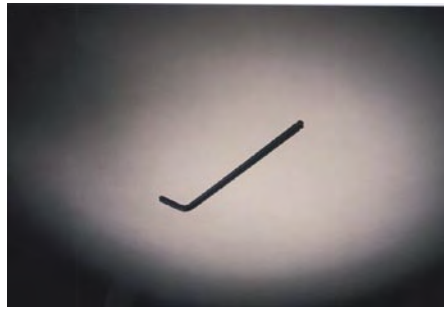
Coil holders are available in 4 sizes that can house the full range of coils for product of less than 1mm up to 500 mm in diameter (see table for sizes).



Modular Galaxy Encircling Coil

One Tool Toolkit

The whole system is assembled using an allen key allowing a simple and rapid way of modifying equipment setup. This means there is no requirement for special tools, and only simple personnel training is required for maintenance operations.



Allen key for simple set-up

Low Cost of ownership

A unique aspect of the Galaxy range is the rapidly interchangeable guides. This allows guides in a wide range of materials for specific handling of different products.

This approach means that the unit can be extremely cost effective over its lifetime due to the low cost of consumables, and it is extremely flexible for inspecting a wide range of product.



Range of interchangeable guides

Precise Eddy Current performance

At the heart of the system lies the Hocking Eddy Current coil. Manufactured to exacting standards it delivers superb signal to noise ratio and again is a modular component that can be replaced as required by the operator without disposing of the entire assembly.



Replaceable Eddy Current coil

Tubing Inspection Probes

Eddy Current and Remote Field

Tubing Inspection Probes for Power Generation, Oil & Gas, and HVAC Applications

GE Sensing & Inspection Technologies tubing probes are designed to meet the stringent inspection needs of Balance-of-Plant applications in the Power Generation, Oil & Gas, and Air Conditioner industries for non-ferrous and ferrous tubing. GE is a dedicated manufacturer, providing customers with high-quality and cost-effective probes for their inspection needs.

Features and Benefits

- ID tubing probes are made with high performance materials and adhesives for excellent abrasion resistance and long life.
- Proprietary long-life kink resistant poly shafts increase probe life, improve durability, and ensure inspection ease.
- Many common eddy current and remote field probe are on the shelf and ready for shipment; rapid turn-around time for orders of up to 10 probes.



Eddy Current Probes for Balance-of-Plant Non-Ferrous Tubing

- Designed for inspection of non-ferrous tubing in balance-of-plant applications in the Oil & Gas and Power Generation industries.
- Probe diameters from 0.380 inch to 1.5 inch (9.65 mm to 38.1 mm) in 0.010 inch (0.254 mm) increments.
- Small diameter probes also; diameters from 0.270 inch (6.86 mm) to 0.370 inch (9.40 mm); probes on 0.25 inch poly shaft in 50 ft length.
- Probes available with standard poly shaft lengths of 65 ft, 80 ft, 100 ft and 120 ft (19.8 m, 24 m, 30.5 m and 36.5 m).
- All probes have industry standard four-pin Amphenol® connectors.
- ID probes available in Barnacle Scraper (BS) and Chamfered Barnacle Scraper designs.
- Magnetically biased versions of both probe configurations are available.
- Probes available in low, mid, and high frequency ranges:
 - Low range center frequency: 150 kHz
 - Mid range center frequency: 300kHz
 - High range center frequency: 600kHz



Eddy Current ID probes for balance-of-plant non-ferrous tubing

For Help in Determining your ID Probe Diameter...

Log on to the www.geinspectiontechnologies.com/en/products/eddy_current/probes/calculator.html to use our ID probe calculator to custom design your ID probe and generate a part number.

Organize probe request per inspection information

Tube OD (Inch)	2.000
Tube Wall (Inch)	0.028
Tube ID (Inch)	1.944
Pick Tube Material	304 SS
Resistivity (Ω-in/inch)	72
Prime Freq. (kHz)	318
Frequency Range (HF/MF/LF)	HF
Pick Fill Factor	65%
Probe Size	1.570

Probe size calculator

Probe order entry form

Probe size calculator

Probe order entry form

Remote Field Probes (RFT) for Ferrous Tubing

- Designed for inspection of ferrous tubing in the Oil & Gas and Petrochemical industries
- All probes encased in a stainless steel sleeve.
- Probe diameters from 0.312 inch (7.92 mm) to 0.750 inch (19.1 mm).
- Probes available with standard poly shaft length of 65 ft (19.8 m).
- Probes come with three- and six- pin Amphenol® connectors.

Available probes and part number table on back cover



Eddy Current RFT probes

Eddy Current Probes for Air Conditioner Tubing

- Designed for inspection of non-ferrous tubing in industrial HVAC units.
- All probes are encased in a stainless steel sleeve.
- Cross-wound coil design for detection of omni-directional defects.
- Probe sizes: 0.409 inch (10.4 mm) to 0.800 inch (20.32 mm)
- Probes available with standard poly shaft length of 35 ft (10.7 m).
- Probes come with standard 4-pin Amphenol connectors.

Available probes and part number table on back cover



Eddy Current ID probes for air conditioner tubing

Enhance durability and lifespan

Probes are manufactured using superior wear-resistant materials to achieve extended overall probe life and added durability. All probes are constructed with our proprietary kink-resistant shafts.

Dedicated manufacturing facility provides rapid turnaround

We manufacture all ID tubing probes in our Lewistown, PA, USA facility. We have a dedicated manufacturing cell designed to enable high quality, rapid manufacturing with short delivery times. Many common probe sizes are stocked for quick delivery. For probe sizes not in inventory, GE Inspection Technologies offers rapid turnaround time for orders of up to ten probes.

Custom builds and special applications

Our facility contains an in-house applications lab to provide custom solutions for special applications. Backed by over 75 years of experience, our talented Applications team can provide solutions for standard tubing and surface inspection applications with traditional eddy current or eddy current array technologies.

Available RFT Probe Part Numbers

Switchable Dual Exciters (SDE)

Size	Model	Part Number
0.375 inch (9.52 mm)	0.375-SDE-LF-65-3/8G	666-623-037
0.400 inch (10.2 mm)	0.400-SDE-LF-65-3/8G	666-623-040
0.440 inch (11.2 mm)	0.440-SDE-LF-65-3/8G	666-623-044
0.470 inch (11.9 mm)	0.470-SDE-LF-65-3/8G	666-623-047
0.500 inch (12.7 mm)	0.500-SDE-LF-65-3/8G	666-623-050
0.560 inch (14.2 mm)	0.560-SDE-LF-65-3/8G	666-623-056
0.625 inch (15.9 mm)	0.625-SDE-LF-65-3/8G	666-623-063
0.690 inch (17.5 mm)	0.690-SDE-LF-65-3/8G	666-623-069
0.750 inch (19.1 mm)	0.750-SDE-LF-65-3/8G	666-623-075

Dual Exciters (DE)

Size	Model	Part Number
0.375 inch (9.52 mm)	0.375-DE-LF-65-3/8G	665-623-037
0.400 inch (10.2 mm)	0.400-DE-LF-65-3/8G	665-623-040
0.440 inch (11.2 mm)	0.440-DE-LF-65-3/8G	665-623-044
0.470 inch (11.9 mm)	0.470-DE-LF-65-3/8G	665-623-047
0.500 inch (12.7 mm)	0.500-DE-LF-65-3/8G	665-623-050
0.560 inch (14.2 mm)	0.560-DE-LF-65-3/8G	665-623-056
0.625 inch (15.9 mm)	0.625-DE-LF-65-3/8G	665-623-063
0.690 inch (17.5 mm)	0.690-DE-LF-65-3/8G	665-623-069
0.750 inch (19.1 mm)	0.750-DE-LF-65-3/8G	665-623-075

Single Exciters (SE)

Size	Model	Part Number
0.312 inch (7.92 mm)	0.312-SE-LF-65-5/16T	667-323-031

Available Air Conditioner Probe Part Numbers

Differential

Probe Diameter	35 ft (10.7 m) Amphenol 4p	50 ft (15.2 m) Amphenol 4p
0.409 inch (10.4 mm)	622-352-012	623-352-012
0.495 inch (12.6 mm)	622-352-013	623-352-013
0.516 inch (13.1 mm)	622-352-014	623-352-014
0.560 inch (14.2 mm)	622-352-015	623-352-015
0.620 inch (15.8 mm)	622-352-016	623-352-016
0.650 inch (16.5 mm)	622-352-017	623-352-017
0.800 inch (20.3 mm)	622-352-033	623-352-033

Cross Axis

Probe Diameter	35 ft (10.7 m) Amphenol 4p	50 ft (15.2 m) Amphenol 4p
0.409 inch (10.4 mm)	622-352-018	623-352-018
0.495 inch (12.6 mm)	622-352-019	623-352-019
0.516 inch (13.1 mm)	622-352-020	623-352-020
0.560 inch (14.2 mm)	622-352-021	623-352-021
0.620 inch (15.8 mm)	622-352-022	623-352-022
0.650 inch (16.5 mm)	622-352-023	623-352-023
0.800 inch (20.3 mm)	622-352-034	623-352-034



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GEIT-50019EN (05/08)

GE
Inspection Technologies

WeldScan Probes

Designed for Inspections of Ferrous,
Non-Ferrous Weld and Steel Structures



GE imagination at work

The WeldScan Application

WeldScan is an eddy current technique for detecting and sizing fatigue cracks in ferrous, non-ferrous welds and steel structures. WeldScan is the trade name of GE Hocking range of probes dedicated to this task.

Ferrous Welds

WeldScan probes detect surface-breaking fatigue cracks through non-conductive surface coatings up to 2 mm. This approach is much less expensive and quicker to use than alternative methods that require paint removal, such as MPI.

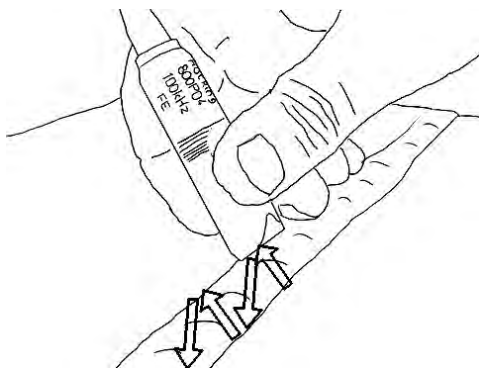
This design of probe greatly reduces the problems of inspecting uneven and undressed weld surfaces where there may also be changes in coating thickness.

The illustrations below show typical scan patterns for the cap of the weld, the toe of the weld and the Heat Affected Zone (HAZ).

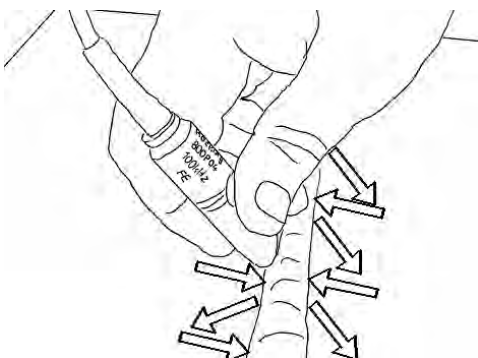
The application is set up so that the probe is driven at a frequency of 100kHz, and a Steel Reference Block is used to set the sensitivity required, using the three EDM slots and the relevant thickness of shims (to take into account coating (paint) variations). In the majority of applications the 1mm slot in the reference block is set to vertical by rotating the phase and having an amplitude of 100% FSH.

For the best results the operator should be trained in the probe handling technique as the angle of approach and scan pattern influence the best flaw detection. This is due to the directional eddy current field, designed to optimises the eddy current field for this type of inspection.

WeldScan probes can also be used to inspect ferrous welds through metallic protective coatings, which are sometimes used for additional protection of the structure.



Scanning Weld Cap



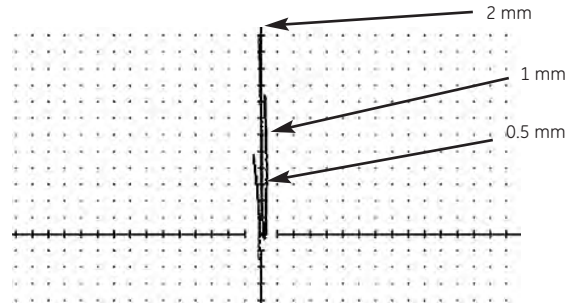
Scanning Weld Toe and HAZ

Other Applications

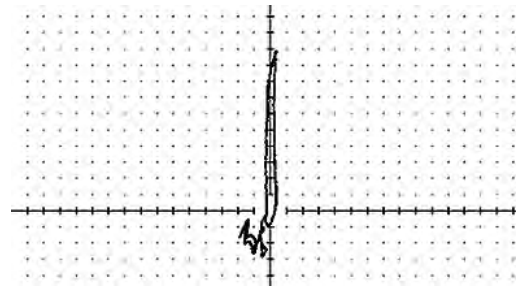
GE Hocking also provide WeldScan probes, which can be used to inspect Aluminum and Stainless Steel Welds.

WeldScan probes are utilized on other steel structures and are commonly used in Shipping, Rail and Civil Engineering Industries.

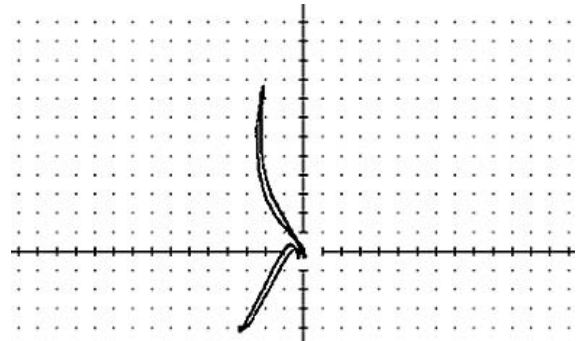
- The traces below show typical responses from the reference block and actual cracks in the weld.



Reference block with 0.5, 1.0 & 2.0 mm notches



Probe traversed along toe of weld with defect (positive signal)



Scan of weld Toe & HAZ. Negative signal is from toe of weld and HAZ & positive signal is from defect



Probe traversed along toe of weld with defect (positive signal)

Approval Bodies

Many certifying authorities in the oil industry accept WeldScan and recommend their use with a GE Hocking.

Hocking phase plane instrument, such as Locator 2s/3s or Phasec 2s/2d. These bodies include Lloyds Register, Det Norsk Veritas, BureauVeritas and the PCN body.

Training of the individual in the WeldScan technique is carried out by a number of commercial organisations worldwide, and individuals can become NDT qualified in either the PCN or ASNT schemes.

The WeldScan probe is standardised by BS EN 1711:2000 "Eddy Current Examination of Welds by Complex Plane Analysis"

Benefits:

- Reduce Costs
- Quick and easy to use
- Approved method for replacing MPI of welds - has approval from many certifying authorities & operating training certification schemes
- Method can be used by Rope Access Inspectors - No Scaffolding required
- Limited Surface Preparation - WeldScan Probes can detect surface-breaking fatigue cracks through coatings
- Sub sea compatible - waterproof versions allow easy inspection via driver or ROV
- Unique probe design allows best access to Heat Affected Zone
- Prolonging Structures Life

Typical Dimensions

Typical Dimensions for an 800P style probe:
PRN example: 800P01NB1P
Tip radius - 5 mm
Handle diameter - 11 mm
Total Length - 88 mm Length from tip to rear of handle - 47.5 mm
PRN example: 800P04NB1P
Tip radius - 8 mm
Handle PRN example: 801P04JD1P
to rear of strain relief - 95 mm



Straight WeldScan 800P Style Probe

Typical Dimensions for an 801P and 802P style probes:
PRN example: 801P04JD1P
Tip radius - 8 mm
Tip diameter - 15.9 mm
Handle diameter - 15.9 mm
Total tip length - 20 mm Length to rear of strain relief - 170 mm
Length from tip to rear of handle - 129.5 mm
PRN example 802P01JD1P
Tip radius - 5.5 mm
Tip diameter - 11 mm
Handle diameter - 12.7 mm Total tip length - 23 mm
Length to rear of strain relief - 77.5 mm
Length from tip to rear of handle - 37 mm



90° Tip Inline 801P Style Probe

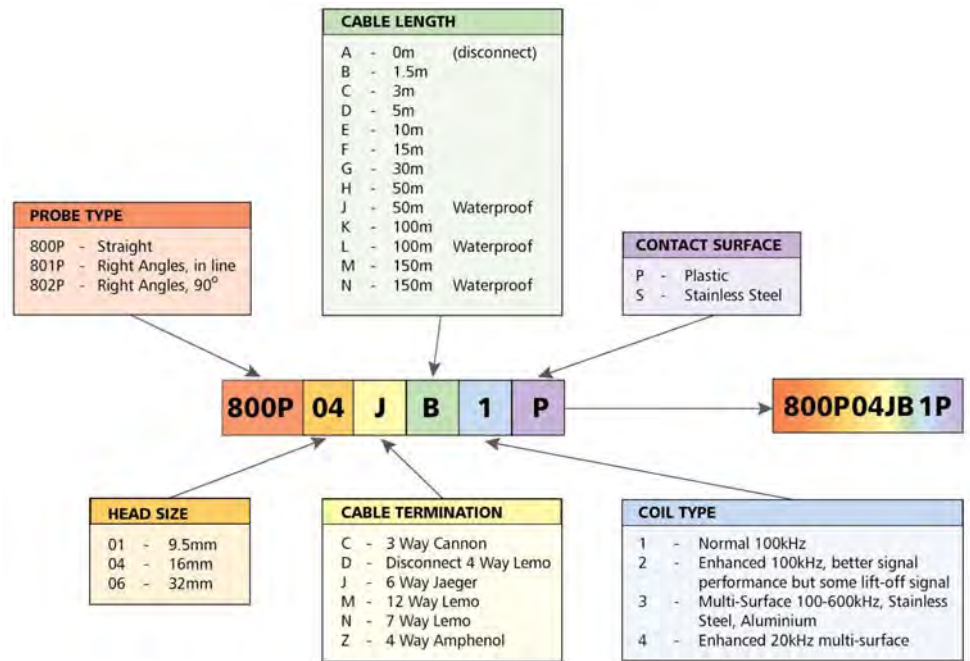


90° Tip Angle 802P Style Probe



Selecting the Right Probe

Example For standard inspections GE Hocking recommend WeldScan Probe PRN 800P04MB1P. The 800P04MB1P probe is straight, has a 16 mm head, an integral 12 way lemo connector suitable for Locator 3s, Phasac 2s/2d, a 1.5m integral lead, 100 kHz test frequency, and is made of Acetal plastic. The 800P04NB1P is identical in all respects except that it has a 7 way lemo connector which is compatible with the Locator 2s Instruments



Suggested Equipment

- Instrument: Locator 3s: PRN 39K100 or Phasac 2d PRN 40K200
- WeldScan probe: GE Hocking PRN 800P04MB1P. 100kHz probe with 16mm head and 1.5m integral cable with connector for Locator 3s/Phasac 2d.
- Broad Band Probe: for measuring Coating Thickness Hocking PRN 130P3, unshielded absolute probe relevant cable PRN 40A504.
- WeldScan Reference Block: Ferrous EN1A Steel PRN 31A008 containing 3 EDM slots, 0.5 mm, 1 mm and 2 mm, attached are 4 x 0.5 mm plastic coating thickness shims.
- Weld Inspection Starter Package for Locator 3s/Phasac 2s & 2d PRN ASP1P2 comprising of;
 - WeldScan Probe: PRN 800P01MB1P – 100 kHz, Straight, 9.5 mm diameter. Integral cable, 12 way lemo connector.
 - WeldScan Probe: PRN 800P04MB1P – 100 kHz, Straight, 16 mm diameter. Integral cable, 12 way lemo connector.
 - Broad Band (Paint) Probe: PRN 130P3 – 35 kHz to 250 kHz. Cable BNC to BNC: PRN 5A011.
 - Adapter 12 way lemo to BNC: PRN 40A002.
 - Reference Block Fe: PRN 31A008.
 - Probe Tip Protectors: PRN 29A031.
 - Hard Case with molded inserts: PRN 5A043V1.
- Weld Inspection Starter Package for Locator 2s: PRN ASP1L2 comprising of;
 - WeldScan Probe: PRN 800P01NB1P – 100 kHz, Straight, 9.5 mm diameter. Integral cable, 7 way lemo connector.
 - WeldScan Probe: PRN 800P04NB1P – 100 kHz, Straight, 16 mm diameter. Integral cable, 7 way lemo connector.
 - Broad Band (Paint) Probe: PRN 130P3 – 35 kHz to 250 kHz. Cable 7 way lemo to BNC: PRN 39A002.
 - Reference Block Fe: PRN 31A008.
 - Probe Tip Protectors: PRN 29A031.
 - Hard Case with molded inserts: PRN 5A043V1.



GE Inspection Technologies: productivity through inspection solutions

GE Inspection Technologies provides technology-driven inspection solutions that deliver productivity, quality and safety. We design, manufacture and service ultrasonic, remote visual, radiographic and eddy current equipment and systems. We offer specialized solutions that will help you improve productivity in your applications in the aerospace, power generation, oil & gas, automotive or metals Industries.

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Reference Blocks

Conductivity Operating Reference Standards

Accuracy

The Hocking branded range of Operating Reference Blocks are derived, certified and traceable to national standards (NIST, USA and NPL, UK), conductivity references ideal for laboratory and field use. Up to five blocks can be clipped into a sample holder plate to bring them quickly into thermal equilibrium with each other and the test piece when the plate is placed upon it. The instrument can then be set for optimum accuracy using the dual setting block (PRN 47A023). All operating reference blocks are rigorously tested to meet high standards of accuracy and reliability. The blocks are calibrated to be accurate to $\pm 1.2\%$ of the value or $\pm 0.4\%$ IACS, whichever is less.



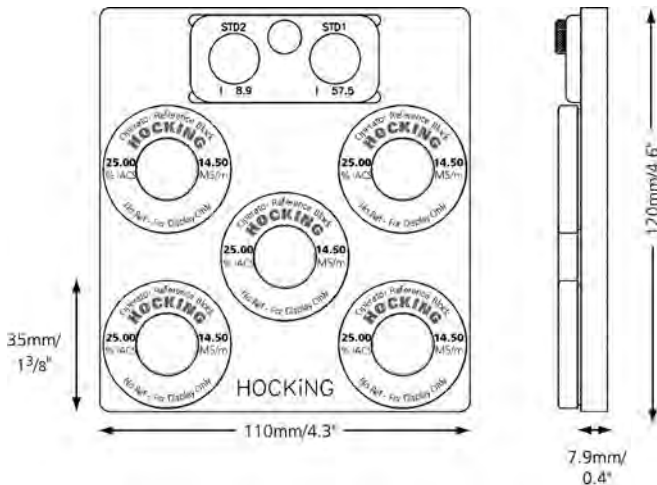
Reference block with 5 standards

All blocks are calibrated at 20 °C, and at the industry standard 60 kHz frequency. Blocks are supplied with calibration certificates, and a recalibration service is available.

Conductivities

Table values are nominal. Precise values will be shown on the blocks.

%IACS	Msm-1	Material	PRN
9 & 58	5 & 34	Dual Setting Block	47A023
1	0.6	Ti 2TA7	47A011
2	1	Stainless Steel 303S	47A012
9	5	Nickel Silver LC1291	47A013
17	10	P/Bronze	47A014
24	14	Brass LM5681	47A015
28	16	AL 5083	47A016
34	20	AL 7075-TF	47A017
37	21	AL 2014A-T6	47A026
38	22	AL 2014A-T6	47A024
43	25	AL 6061-TF	47A018
47	27	AL 6082-TF	47A019
60	35	AL 1200-H4	47A020
89	52	CuCr/Zirc LC639	47A021
100	58	Cu	47A022
N/A	N/A	Sample Holder 5+1	47A010
N/A	N/A	Sample Holder 3	47A025



Reference block dimensions





EDDY CURRENT PROBE SYSTEMS

NONDESTRUCTIVE TESTING EQUIPMENT

DETEK Eddy Current Probe Systems are designed to provide coverage of a wide frequency range in a variety of configurations for use on virtually all manufactures instruments.

Individual components allow an unlimited number of different probe configurations to be used with a single cable and reference coil. System expansion or component replacement is both economical and efficient without unnecessary duplication of individual parts.

FREQUENCY SELECTION

The choice of operating frequency depends on the electrical and magnetic properties of the material to be inspected, as well as type and location of the defects.

Lower frequencies penetrate materials to a greater extent and are sensitive to sub-surface defects, corrosion on a inaccessible surface, and variations in sheet or plating thickness. Higher frequencies penetrate less and are more sensitive to surface breaking defects.

The center frequency indicated on our probes is based on use with 100 OHM bridge instruments. Some manufactures use a 50 OHM bridge; and when used on these instruments, the center frequency will be approximately half the value indicated.

The operating frequency range for each of our probes is generally one-third to three times the center frequency without appreciable gain losses.

The following standard components are readily available, but we also welcome specials. Please call or write to discuss your unique requirements.

FREQUENCY VS PENETRATION

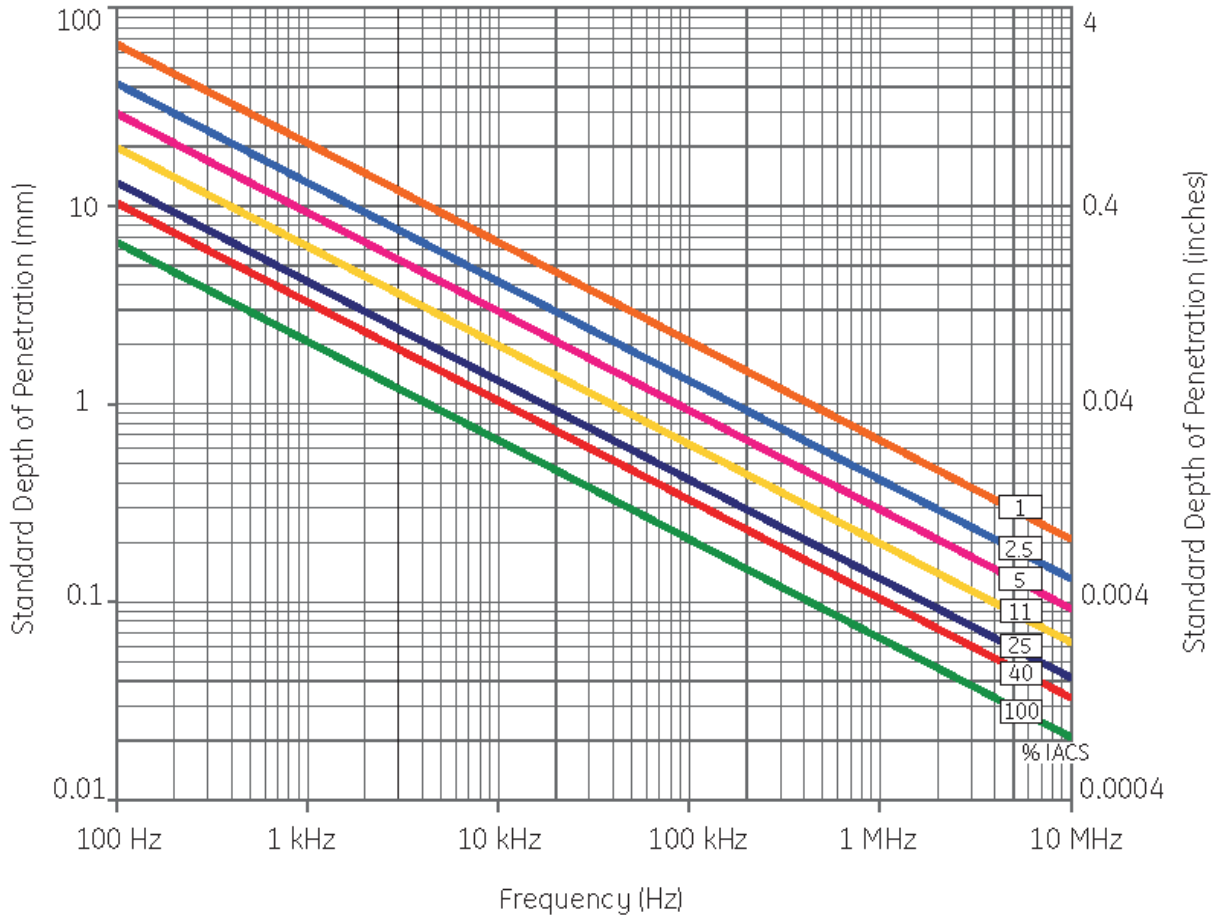
The relationship between the operating frequency and the standard depth of penetration of the eddy currents in a variety of different metals is illustrated on the following chard. It can be said that as the frequency increases, the depth of the penetration decreases.

The standard depth of penetration is defined as the depth at which the eddy current density is reduced to approximately 37% of the density at the surface.

We are happy to discuss your applications and help in selecting the right probe for your inspection.

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EMAIL: sales@detek.com

Depth of Penetration



Conductivities

Note: Conductivity values shown are approximate and depend on material condition, hardness, heat treatment, temperature and other factors.

Metal Type	% IACS	MSm ⁻¹
Aluminium Alloy, 1100	57-62	33-36
Al Alloy, 2014-T3 & -T4	32-35	18.5-23.2
Al Alloy, 2014-T6	38-40	22-23.2
Al Alloy 2024-T3	28-37	16.2-21.5
Al Alloy 2024-T4	28-31	16.2-18
Al Alloy, 7075-T6	32	18.5
Aluminium (pure)	61	35.4
Beryllium	34-43	19.7-24.9
Beryllium Copper	17-21	9.9-12
Brass, 61Cu 37Zn 2Pb	26	15.1
Brass, 61Cu 38Zn 1Sn	26	15.1
Brass, 70Cu 29Zn 1Sn	25	14.5
Brass, 70Cu 30Zn	28	16.2
Brass, 76Cu 23 2Al	23	13.3
Bronze 40Cu 23 2Sn	44	25.5
Bronze 92Cu 8Al	13	7.5
Cadmium	15	14.5
Chromium	13.5	7.8
Copper (pure)	100	58
Cupro Nickel 70/30	5	2.9

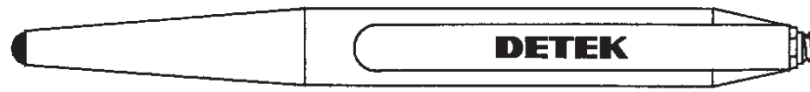
Metal Type	%IACS	MSm ⁻¹
Cupro Nickel 90/10	11.9	6.9
Gold	73.4	42.6
Graphite (pyrolytic)	0.43	0.25
Hastelloy	1.3-1.5	0.75-0.87
Inconel 600	1.7	0.99
Lead	8	4.6
Lithium	18.5-20.3	10.7-11.8
Magnesium	37	21.5
Magnesium (Cast Alloys)	9	5.2
Molybdenum	33	19.1
Nickel	25	14.5
Phosphor Bronze	11	6.4
Silver (pure)	105-117	60.9-67.9
Silver (Tin Solder)	16.6	9.6
Silver, 18 % Nickel Alloy A	6	3.5
Steel, Stainless (300 series)	2.3-2.5	1.3-1.5
Tin	15	8.7
Titanium	1-4.1	0.6-2.4
Titanium 6914v	1	0.6
Zinc	26.5-32	15.4-18.6
Zirconium	4.2	2.4



ABSOLUTE – SINGLE COIL PROBES

NONDESTRUCTIVE TESTING EQUIPMENT

These probes contain a single test coil and require the use of matching reference coil and the appropriate bridge instrument cable assembly. They are also suitable for use of the Locator UH instruments at the indicated frequencies and all 200 KHz. Probes are useable on the ED520/530 instruments.



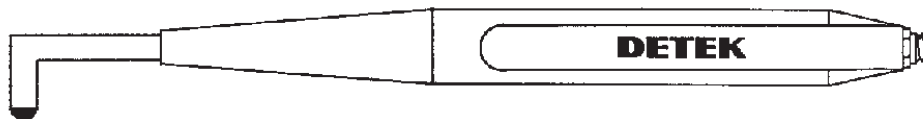
UNSHIELDED PENCIL PROBES

EP11ACM - 200 KHz.	EP11AEM - 2 MHz.
EP11ADM - 500 KHz.	EP11AFM - 6 MHz.



SHIELDED PENCIL PROBES

EP12ACM - 200 KHz.	EP12AEM - 2 MHz.
EP12ADM - 500 KHz.	EP12AFM - 6 MHz.



RIGHT ANGLE SHIELDED PROBES

EP22ACM - 200 KHz.	EP22AEM - 2 MHz.
EP22ADM - 500 KHz.	EP22AFM - 6 MHz.

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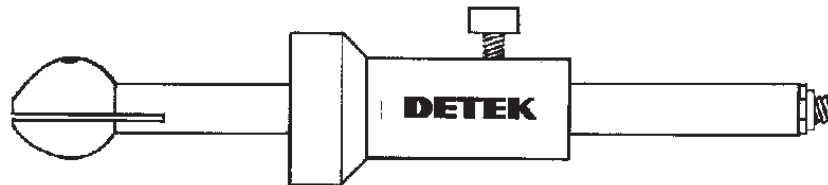
ABSOLUTE – SINGLE COIL PROBES

NONDESTRUCTIVE TESTING EQUIPMENT



CRANKED RIGHT ANGLE SHIELDED PROBES

EP32ACM - 200 KHz.	EP32AEM - 2 MHz.
EP32ADM - 500 KHz.	EP32AFM - 6 MHz.



BOLT HOLE PROBES

(SPECIFY DIAMETER)

EP41ACM - 200 KHz.	EP41AEM - 2 MHz.
EP41ADM - 500 KHz.	EP41AFM - 6 MHz.



SPRING LOADED SORTING PROBES

EP51ACM - 200 KHz.	EP51AEM - 2 MHz.
EP51ADM - 500 KHz.	EP51AFM - 6 MHz.

REFERENCE COILS

EPRC-C - 200 KHz.	EPRC-E - 2 MHz.
EPRC-D - 500 KHz.	EPRC-F - 6 MHz.

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