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:

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.

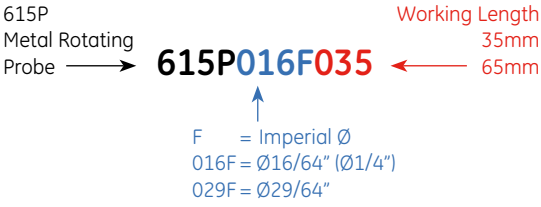
Requires Mini Drive Unit.

For more options please see coding system.

Coding system for more options

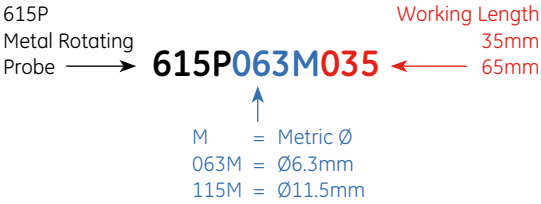
Imperial Coding System
Please specify nominal diameter of probe (hole) in 1/64" increments.

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



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.



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

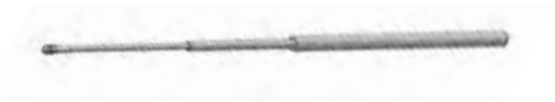
GE has a large selection of aircraft bead seat probes, each of which is designed to fit the contour of each specific type of aircraft wheel. Due to the number of different types of aircraft wheels, please contact your local GE Approved Dealer for more information about probes available.

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	82µH

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, automot ive 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 µH	6 MHz
5A083	8.2 µH	2 MHz
5A058	47 µH	150 kHz
5A089	120 µH	70 kHz
5A001	5.6 µH	1.5 MHz
5A003	82 µH	100 kHz
5A104	390 µH	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.

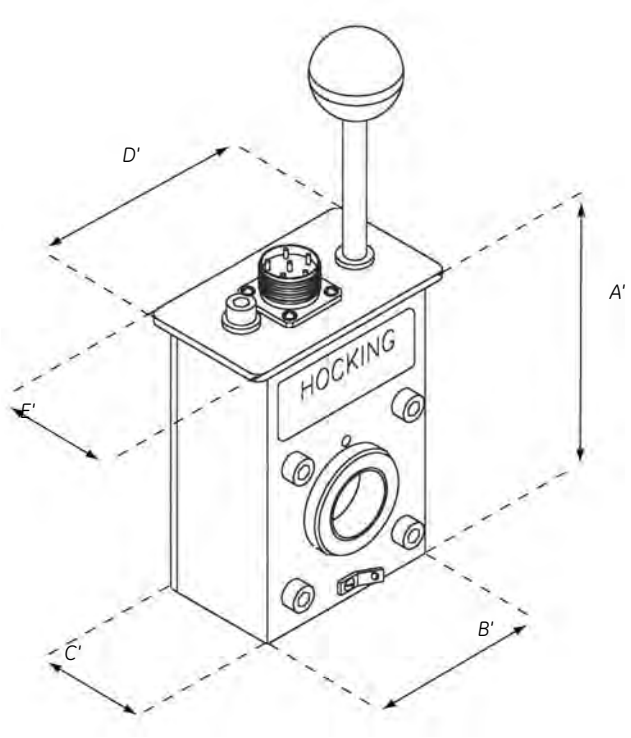
Part No	Description	
ASP1L2	Weld Inspection Starter Package for Locator 2s includes:	
	800P01NB1P	Weld probe, straight, 100kHz, Ø 9.5mm
	800P04NB1P	Weld probe, straight, 100kHz, Ø 16mm
	130P3	Broad Band probe, 35 kHz – 250 kHz
	31A008	Reference Block, Fe
	39A002	Cable, 7-way Lemo/BNC
	29A031	Probe tip 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

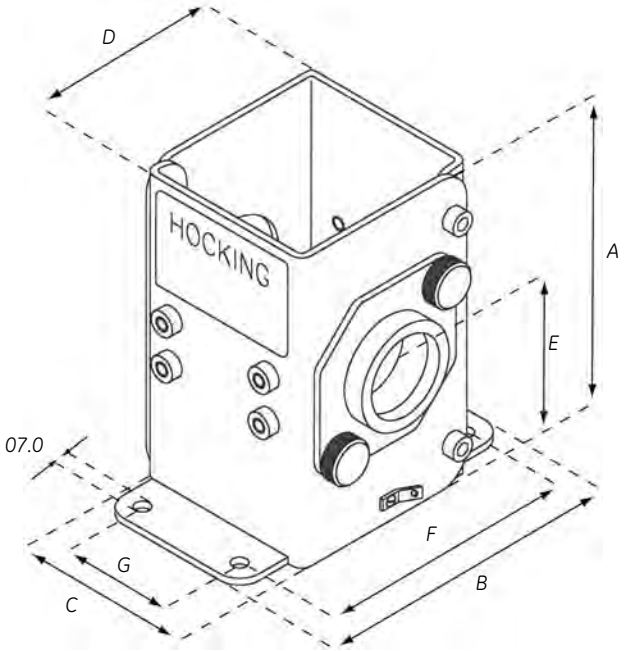
External Diameter Tube Inspection

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

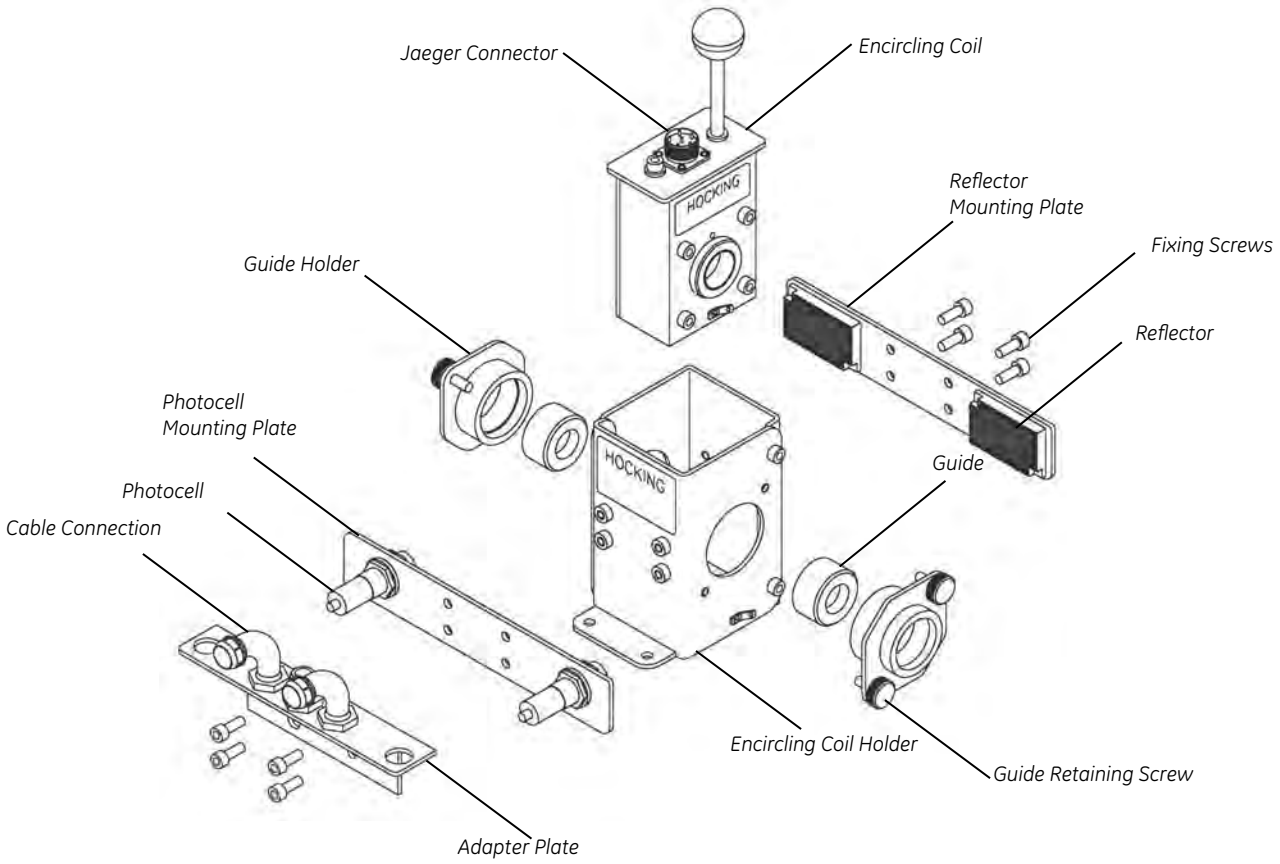
Encircling Coil Dimensions

	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 photocells, 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

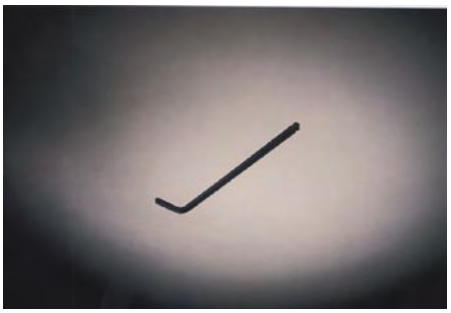
The design of the Galaxy range of probes allows the operator to rapidly switch any component of the assembly as required. Encircling coils within the same size range can be exchanged in a matter of seconds to suit manufactured product variation.

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

GE
Sensing & Inspection Technologies

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.

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

www.geinspectiontechnologies.com/en

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.

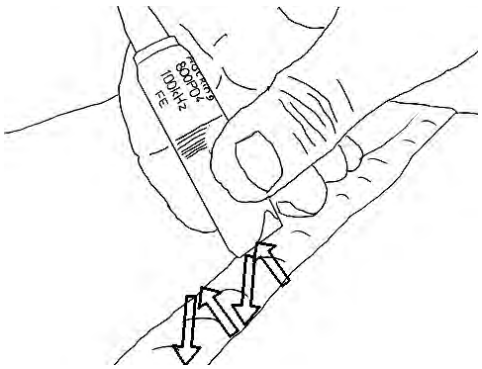
This design of probe greatly reduces the problems of inspecting uneven and undressed weld surfaces where there may also be changes in coating thickness.

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

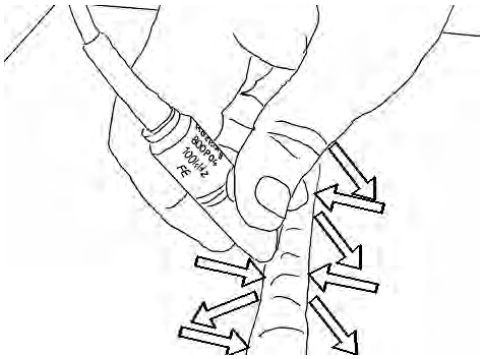
The application is set up so that the probe is driven at a frequency of 100kHz, and a Steel Reference Block is used to set the sensitivity required, using the three EDM slots and the relevant thickness of shims (to take into account coating (paint) variations). In the majority of applications the 1mm 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



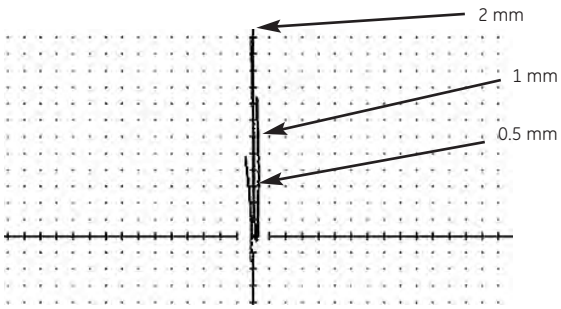
Scanning Weld Toe and HAZ

Other Applications

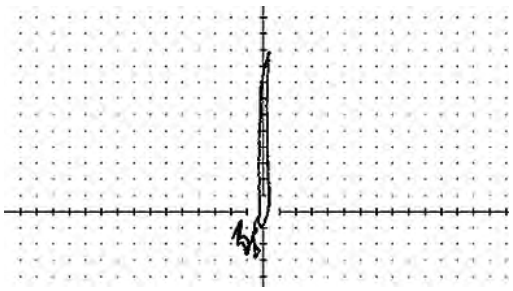
GE Hocking also provide WeldScan probes, which can be used to inspect Aluminum and Stainless Steel Welds.

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

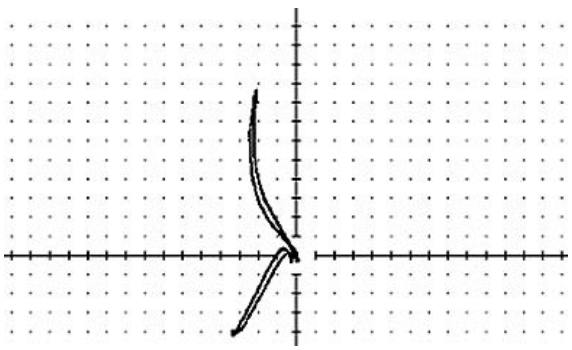
- The traces below show typical responses from the reference block and actual cracks in the weld.



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

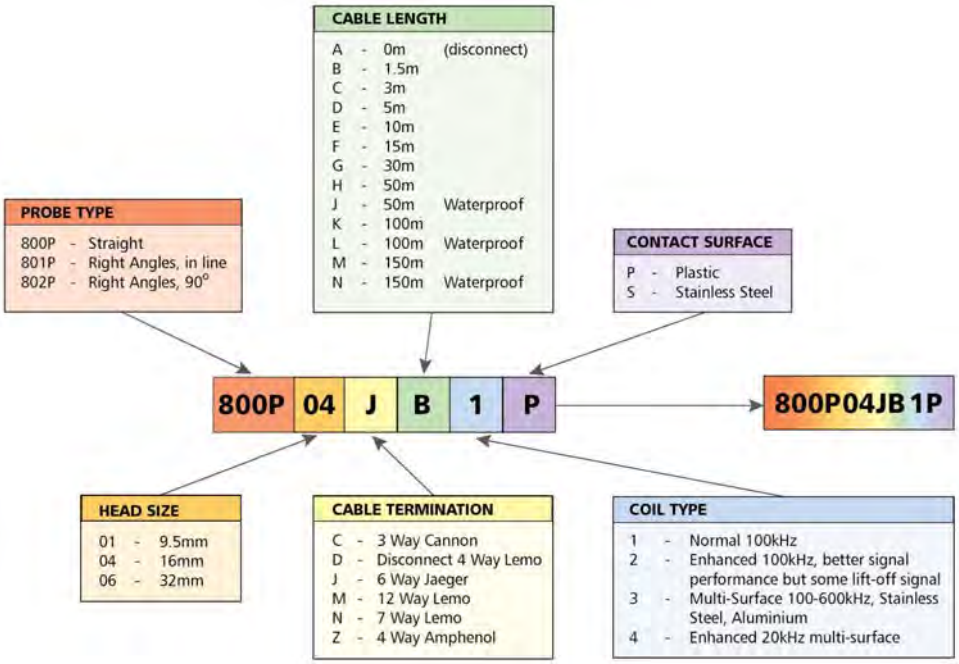
Typical Dimensions for an 801P and 802P style probes:
PRN example: 801P04JD1P
Tip radius - 8 mm
Tip diameter - 15.9 mm
Handle diameter - 15.9 mm
Total tip length - 20 mm Length to rear of strain relief - 170 mm
Length from tip to rear of handle - 129.5 mm
PRN example 802P01JD1P
Tip radius - 5.5 mm
Tip 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, Phasec 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 Phasec 2d PRN 40K200
- WeldScan probe: GE Hocking PRN 800P04MB1P. 100kHz probe with 16mm head and 1.5m integral cable with connector for Locator 3s/Phasec 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/Phasec 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.

Note: WeldScan Probes are available to suit other Instruments

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.

www.ge.com/inspectiontechnologies

Reference Blocks

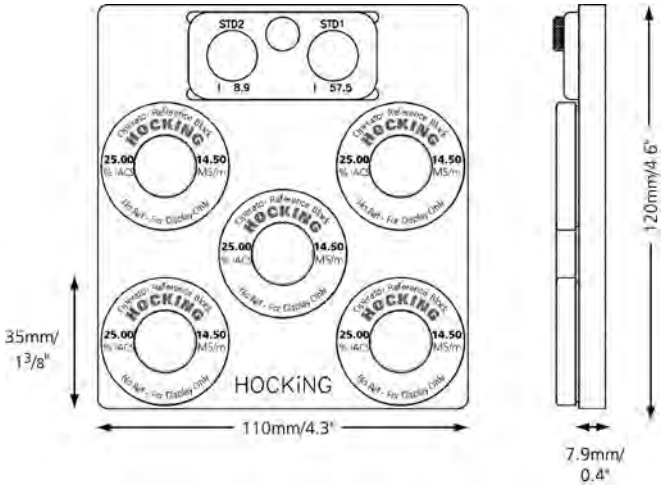
Conductivity Operating Reference Standards

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 ± 1.2 % of the value or ± 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.



Reference block dimensions

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

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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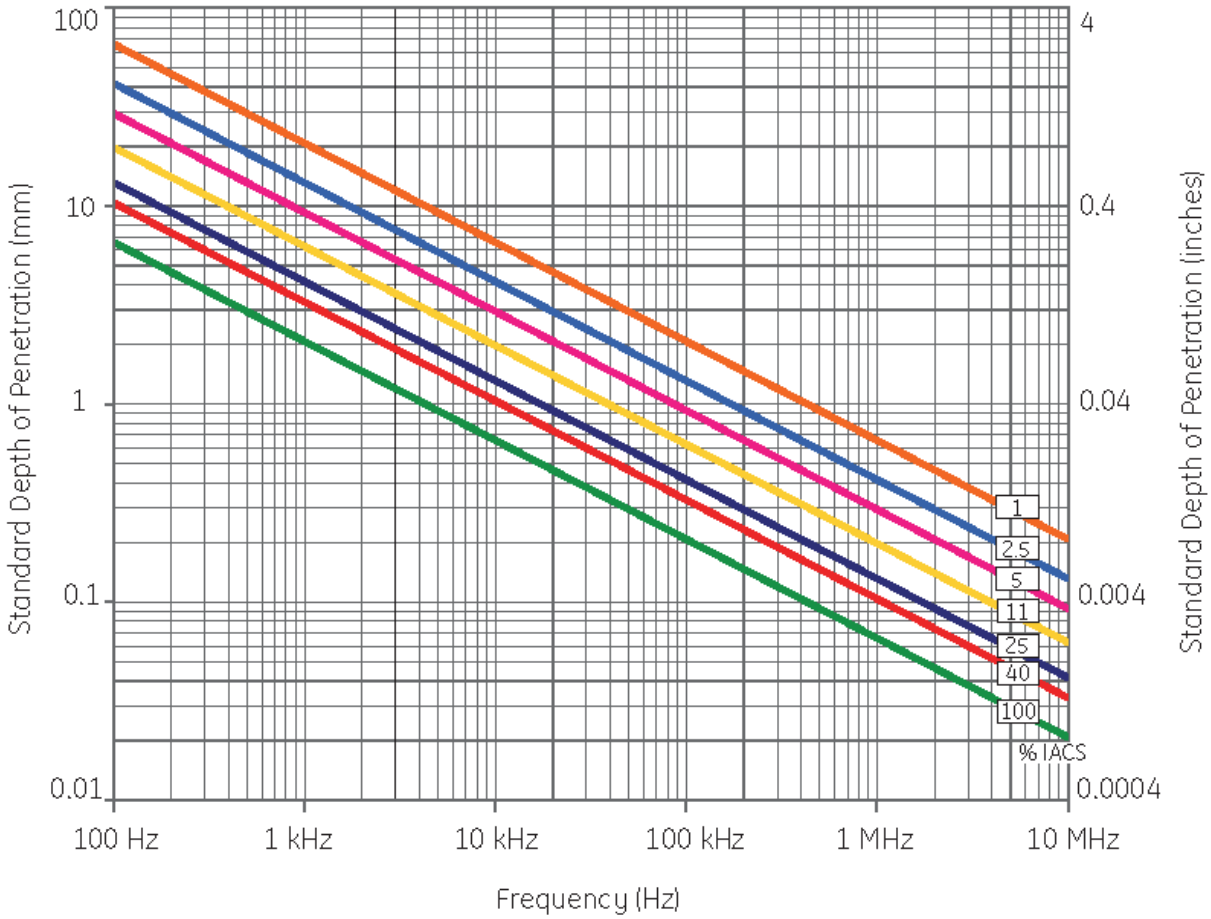
EMAIL: sales@detek.com

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 (pyrolitic)	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

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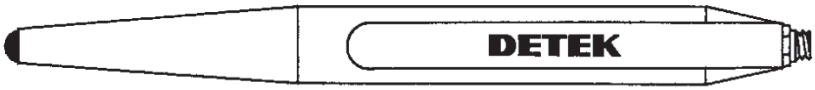
ABSOLUTE – SINGLE COIL PROBES

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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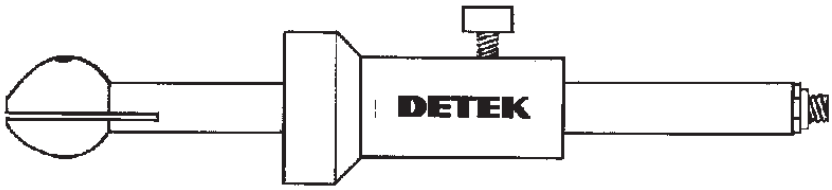
ABSOLUTE – SINGLE COIL PROBES

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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