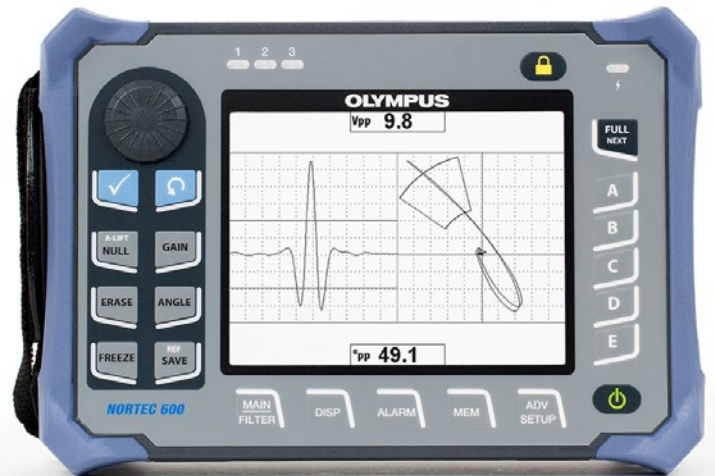


Industrial



Surface and Subsurface Probes



EVIDENT

Intro to Surface and Subsurface Probes

Low-frequency eddy current probes (LFEC) are used for subsurface detection of cracks and/or corrosion. Because they are low frequency, they can reach the required depth of penetration in thicker structures. These probes are shielded to concentrate the magnetic field under the probe and avoid interference from edges and other structures that could cause edge-effects and other false indications. Reflection type probes are also widely used due to the lower drift and often better signal-to-noise while operating at low frequencies. Spring-loaded bodies are useful to maintain constant pressure when needed, such as when spot testing for conductivity differences or corrosion in thin-skin structures.

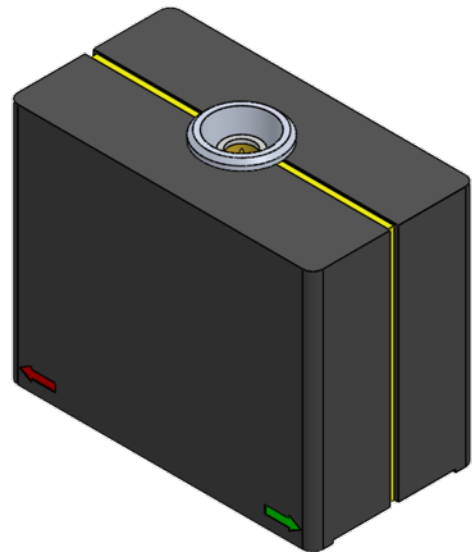
Sliding Probes

Operating in reflection mode, sliding probes enable inspection of fastener rows for surface and subsurface cracks. They are directionally sensitive and feature an engraved alignment line to assist scan orientation to the expected direction of the cracks.

Sliding probes are available in fixed or adjustable types. Fixed types are mostly used in riveted joints to detect cracks emanating from holes. Penetration is sufficient for fuselage thickness up to 0.15 in. (4 mm). Adjustable types are used for thicker structures up to 0.75 in. (19 mm). They operate well with various fasteners, including magnetic types.

Specifications

- Fixed or adjustable plastic housing with a shielded coil
- Adjustable types include space to adjust the width of the probe for varying fastener diameters or spacing between fastener rows
- Ferrite provides excellent shielding of the sensors
- Connector for fixed probes: Triax Fischer/LEMO, 2-pin Microdot, or 4-pin Fischer
- Connector for adjustable probes: two single-pin Microdot (one on each probe half)
- Various frequency ranges available
- Can operate in reflection or bridge mode when used with the appropriate cable



Cable for Sliding Probes

NORTEC 600 or 2000 series	2 single-pin Microdot	CN16-2M-6 (U8800273)
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Sliding Probes

Dimensions/in. (mm)			Frequency (kHz)	Part Number (Item Number)	Type	Connector
Height	Length	Width				
1 (25.4)	3.35 (85.09)	0.75 (19.05)	100 Hz–20 kHz	LTW0419-1 (U8633025)	Adjustable	2 single-pin Microdot
1 (25.4)	1.76 (44.7)	1 (25.4)	1 kHz–10 kHz	LTW2018-1 (U8633056)	Adjustable	2 single-pin Microdot
1 (25.4)	1.75 (44.45)	1 (25.4)	100 Hz–40 kHz	LTW0423-1 (U8690009)	Adjustable	2 single-pin Microdot
1 (25.4)	1 (44.45)	1 (25.4)	1 kHz–20 kHz	LTW5010-1 (U8690010)	Adjustable	2 single-pin Microdot
1 (25.4)	1.5 (38.1)	0.75 (19.05)	1 kHz–100 kHz	LTW1022 (U8633026)	Adjustable	Adjustable/2 single-pin Microdot
1.19 (30.23)	1.5 (38.1)	0.8 (20.32)	1 kHz–100 kHz	NEC-4039 (U8636053)	Fixed	Triax Fischer/LEMO
1 (25.4)	1.5 (38.1)	0.8 (20.32)	400 Hz–50 kHz	NEC-4108 (U8633015)	Fixed	Triax Fischer/LEMO
1.19 (30.23)	1.5 (38.1)	0.8 (20.32)	1 kHz–100 kHz	XESL-00004 [NEC-4039-3] (U8629545)	Fixed	2 single-pin Microdot
0.75 (19.05)	1 (25.4)	0.7 (17.78)	100 Hz–50 kHz	NEC-4083 (U8633021)	Adjustable	2 single-pin Microdot
1 (25.4)	1.5 (38.1)	0.8 (20.32)	1 kHz–100 kHz	XESL-00003 [SPO-3806] (U8629163)	Fixed	Triax Fischer/LEMO
1.19 (30.23)	1.5 (38.1)	0.8 (20.32)	1 kHz–100 kHz	XESL-00005 NEC-4039-2 (U8633055)	Fixed	4-pin Fischer
0.7 (17.78)	1.8 (45.72)	0.7 (17.78)	100 Hz–40 kHz	9230982 [SPO-1958] (U8629180)	Adjustable	2 single-pin Microdot

Cables for Sliding Probes

Instrument	Probe Connector	Part Number (Item Number)
NORTEC 600 or 2000 series	Triax Fischer/LEMO	Reflection: SPO-6687 (U8800538)
NORTEC 600 or 2000 series	4-pin Fischer	9122267 (U8800095)
NORTEC 600 or 2000 series	Dual Microdot	9230374 (U8800637)

Low-Frequency Spot and Corrosion Probes

Spot probes are used for discovering flaws both on and below surfaces. Operating in reflection mode, their large diameters usually accommodate lower frequencies or scanning large areas. Because spot probes contain large diameter coils for greater depth of penetration, the detectable flaw size will be increased. They are available in a variety of diameters and frequency ranges and are shielded to provide maximum sensitivity. Spot probes are used to detect cracks and corrosion as well as measure thickness in materials and coatings.

Corrosion probes (SPO-532x series) are specifically balanced to detect material loss in aluminum structures and are configured with reflection absolute coils.

Specifications

- Plastic outer housing with ferrite coil
- Probes come in different sizes and frequency ranges
- Ferrite provides excellent shielding of the sensors
- Triax Fischer/LEMO straight detachable connector



Straight Spot Probes in the Reflection Coil Configuration

Probe Outer Diameter		Frequency (kHz)	Part Number (Item Number)	Model Number
in.	mm			
Reflection Coil Configurations				
0.25	6.35	2 kHz–200 kHz	9213550 (U8623005)	SR/2KHZ-200KHZ/.25
0.31	7.87	700 Hz–80 kHz	9213551 (U8623006)	SR/700HZ-80KHZ/.31
0.44	11.18	400 Hz–60 kHz	9213552 (U8623007)	SR/500HZ-60KHZ/.44
0.50	12.7	300 Hz–40 kHz	9213553 (U8623008)	SR/300HZ-40KHZ/.50
0.62	15.75	100 Hz–20 kHz	9213554 (U8623009)	SR/100HZ-20KHZ/.62
0.75	19.05	100 Hz–5 kHz	9213555 (U8623010)	SR/100HZ-5KHZ/.75

Note: Special spring-loaded spot probes for surface and subsurface applications are also available by request.

Corrosion Probes

0.31	7.87	700 Hz–80 kHz	9217896 (U8633004)	SPO-5327 SR/700HZ-80KHZ/.31AL
0.44	11.18	500 Hz–60 kHz	9218108 (U8633005)	SPO-5328 SR/500HZ-60KHZ .44AL
0.50	12.7	300 Hz–40 kHz	9218203 (U8629128)	SPO-5329 SR/300HZ-40KHZ .50AL

Right-Angle Spot Probes in the Reflection Coil Configuration

Probe Outer Diameter		Frequency (kHz)	Part Number (Item Number)	Model Number	Ferrite
in.	mm				
0.67	17.02	50 Hz–3 kHz	RS016-5-TF (U8634049)	SR/50HZ-3KHZ/.60/RA	No
0.312	7.92	200 Hz–10 kHz	RS053-5-TF (Q6340003)	SR/200HZ-10KHZ/.31/RA	No
0.50	12.7	200 Hz–10 kHz	RS055-1-TF (U8634024)	SR/200HZ-10KHZ/.50/RA	No
0.575	14.61	5 kHz–100 kHz	RS1005-2-TF (U8630024)	SR/5KHZ-100KHZ/.57/RA	Yes
0.45	11.43	1 kHz–20 kHz	RS404-1-TF (U8634037)	SR/1KHZ-20KHZ/.45/RA	Yes

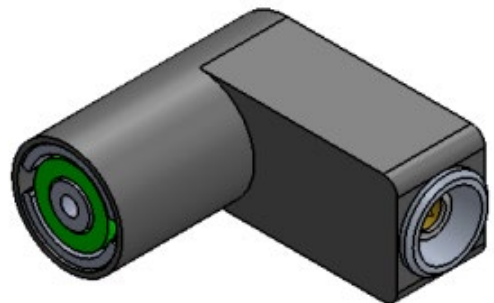


Ring Probes

Ring/encircling probes are made to fit various fastener head diameters. They provide greater sensitivity to subsurface cracks where there is a fastener/hole within multilayered structures. The probe internal diameter (ID) is the more important dimension and should be chosen to be slightly bigger than the fastener head. The outside diameter (OD) is not normally critical but should not overlap other fastener heads. The probe height is not always critical, but special low-profile types are available for cases of limited access. Ring/encircling probes are available in a variety of diameters and frequency ranges.

Specifications

- Plastic outer housing with shielded coil
- Probe diameter measured at the exposed inner diameter of the coil face
- Shielded coils provide greater depth of penetration and limits the influence of ferrite fasteners
- Steel coil form provides some shielding of the sensor
- Triax Fischer/LEMO right-angle detachable connector
- Various frequencies available



Ring Probes

Probe Inner Diameter		Probe Outer Diameter		Frequency (kHz)	Part Number (Item Number)	Model Number
in.	mm	in.	mm			
0.25	6.35	0.625	15.88	100 Hz–10 kHz	RR026-1-TF (U8636032)	RR/100HZ-10KHZ/.25-.625
0.25	6.35	0.625	15.88	500 Hz–20 kHz	RR206-5-TF (U8636041)	RR/500HZ-20KHZ/.25-.625
0.3	7.62	0.75	19.05	200 Hz–10 kHz	RR058-1-TF (U8636040)	RR/200HZ-10KHZ/.300-.750
0.3	7.62	0.625	15.88	5 kHz–80 kHz	RR1006-5-TF (U8636102)	RR/5KHZ-80KHZ/.30-.625
0.312	7.92	0.75	19.05	100 Hz–10 kHz	RR028-1-TF (U8636043)	RR/100HZ-10KHZ/.3125-.75
0.335	8.51	0.625	15.88	500 Hz–20 kHz	RR207-1-TF (U8636042)	RR/500HZ-20KHZ/.335-.625
0.35	8.89	0.75	19.05	80 Hz–4 kHz	RR017-1-TF (U8636026)	RR/80HZ-4KHZ/.35-.75
0.35	8.89	0.75	19.05	500 Hz–20 kHz	RR207-5-TF (U8636116)	RR/500HZ-20KHZ/.35-.750
0.4	10.16	0.75	19.05	50 Hz–3 kHz	RR018-5-TF (U8636027)	RR/50HZ-3KHZ/.40-.75
0.43	10.92	0.75	19.05	100 Hz–5 kHz	RR027-2-TF (U8634160)	RR/100HZ-5KHZ/.43-.75
0.5	12.7	1	25.4	50 Hz–3 kHz	RR0110-5-TF (U8636011)	RR/50HZ-3KHZ/.50-1.0
0.5	12.7	1	25.4	80 Hz–4 kHz	RR019-2-TF (U8636029)	RR/80HZ-4KHZ/.50-1.0
0.5	12.7	1.25	31.75	100 Hz–10 kHz	XERI-00018 (U8629122)	RR/100HZ-10KHZ/.50-1.25-9215661
0.54	13.72	1.15	29.21	100 Hz–10 kHz	9215663 (U8629123)	RR/100HZ-10KHZ/.54-1.0
0.6	15.24	1	25.4	50 Hz–3 kHz	RR0112-5-TF (U8636018)	RR/50HZ-3KHZ/.60-1.0 (1.16 in NS)
0.68	17.27	1	25.4	50 Hz–3 kHz	RR0110-3-TF (Q2501275)	RR/50HZ-3KHZ/.68-1.00
0.7	17.78	1.25	31.75	50 Hz–3 kHz	XERI-00011 (U8636019)	RR/50HZ-3KHZ/.70-1.30
0.8	20.32	1.5	38.1	50 Hz–3 kHz	RR0115-1-TF (U8636117)	RR/50HZ-3KHZ/.80-1.50

Spring-Loaded Probes Available by Request

Spring-loaded probes maintain a constant pressure when needed. Like spot probes, they are available in a variety of diameters and frequency ranges. They are shielded to provide maximum sensitivity. Spring-loaded probes are used to detect cracks and measure thickness in materials and coatings.



Cables for Spot and Ring Probes

Instrument	Probe Connector	Part Number (Item Number)
NORTEC 600 or 2000 series	Triax Fischer/LEMO	Bridge: 9122244 (U8800091)
NORTEC 600 or 2000 series	Triax Fischer/LEMO	Reflection: SPO-6687 (U8800538)

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EVIDENT CORPORATION
Shinjuku Monolith, 2-3-1 Nishi-Shinjuku, Shinjuku-ku, Tokyo 163-0910, Japan

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