

Fastener Inspection

ECA Surface Crack Detection



Olympus offers an innovative surface crack detection solution for the aerospace industry using eddy current technology. The structure of an aircraft contains thousands of fasteners, so ensuring their integrity can be an arduous process. Conventional inspection techniques are typically very time consuming and the probability of detection is highly dependant on operator skill. Nevertheless, for over a decade the technology has remained relatively stagnant. This solution changes that.

Using eddy current array considerably reduces the duration of an inspection, and detection probability is increased. This solution not only saves time, but its streamlined inspection process helps minimize the possibility for error.

Features

- Time-savings: up to ten times faster than EC pencil probe inspection, and up to 15 times faster than PT inspection
- Avoids paint removal; faster and more streamlined process
- Probe positioning not as critical as pencil probes or sliding probes
- Omnidirectional detection
- Great reproducibility
- Already integrated into Boeing inspection procedures (757 Part 6 53-30-12)
- Intuitive and easy-to-read imagery
- Data recording for professional reports
- Replaces magneto-optical imaging (MOI)



High-Resolution Scan

The recommended ECA probe, the SBBR-026-300-032, is 26 mm (1 in.) wide and features 32 coils arranged in two rows. This configuration provides increased resolution and clear imagery, which is suitable for very high-resolution scans. Its small coils (1.6 mm diameter) and high frequency (80–1000 kHz) enables operators to detect very minute cracks. It can also be used to scan through thin coatings, including standard paint thicknesses. Crack orientation is irrelevant for this probe, as its detection is omnidirectional. Scanning is also effective over ferromagnetic fasteners.

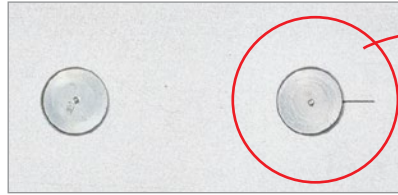


SBBR026-ENC probe kit

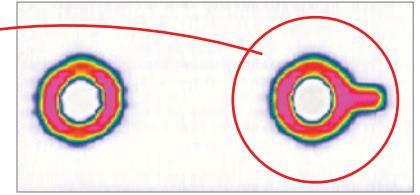
Scan Through a Thick Coating

Another probe is available that can scan fasteners through thick, nonconductive coatings: the SEB-064-005-032. Though it does not provide high resolution like the SBBR-026-300-032, its low-frequency range (0.5–50 kHz) and bigger coils can scan through thicker, nonconductive coatings like paint, stickers, and rubber. Due to its large coverage (64 mm), two rows of fasteners can be scanned at one time. And, cracks do not have to be oriented in a specific direction, as this probe is also omnidirectional.

Intuitive imagery



Sample with EDM notch



C-Scan

Performance for different notch lengths



1.5 mm
aluminum fastener



2.5 mm
aluminum fastener

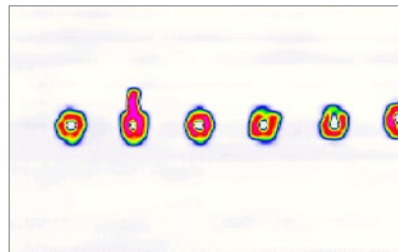


4 mm
aluminum fastener

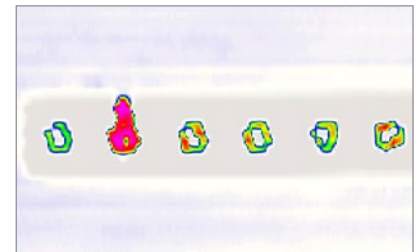


4 mm
ferromagnetic fastener

Omnidirectional detection



No coating



2.5 mm of nonconductive coating



SEB064-ENC probe kit

Ordering information

Item Number	Part Number	Description
U8270160	SBBR026-ENC	Factory-assembled probe kit, ready to use, consisting of an SBBR-026-300-032 probe, ENC1-2.5-DE encoder, and KISX1187 holder part.
U8270011	SBBR-026-300-032	ECA rigid probe, ABS mode, 25.6 mm coverage, 100–900 kHz, 32 elements, and 2 m cable.
U8270164	KISX1187	Holder kit for Mini-Wheel™ encoder ENC1 and SBBR-026.
U8270165	SEB064-ENC	Factory-assembled probe kit, ready to use, consisting of a SEB-064-005-032 probe, and ENC1-K-ECA encoder.
U8270044	SEB-064-005-032	ECA probe for corrosion, shielded coil, 64 mm of probe coverage, 32 channels, and soft surface.
U8779368	ENC1-K-ECA	Eddy current array probe encoder with full holder and 2.9 m cable with DE15 connector type.

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