

# Reflection-type probes for eddy current flaw detection in steel.

## Brunel University - Eddy Current Probes



Description: -

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### Reflection

Prior art reflection probes include differentially wound detection coils such that in the absence of a flaw, equal voltages of opposite phase are induced therein. The sensing coil in the probe provides a signal representative of the electromagnetic field re- radiated by the eddy currents in the surface under test. The ferrite cores at the in-line gaps directly engage the metal surface of a test piece, and the probe is scanned along the test piece.

### OKOndt GROUP

The positive and negative terminals for connection to the differential amplifier in the instrumentation are in this example reversed, for convenience. A non-conducting holder, not shown, such as holder 20 shown in FIGS.

### Eddy Current Probe Selection Information

The alternating current applied to the coil assembly of Figures 2, 3 or 4 may be a single frequency or a waveform that comprises multiple frequencies. Flaw detector instruments for use with prior art reflection probes may be used in the operation of the novel probes of this invention. Another object of this invention is the provision of a reflection-type eddy current probe in which edge effects are minimized whereby small flaws on surfaces and close to edges and corners are readily discernible.

### Eddy Current Probes

In this environment, the invention can be used for the detection of surface and sub-surface flaw conditions, including life cycle fatigue effects, stress corrosion, material ageing and traumatic environmental damage such as impact or heat damage.

### Reflection

The flexibility and versatility of the Surf-X Array Probe can be used for performing detailed inspection of thick or thin-walled components, smooth

or complex surfaces to identify subsurface flaws on different kinds of material and geometries. Eddy current probes may be designed to match the contours of a part or shaped to fit into a fixture for fast and accurate inspections. Contact your local Olympus sales office for more information.

## **Reflection**

The excitation windings are connected in series or parallel with an rf port for connection thereof to a radio frequency source. Absolute, Bridge and Differential Probes This is an area where some confusion exists.

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