SONEMAT

High Temperature EMAT - 550˚C HWS2220-VC

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Product Features

- No couplants or surface preparation
- High temperature operation, works at temperatures up to 1000°C without active cooling
- Generates and detects at 3-5 MHz centre frequency
- Operates on magnetic and magnetostrictive samples

A high temperature version (HWS2220-VC) of the normal Incidence radially polarised shear wave EMAT for continuous use at temperatures up to 550°C without water cooling. This EMAT is able to operate long term at high temperatures due to the application of an advanced magnet and coil design. This EMAT generates and receives radially polarised bulk shear waves with operation in pulse-echo mode.

This EMAT takes advantage of the magnetostrictive effect on oxide coated ferritic steels to increase EMAT efficiency, such that large signals are obtained even at high temperatures.

Applications

Energy Generation | Nuclear | Tanks and vessels | Pipelines | Oil and Gas

The HWS2220-VC is suitable for a range of industrial applications, in non-destructive testing (NDT) in sectors such as energy generation, petrochemical and oil & gas. Its broadband frequency response and adaptability make it perfect for material characterization, flaw detection, and thickness measurement.

- Thickness gauging (± 0.1mm)
- Corrosion monitoring
- Acoustic birefringence
- Crystallographic texture
- Boiler tube inspection

SONEMAT
info@sonemat.com
www.sonemat.co.uk

UKCA

MADE IN BRITAIN

Specifications

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Feature	Description
Probe Configuration	Pulse-Echo, can be used in pitch-catch with two probes
EMAT Working Principle	Magnetostrictive effect provides the best signals, such as on magnetic steels or magnetite (iron oxide, black) coated steels
Weight	0.3kg
Dimensions	Length: cable 230mm, body 40mm. Max. diameter 40mm
Operating Temp.	0 - 550 °C
Working Voltage	300 - 1000V pulse
Excitation Frequency	Broadband (spike) optimised for peak energy around 3-5 MHz
Wear Face	Optional detachable front west face via screw thread which can be replaced on request if worn, see below
Connections	BNC socket (50Ω)
Magnet	Field normal to sample
Recommended Electronics	Sonemat's GS2020, PR5000 or PR5020 Contact us for more information
Options	High temperature coaxial cable length or connector; contact us

Good signal-to-noise can be obtained on most magnetite coated (iron oxide) ferritic samples even at high temperatures – depending on the grade and lift-off used, good signals can also be obtained on ferritic steels at high temperatures.

Supplied with two screw on detachable front wear faces to protect the coil within the EMAT. Their use is advised for high-impact/cycling portable inspections, where the EMAT can suffer damage with repeat handling on/off magnetic samples. EMAT should be placed onto a magnetic sample at an angle with one side first, then tilted into position; this reduces the impact of the EMAT attracting to a metallic sample.

Note that use of the wear faces will reduce the observed ultrasonic signal. Two wear faces are supplied: 0.1mm and 0.2mm thickness. The 0.2mm thick wear face will provide the maximum coil protection, but will reduce the signal most. For permanent inspection we do not recommend use of a wear face.

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