FOERSTER

DEFECTOARRAY

Segmented Encircling Coil for Highly Sensitive Eddy Current Testing of Tubes and Bars

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Patented sensor technology with intelligent clearance compensation. The DEFECTOARRAY sensor was specifically developed for demanding eddy current testing of tubes and bars in production lines. By segmenting the encircling coil into eight circumferential segments (DIF), each equipped with an integrated clearance winding (CLR), the system enables highly reproducible inspection results – particularly in cases of eccentric material guidance.

Influences caused by eccentricity, dimensional tolerances, material entry effects, or vibrations are significantly reduced. As a result, the reproducibility of inspection results increases while simultaneously improving the throughput of reliably tested material.

The segmented sensor architecture also enhances the signal-to-noise ratio and increases sensitivity to small defects – especially for larger tube and bar diameters. Defects are detected not only longitudinally, but also precisely in their circumferential position. This allows faster localization of defect areas and provides valuable insights into the production process.

DEFECTOARRAY sensors are available in three sizes and cover material diameters from 18 to 180 mm. This allows the sensor system to be optimally adapted to different tube and bar dimensions. At the same time, the sensors remain fully compatible with existing FOERSTER magnetization yokes M as well as H and P sensor systems.

YOUR ADVANTAGES AT A GLANCE

Higher process reliability: Patented clearance compensation reduces the influence of eccentricity, dimensional tolerances, and material movement

Increased tested material throughput: Improved reproducibility of inspection results reduces unnecessary scrap

Precise defect localization: Defect positions are accurately detected both longitudinally and circumferentially

Optimized signal-to-noise ratio: Segmented sensor architecture improves the detection of small defects – especially on large diameters

Material-friendly inspection concept: Greater distance between material and sensor reduces the risk of mechanical damage

Reduced setup effort: Coil and nozzle changes are required less frequently

High system compatibility: Compatible with existing FOERSTER magnetization yokes as well as H and P sensor systems

TECHNICAL INFORMATION

NOMINAL COIL DIAMETER:	— Size I: 18 – 45 mm (3 mm increments) — Size II: 46 – 100 mm (3 mm increments) — Size III: 104 – 180 mm (4 / 5 mm increments)
RECOMMENDED TEST MATERIAL DIAMETER:	— Size I: 15 – 44 mm — Size II: 42 – 98 mm — Size III: 97 – 179 mm
DIMENSIONS (H × W × D):	— Size I: 161,5 × 99,6 × 44,6 mm — Size II: 241,5 × 159 × 69,4 mm — Size III: 300 × 238 × 130 mm
TEST FREQUENCY:	3 – 60 kHz
EFFECTIVE WIDTH:	— Size I: 4,5 mm — Size II: 5,5 mm — Size III: 6,3 mm
AMBIENT TEMPERATURE:	0 – 80 °C | 0 – 176 °F
TEMPERATURE TEST MATERIAL:	0 – 80 °C | 0 – 176 °F
WEIGHT:	— Size I: approx. 1,3 kg — Size II: approx. 3,5 kg — Size III: approx. 12,5 kg
HOUSING COMPOSITION:	polyamide, metal
DEFECT DETECTABILITY:	transverse and point defects
SUITABLE FOR FOERSTER EVALUATION INSTRUMENTS:	DEFECTOMAT DA
SUITABLE FOR FOERSTER SENSOR SYSTEMS:	H, M, P

NORMS

DIN EN ISO 15549: Describes the general bases of eddy current testing.

DIN EN ISO 10893-2:2020-10 : Specifies the requirements for the automated eddy current testing of steel tubes to detect surface imperfections as part of non-destructive testing.

FOERSTER

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