FOERSTER

DEFECTOMAT PRODUCT FAMILY

Non-destructive eddy current testing of long products such as tubes, rods, wire, and profiles

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Reliable quality control and reproducible testing combined with great economic efficiency. The DEFECTOMAT systems by FOERSTER were specially developed for quality testing and process monitoring of long products. From hot testing to all bright steel processing steps, the surfaces of semi-finished products made from austenitic, (non) ferromagnetic metals can be tested for defects.

The DEFECTOMAT systems operate in a contactless and non-destructive manner in accordance with the eddy current method and are used for detecting short defects, such as holes or localized defects and transverse defects. The systems detect defective materials fully automatically and reliably.

Defects can be marked, classified, and automatically discarded. the test speed of up to 150 m/s facilitates 100% testing, even at high production speeds. The systems benefit from low operating costs and frugal energy consumption as well as low maintenance costs, few wear parts, and low use of materials.

Thanks to their compactness and flexibility, the testing systems can be individually configured and integrated into almost any process flow. The modular design and wide range of sensor systems make it possible to adapt them to new testing tasks at any time.

YOUR ADVANTAGES AT A GLANCE

Reliable inline inspection: Detect surface and near-surface defects in long products directly during production.

Flexible inspection solutions: From compact entry-level systems to centralized multi-line operation – choose the configuration that fits your production environment.

Broad application range: Suitable for tubes, bars, wire and profiles made of austenitic, ferromagnetic and non-ferromagnetic materials.

Adaptable testing technology: Flexible channel configurations, application-specific sensors and a wide frequency range support diverse inspection tasks.

Easy integration: Compact designs and comprehensive interfaces allow seamless integration into new or existing production lines.

Consistent quality assurance: Reliable defect detection supports stable production processes and reproducible product quality.

Scalable to your requirements: Expand system functionality as your inspection needs grow.

Built on FOERSTER expertise: Proven eddy current technology for reliable inline inspection in industrial production.

NORMS

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

DEFECTOMAT DA

Digital Eddy Current Testing for Reliable Detection of Transverse Defects in Long Products such as Tubes, Bars, Wire and Profiles

A new definition of premium class. The DEFECTOMAT DA sets new standards in non-destructive eddy current testing of long products. Combining fully digital signal processing, a modular system architecture and powerful software, it delivers outstanding inspection quality, maximum flexibility and intuitive operation.

The innovative evaluation electronics digitize inspection signals directly at the sensor. This significantly reduces electromagnetic interference and ensures exceptional repeatability, even at inspection speeds of up to 150 m/s. Patented digital tracking filters automatically adapt to the current inspection speed, providing stable and reliable inspection results even under demanding production conditions.

Its modular architecture allows the system to be easily adapted to new inspection tasks and future requirements. Up to 16 TEST SYSTEM DA modules with a total of 256 inspection channels can be combined without multiplexing, providing maximum performance for a wide range of applications.

Together with the DEFECTOTEST DA software and the comprehensive portfolio of FOERSTER sensors, the DEFECTOMAT DA forms a future-proof platform for automated eddy current testing. An intuitive user interface, automatic sensor recognition, multi-user capability, and comprehensive reporting and documentation functions support efficient, fully digital inspection workflows.

YOUR ADVANTAGES AT A GLANCE

Fully digital inspection system: Digital signal processing directly at the sensor for outstanding inspection quality

Modular platform: Flexible system architecture for future expansion and evolving inspection requirements

High performance: Up to 256 inspection channels without multiplexing

Maximum flexibility: Connection of up to 16 TEST SYSTEM DA modules

Patented tracking filters: Dynamic adjustment of digital filters to the inspection speed

High inspection speed: Reliable testing of long products at speeds of up to 150 m/s

Wide frequency range: Continuously adjustable inspection frequencies from 1 kHz to 1 MHz

High signal dynamics: Dynamic range of up to 126 dB

Intuitive operation: Touch-optimized software with multi-user capability and context-sensitive online help

Comprehensive documentation: Customizable inspection reports and complete archiving of inspection results

TECHNICAL INFORMATION

MEASUREMENT CHANNELS:	Up to 16 TEST SYSTEM DA modules with 16 measurement channels each, optionally for differential probes, clearance probes, and Ferromat probes
EXCITATION FREQUENCIES:	1 kHz - 1 MHz (endlessly adjustable)
FILTERING PROCESS:	Digital speed shift filter; filters move along dynamically with the speed
TESTING SPEED:	max. 150 m/s
AMPLIFICATION:	max. dynamic range 126 dB
SENSOR MONITORING:	Broken wires, overload, automatic sensor recognition
PATENT:	The DEFECTOMAT DA uses processes patented to Institut Dr. Foerster GmbH & Co. KG, including US 8907828 B2 "METHOD AND DEVICE FOR TESTING THE MATERIAL OF A TEST OBJECT IN A NONDESTRUCTIVE MANNER". Also protected in many other countries worldwide.

DEFECTOMAT CI

Compact inline eddy current inspection for tubes, bars, wire and profiles

Reliable surface defect detection for stable production processes. The DEFECTOMAT CI is a compact eddy current inspection instrument for the non-destructive testing of long products such as tubes, bars, wire and profiles. Designed for continuous quality assurance and process monitoring, it reliably detects surface and near-surface defects while helping manufacturers maintain consistent product quality throughout the production process.

Its flexible two-channel architecture, twelve excitation frequencies from 1 to 1,000 kHz and comprehensive range of application-specific sensors enable the system to be adapted to a wide variety of materials and inspection tasks. Austenitic, ferromagnetic and non-ferromagnetic products can all be tested with a single platform.

The compact design, intuitive Turn & Push operation and seamless integration into existing production lines make the DEFECTOMAT CI an efficient solution for automated inline testing. Advanced signal evaluation, automatic filter tracking and precise defect marking ensure reliable inspection results even under changing production conditions.

YOUR ADVANTAGES AT A GLANCE

Flexible two-channel testing: Configure Diff/Abs, Diff/Diff or Diff/FERROMAT operation to suit a wide range of inspection tasks.

Wide frequency range: Twelve excitation frequencies from 1 to 1,000 kHz ensure optimum testing performance for different materials and product dimensions.

Reliable signal evaluation: Sector signal analysis with two trigger levels enables precise defect detection while reducing process-related noise.

Automatic adaptation to production speed: Filter tracking automatically adjusts signal processing to changing test speeds for stable inspection results.

Precise defect marking: Defects are marked at their exact position for reliable downstream processing and evaluation.

Easy integration and connectivity: Ethernet connectivity, analogue outputs and remote access allow seamless integration into production and quality management systems.

Intuitive operation: The Turn & Push interface, colour display and password-protected user levels simplify operation and ensure process reliability.

Clear process visualization: Live process visualization and continuous display of key inspection parameters provide maximum transparency during testing.

TECHNICAL INFORMATION

MEASUREMENT CHANNELS:	Max. 2 independent channels, differential or static operation, second measurement channels optionally as FERROMAT
TESTING FREQUENCIES:	1, 3, 6, 10, 12, 15, 20, 30, 60, 100, 300, 1,000 kHz - optional additional frequencies
FILTERING PROCESS:	manual, 12 levels, 1 Hz - 16 kHz
AMPLIFICATION:	max. dynamic range 102 dB
TEST SPEED:	max. 150 m/s
SENSOR MONITORING:	disruption, short circuit, overload

DEFECTOMAT DI

Compact inline eddy current inspection with centralized control for long product manufacturing

Your cost-effective introduction to automated quality assurance. The DEFECTOMAT DI is a compact eddy current inspection instrument for the non-destructive testing of tubes, bars, wire and profiles. Designed for continuous quality assurance and process monitoring, it reliably detects surface and near-surface defects while supporting stable production processes across a wide range of long product applications.

Developed for standard eddy current inspection tasks, the DEFECTOMAT DI combines comprehensive testing capabilities with a compact design and flexible system architecture. Inspection, parameter configuration and result archiving are performed via an external PC connected through Ethernet, allowing centralized operation and straightforward integration into networked production environments.

Its flexible two-channel architecture with optional Diff/Abs, Diff/Diff or Diff/FERROMAT evaluation, twelve excitation frequencies from 1 to 1,000 kHz, automatic filter tracking and advanced signal evaluation provide reliable inspection performance for a wide variety of materials and applications. Multiple DEFECTOMAT DI instruments can be operated from a single workstation, creating an efficient solution for centralized quality monitoring across multiple production lines.

YOUR ADVANTAGES AT A GLANCE

Cost-effective entry into automated quality assurance: Comprehensive eddy current testing functions for the most common inspection applications.

Centralized operation: Operate, configure and archive inspection data conveniently via an external Ethernet-connected PC.

Multi-line support: Control multiple DEFECTOMAT DI instruments from a single workstation for efficient production monitoring.

Flexible two-channel testing: Configure Diff/Abs, Diff/Diff or Diff/FERROMAT combinations to suit a wide range of inspection tasks.

Reliable inspection performance: Twelve excitation frequencies from 1 to 1,000 kHz, automatic filter tracking and sector signal evaluation ensure dependable results.

Easy system integration: Compact design, Ethernet connectivity and remote configuration simplify integration into existing production environments.

Expandable functionality: Start with a standard configuration and extend the system with optional functions as your inspection requirements grow.

High system availability: Integrated sensor monitoring, protocolled calibration and pin-compatible connections simplify maintenance and replacement.

TECHNICAL INFORMATION

MEASUREMENT CHANNELS:	Max. 2 independent channels, differential or static operation, second measurement channels optionally as FERROMAT
EXCITATION FREQUENCIES:	1, 3, 6, 10, 12, 15 20, 30, 60, 100, 300, 1,000 kHz (optional additional frequencies)
FILTERING PROCESS:	manual, 25 levels, 1 Hz – 16 kHz
AMPLIFICATION:	max. dynamic range 102 dB
TEST SPEED:	max. 150 m/s
SENSOR MONITORING:	disruption, short circuit, overload

DEFECTOMAT ECM

Compact eddy current inspection for cost-effective quality assurance of long products

The simple solution for reliable pass/fail inspection. The DEFECTOMAT ECM is a compact, modular eddy current inspection instrument for the non-destructive testing of long products such as tubes, bars, wire and profiles. Designed as a cost-effective entry-level solution, it provides reliable surface defect detection and fast pass/fail classification directly within the production line.

Its modular design allows the DEFECTOMAT ECM to be tailored to a wide range of inspection tasks. Various fixed-frequency modules and an optional multi-frequency module provide application-specific flexibility, while optional extensions such as an absolute channel support additional applications, including the detection of open weld seams.

With its compact footprint, straightforward operation and easy integration into control cabinets, the DEFECTOMAT ECM is ideally suited for standard inline inspection tasks. Connected to a host computer, inspection results can be logged, statistically evaluated and archived for complete quality documentation.

YOUR ADVANTAGES AT A GLANCE

Cost-effective entry into eddy current testing: Compact and economical solution for automated quality assurance of long products.

Modular and expandable: Configure the system with fixed-frequency, multi-frequency or absolute channel modules to match your inspection requirements.

Reliable pass/fail classification: Fast and straightforward evaluation of inspection results for efficient production processes.

Simple operation: Intuitive controls and an LED bar graph provide clear signal visualization and easy parameter adjustment.

Compact integration: Space-saving design for easy installation into existing control cabinets and production lines.

PLC connectivity: Integrated interfaces support inspection sequence control, sorting functions and threshold monitoring.

Inspection data documentation: Log, evaluate and archive inspection results via a connected host computer.

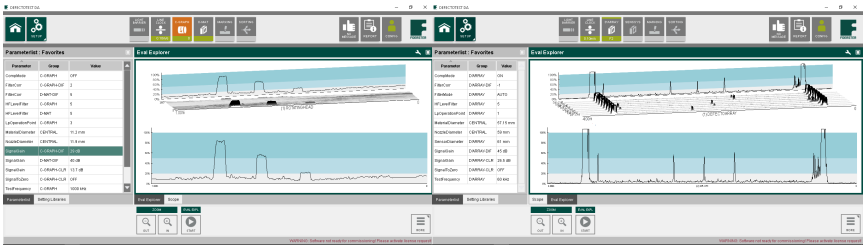
Scalable to your needs: Expand the system with additional functions as your inspection requirements evolve.

TECHNICAL INFORMATION

MEASUREMENT CHANNELS:	1, optional additional absolute channel
EXCITATION FREQUENCIES:	10 kHz, optional frequency module, max. 8 levels
FILTERING PROCESS:	HP+TP, manual adjustment, 25 levels, 1 Hz – 16 kHz
AMPLIFICATION:	max. dynamic range 102 dB
TEST SPEED:	max. 150 m/s
SENSOR MONITORING:	disruption, overload

DEFECTOTEST DA ECT

The Software Platform for Eddy Current Testing with DEFECTOMAT DA and CIRCOGRAPH DA



Inspect, visualize and document. DEFECTOTEST DA is the central software platform for the DEFECTOMAT DA and CIRCOGRAPH DA eddy current testing systems. It combines inspection control, signal evaluation, visualization and documentation within a single intuitive user interface, providing a consistent operating concept across a wide range of testing applications.

All relevant inspection data is available in real time and can be displayed, analyzed and archived using freely configurable workspaces. With the new Eval Explorer, operators can visualize signal traces in three dimensions for the first time, offering significant advantages when working with multi-channel sensors. In addition to the combined signal across all channels, individual channel signals can be displayed simultaneously, enabling precise evaluation of defect orientation around the circumference of the test material. This visualization also provides valuable insights into the surface condition of the inspected material.

With role-based user management, customizable workspaces and comprehensive documentation features, DEFECTOTEST DA supports efficient quality monitoring while enabling seamless integration into modern production environments.

An optional Offline Viewer provides clear access to archived inspection data at both order and part level, giving quality managers powerful tools to search, analyze and review inspection results.

The Offline Viewer can be installed and operated on multiple workstations simultaneously. It only requires access to locally or centrally archived inspection data.

YOUR ADVANTAGES AT A GLANCE

Unified software platform: One consistent user interface for both DEFECTOMAT DA and CIRCOGRAPH DA.

Intuitive operation: Touch-optimized interface with context-sensitive online help.

Advanced visualization with Eval Explorer: Display signal traces in 3D and clearly visualize surface conditions.

Flexible workspaces: Customize layouts to suit individual users and inspection tasks.

Searchable inspection archive: Easily retrieve inspection data and defect patterns at any time.

Custom inspection reports: Automatic documentation in common file formats.

Role-based user management: Control user permissions and secure inspection workflows.

Open interfaces: Easily integrate with production and quality management systems.

FOERSTER

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The FOERSTER Group is represented by subsidiaries and representatives in over 60 countries worldwide. You can find a complete overview on our website.

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