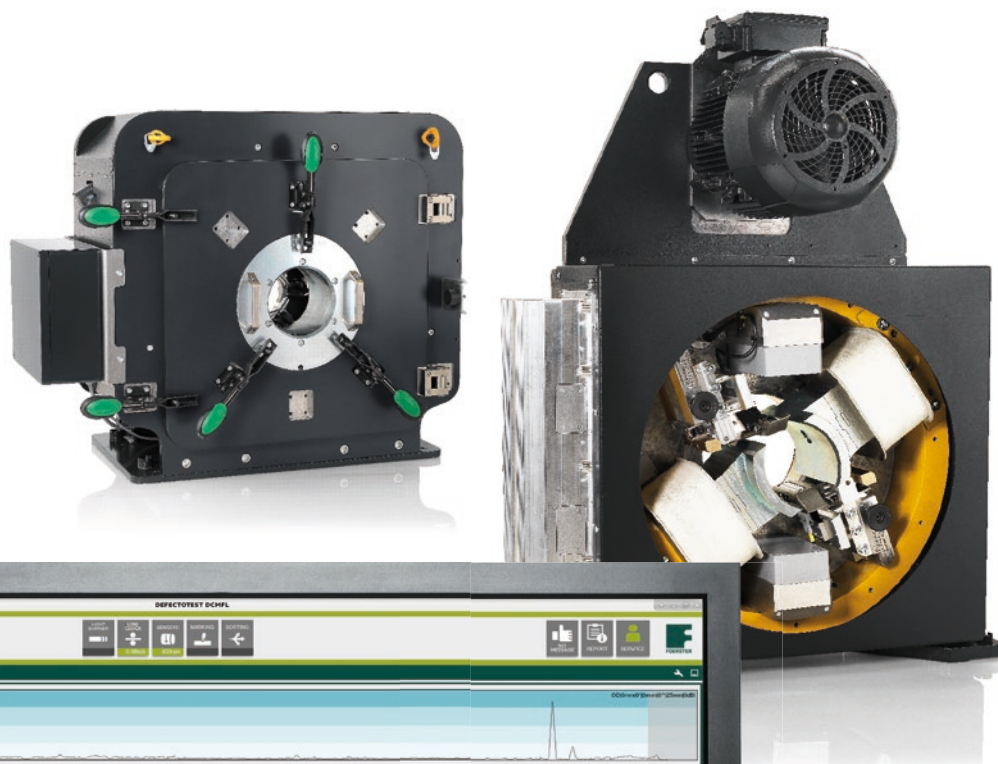


ROTOMAT DA TRANSOMAT DA

A new dimension in electromagnetic inspection



proof.

The Company

FOERSTER is a global technology leader for non-destructive testing of metallic materials. One of the "Hidden Champion" companies, FOERSTER operates worldwide with an extensive network of nine subsidiaries plus qualified representatives in more than 60 countries and works closely with its customers.

FOERSTER Business Unit Test Systems (TS)

Business Unit TS specializes in developing and manufacturing turnkey technical systems for the automated, non-destructive testing of metallic long products and heavy plates. Electromagnetic methods such as eddy current and flux leakage testing, ultrasound and inductive heat flow thermography are used to inspect these semi-finished products for defects that are invisible to the naked eye.

These systems are made for the metal producing and metalworking industries, where tubes, wires, bars, billets, rails, profiles, metal sheets and similar items are produced on rolling mills, drawing lines, welding lines or processed in various finishing operations. FOERSTER products perform many critical test applications during these processes.



Test your tubes with the innovative ROTOMAT DA / TRANSOMAT DA



We newly define quality assurance of seamless and welded steel tubes

You, as OCTG tube manufacturers are currently confronted with various challenges:

- Rising quality requirements
- Undetected natural defects leading to high costs due to customer complains
- Economic losses due to untested ends
- High maintenance costs of the test equipment

Reinventing flux leakage testing

The new ROTOMAT DA / TRANSOMAT DA flux leakage system helps you meet these challenges:

- Reliable detection of natural and oblique defects regardless of length and angle
- Improved detectability of inner defects
- More precise decision between outer and inner defects
- Reduction of untested ends

Gain more insights about your defects

The miniaturization of the sensors together with highly integrated electronic components dramatically increases the number of channels. This makes a more precise and finer scan of the surface possible, giving you a more complete set of information regarding detected defects. The newly introduced C-scan, which visualizes these defects in high-definition and real-time, results in a completely new evaluation of the test material to meet rising quality requirements.

ROTOMAT DA: Discover new possibilities in tube testing



Advantages

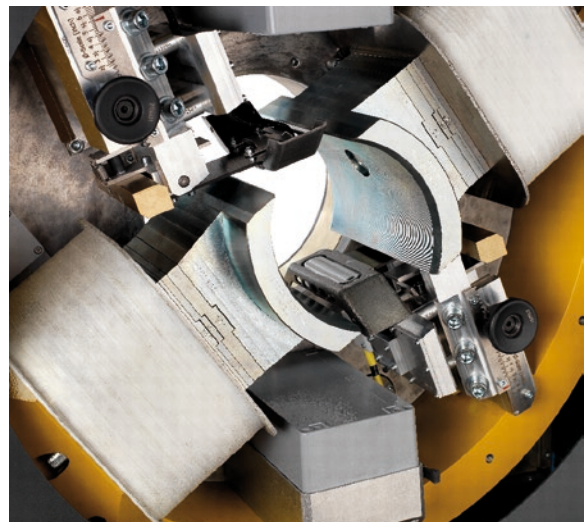
- **Improved defect detection:** Testing for inner and outer defects, longitudinal and oblique up to $\pm 45^\circ$
- **Less maintenance costs:** Through contactless transmission of power and electronic signals
- **Completely digitized sensor system**
- **High noise immunity:** achieved through digitization directly at the sensor array
- **High-definition tube images:** Up to 192 full channels visualize defects in a high-definition C-scan

Improved defect detection

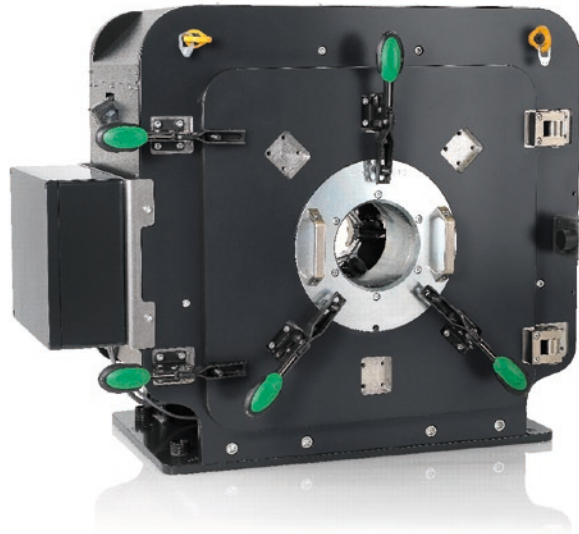
The ROTOMAT DA, used for flux leakage testing of tubes with a diameter of 17 – 520 mm, sets new standards in the detection of longitudinal and especially oblique defects. For the first time, innovative patented evaluation algorithms enable for the detection of oblique and natural defects. Together with the high-resolution sensor array defect detection is significantly improved. Digitization takes place directly at these arrays in the rotating part. This enables new forms of data transmission to the stationary part of the sensor system. The number of test channels can therefore be increased up to 192. This creates the ability for high-definition C-Scan images.

Robust and maintenance-friendly

With digitization taking place directly at the sensors, the length of analog signal paths is reduced dramatically, thereby increasing noise immunity. Furthermore, test signals and power for magnetization are transmitted without contact between the rotor and stator. Transmission between the sensor system and the electronic cabinet is done with just one Ethernet cable. With the new system, slip rings and brushes are now no longer required, leading to a significant reduction in maintenance costs. Consequently, the availability and reliability of the system increase.



TRANSOMAT DA: Improve your tube production process



Advantages

- **New possibilities in defect detection:** Testing for inner and outer defects, transversal and oblique up to $\pm 45^\circ$
- **Significantly reduced untested ends** through new servohead technology
- **Extremely fast and easy dimension change** by quick release technology
- **Longer lifetime and less maintenance of test heads** due to precise motion control
- **High-definition tube images:** Completely digitized sensor system with up to 768 full channels.

High-channel-count TRANSOMAT DA

With the new TRANSOMAT DA sensor system, tubes with a diameter of 17 – 520 mm can be tested. High-resolution arrays are directly digitized at the sensors. Up to 768 channels enable a unique sensitivity while testing for transversal and oblique defects.

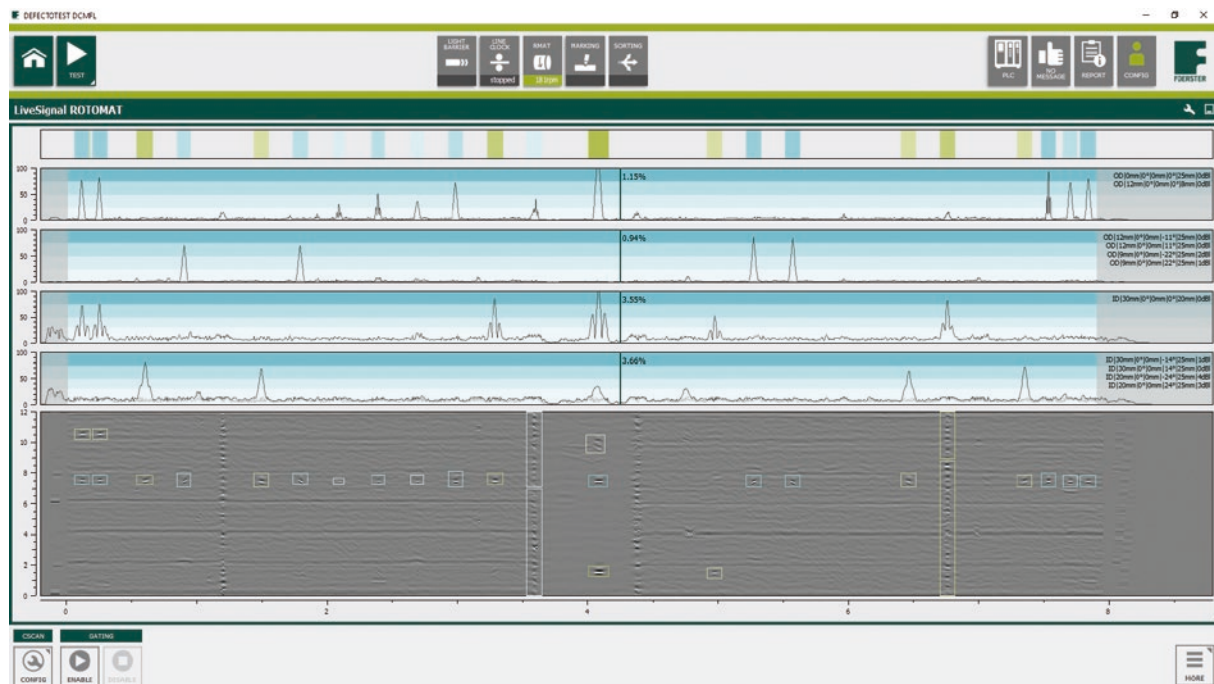
Reduce your untested ends

The servohead technology allows you to very precisely control the movements of the test heads towards the tube under inspection. This precise control allows setting the touchdown point close to the tube ends. Further, the optimized touchdown speed avoids bouncing when the test heads arrive at the tube surface. Thus, testing can start immediately at the touchdown point. This leads to significantly reduced untested ends. As a result of the improved control, lifetime of the test heads considerably increases due to the slower touchdown speed.

Change the dimensions faster than ever before

Current systems on the market require up to 40 minutes for a dimension change. During this time, your production stands still, and valuable time is lost. FOERSTER has developed a completely new solution, enabling a dimension change in half of the time: All exchangeable parts of the TRANSOMAT DA are attached by quick releases. No tools are necessary. Additionally, the test heads are automatically contacted electrically during installation. No connectors are necessary. So, you save up to 50 % of the time normally needed for a dimension change.

New software features for ROTOMAT DA



Easy-to-use operation software

The highly modular software design allows for specific solutions tailored to your requirements. So we achieve optimally adapted configurations. The software offers an easy to operate graphical user interface (GUI). The different windows of the GUI can be tailored to your individual preferences. It is also possible to split the GUI on several screens, e.g. to have the signals of the ROTOMAT DA on one screen and the signals of the TRANSOMAT DA on another screen.

High-definition C-scan lets you detect oblique defects 360°

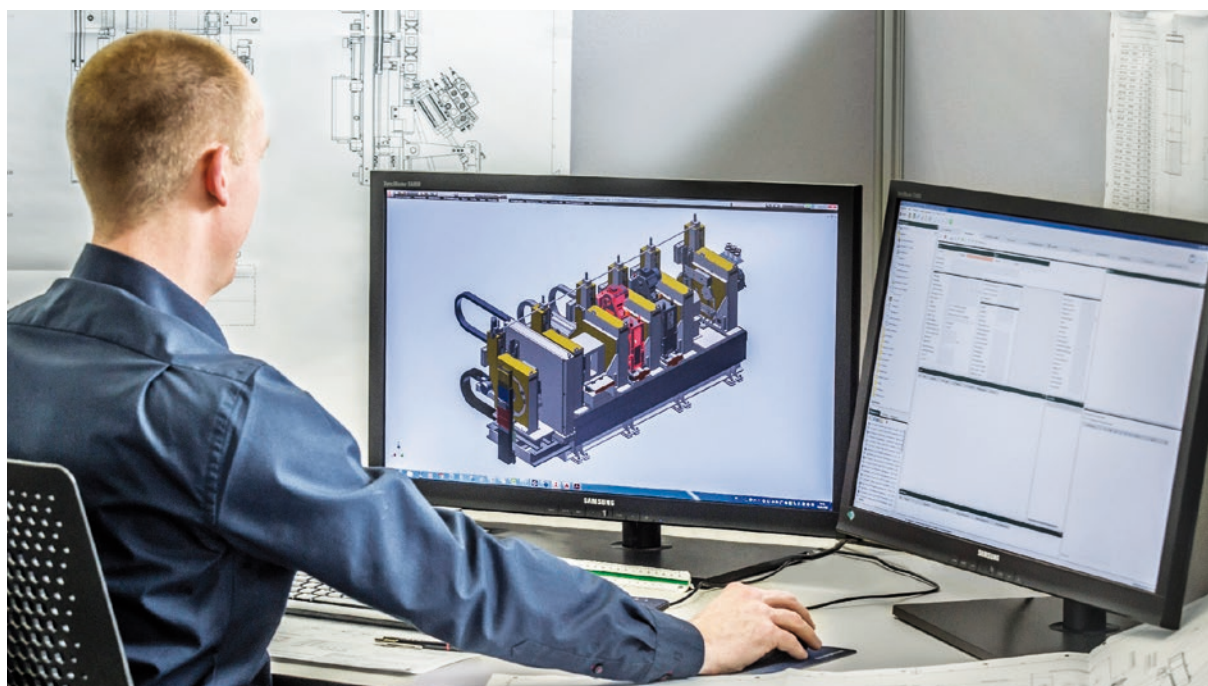
The newly developed high-resolution sensor array technology of the ROTOMAT DA / TRANSOMAT DA makes the detection of even the finest changes in the material surface possible. Smallest stray fluxes can be detected by the highly sensitive sensors. Special patented algorithms working on the high-definition

C-scan enable the detection of defects on the outer and inner tube surface in all directions. So, it is possible to find oblique defects of all angles as well as short defects.

Reliably detect natural defects

In addition to oblique defects, you can reliably detect natural defects of all angles and lengths. This opens up completely new testing possibilities. High reproducibility for any defect length down to 1/4" is achieved. For the first time, defects can be visualized in high-definition quality on the C-Scan, so that all defects can be seen in real time on the screen. Time-consuming and costly manual or visual inspections at the proof up station, as well as the end area testing are no longer necessary. Additionally, due to the significantly reduced untested ends, your material waste losses are decreasing correspondingly.

Your choice – Our system configurations



Systems for every customer requirement

With the new flux leakage test systems ROTOMAT DA and TRANSOMAT DA, you as a manufacturer can ensure that your tubes meet even the highest quality requirements of your customers. With FOERSTER, you are prepared for the future.

We offer two alternatives for your individual requirements:

Upgrade of existing mill systems

You have already integrated a ROTOMAT DS and/or TRANSOMAT DS in your testing lines? In this case, we offer you upgrade packages to the DA technology. No further mechanical changes of the testing line are required. Customized upgrade packages are available to suit different customer requirements.

New mill systems

For new testing lines, we offer customized solutions developed in close cooperation with our customers, starting from project planning, to construction, commissioning and far beyond. The robust and environmentally compatible design of the Mill Systems offers you a maximum lifespan and performance.

Customer-specific solutions

You have special requirements? We also offer individual solutions to exactly meet your expectations. ROTOMAT DA and TRANSOMAT DA sensor systems are available for diverse material diameter ranges and testing speeds. We offer V-roller testing sections for tubes with plain ends and centric solutions for tubes with upset ends. It is also possible to integrate third-party devices into the testing sections, such as ultrasonic devices or diameter measuring systems. The optional Instrumentation Software allows easy handling of the different test instruments and third-party systems from one central screen. We also take care of the overall automation resulting in a complete turnkey solution.

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The FOERSTER Group is being represented by subsidiaries and representatives in over 60 countries – worldwide.

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