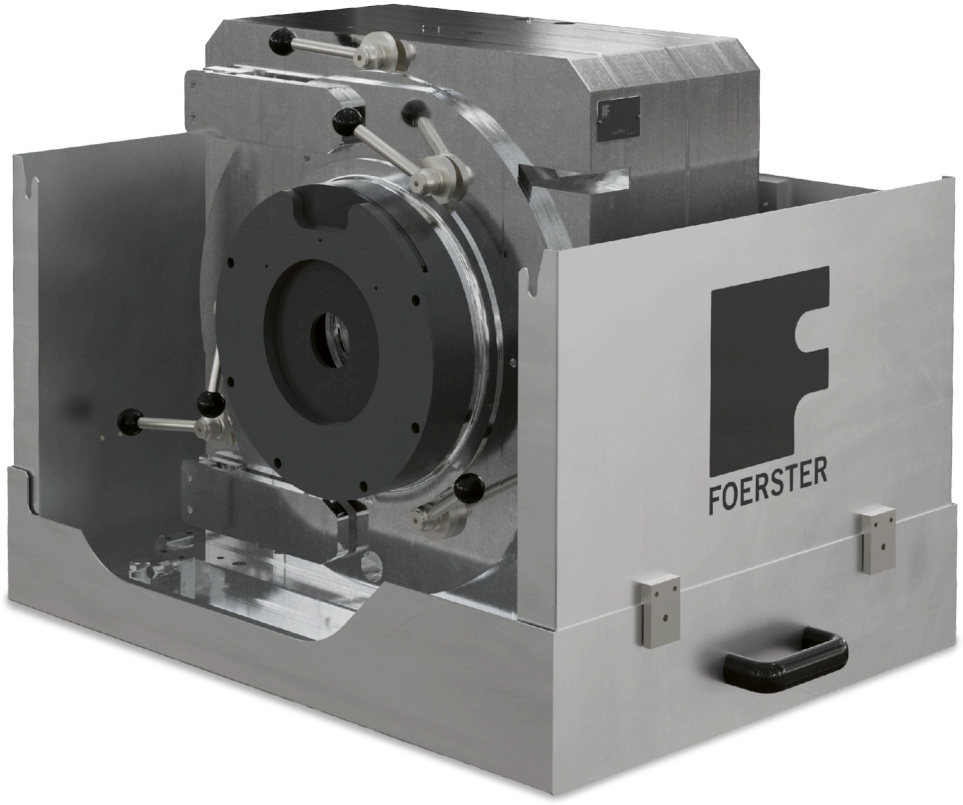
FOERSTER

BARPROOF

Automated Phased-Array Ultrasonic Testing for Bar Inspection



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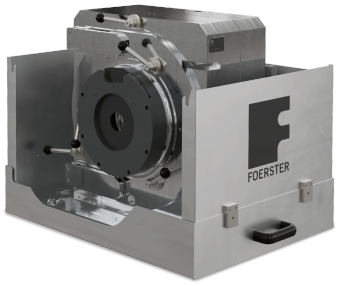

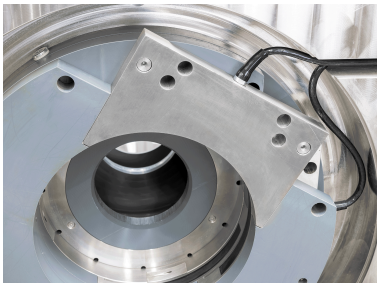

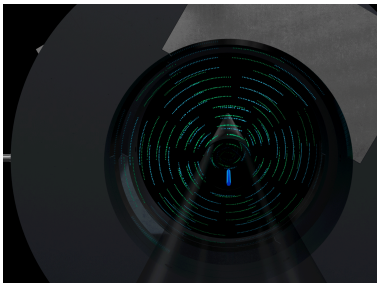

Reveal Hidden Defects Throughout the Entire Bar. The BARPROOF inspection system uses advanced phased-array ultrasonic technology for automated inline inspection of round bars with bright or hot-rolled surfaces. Designed for rolling mills and drawing lines, it reliably detects internal, near-surface and surface defects throughout the entire material volume, helping manufacturers identify production defects at an early stage and ensure consistently high product quality.

Multiple phased-array probes operate simultaneously at high pulse repetition rates, generating different focal zones within the material for reliable detection of longitudinal, near-surface and point-shaped defects. The system combines excellent inspection sensitivity with inspection speeds of up to 2 m/s, making it ideal for high-throughput production environments.

The compact sensor system accommodates interchangeable phased-array probe sets for bar diameters from 10 to 140 mm within a single housing. Ultrasonic coupling is achieved contactlessly via a rotating water jacket, while the testing mechanism itself operates without rotating mechanical components. Combined with centric material guidance using interchangeable guiding bushes, this ensures excellent repeatability, minimal wear and consistently high inspection quality.

Thanks to its compact design, BARPROOF can be easily integrated into new or existing production lines. When combined with FOERSTER eddy current or magnetic flux leakage systems, it completes a comprehensive inspection solution for bar production.

YOUR ADVANTAGES AT A GLANCE

Reliable volumetric inspection: Detect internal, near-surface and surface defects throughout the entire bar using advanced phased-array ultrasonic technology.

High inspection sensitivity: Multiple focal zones enable reliable detection of longitudinal, point-shaped and crack-like defects across the complete material volume.

High throughput: Parallel phased-array electronics enable inspection speeds of up to 2 m/s for demanding production environments.

Wide application range: Interchangeable phased-array probe sets cover round bars from 10 to 140 mm in a single compact sensor system.

Outstanding reproducibility: Centric material guidance combined with contactless ultrasonic coupling ensures stable inspection conditions and highly repeatable results.

Low maintenance, high availability: The testing mechanism contains no rotating mechanical components, minimizing wear, maintenance requirements and unplanned downtime.

Easy integration: Compact dimensions allow straightforward integration into new or existing production lines.

TECHNICAL INFORMATION

INSPECTION METHOD:	Phased-array ultrasonic testing
APPLICATION:	Automated inline inspection of round bars
TYPICAL INDUSTRIES:	Rolling mills and drawing mills
DIAMETER RANGE:	from 10 mm to 140 mm
PROBE TECHNOLOGY:	Interchangeable phased-array probe sets
NUMBER OF PROBES PER SET:	6 phased-array probes
INSPECTION COVERAGE:	Complete bar volume and surface
DETECTED DEFECTS:	Internal, near-surface and surface defects including longitudinal, crack-like and point-shaped defects
MAXIMUM TRANSPORT SPEED:	up to 2 m/s (depending on test material diameter and detection limit/reference defect type & size)
TEST MATERIALS:	Steel, aluminium, titanium
SURFACE CONDITION:	Bright and hot-rolled
MATERIAL GUIDANCE:	Centric guidance using interchangeable guiding bushes
ULTRASONIC COUPLING:	Contactless rotating water jacket
EVALUATION SOFTWARE:	ECHOVIEW F
WEIGHT BARPROOF SENSOR SYSTEM:	approx. 900 kg
AMBIENT TEMPERATURE:	5 °C to 50 °C
RELATIVE HUMIDITY:	Up to 90 %, non-condensing
ALTITUDE:	According to DIN EN 61010-1:2010 up to 2,000 m

NORMS

AMS-STD-2154: Defines ultrasonic inspection requirements for detecting internal defects in wrought metals.

EN 10308: Specifies ultrasonic testing methods and acceptance criteria for detecting internal discontinuities in steel bars and billets.

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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