PRÜFTECHNIK

EDDYCHEK® 5

Innovative eddy current testing for quality and process control

- All major applications
- 2 channel testing
- Touchscreen
- Reporting
- Networking

Full-body testing with multi-segment coils and weld seam inspection

Weld seam testing with longitudinal magnetizing unit and segment coil

Wire inspection in drawing line

Weld seam inspection of aluminum radiator tubing

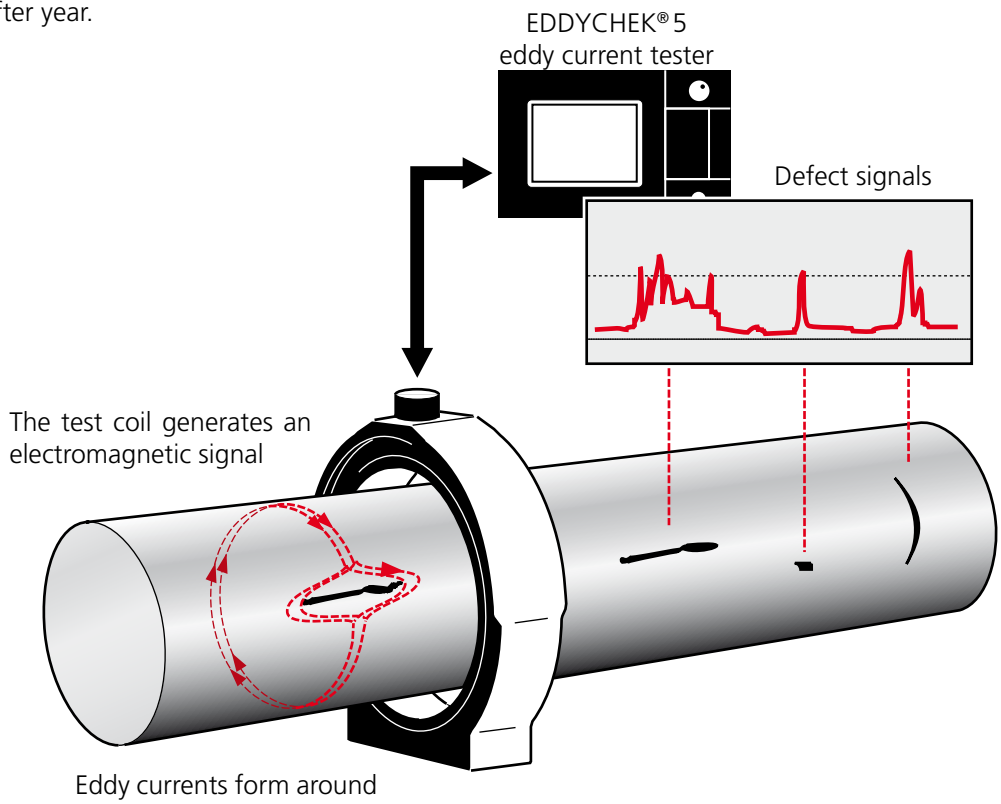
Eddy current testing — essential quality assurance

Users of tube, bar and wire are always asking for higher quality material to meet their own rising production requirements. The only way for producers of semi-finished products to meet this demand is to implement fully automatic, non-destructive testing methods that provide reliable test results to verify product excellence. In doing so, they are increasingly focusing on process improvement and the reduction of scrap and downtime.

Eddy current testing has become one of the most important testing methods used by industry today. It can be fully integrated in production lines, whether at low or high speeds or for cool or hot metals. It provides mill operators with immediate feedback on product integrity, allowing correction of process changes before scrap develops or serious overhauls are required. Eddy current testing is easy to install and operate and provides reliable test results day after day, year after year.

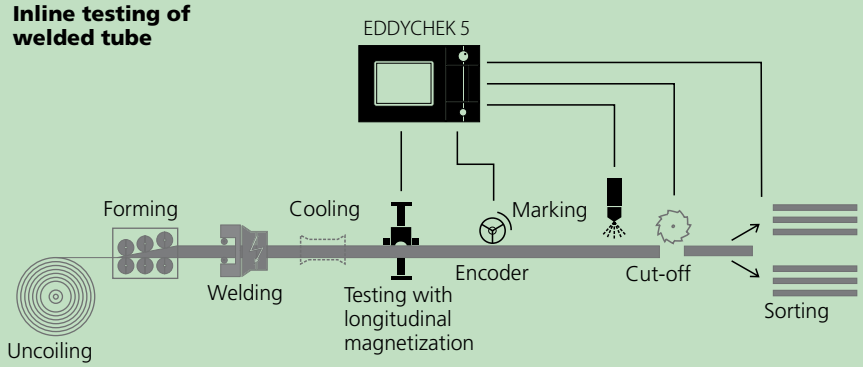
Advantages of the EDDYCHEK® 5

- Easy to install and operate
- Dependable and reproducible test results
- Automatic marking of defects
- Automatic sorting of inspected products in 3 categories
- Wide range of test reports available for certification of product quality
- Storage of parameters and test results
- Full integration in network for controlling testing from central host computer
- Meets the international standards ASTM, API, BS, JIS, ETTC, ENEL, DIN, and SEP 1925/1917/1914, etc.

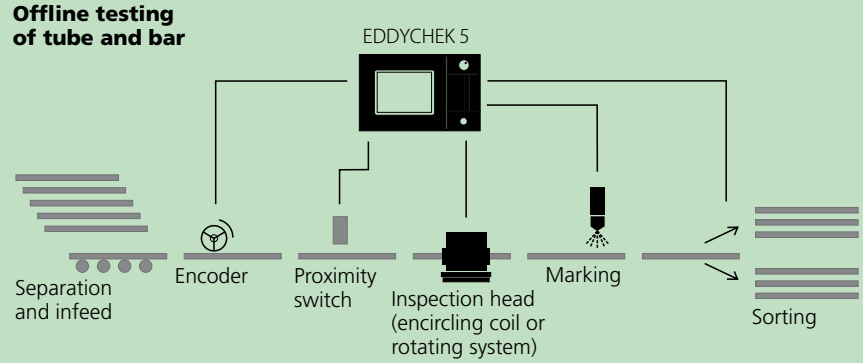


Typical applications for the EDDYCHEK®5

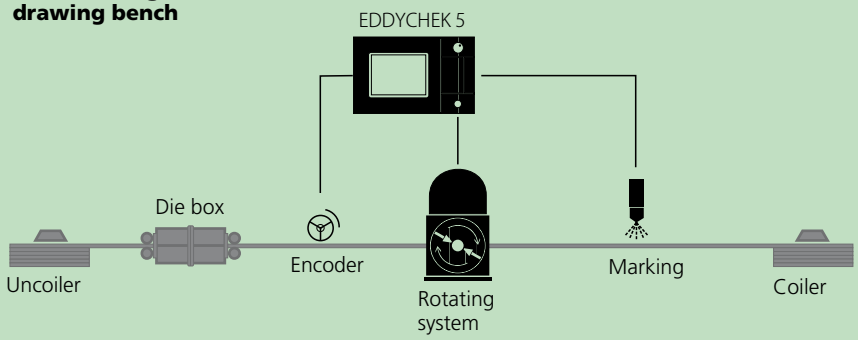
Inline testing of welded tube



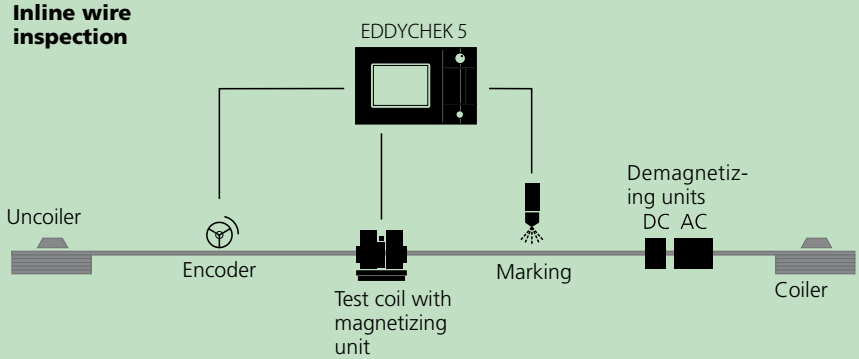
Offline testing of tube and bar



Inline testing on drawing bench



Inline wire inspection



Offline testing of bright steel with RS130 rotating system

Weld seam inspection of steel tubing

Testing of hot rolled material

Inline inspection of spring wire

User-friendly design

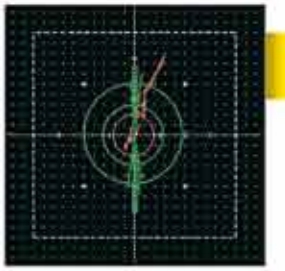
Practical touchscreen

Control knob
Set parameters by turning the control knob after selecting a parameter on the screen.

Touchscreen
Just touch the screen to set up parameters and to control testing and printing.

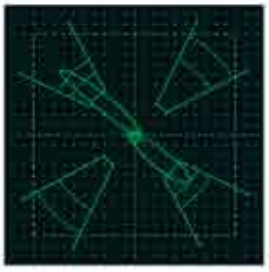
Informative signal display

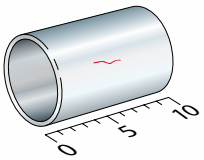
Real-time signals provide immediate feedback on the quality of the product. Signals are green and red to distinguish each channel.



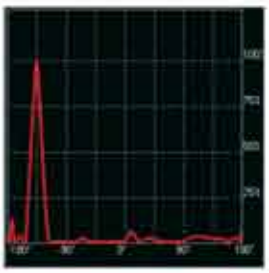
Amplitude-time display
This display shows defect signals along the length of the tested material as the material moves down the line.

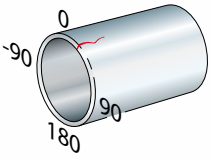
XY display: The signal amplitude can be evaluated with up to three circular masks (top image). If the angle of the signal is of importance (for example, to distinguish between different defect types), sector masks can be used to differentiate between signals of differing angles (center image).

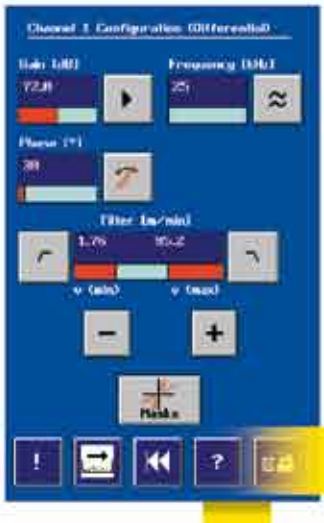




Rotating display: This display is used with a rotating system. It shows the position of the defect on the circumference of the test piece. The horizontal axis of the display shows the degrees on the test piece.



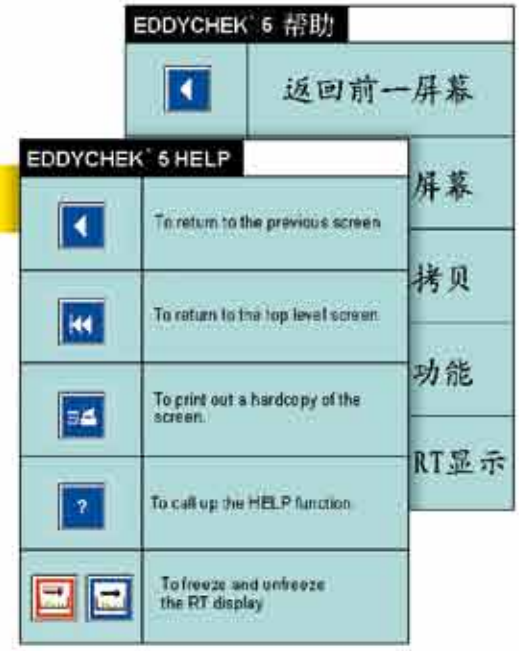




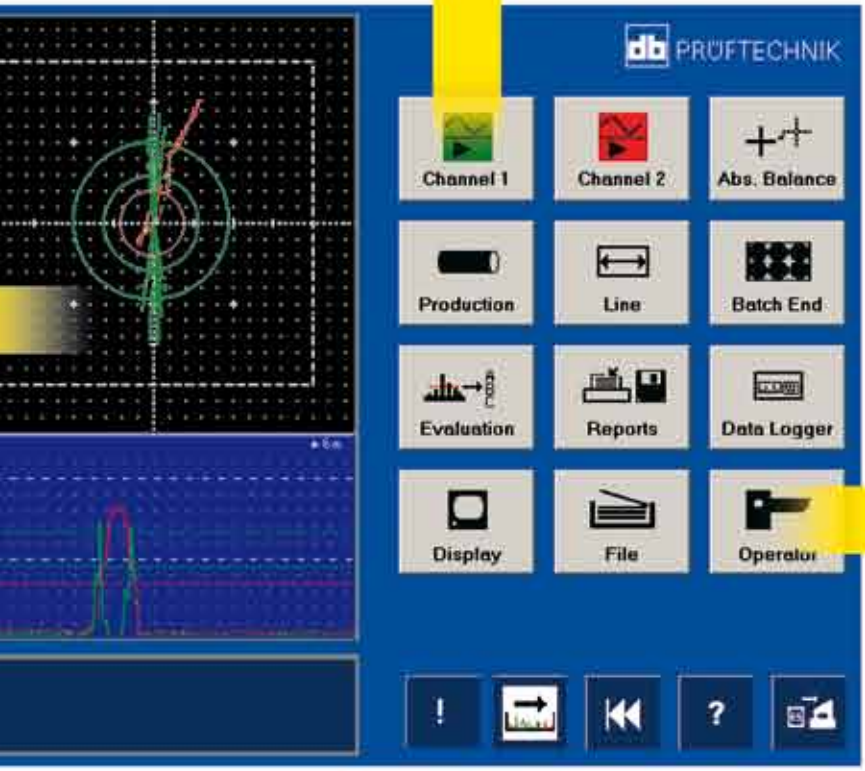
Automatic filters
EDDYCHEK®5 offers a greatly simplified method of filter setting. Once the high pass filter is set for a certain speed range, speed changes are automatically matched. This is an optional feature.

Online HELP

Each menu is accompanied by a help page that explains functions in detail. Online HELP is available in your national language.



Touch button to open menu



Unlocked parameter

Locked parameter

Password protection

Basic settings that rarely need to be changed can only be accessed with a password. All parameters can be locked so that they remain readable but inaccessible.

Language selection

The language used for the text on the screen and in the online help can be selected in this menu.

Comprehensive inspection with EDDYCHEK® 5

Inputs

Encoder

Transducers

Encircling coils

Segment coils and probes

Rotating systems

Inspection h

Longitudinal magnetization units

Networking for centralized control

Convenience
Production managers can set up testing and view test results on the computer in the convenience of their office.

Advance parameter setup
Parameters may be set up and stored for later use before they are actually required.

Customized test results
You can customize the presentation of test results to your company requirements.

Production planning

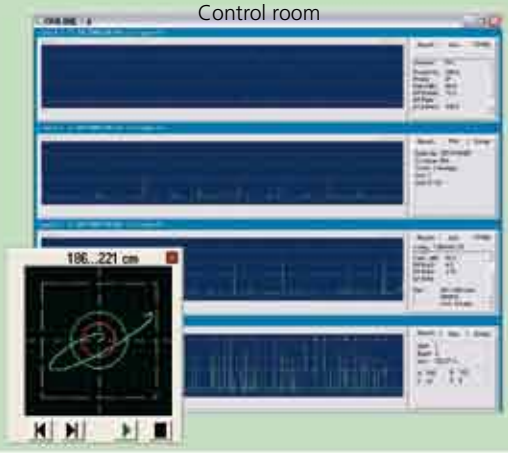
Central server and data base

EDDYTREND software

With the EDDYTREND software, you can work with test results on a PC in your office or control room.

- Monitor production with live test signals
- Identify quality trends over the last four test pieces
- View several production lines at once
- Play back previous testing runs
- Analyze test results to improve parameter settings

Control room



Outputs

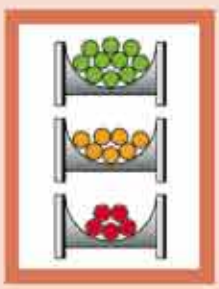
Audible and visible alarms

head assemblies

Encircling magnetization units

Water-cooled head assemblies

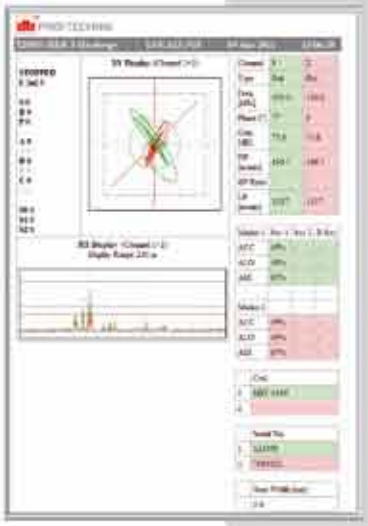
Marking systems



Sorting into three classes

Documentation

DATA LOGGER
With the DATA LOGGER you can play back and analyze test signals of previous test pieces. This will give you the opportunity to adjust the testing parameters to ensure that EDDYCHEK® 5 will identify the defects you want to find.



Screen printout
For a record of the testing currently in progress, you can print out a color copy of the signals on the screen together with the settings.

Defect locations and statistics
The defect locations on the test pieces and defect statistics for the whole batch are displayed by the Viewer.

Technical data

Applications

Field of application
- Manufacture of tubing, pipe, bar, wire, strip, cable sheathing, extruded sections (roll-forming, tube mills, drawing machines)
- Quality assurance (e.g. testing of individual lengths and verification when changing test coils)
- Any metal section (ferrous or nonferrous)

Production lines and speeds
- Continuous production with cut-off (welding lines)
- Continuous production without cut-off (drawing lines)
- Offline testing of cut lengths
- Cold forming applications using stop-and-go testing
- 0.1 – 12 000 m/min (0.002–200 m/s; 0.3 – 40 000 fpm) depending on type of production and test coil
- Max. offline speed: 20 m/s (3 900 fpm), max. 2 pieces per sec.

Signal resolution
- 10 mm (0.4") at speeds < 1 200 m/min (20 m/s; 3 900 fpm)
- 100 mm (4") at speeds ≥ 1 200 m/min (20 m/s; 3 900 fpm)

Testing procedure
- Multichannel, multifrequency testing (differential syst.)
- 1 or 2 channels: combin. of rotational, differential, absolute, FERROCHEK; optional signal vector evaluation

Parameters

Frequency and filtering
- Test frequencies : 2.0–1 000 kHz
- Each channel has its own oscillator
- Speed-coupled, automat. adjustable high pass filter (optional)

Phase rotation 0 – 359° in steps of 1°

Gain
- 0–48 dB in 0.2 dB steps for absolute channel
- 40–100 dB in 0.2 dB steps for diff./rotational channels

Coil monitoring
- Coil windings are monitored for breaks and short circuits
- Automatic setting and recording of coil information when using Smart Sensors

End signal suppression
- Control of end signals at start/finish of cut lengths

Data processing

Signal processing and defect evaluation
- Signal evaluation with masks and 3 alarm thresholds
  - Circular mask
  - Mirrored sector masks, 2 pair/channel (option)
  - Mirrored sector masks with remainder (option)
  - For absolute channel and FERROCHEK: circular mask only
- Test length classification in up to 3 sorting categories according to flaw density and flaw category in combination with acceptable length

Test results
- Compilation on 3 levels: Test piece (or section for continuous applications), batch, shift
- Max. number of test pieces (or sections) per batch: 50 000
- Max. total number of batches per shift: 99
- Max. total number of test pieces (stop-and-go): 9 999 999

Power supply

- 85–265 V; 47–63 Hz
- EDDYCHEK® 5 electronics power consump.: ≤ 150 VA

Software

User interface
- Touchscreen operation using icons
- Multitasking realtime operating system
- Archiving of testing parameters for later retrieval
- Sample test mode: testing of individual lengths for quality control checks and parameter verification
- Software in Chinese, Czech, English, French, German, Italian, Japanese, Polish, Russian, Spanish, Swedish
- Online help for each menu, available in local language
- Password protected supervisor level for adjusting basic testing parameters and locking parameter access in main level

Reporting software
- DATA LOGGER: Recording/viewing signals and data (opt.)
- EDDYTREND: Recording/viewing/analyzing testing signals; identifying quality trends (opt.)
- EDDYCHEK® 5 Viewer: Graphic display of defect locations and defect statistics

Data transfer
- Standard LAN: Ethernet (TCP/IP)

Hardware

Screen and housing
- 12.1" (30.7 cm) diagonal color display
- Environmental protection IP 54 against dust and water spray
- Shielded housing and internal power supply filter to prevent interference according to VDE843 CE EN 50081-2 and IEC 801.1 – 4 EN 50082-2
- Dimensions (HxWxD): 355 x 440 x 606 mm (14" x 17.3" x 23.9"), 8 height units
- Weight: approx. 34 kg (74.8 lb)

Operating conditions
- Temperature range: 0–40 °C (32–113 °F)
- Internal cooling unit

Input
- Touchscreen and control knob (keyboard possible)

Input and output terminals

- 4 modular inputs and outputs (additional 4 inputs and 4 outputs optional) configurable as potential free or 24 V
- Max. of 6 delayed or undelayed outputs; max. 3 sorting outputs; 1 system error output
- 1 line encoder input, 2–track
- Centronics terminal
- 3 USB connectors
- VGA interface for external monitor
- Network: Ethernet (TCP/IP)
- Analog output for 2-channel signal recorder

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CE

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PRÜFTECHNIK NDT GmbH
Am Lenzenfleck 21
85737 Ismaning, Germany
www.ndt.pruftechnik.com
Telephone: +49 (0) 89 996160
Telefax: +49 (0) 89 967990
eMail: ndt-sales@pruftechnik.com