

# Defect detection on heading wire

**Raw material defects found prior to forming and subsequently separated**

Quality is at the forefront of everyone's mind, but how can you find material defects such as cracks and tears within the irregular shapes of fasteners and other cold-formed products? A very difficult prospect – short of inspecting each part by hand! With today's requirements for streamlined production that's just not economically feasible.

Now PRÜFTECHNIK offers a reliable detection method based on eddy current testing. It's completely automatic and was specifically designed for full integration into cold forming processes. Heading wire is tested for faults prior to being cut and formed into individual parts. The defect location is tracked down the line and the faulty part is sorted as scrap after forming. It's that easy! The versatile system adapts to most machines and will not limit production speed.



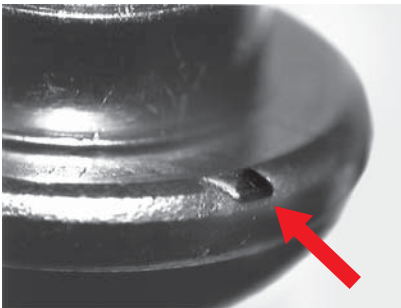
**Testing takes place here!**



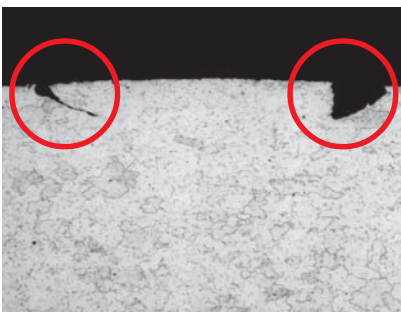
# Improving your product quality with eddy current testing

## Where do defects on cold-formed parts originate?

Faults on fasteners and other cold-formed parts are largely due to defects already present in the parent material. The cold forming process makes these flaws more pronounced, as shown in the example below.



Profile crack



Cracks shown in cross-section. Such surface defects are usually already present prior to forming.

## The traditional way of finding defects

It is the goal of every manufacturer to allow only quality products to leave the factory. The irregular shape of finished parts often prohibit adequate final testing. Quality control has traditionally been performed manually by inspectors or by complex scanning techniques.

## Your benefits

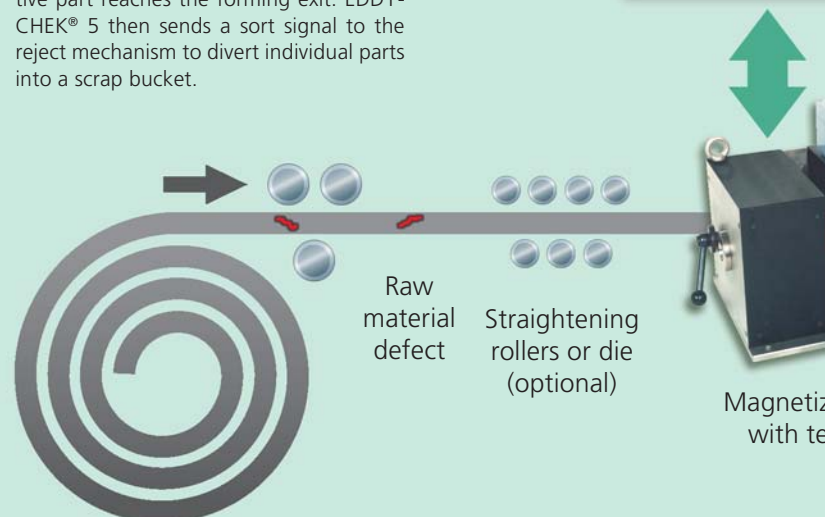
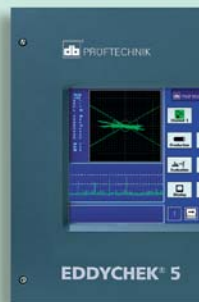
- ✓ Automatic, nondestructive inspection of heading wire for defects
- ✓ Automatic sorting of defective parts directly on the cold former
- ✓ Lower production costs because faulty parts are eliminated from subsequent processing
- ✓ Easier assessment of supplier's raw material quality from automatic production statistics
- ✓ Can be used to meet requirements of ISO 6157-3, Part 3.

## EDDYCHEK® 5 is fully integrated in the cold-forming process

### How it works

- 1 EDDYCHEK® 5 tests the incoming material for defects.
- 2 If a defect is found, it is evaluated and its position registered.
- 3 A signal is sent to EDDYCHEK® 5 every time a piece is cropped. This way EDDYCHEK® 5 tracks the occurrence through the machine in piece-part increments.
- 4 EDDYCHEK® 5 recognizes when a defective part reaches the forming exit. EDDYCHEK® 5 then sends a sort signal to the reject mechanism to divert individual parts into a scrap bucket.

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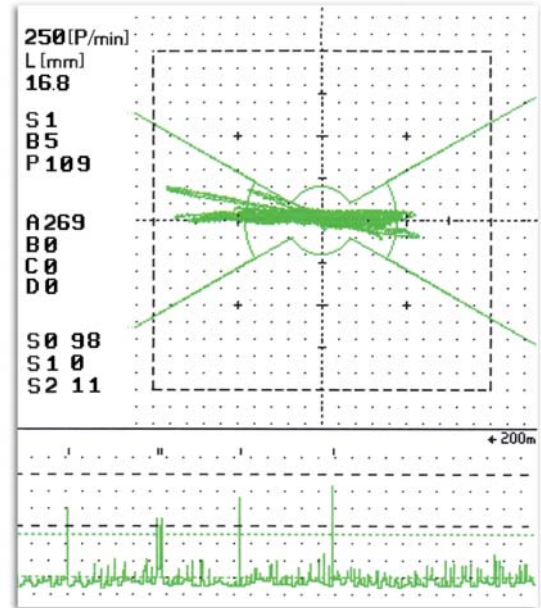


## The new way of assessing product quality

To avoid the tedium of inspecting the complex profiles of parts after forming, we approach the problem at an earlier stage. Incoming material is tested before it is cut and formed, at a point where standard transducers can be used.

### Eddy current testing: Non-contact, dry, reliable

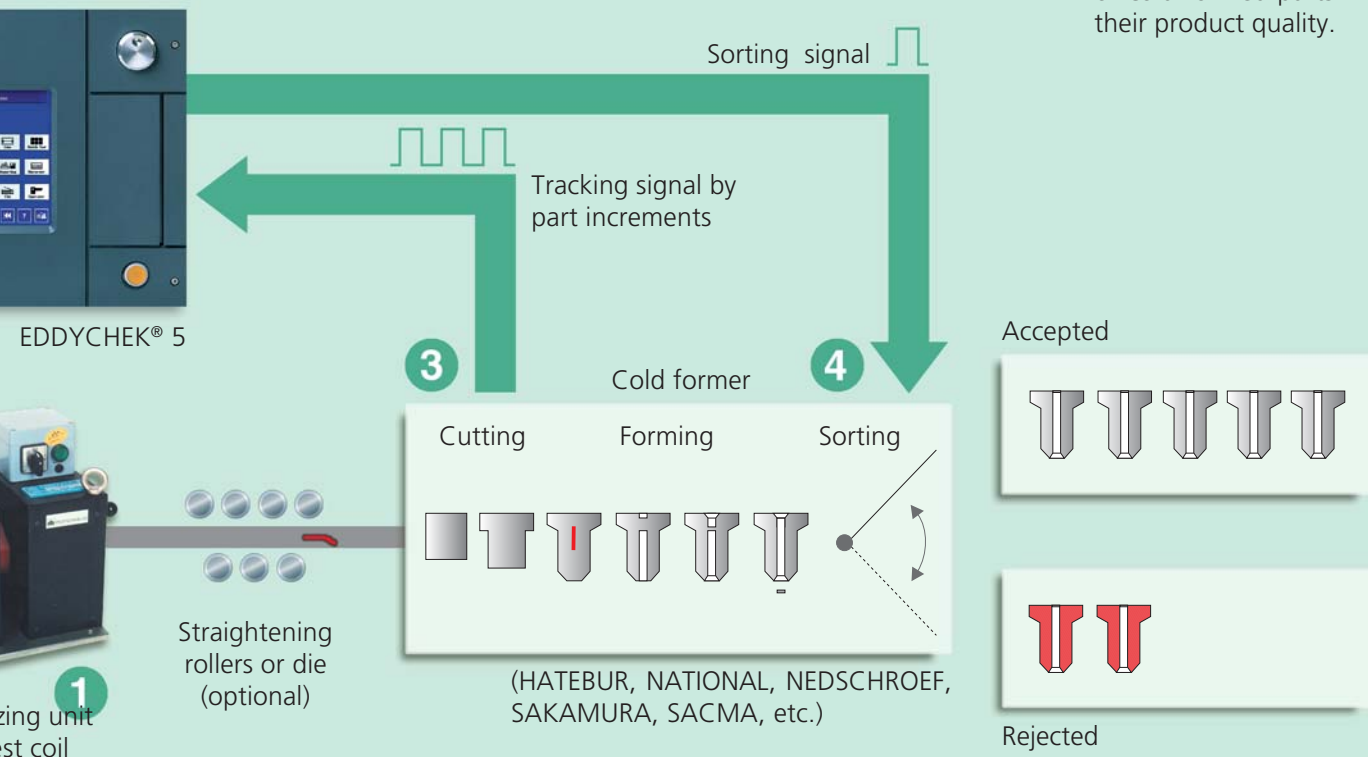
Wire is inspected by a non-contact dry method using eddy current encircling coils to detect a broad spectrum of defects in the material, including seams, laps, pitting, chevrons and cross-cracks. EDDY-CHEK® 5 tracks the defect until the contaminated part exits the final forming station. An output signal then initiates a sorting gate and the faulty part is deflected into the scrap bin. Testing does not require reduction of production speed.



#### Clear display of defect signals

Defect signals are displayed on the screen, both in an X/Y polar diagram (upper display) that shows the signal phase and in an amplitude/time display (lower display). The displays can be printed out and data stored for statistical summaries based on total parts produced and rejected.

## Forming process



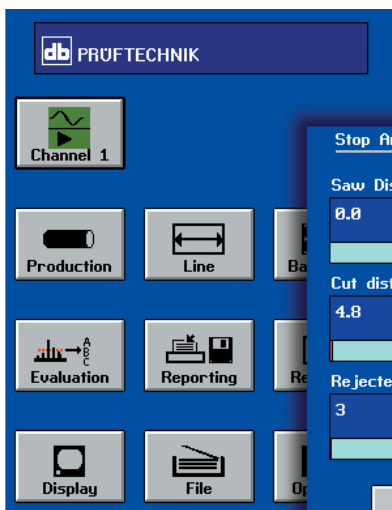
Our test equipment is already helping major manufacturers of cold-formed parts improve their product quality.

# EDDYCHEK® 5 tester



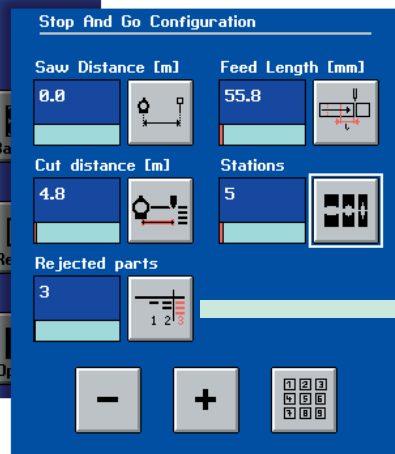
## Modern touchscreen, simple operation

EDDYCHEK® 5 allows you to monitor your material and test parameters on its brilliant display that doubles as a convenient touchscreen. The user-friendly menus are designed to meet the specific needs of this manufacturing process. Inspection parameters relate directly to machine and product data as shown below. To minimize setup time, testing can be automated by predefining and storing parameter setups and simply loading them as needed. Icon-driven menus and informative multilingual online help pages shorten training times significantly.



### Main menu

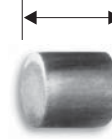
The buttons open convenient menus for parameter setup, defect evaluation, automatic reporting, test data files and more.



### Configuration menu for cold forming

This menu was developed especially for the cold forming application and lets you match testing to your specific production configuration.

### Length of part



### Number of forming stations



### Number of parts to be rejected around defect

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