



FFT *check* **HemQC**

„FFTcheck HemQC enables quality measurement on various types of roll hemming.“

one step ahead in **INTELLIGENT** production systems



FFTcheck HemQC

„FFTcheck HemQC enables quality measurement for all types of roll hemming.“

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FFTcheck HemQC - Process
Objective

2

FFTcheck HemQC - Benefits
Stable process evaluation, fast and accurate measured value acquisition

3

FFTcheck HemQC - Types of folds
Hemming geometries

4

FFTcheck HemQC - Equipment
Hardware / Software

1 **FFT**check **HemQC** - Process

Introduction

one step ahead in **INTELLIGENT** production systems

FFT *check* HemQC - Process

Introduction



Target :

- With high reliability, the quality of a roll hemming and a gluing job is to be checked
→ Ensure correct roll hemming of a seam to avoid corrosion, instability & a flawed appearance.



Problem :

- If the hemming process is not carried out properly, the above-mentioned problems can occur
- When applying sealing adhesive, detect adversities (gaps, insufficient volume, wrong position)



Solution by FFT HemQC - Process :

- Scanning system for optical 3D detection of hemming geometry or sealing glue
→ Detection of position, height, width and, if necessary, adhesive leakage

FFT*check* HemQC - Process

Roll
hemming
production

First, production of the hem in three steps (hemming speed 100mm/sec.)→ Roller hemming measurement in the third step

Measuring
rate

Taking a picture per millimeter

Quality
visualization

The hem quality is visualized via red, yellow & green markings

Linking with
PLC

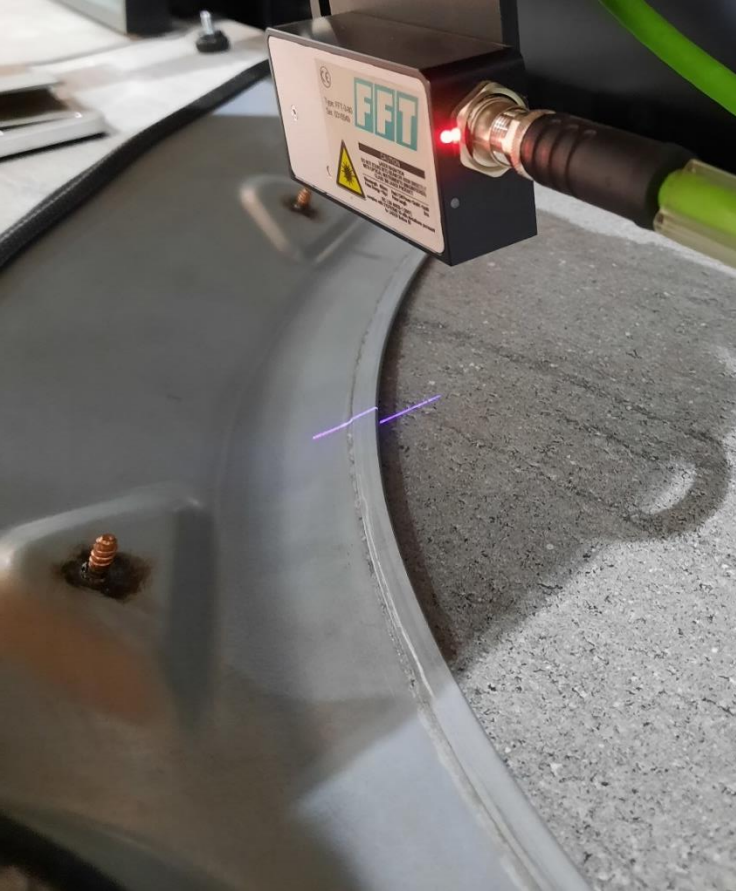
Reporting of the results (IO, NiO or faulty measurement) to the PLC.
Storage in a database

Quality
report

With the software, the acquired measurements can be evaluated with different statistical methods

FFT *check* HemQC - Process

Introduction



FFTcheck HemQC - Process

Introduction

The rolled hem is scanned by a laser light section sensor.

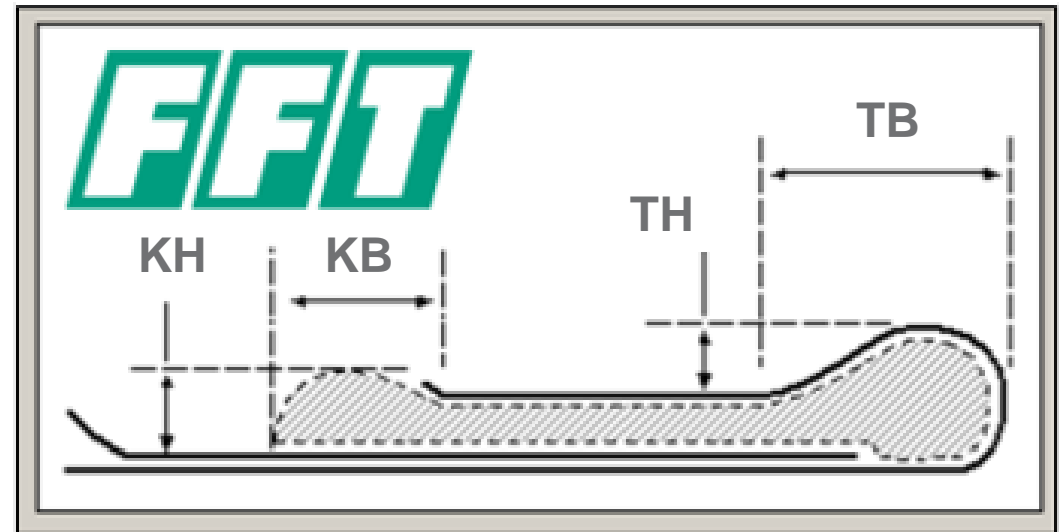
Features:

- adhesive width (KB) and height (KH) in 3D
- Drop width (TB) and height (TH) in 3D

Technical data

Measuring frequency 200 fields / second

- Resolutions up to 0.8 μm (numerical resolution)
- ± 0.2 mm accuracy drop width, drop height
- and adhesive height
- ± 0.4 mm Accuracy adhesive width and better (depending on feature characteristics))



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FFTcheck **HemQC** - Benefits

Stable process evaluation, fast and accurate measured value acquisition

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FFT *check* HemQC - Benefits



Constant quality control



Fast and accurate measured value acquisition



3D recording of the roll hem & the sealing adhesive



100% quality documentation (each body) Quality data available for further processing



Open interface regarding PLC, BUS and measuring sensors

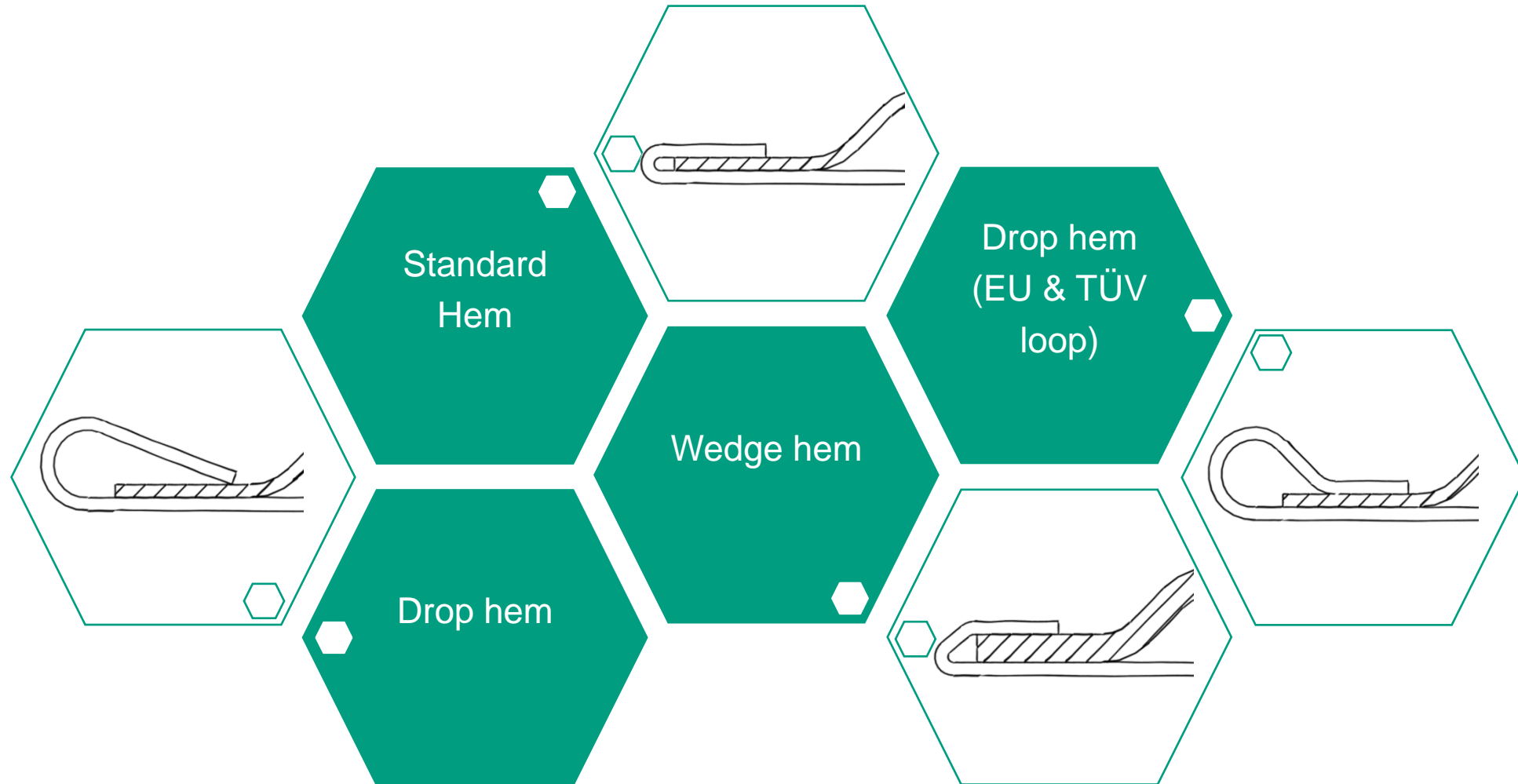
3 **FFT**check **HemQC** - Hemming types

Hemming geometries

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FFT *check* HemQC - Folding types

Hemming geometries



FFT *check* HemQC - Types

Hemming heads



4 **FFT**check **HemQC** - Equipment

Hardware / Software

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FFT*check* HemQC - Equipment

Hardware / Software



Hardware

- Single-line laser (FFTBlue)
- Panel PC or BoxPC
- Ethernet, TCP/IP Communication
- Several robots and controllers may be used

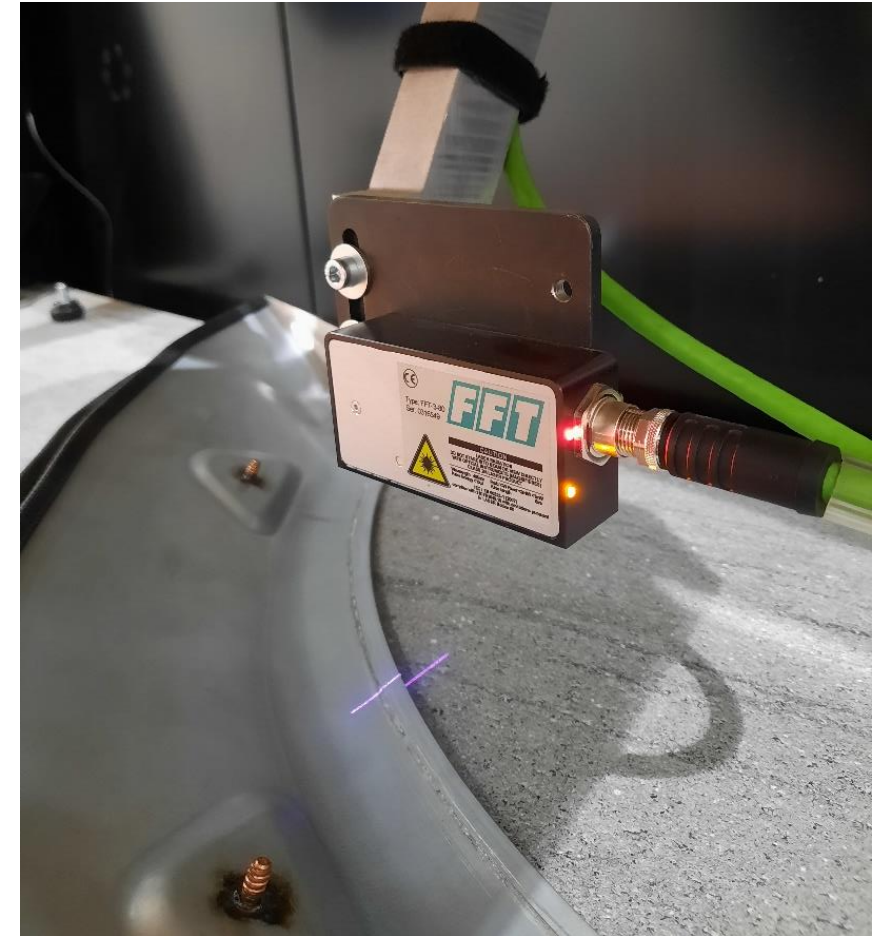
Software

- FFT VisionAnalyser, VisionGuide for measurement and communication
- VisionReport HemQC for visualisation
- MySQL, MariaDB, MSSQL can be used as database
- Communication package for the robot

FFTcheck HemQC - Equipment

FFT Blue Sensor

- The sensor can be installed stationary, on a robot or on a rotary unit
 - The component is moved relative to the laser
 - The sensor is moved across the component by a robot
- The measurement result is stored with the measurement position
 - Inference to NIO posts

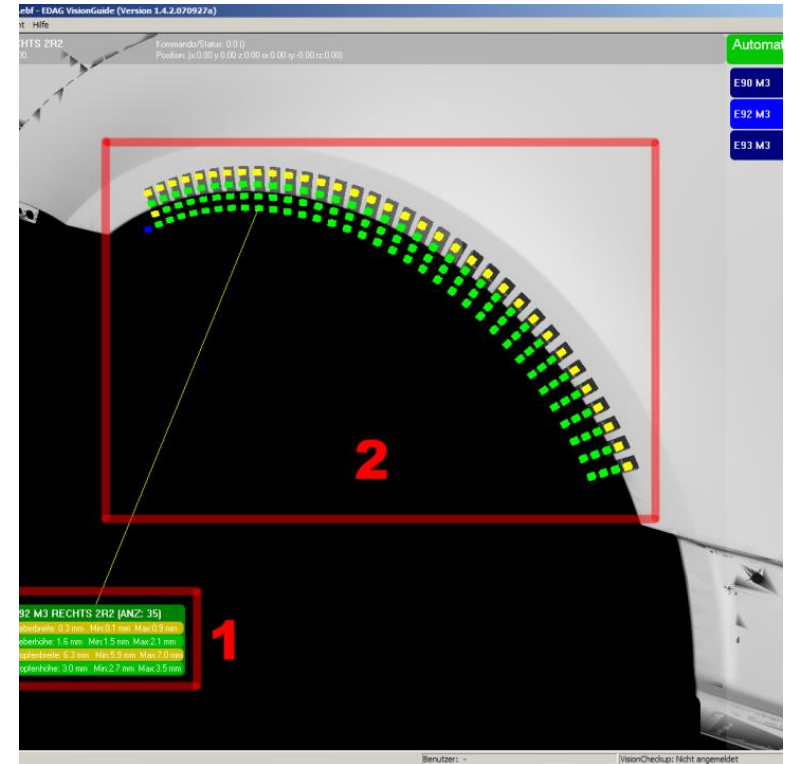
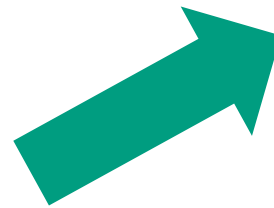


FFTcheck HemQC - Equipment

FFT VisionGuide

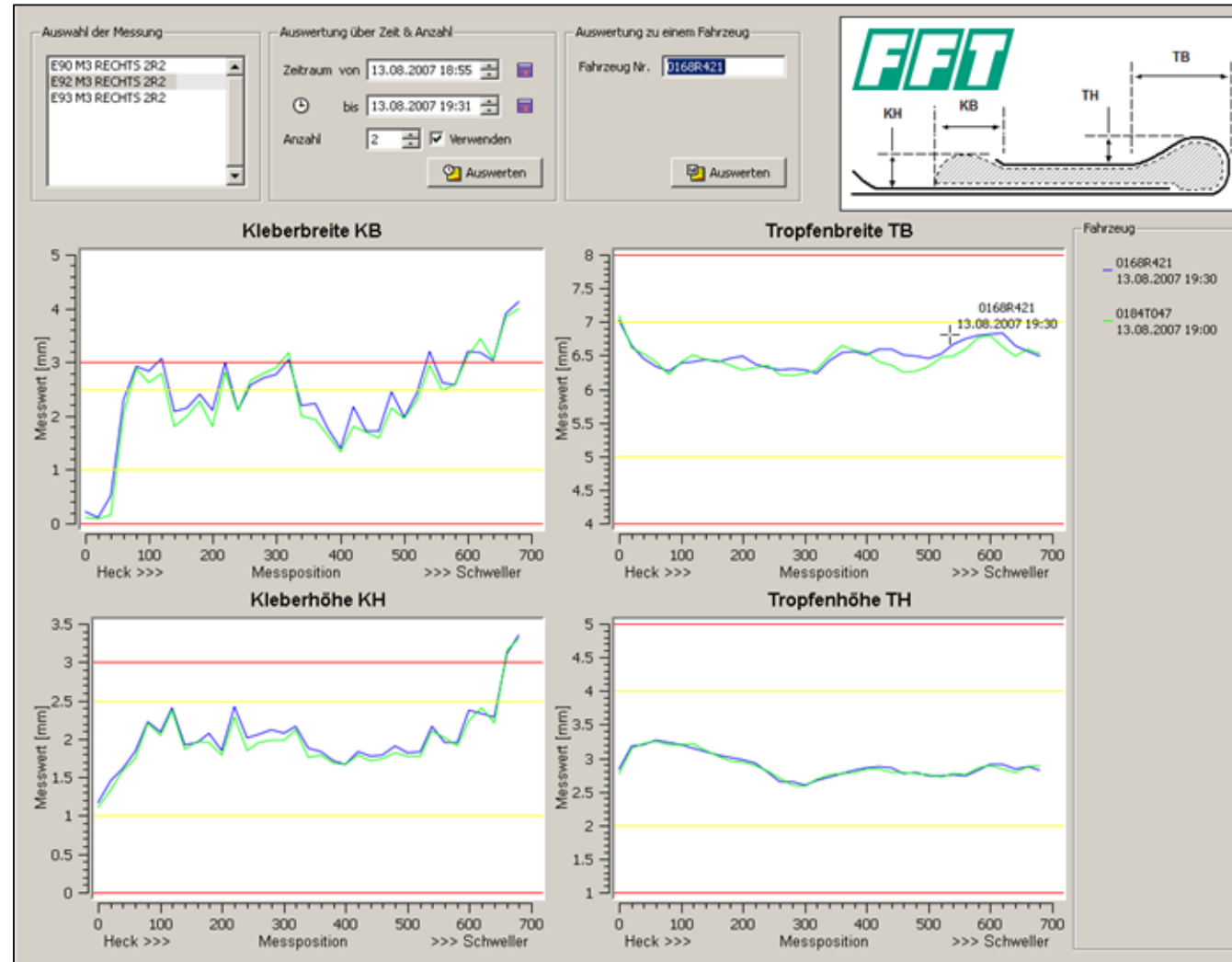
- Coordinates the interaction of all components
 - Measuring system, robot & PLC
- Is responsible for the evaluation and visualisation of the measurement results
- Stores measurement results in database
- Indicates status messages of the measuring system
- Tolerances can be adjusted

- Showing the measurement results
 - **Green** → Okay
 - **Yellow** → Warning
 - **Red** → NotOkay
 - **Pink** → Measurement error



FFTcheck HemQC - Equipment

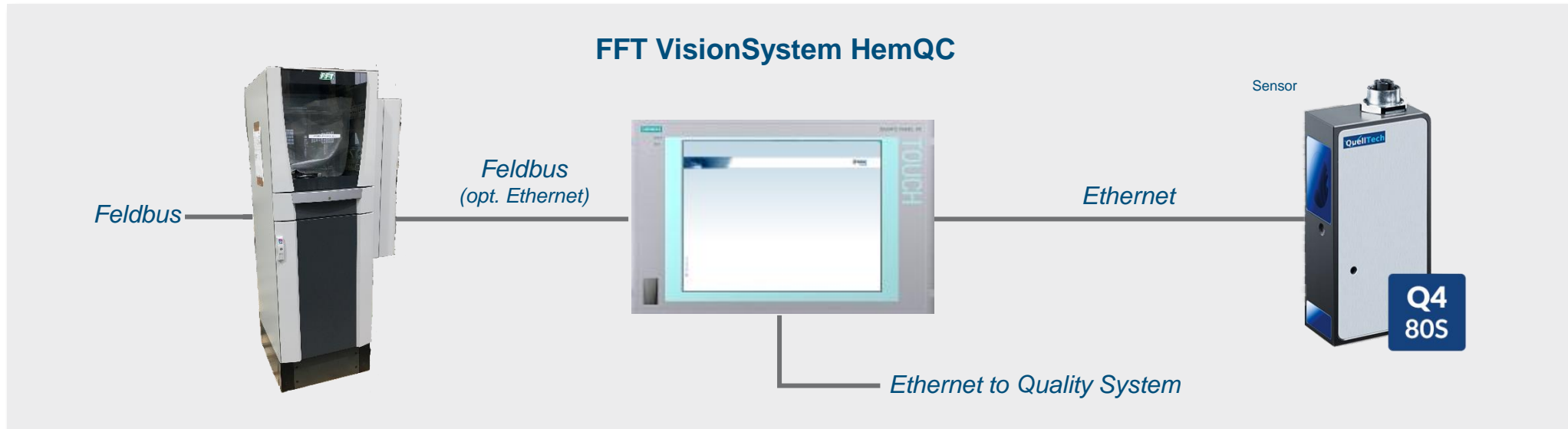
FFT VisionReport



FFT *check* HemQC - Equipment

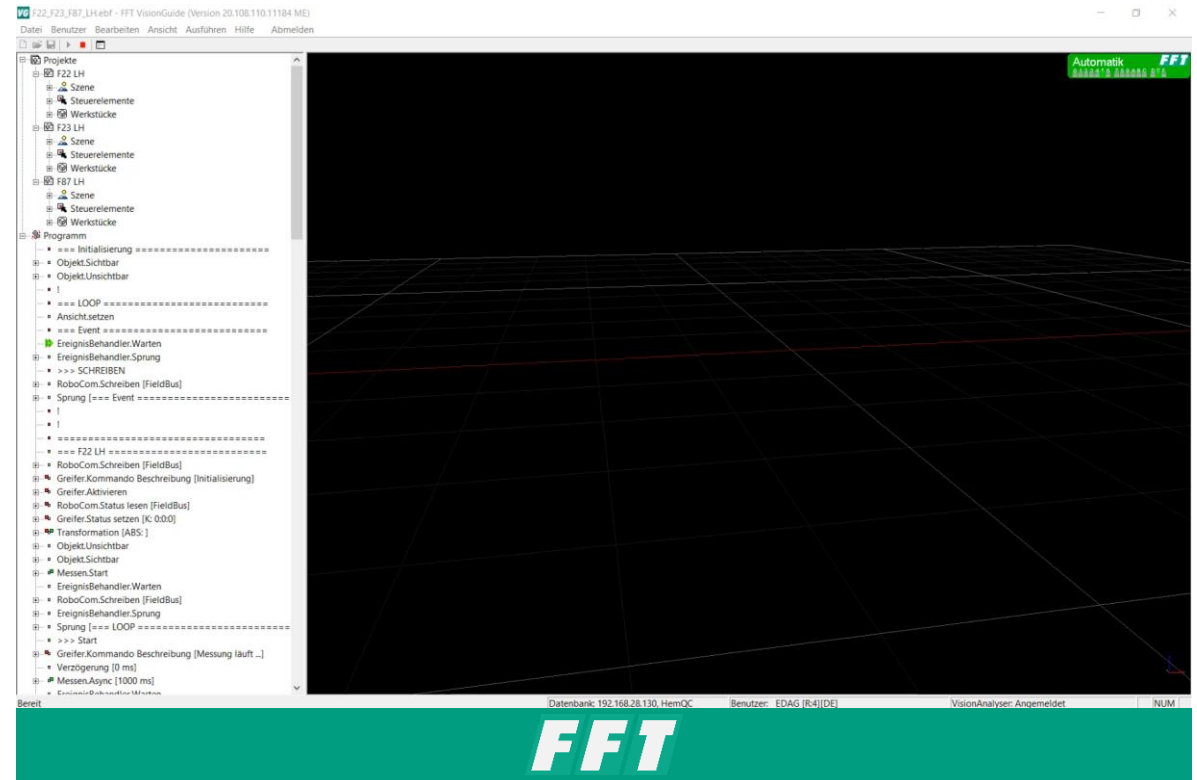
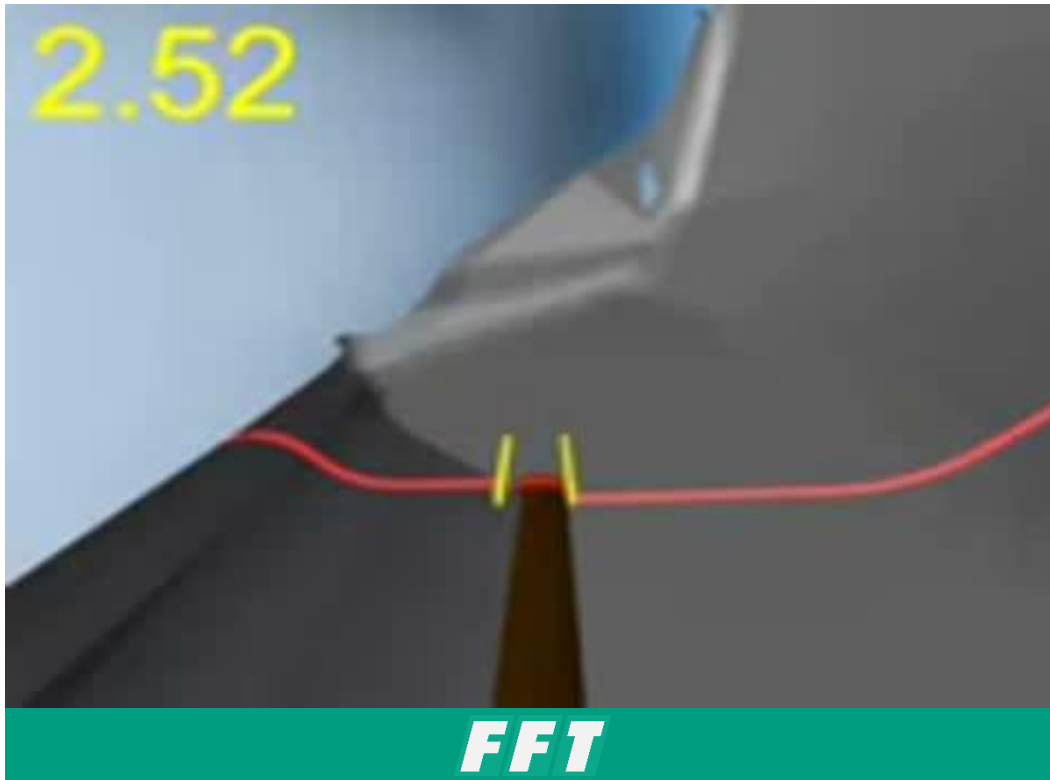
Hardware

- PC based vision system
- Standard Ethernet communication hardware
- Fieldbus communication interfaces (Interbus, Profibus)
- Intelligent sensor technology
- Very fast measurement acquisition (200 fields/second)
- At 150 mm/s speed, one image is taken every 1.5 mm



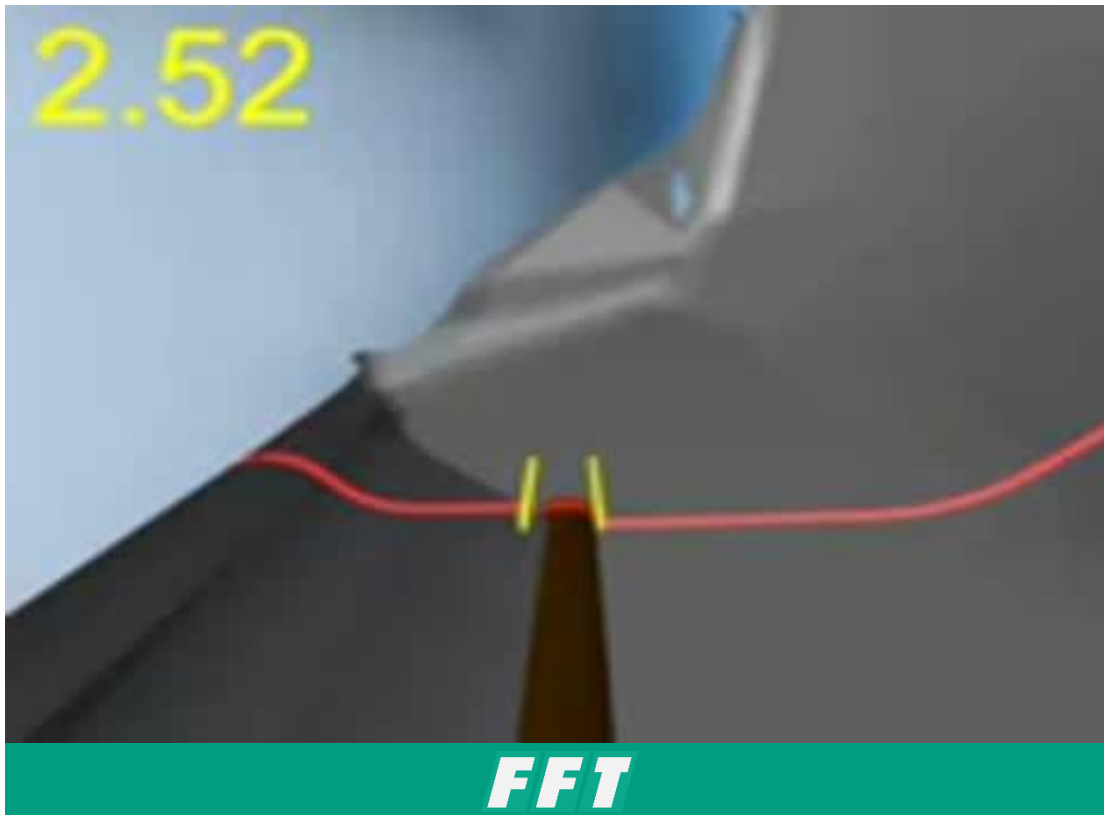
FFTcheck HemQC - Equipment

Software - VisionGuide



FFT *check* HemQC - Equipment

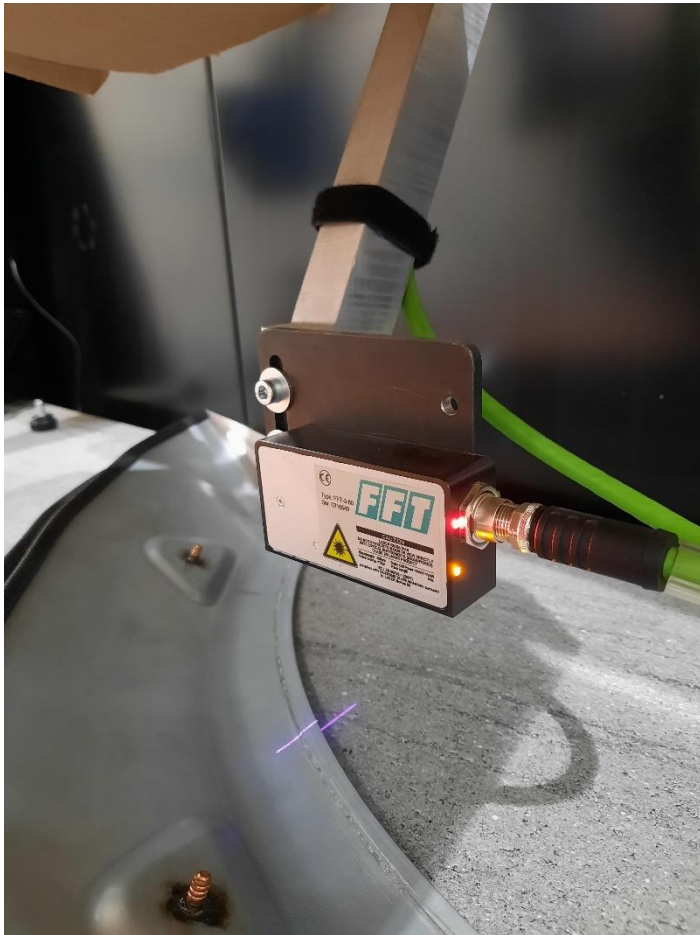
Software - VisionAnalyser



5 **FFT**check **HemQC** - References

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FFT *check* HemQC - References



- BMW Regensburg, Leipzig
- Nedcar, Born
- Mazda, CN
- BBA, CN

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INDIVIDUAL SOLUTION
FOR YOUR TASK?



CONTACT

Your personal contact person

Andre Neidert
Department Manager Image Processing
FFT Produktionssysteme GmbH & Co. KG
Schleyerstraße 1, DE-36041 Fulda
Tel.: +49 (0) 661 2926-2162
Mobil: +49 (0) 171-5317527
E-Mail: andre.neidert@fft.de
www.fft.de



THANK YOU

Feel free to contact us.

WWW.FFT.DE | INFO@FFT.DE
TEL.: +49 (0) 661 2926-0

