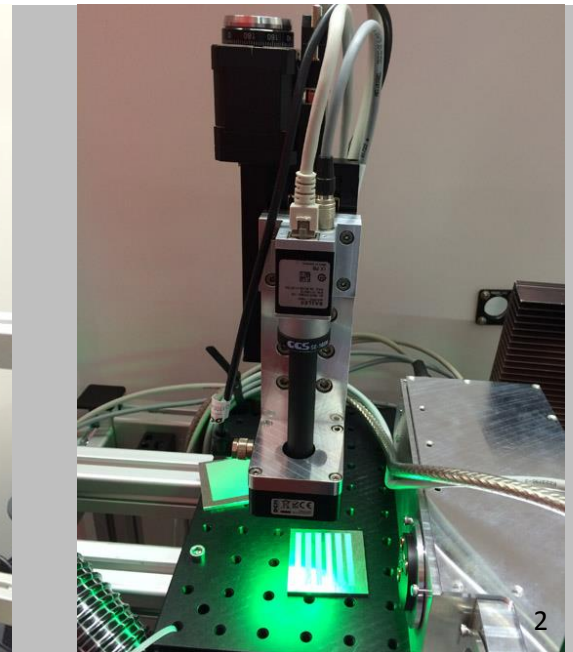
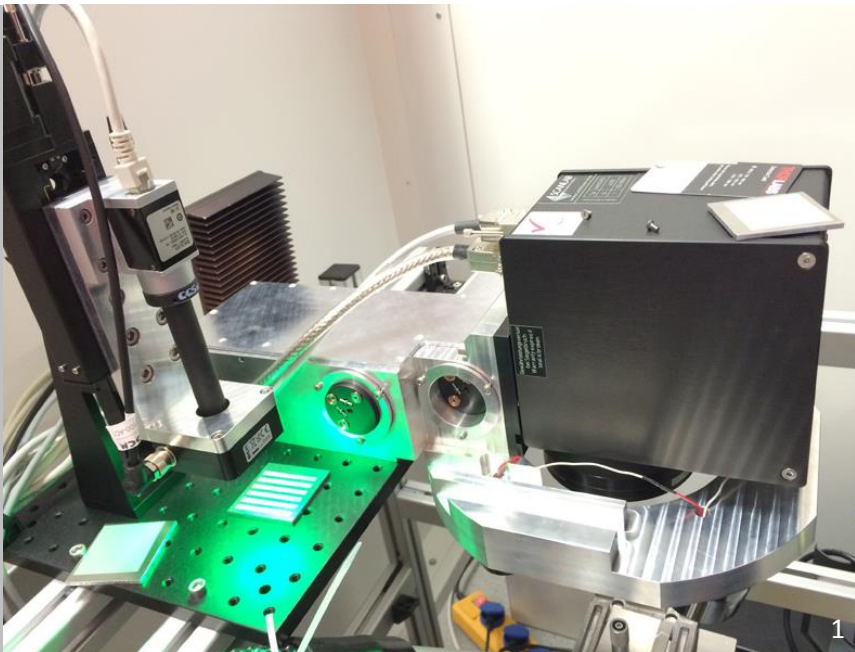


# ON LINE & OFF LINE QUALITY INSPECTION SYSTEMS FOR LASER TEXTURATION



## Real Time Inspection Module

The sensor that monitors the process is adapted to the required and identified spectrum.

Specific electronic circuitry is used to amplify and digitize the output of that sensor and to provide the data interface for the real-time acquisition. Signal distribution electronics are designed to capture the scanner position and the sensor signals synchronously in real time.

These signals are captured synchronously in order to correlate position and sensor signal. The data and signals from the different sources are collected by software running on the FPGA of a programmable frame grabber. The frame grabber gives the ability to include images of a high speed camera into the data stream in the future.

The raw data can be analyzed automatically or manually offline. The analyzing result includes a process intensity image that shows the process emission intensity correlated to the scanner position. This image is independent from the texturing strategy. Furthermore the pattern of the texturing is reconstructed from the data and characteristic values are identified or calculated. These values are saved in table form in a text file. Apart from the data files, the raw data, the process intensity image and the result analysis can be visualized for further used.

1 : ON LINE Vvision module in the EMLCAS project

2 : OFF LINE Module in the EMLACS project

3: Analog to digital channel signals from the OFF LINE module sensors

## General Specifications

- Camera resolution : 2592 x 1944 pixel
- Magnification : 2
- Pixel size on image : 1.1  $\mu\text{m}$
- Optical resolution : 3,9 $\mu\text{m}$
- Working distance : 47mm
- Field of View : 2,851 x 2,193  $\text{mm}^2$
- Frame per second : 14
- Travel range of Linear axis : 50 mm
- Resolution of the linear axis : 150 nm

