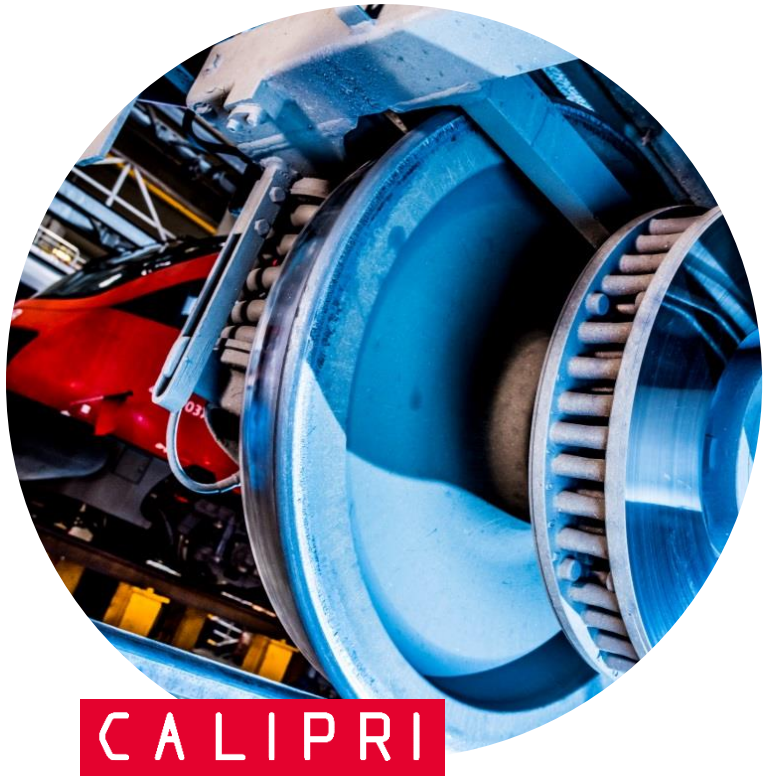
PART OF HEXAGON

NEXTSENSE

11.10.2018

PREDICTIVE MAINTENANCE WITH CALIPRI

- Company
- Technology
- Products



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TODAY‘S CHALLENGES

PREDICTIVE MAINTENANCE

- Optimization of maintenance cycles
- Prediction of wear behavior
- Material optimization

THE FUTURE OF WORKSHOPS

- Highest repeatability required
- Human-Robot Collaboration
- Multiple data connections/interfaces

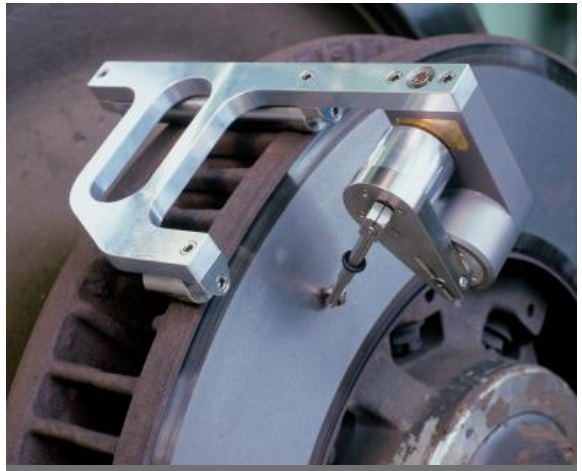
PROFILE MEASUREMENT
PREVIOUS APPROACH

Current methods:

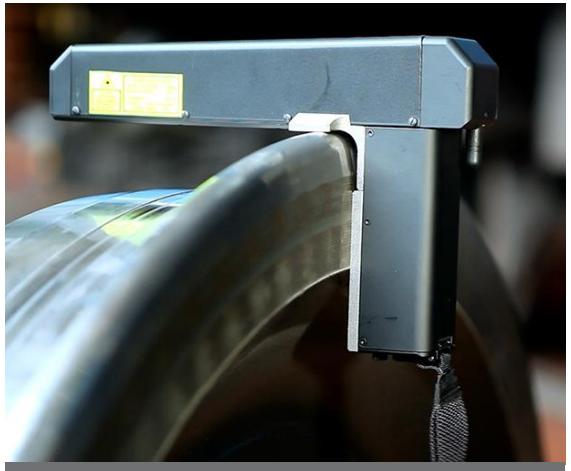
» Measurement with analog mechanical calipers or templates

» Digital measurement instruments with tactile sensor heads or point-type lasers

Mechanical



Taktile



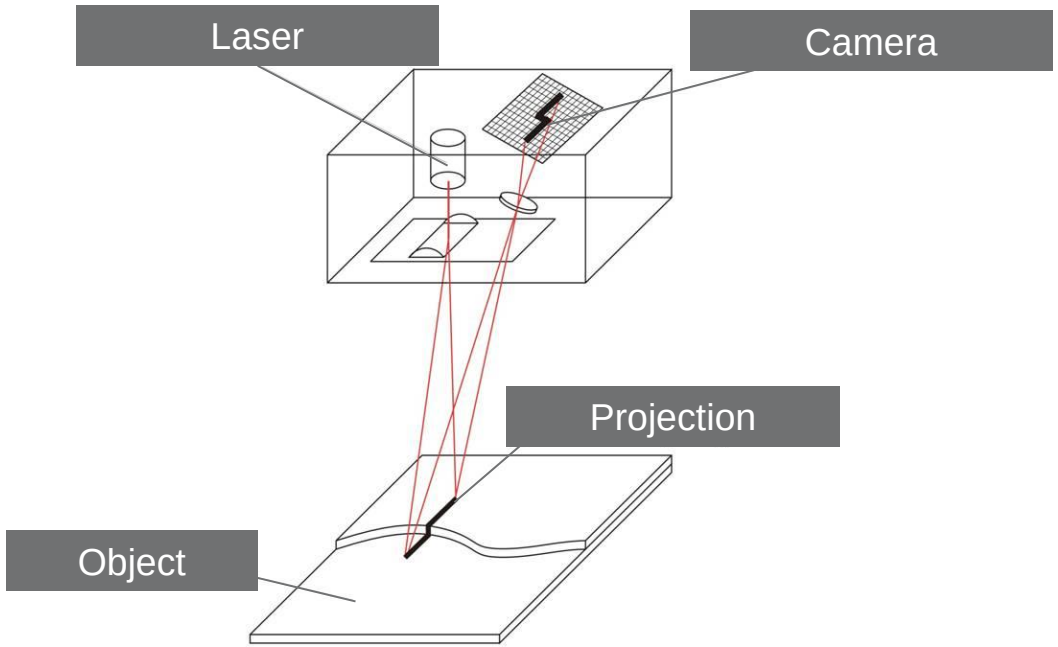
Optical

THE CALIPRI PRINCIPLE
SOLVING THE PROBLEM

Traditional laser light section technology:

» 1 laser line

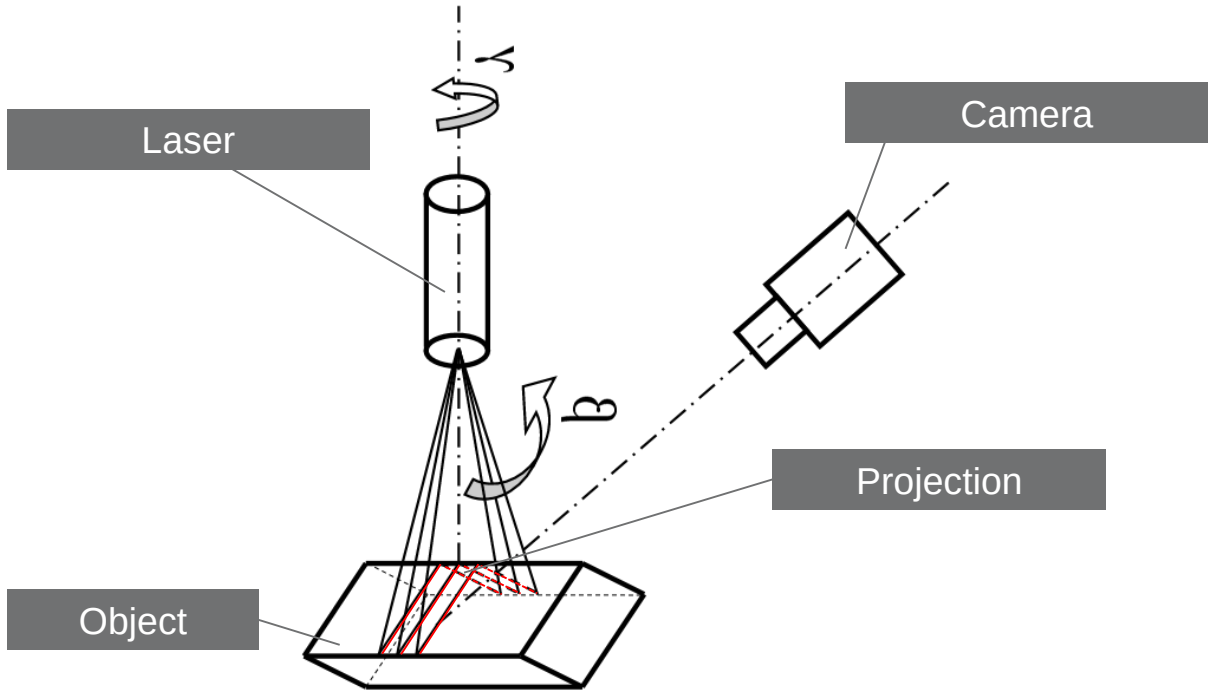
» Rigid positioning necessary



Patented Calipri principle:

» 3 central laser lines

» Roll & pitch correction allows for freehand movement



THE CALIPRI PRINCIPLE
SOLVING THE PROBLEM

Fully non-contact freehand measurement

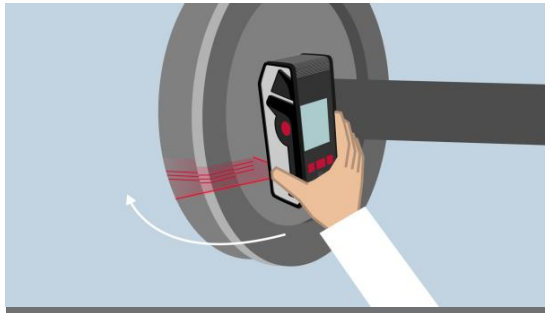
» No contact with the measuring object -> Resistant to dirt and incorrect handling

» Roll & pitch correction of the sensor -> No errors with poor guiding

» One measuring instrument for many applications

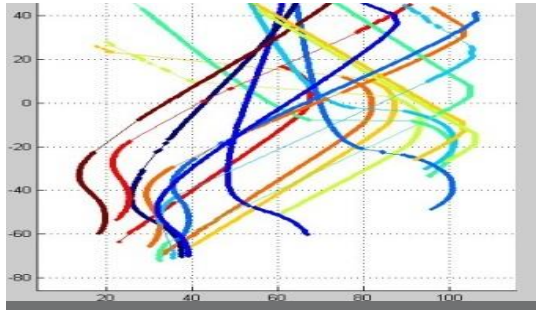
THE CALIPRI PRINCIPLE

HOW DOES IT WORK



1. RECORDING

- Guide around object
- Automatic roll & pitch correction

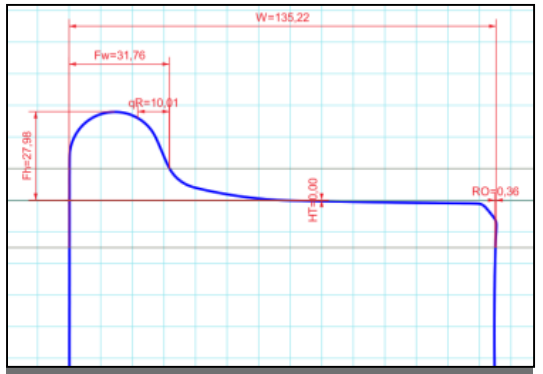


2. RAW DATA

- Camera detects laser lines on surface
- Profile segments are captured continuously

3. PROFILE

- Segments are merged for profile curve



4. EVALUATION

- Calculation of measurement values based on chosen evaluation strategy
- Automatic classification (tolerance range)

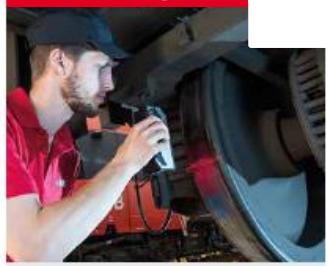
PRODUCT PORTFOLIO

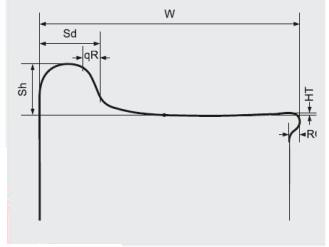
CALIPRI Prime	CALIPRI C41	CALIPRI C42

Wheel Flange | Wheel Profile

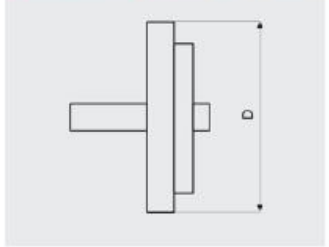
Wheel Profile | Brake Disc | Tire Thickness | Back-to-Back | Wheel Diameter | Radial/Axial Runout | Defects | Rail | Switch | Track Geometry | Equivalent Conicity

WHEEL PROFILE

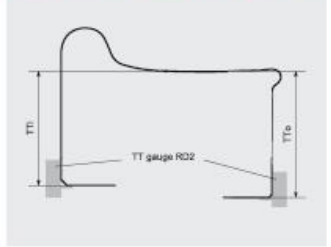




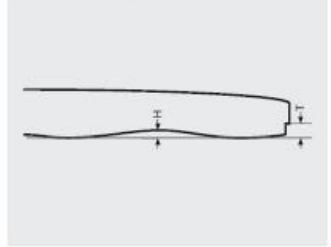
WHEEL DIAMETER



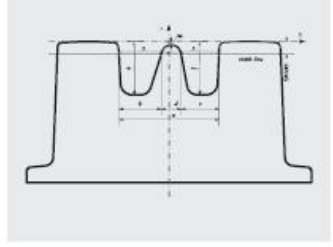
TIRE THICKNESS



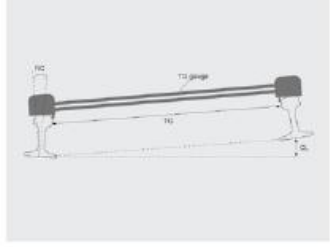
BRAKE DISC



SWITCH

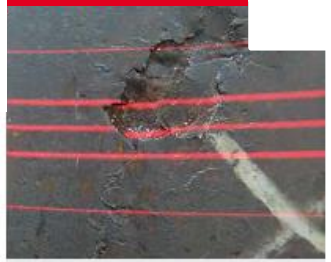


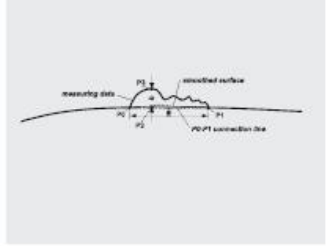
TRACK GEOMETRY



CALIPRI C4X – MEASUREMENT MODULES

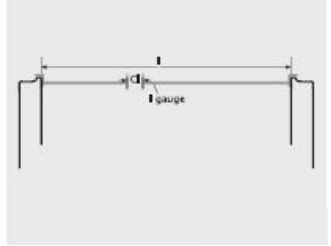
DEFECTS



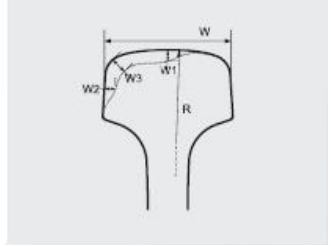


RADIAL / AXIAL RUNOUT

BACK-TO-BACK

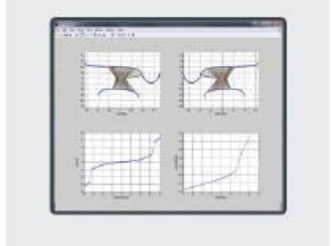


RAIL



CALIPRI ANALYZER

EQUIVALENT CONICITY



CALIPRI – HIGHLY ACCURATE & UNIQUE

- Patented, non-contact measuring principle
- User-independent measurement results
- Repeat accuracy +/- 35 µm*
- Multifunctionality through measuring modules / add-ons
- Customizable measurement protocols
- Competent service team for support and repair
- Reference standard to ensure precision & availability
- Certification of measuring instruments / modules by independent laboratories

* Standard deviation of wheel flange parameters

THE RUSSIAN MARKET

- First step towards a business with RZD:
  - CALIPRI portfolio certified for the Russian railway market
- Close cooperation with our Russian sales partner
  - Collaboration during certfication process
  - Co-exhibitor at PRO MOTION EXPO
- Future partners may communicate and collaborate with Nextsense via our Russian cooperation partner
- We have an ideal partner profile in mind which can be discussed in a personal meeting

REFERENCE CUSTOMERS | 2019

RAILWAY