In-line Measurements With Focus Variation As Enabler For An Autonomous Manufacturing Cell

MetMap 2019

Florian Schwimmer
Business Development

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Alicona

Your partner for optical 3D metrology

- Founded in 2001
- International team of ~150 employees
- Constant growth
- 7 subsidiaries worldwide
- Large number of global distributors (~35)

CEOs
Manfred Prantl (left)
Stefan Scherer (right)

Subsidiaries:
Germany
France
UK
Italy
Korea
US

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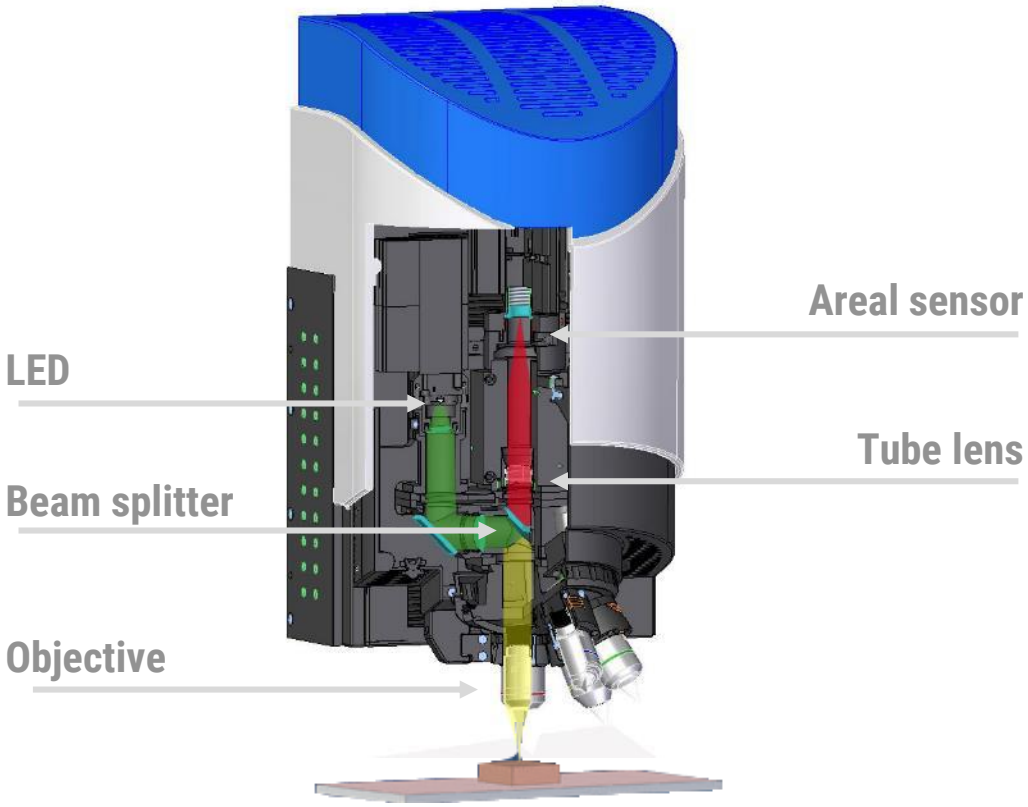
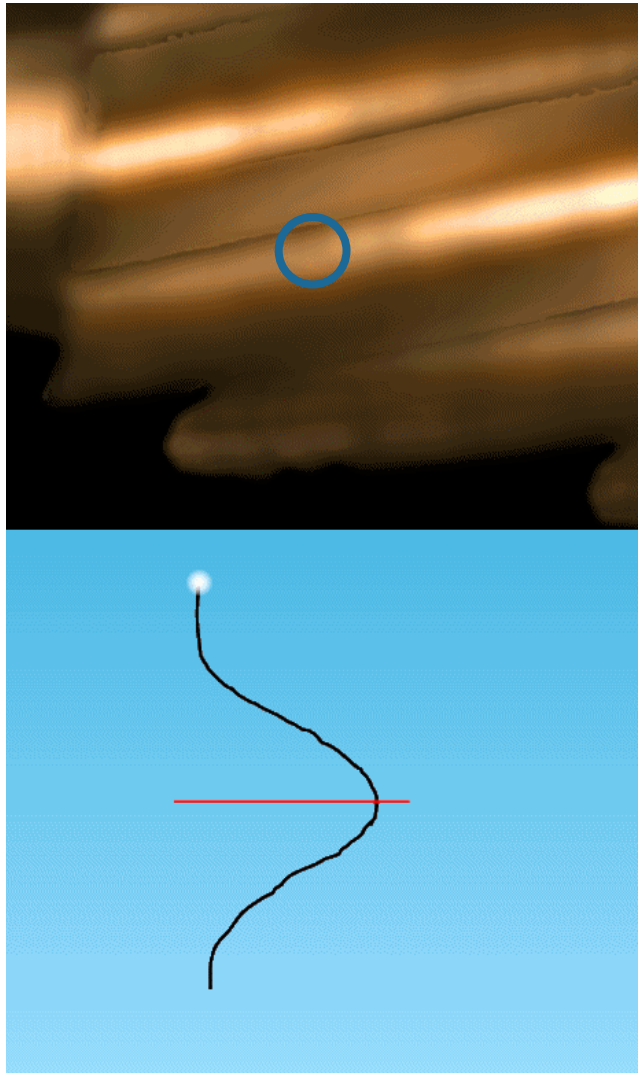
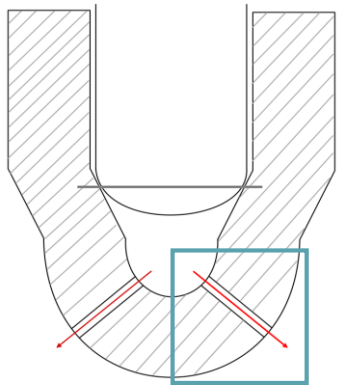
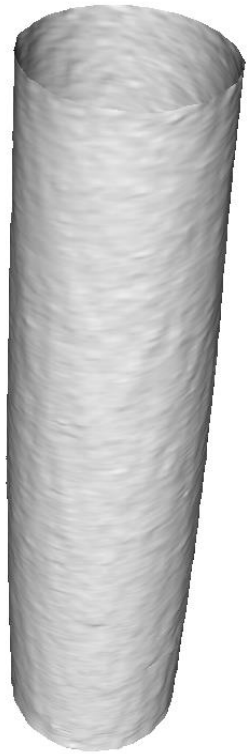
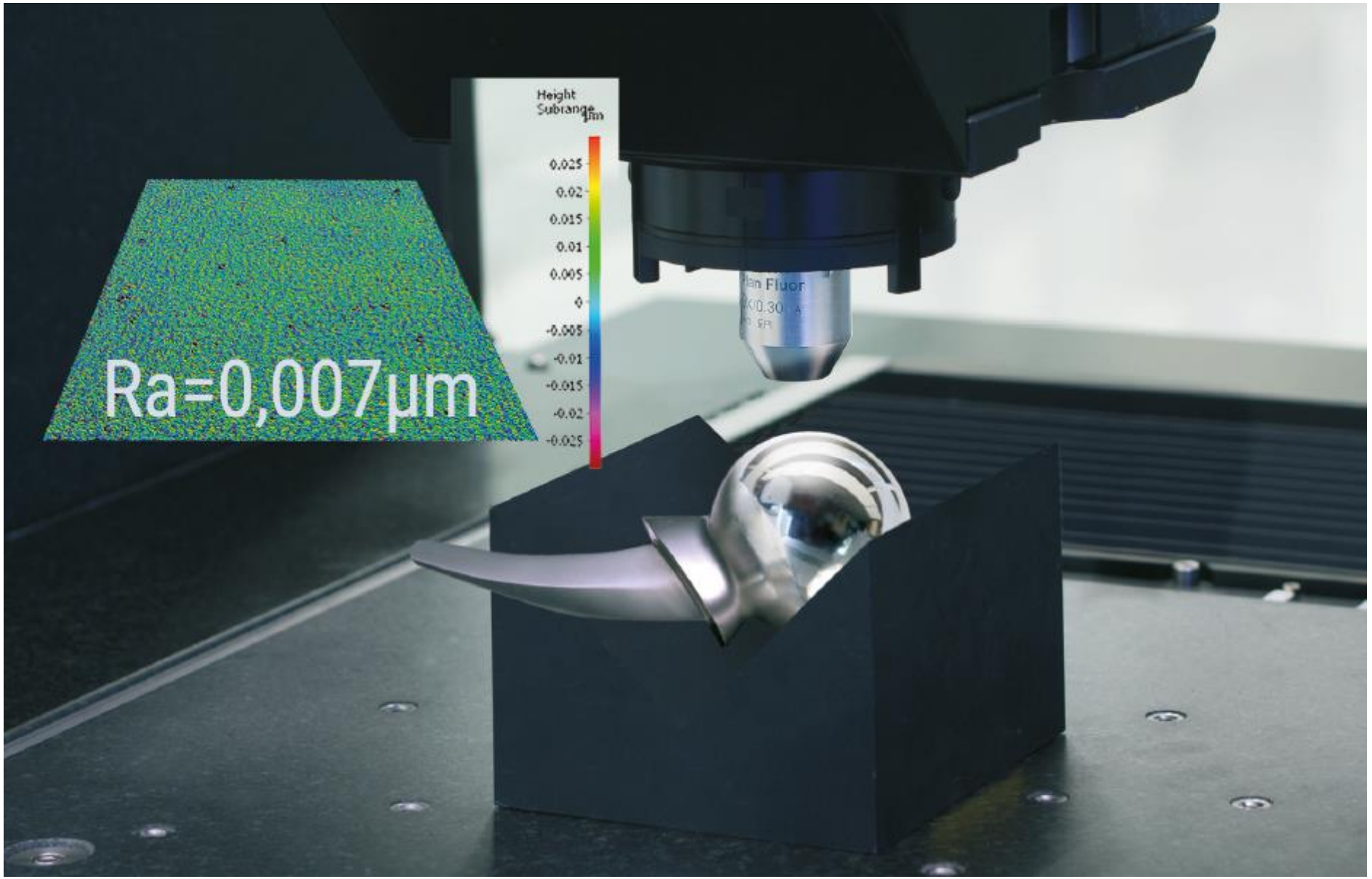
Technology Leader in Focus Variation



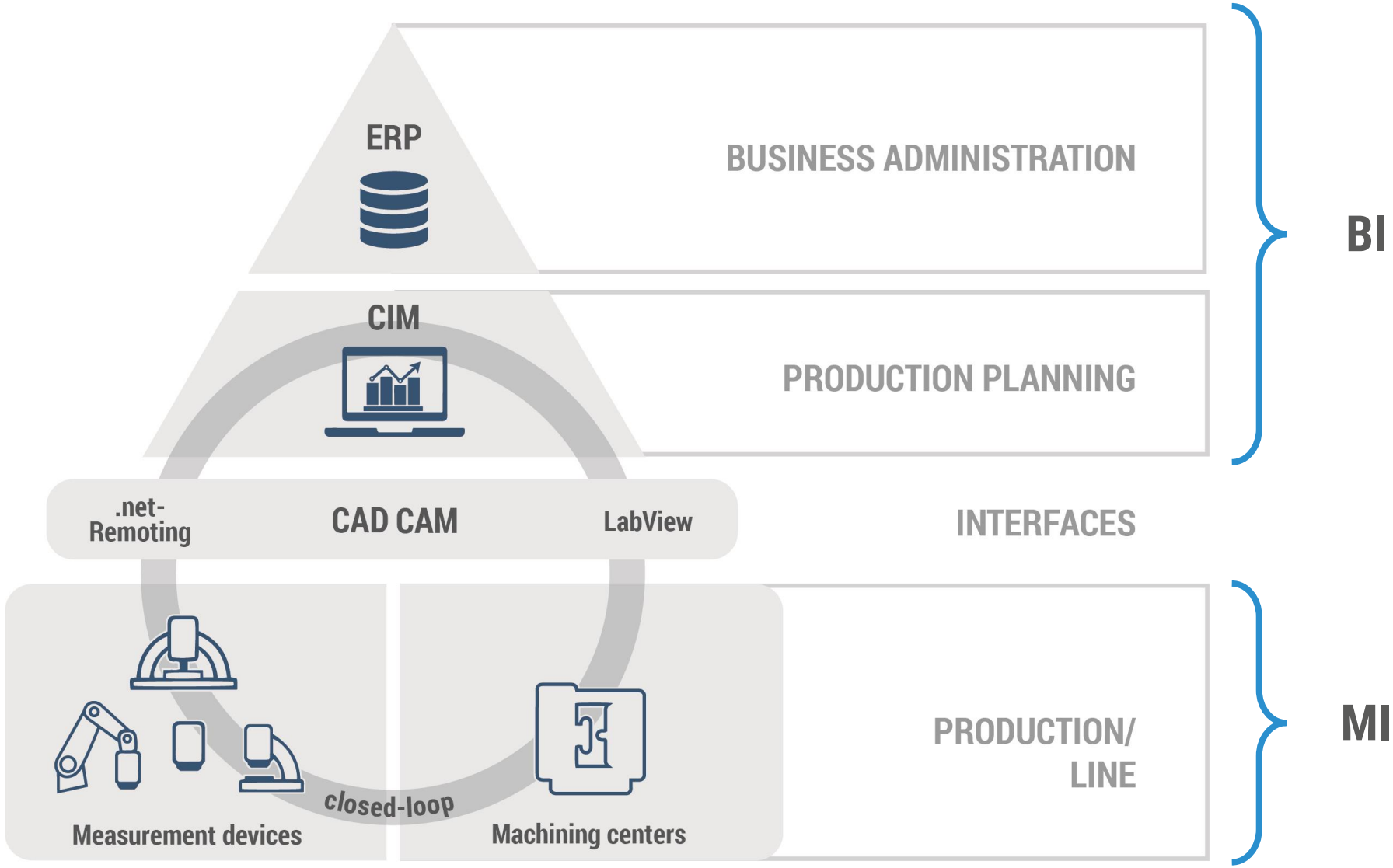







Height
Subrange µm
0.025
0.02
0.015
0.01
0.005
0
-0.005
-0.01
-0.015
-0.02
-0.025
Ra=0,007µm

Measurement solutions


ERP
BUSINESS ADMINISTRATION
CIM
PRODUCTION PLANNING
BI
.net-
Remoting
CAD CAM
LabView
INTERFACES
closed-loop
Measurement devices
Machining centers
PRODUCTION/
LINE
MI

Source: B. Berg, P. Silvia, Einführung in SAP HANA, 2013

1 out of 3 employees base decisions on unreliable data or no data at all

Source: B. Berg, P. Silvia, Einführung in SAP HANA, 2013

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Source: B. Berg, P. Silvia, Einführung in SAP HANA, 2013

1 out of 2 employees have no access to information that were needed for their job

Source: B. Berg, P. Silvia, Einführung in SAP HANA, 2013

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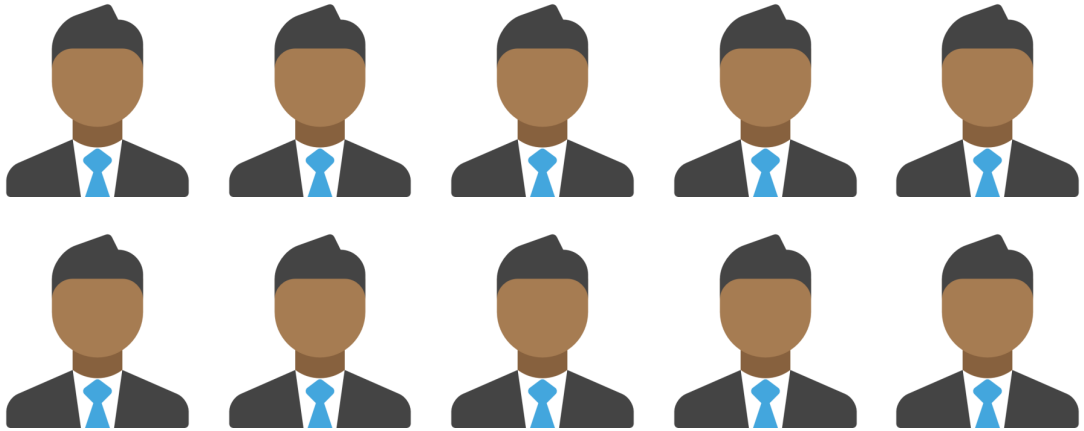

Source: B. Berg, P. Silvia, Einführung in SAP HANA, 2013

60% of employees want quicker flow of information for fast decision making

Source: B. Berg, P. Silvia, Einführung in SAP HANA, 2013

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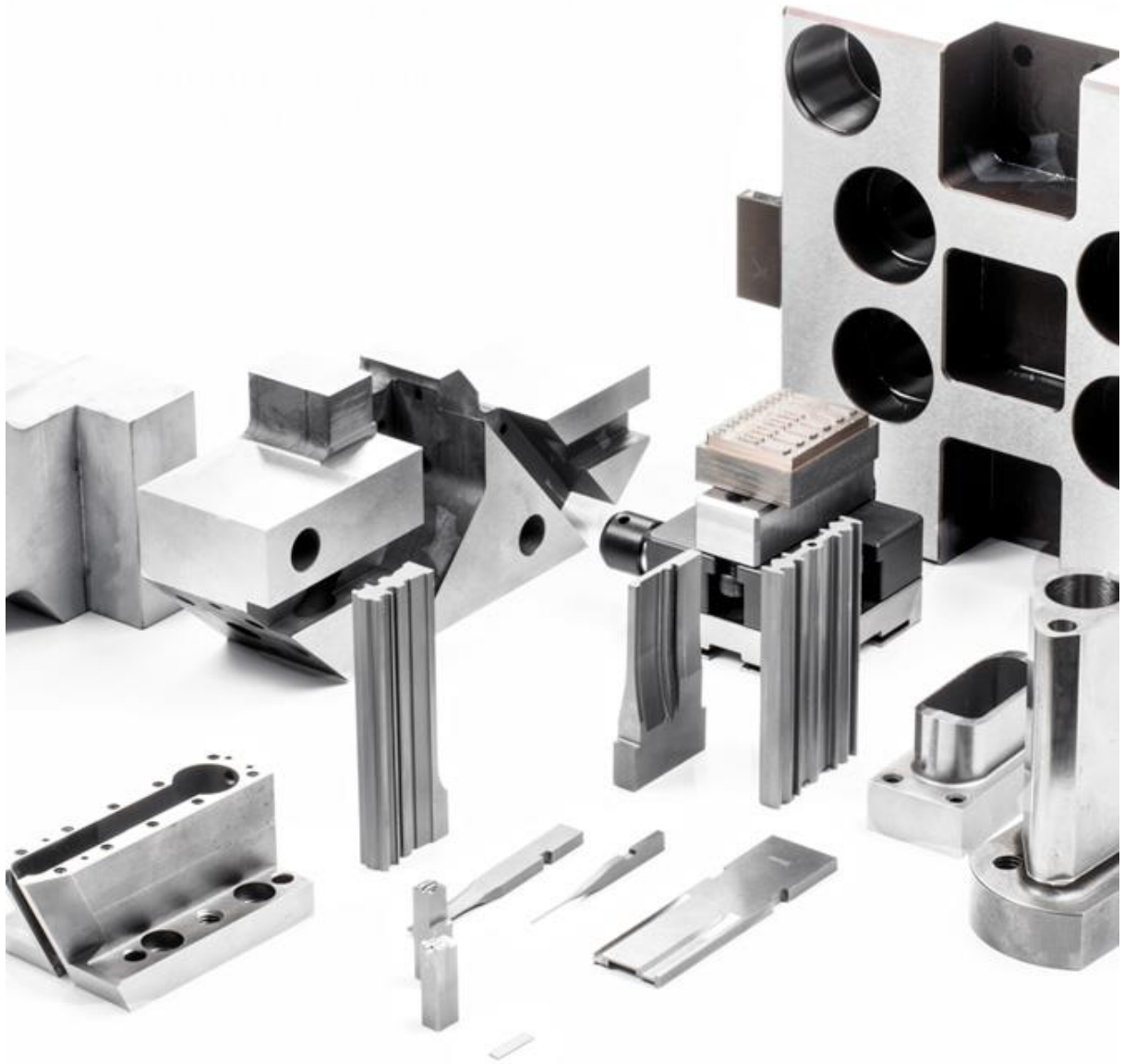
…and this what the **shop floor worker** feels about this!



KLEINER
Stanztechnik

Kleiner Stanztechnik (Stamping), Germany

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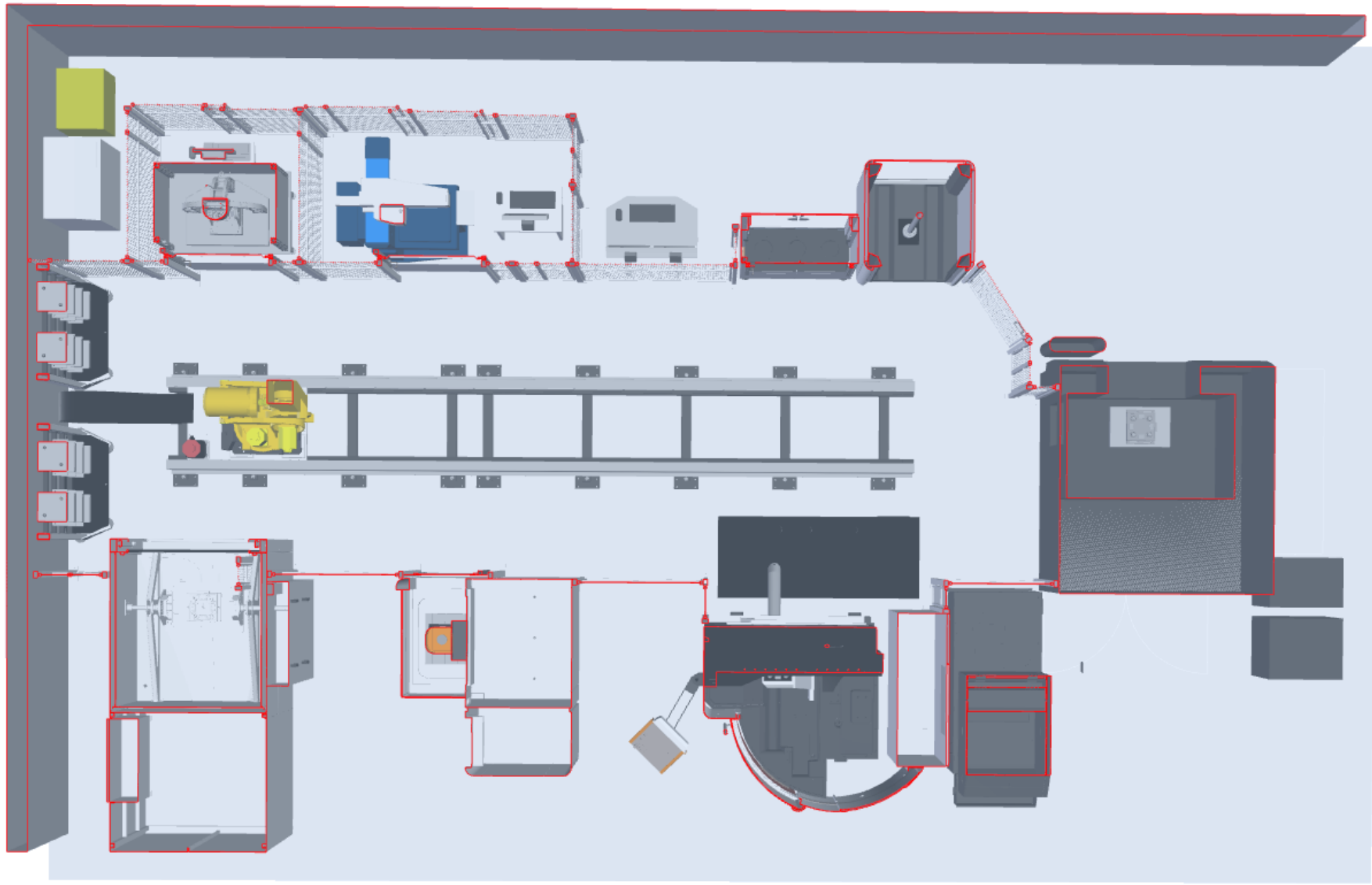
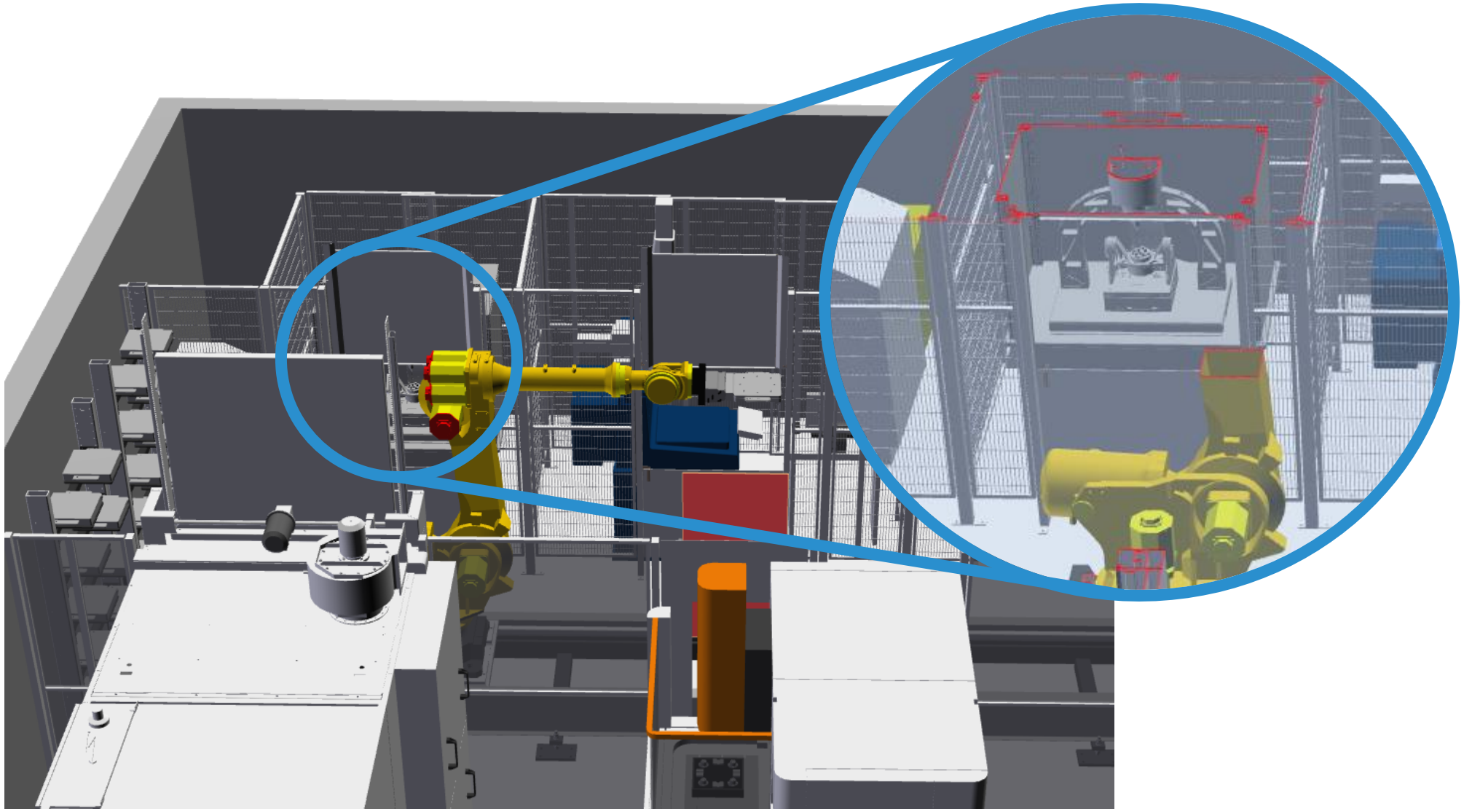
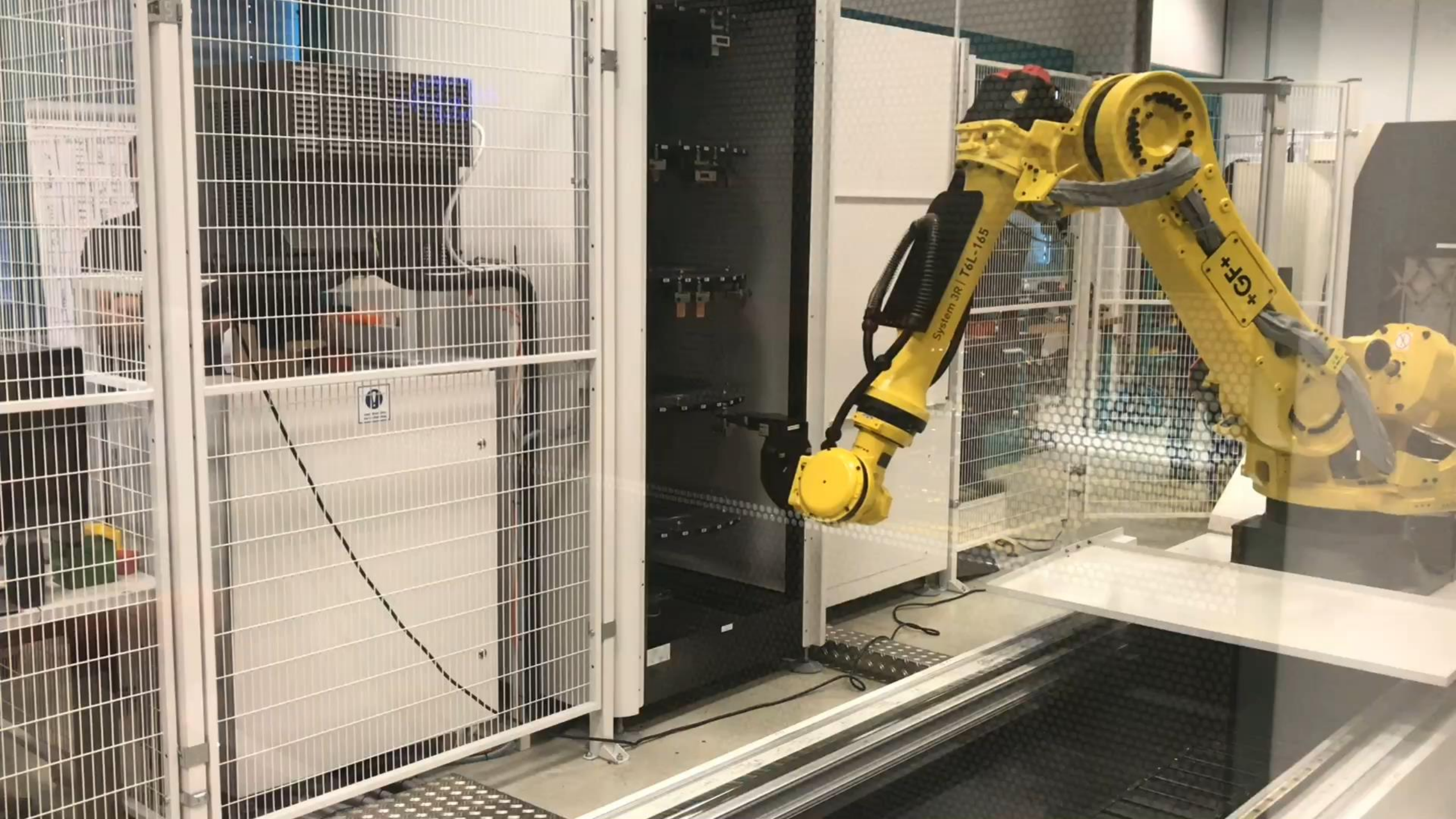
Going from this…

…to this!





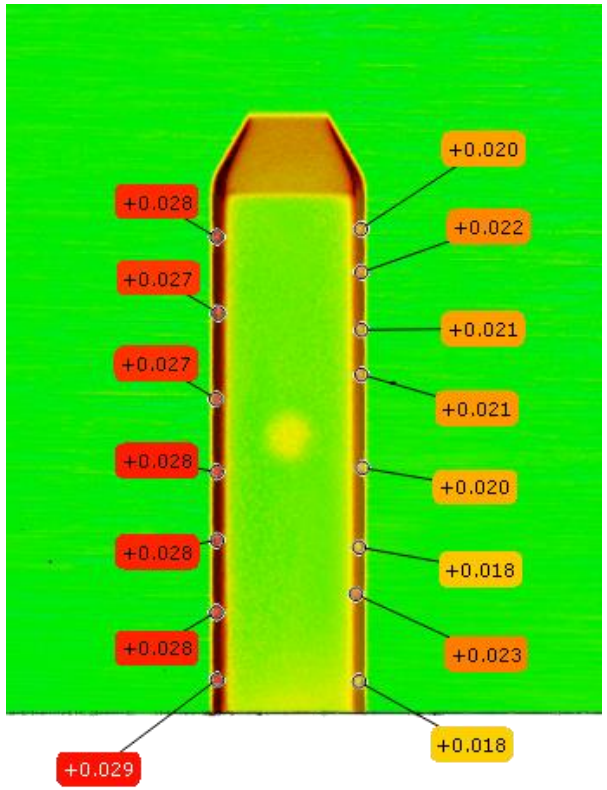

System 3R | T6L-165
+GF+

Solution Details

- 2 HSC milling machines
- EDM machine
- Touch probe CMM for datum
- 6 axis industrial robot

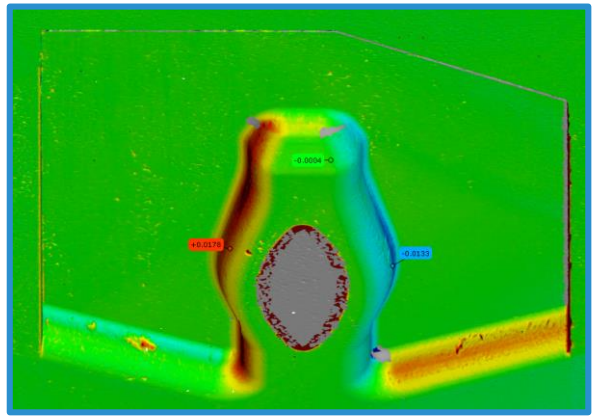
- Alicona 3D measurement
  - 3D Data acquisition with AutomationManager
  - CAD comparison with Alicona Inspect

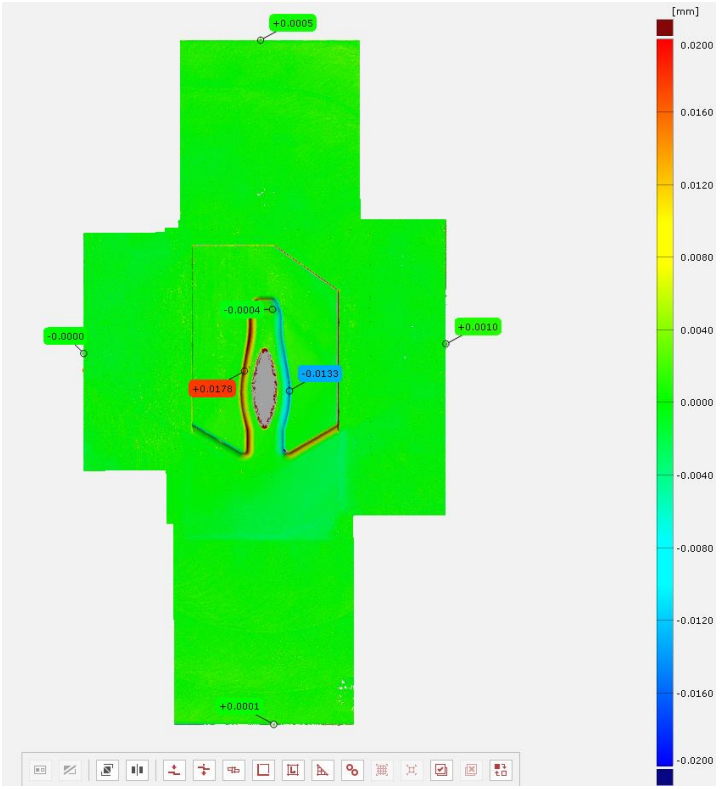
- CAD/CAM
- AutomationManager Remoting
- M2M communication interface



Alicona 3D Measurement Application

- Surface deviation on free form shapes with tolerances in the one-digit micron area
- Additional GD&T (tool length, angles, etc)
- Areal surface roughness





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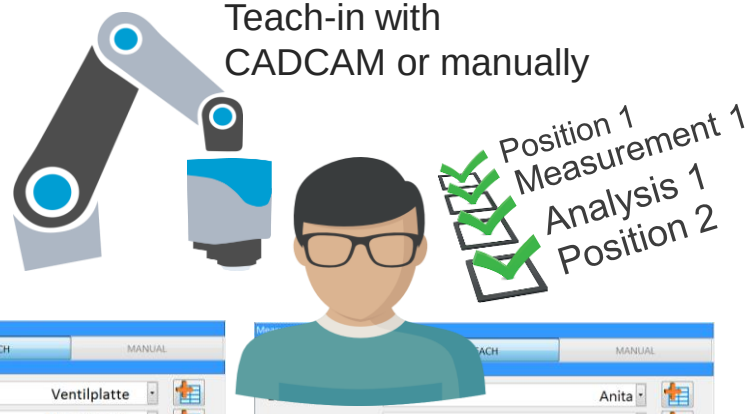
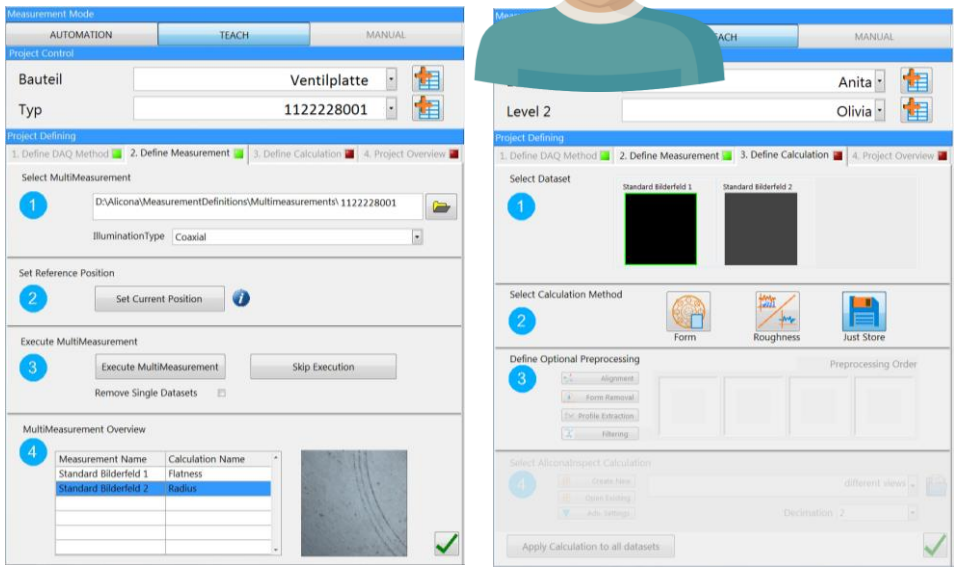
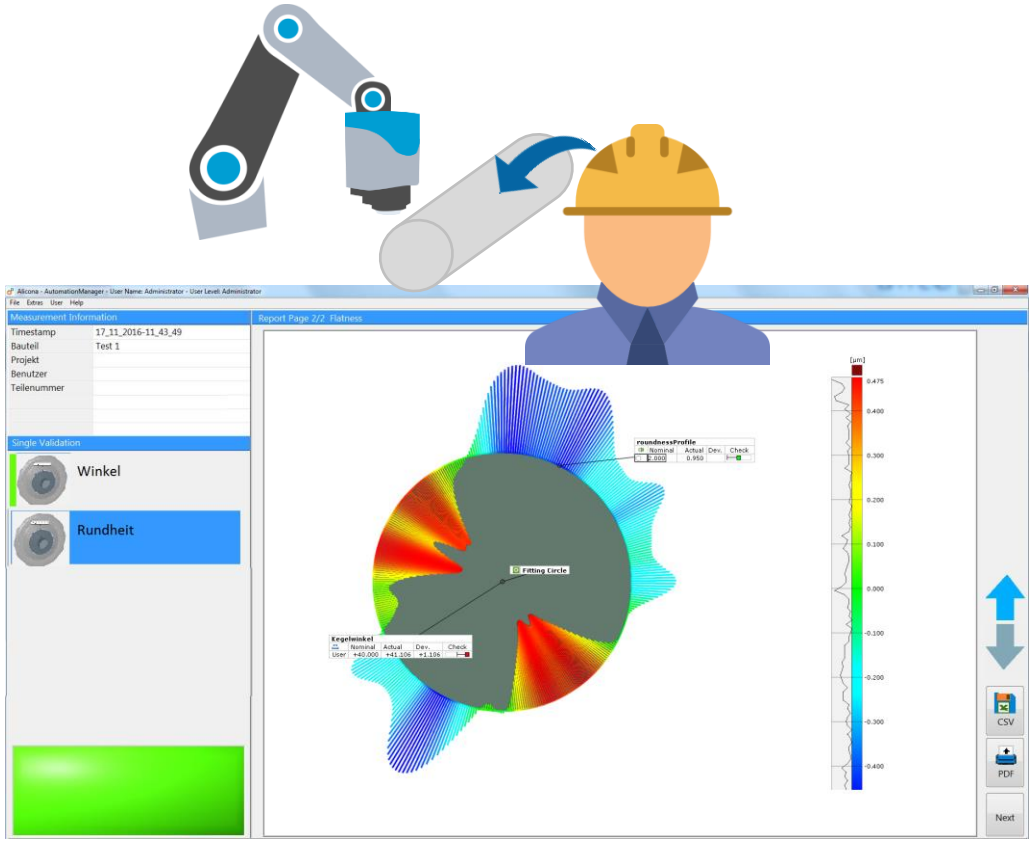
INFINITEFOCUS
INFINITEFOCUS
ADVANCEDREAL3D

AutomationManager

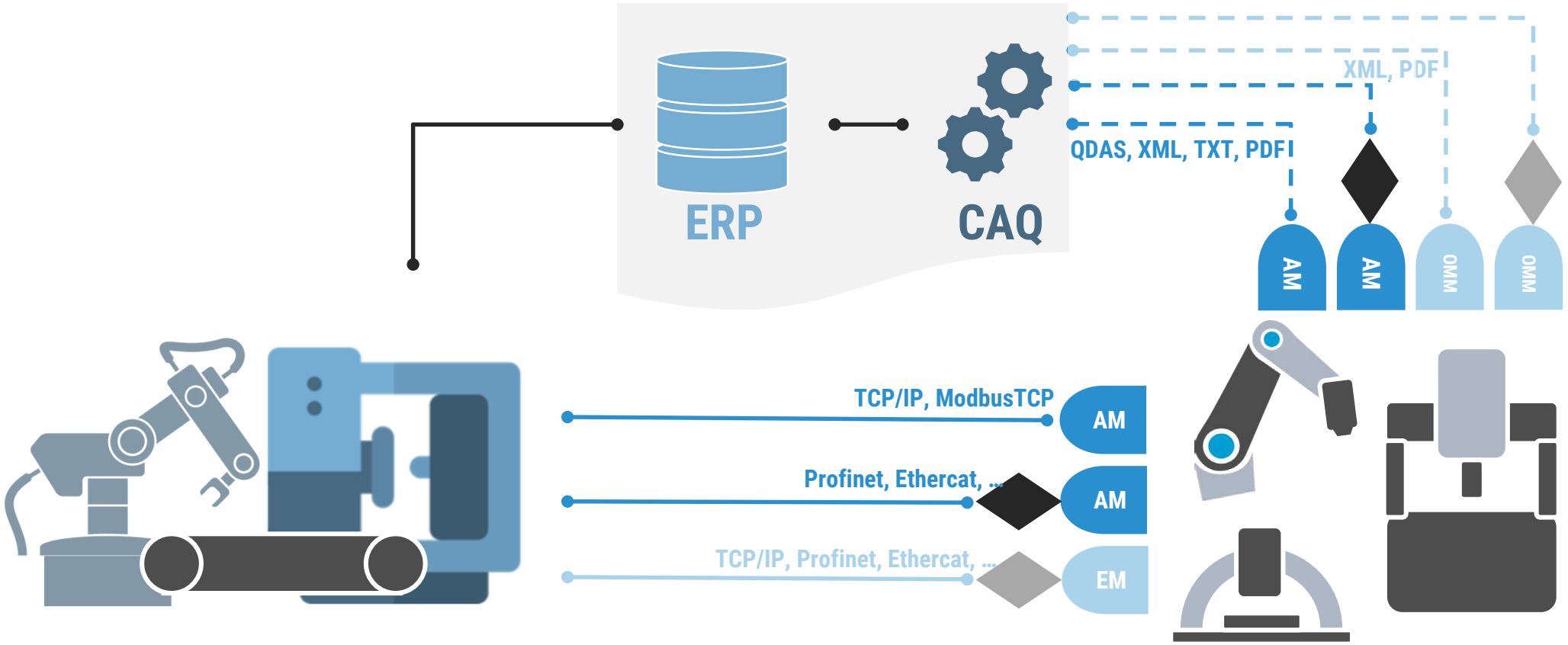
Teach-in with
CADCAM or manually



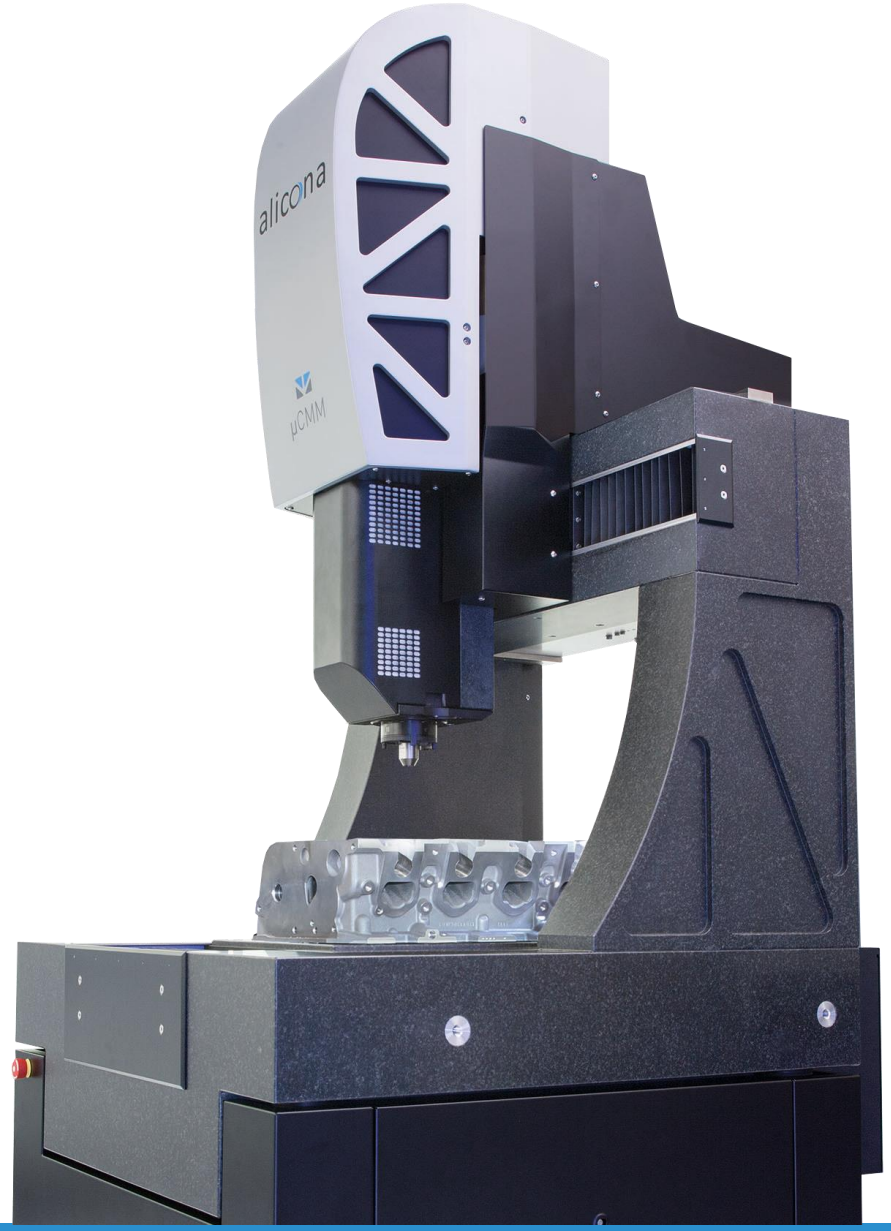




M2M Communication



Outlook: µCMM



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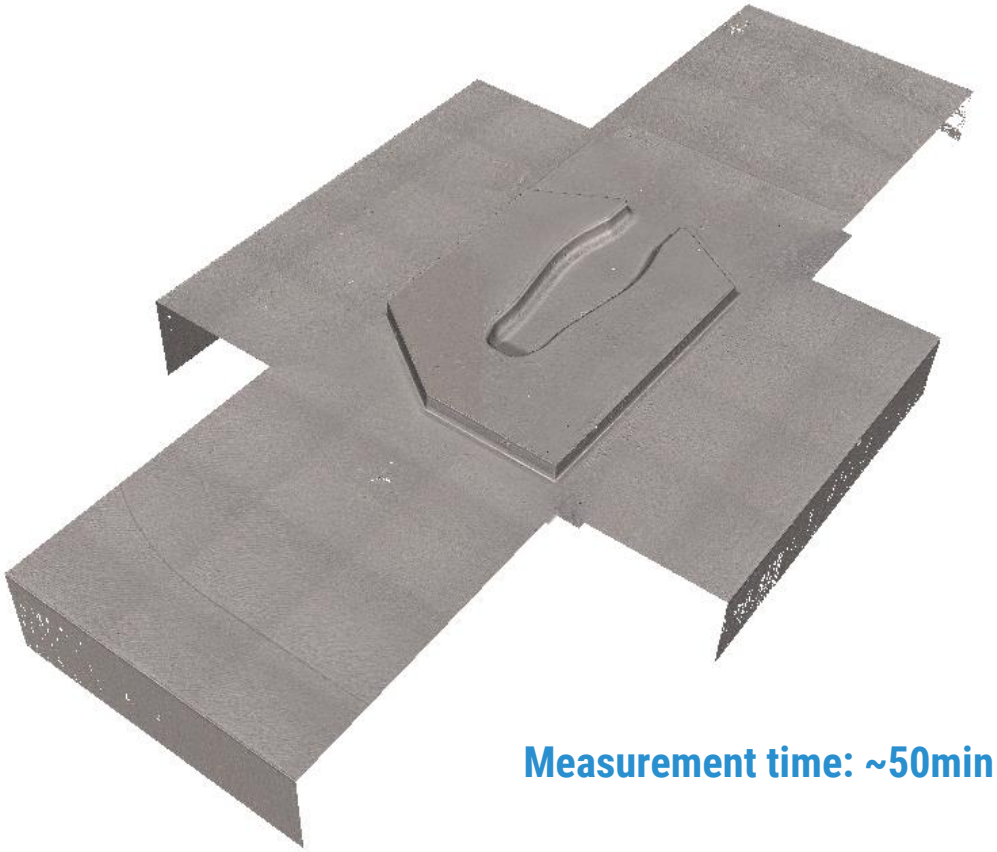
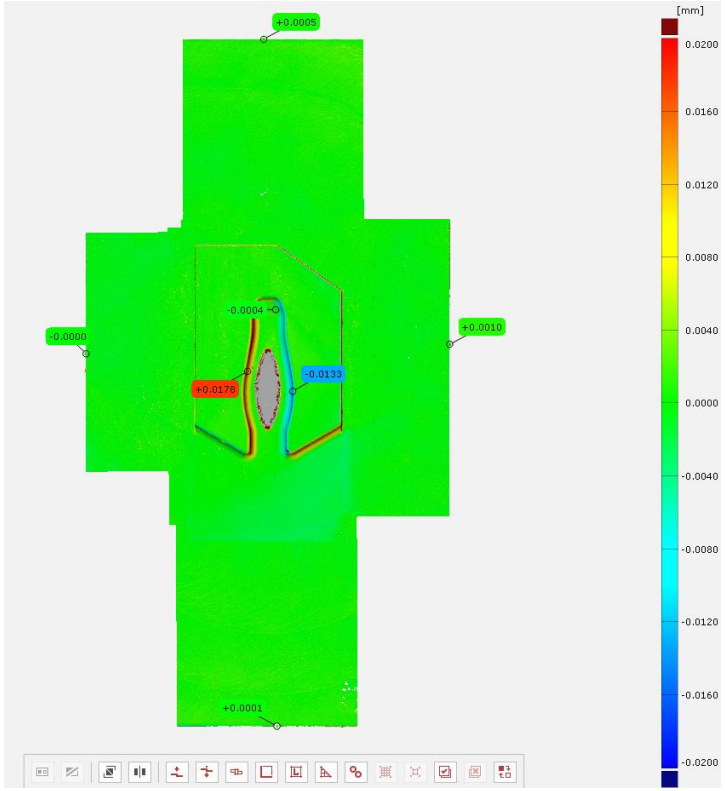
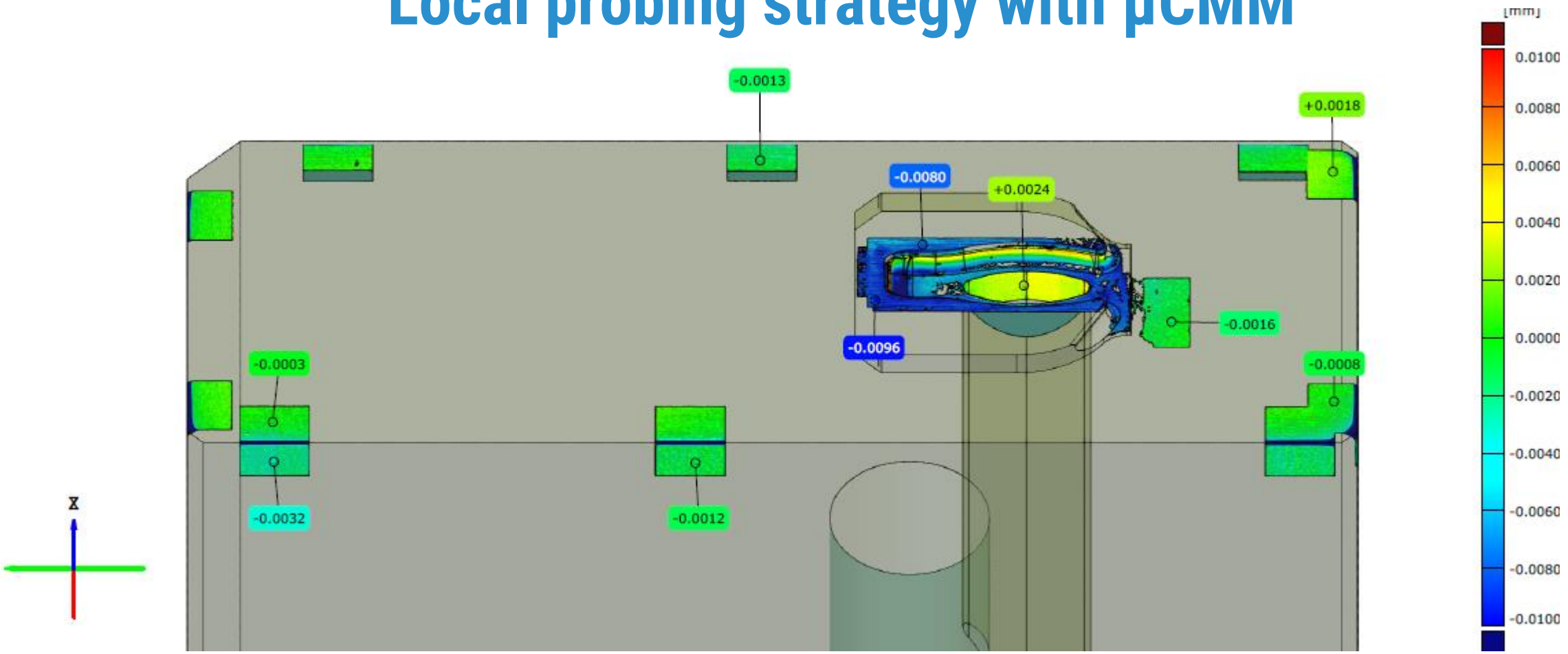
Current Measurement Strategy



Measurement time: ~50min



Local probing strategy with µCMM



Measurement time: ~8min + removal of touch probe CMM for datum