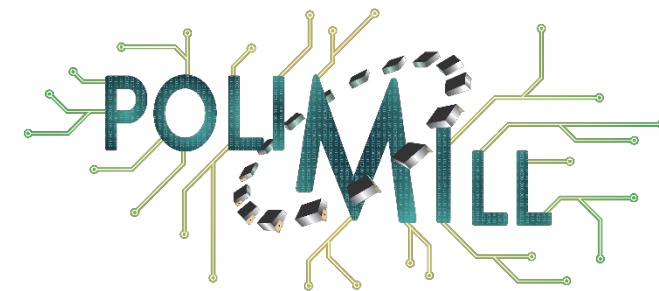




WORKSHOP POLIMILL

27 MAGGIO 2022



CONFIDENTIAL

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M.Paletta

MISURA DI COMPONENTI COMPLESSI DI ALTA PRECISIONE

NON RIESCO A VEDERE COSA MISURO

E' TROPPO STRETTO E NON ENTRO CON IL TASTATORE

SE LO MISURO IO VIENE X, SE LO MISURA LUI VIENE Y

SET UP MANUALE? CI METTO TROPPO TEMPO

LA SEZIONE DI MISURA E' ORTOGONALE?

MA ANCHE LA RUGOSITA' SUL FONDO??



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BRUKER ALICONA

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That's metrology!



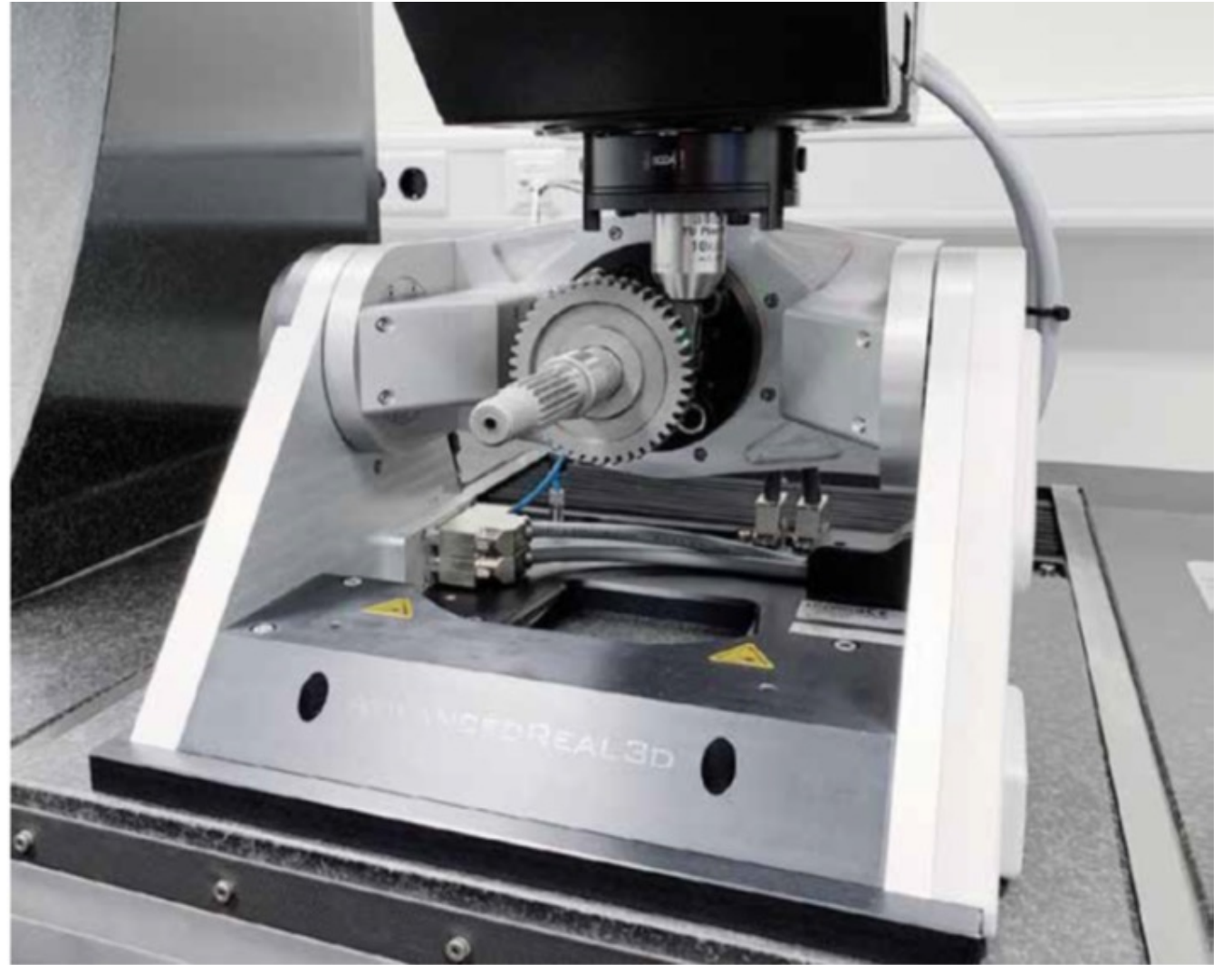
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μ CMM: tante anime in una macchina di misura

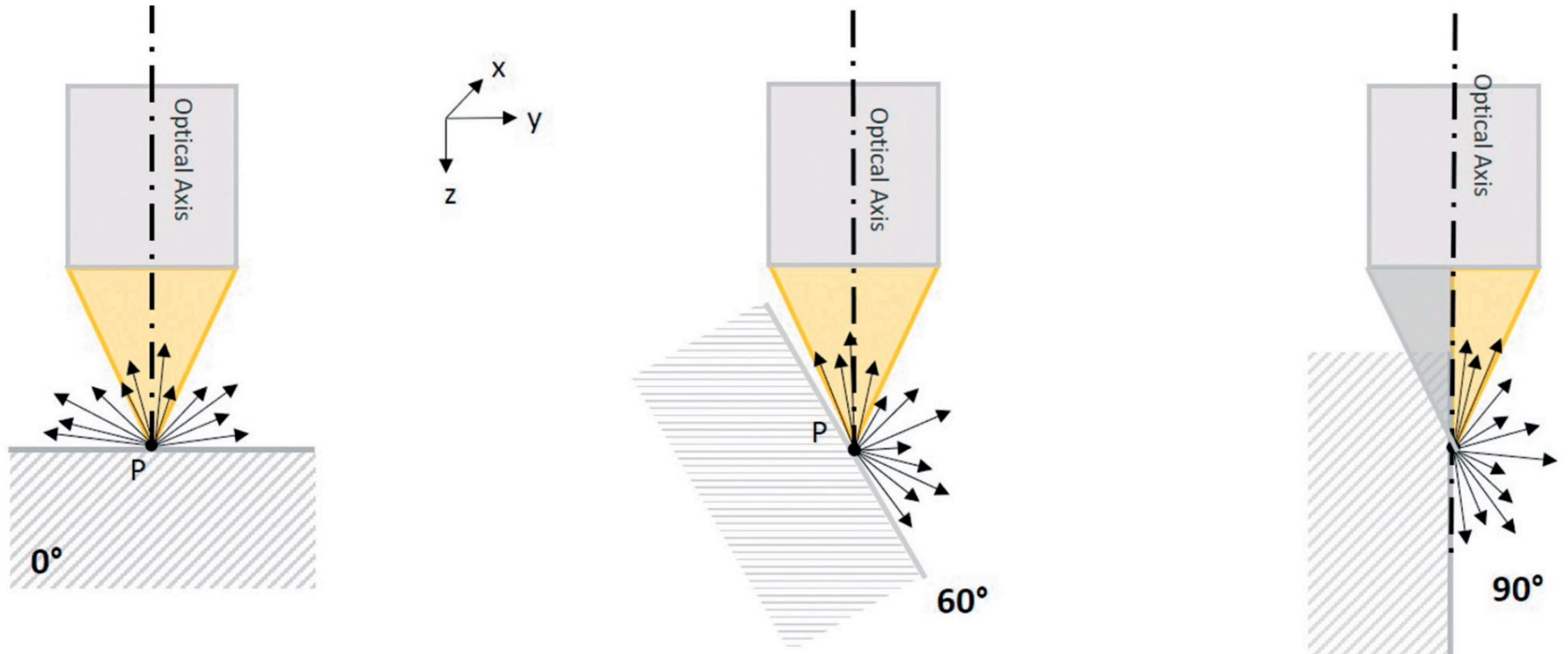


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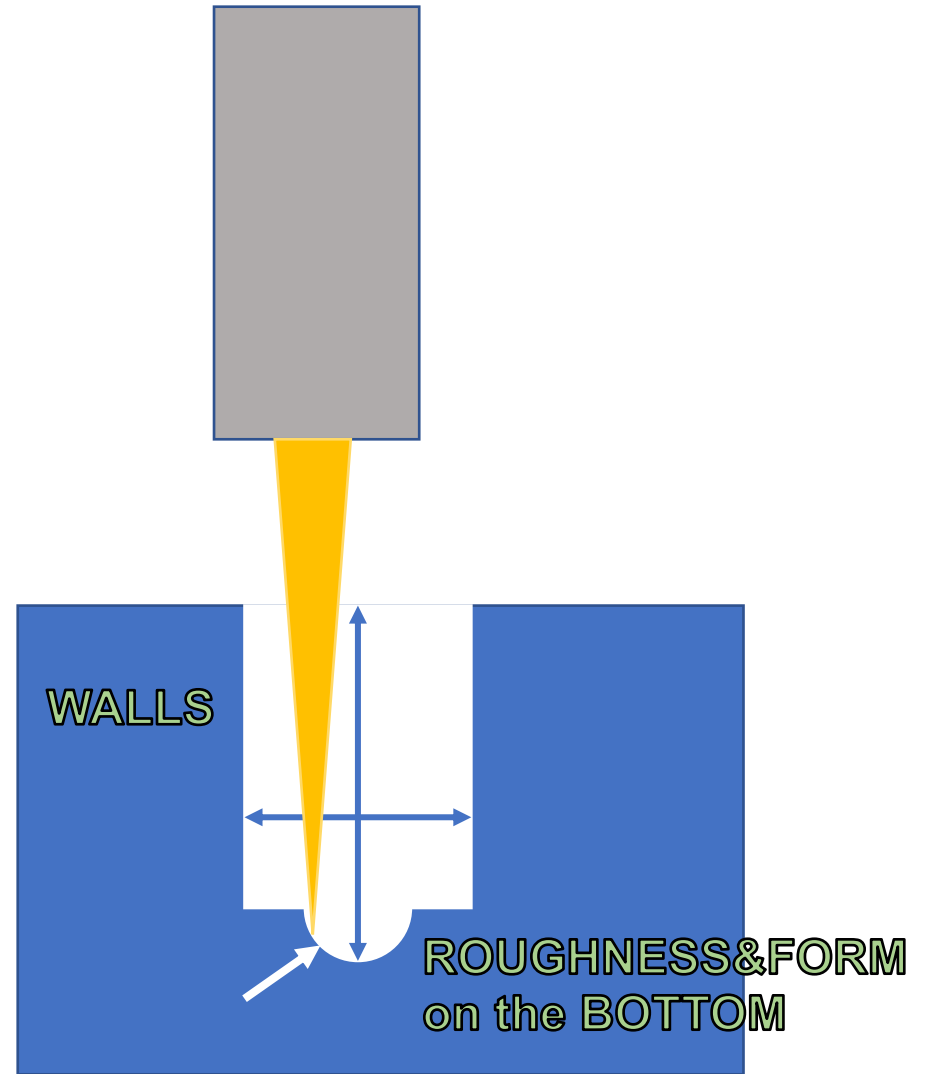
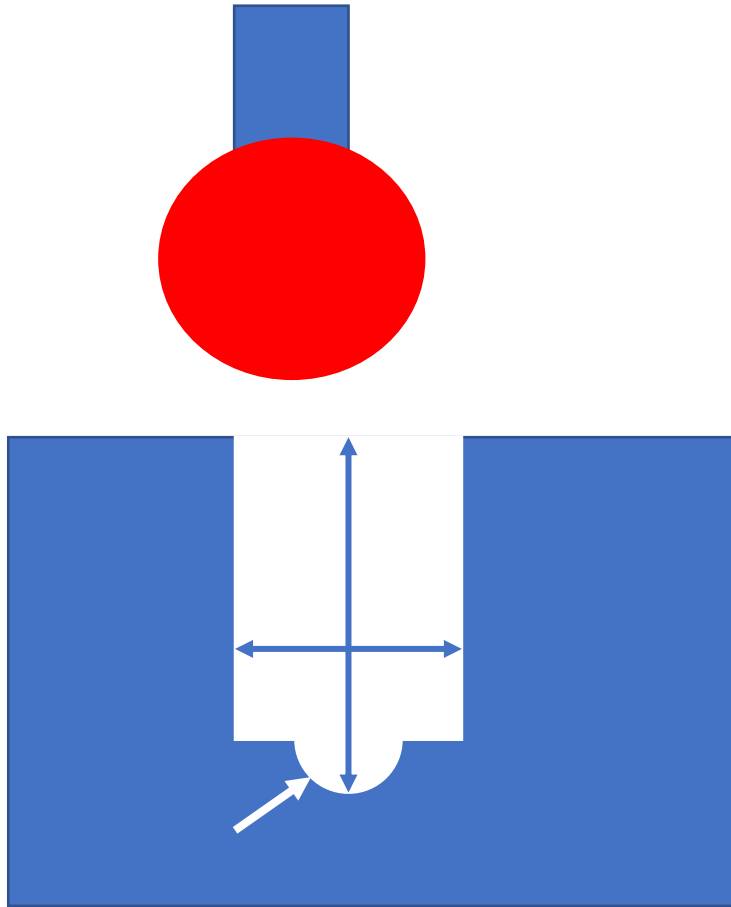
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FOCUS VARIATION



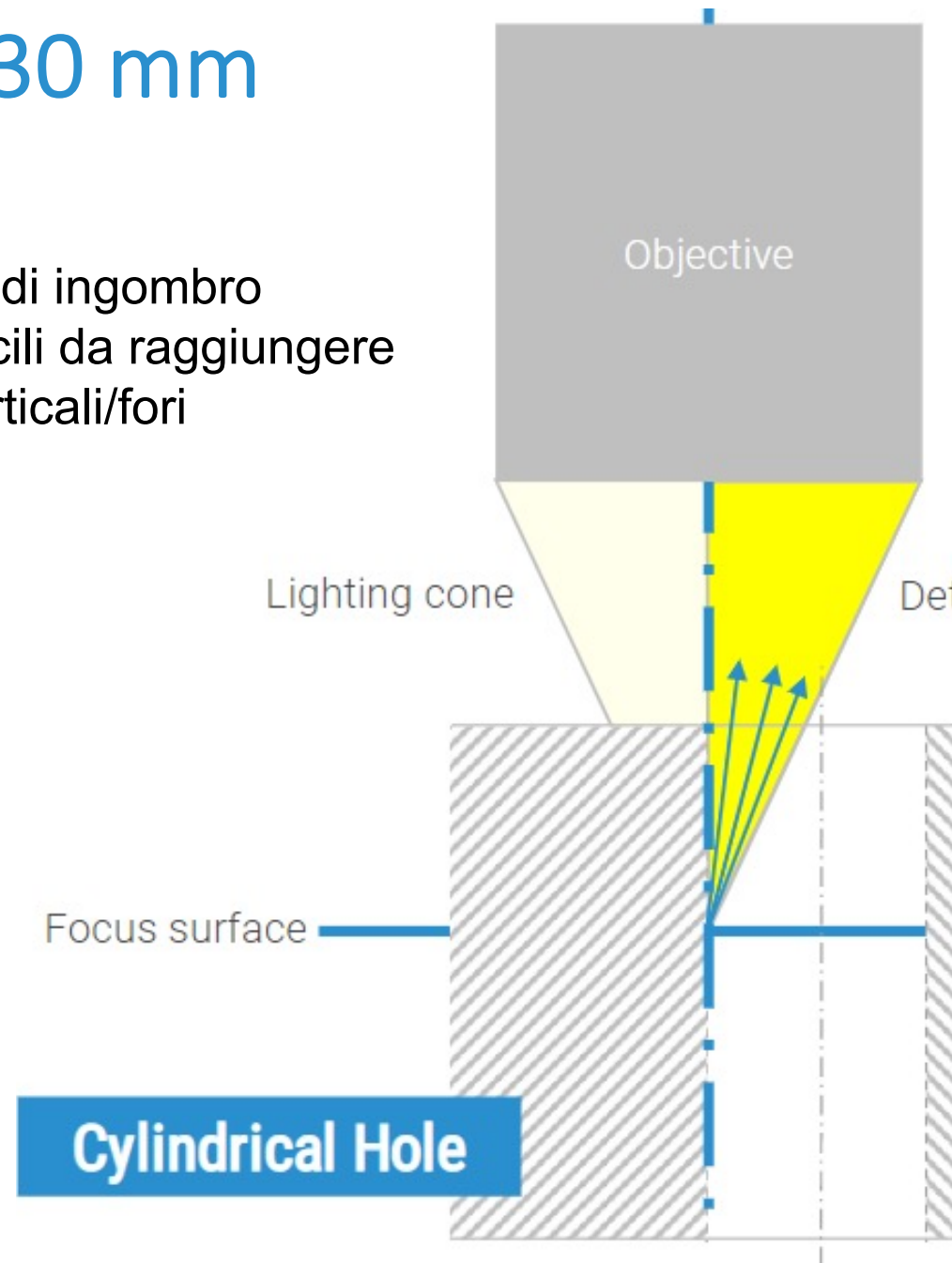
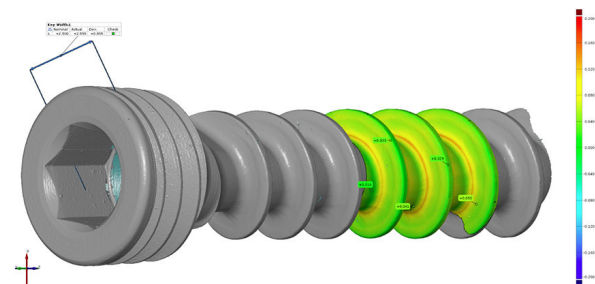
FOCUS VARIATION



MASSIMA DISTANZA DI LAVORO: 130 mm



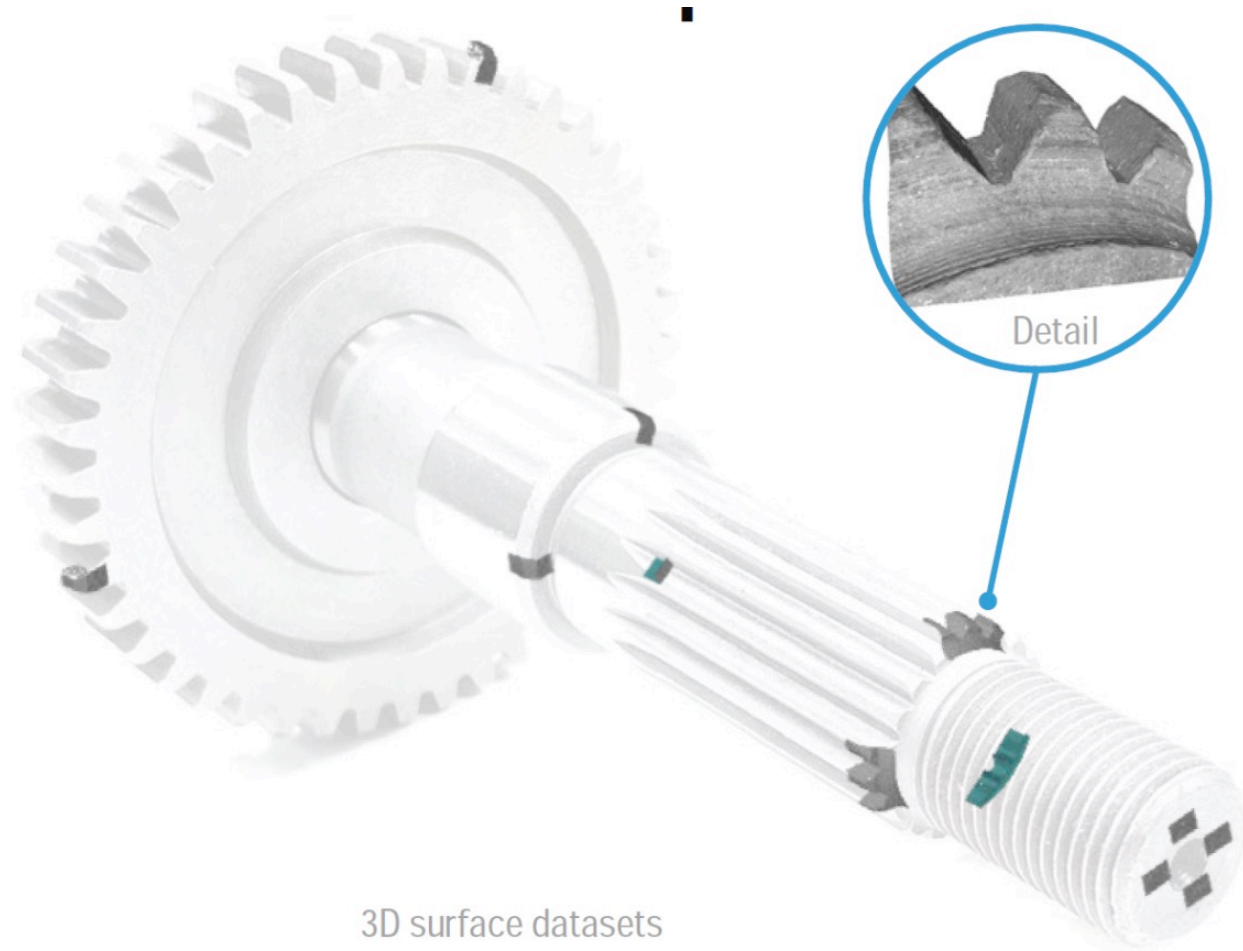
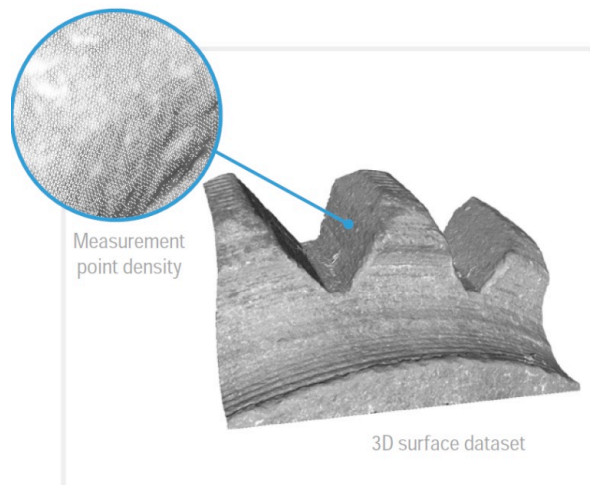
- Problemi di ingombro
- Aree difficili da raggiungere
- Pareti verticali/fori



VEDO CON GRANDE DETTAGLIO COSA STO MISURANDO



3D data



3D surface datasets



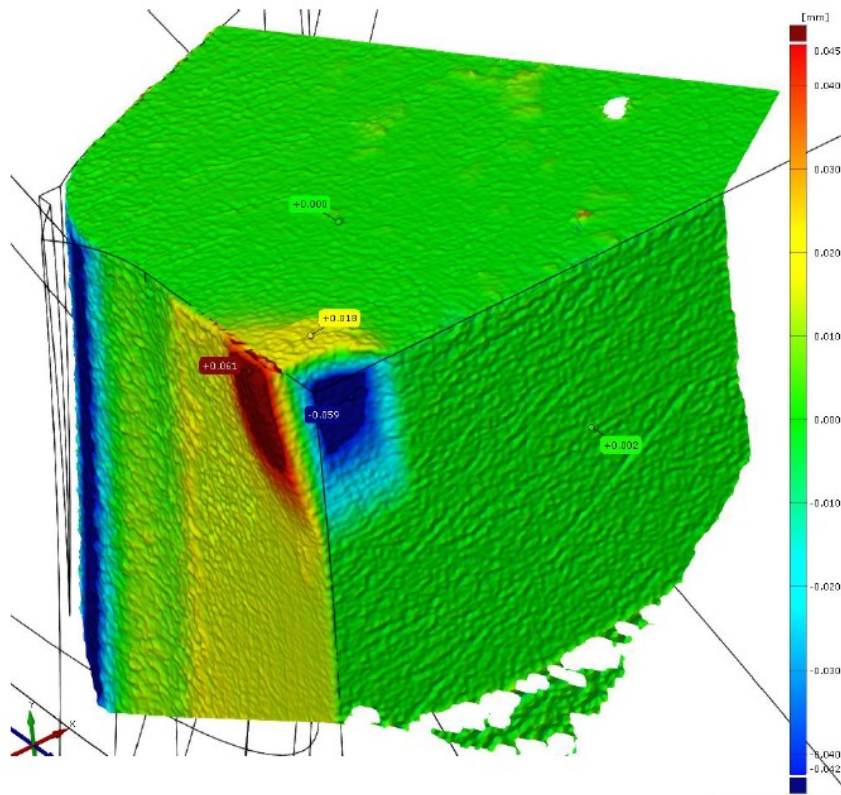
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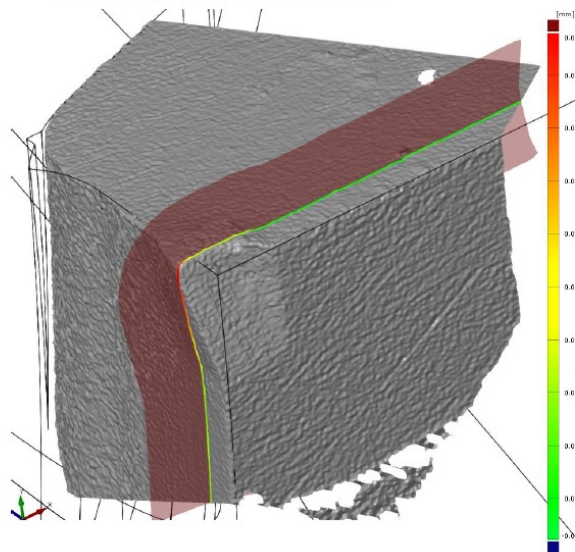
UN IMMAGINE VALE MILLE PAROLE

Misura quantitativa unita a immagine qualitativa:
I componenti non hanno più segreti



CAD comparison at detail

Mold 1 – Side B - Detail AliconaInspect Evaluation



Inspection Section - overview



Inspection Section – Detail with CAD contour



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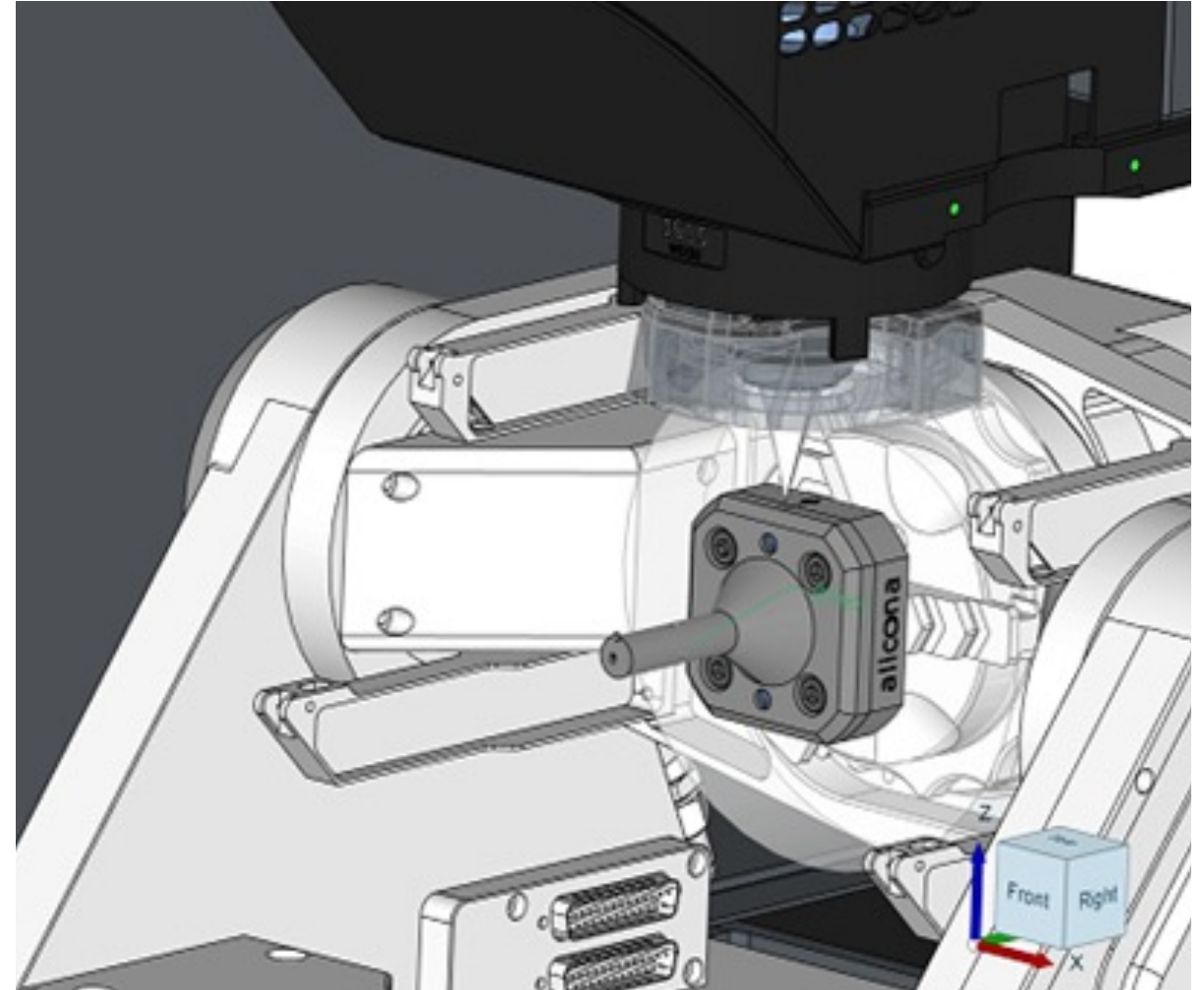
SET UP MANUALE TROPPO COMPLICATO



ELIMINA IL MAL DI TESTA:

Con il **DIGITAL TWIN**

- Misure ripetibili
- Nessun rischio collisioni
- Misure in non presidiato



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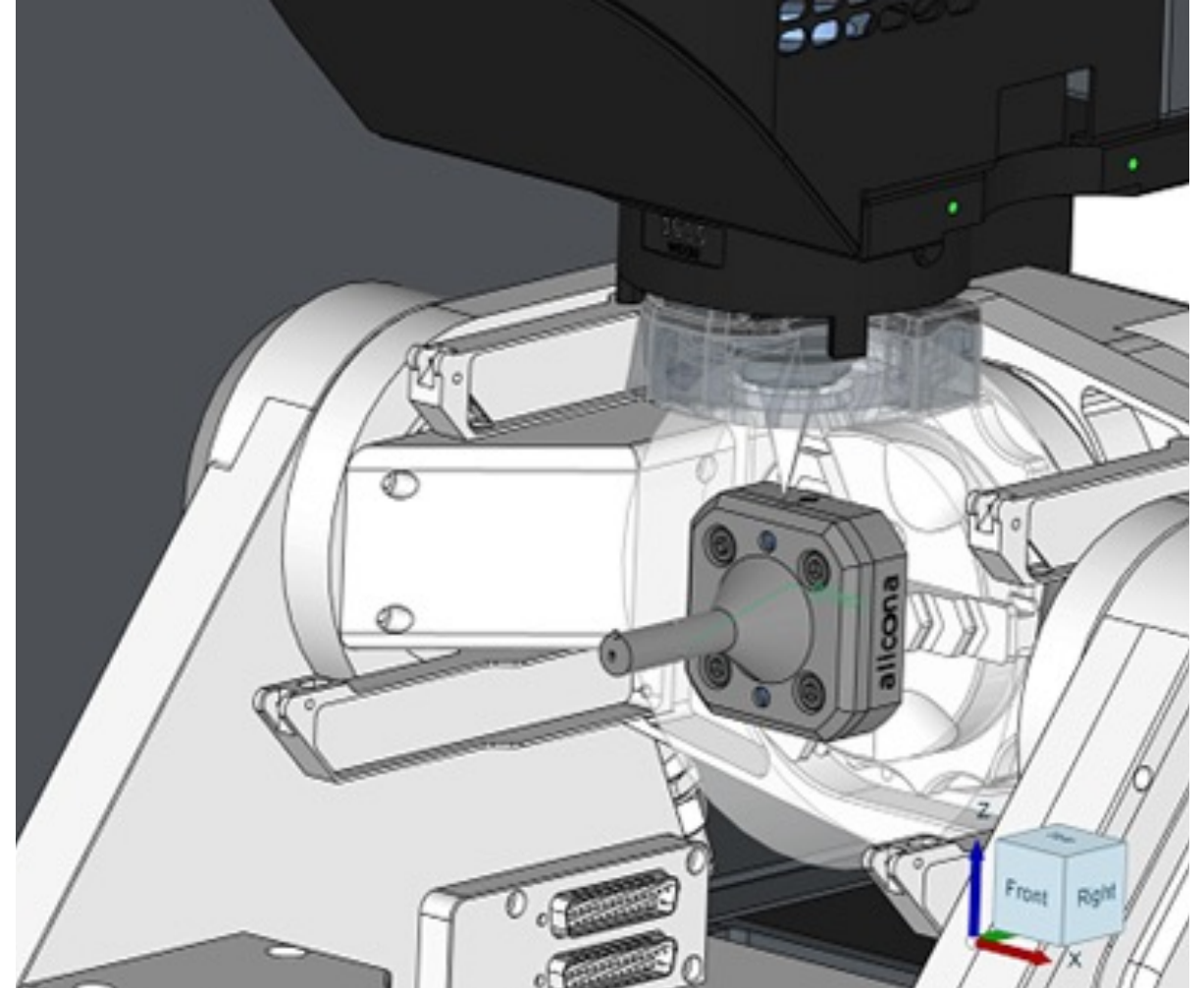
SET UP MANUALE TROPPO LENTO



ELIMINA IL MAL DI TESTA:

Con il **DIGITAL TWIN**

- PMI direttamente dal Progetto
- Definizione aree di misura in automatico

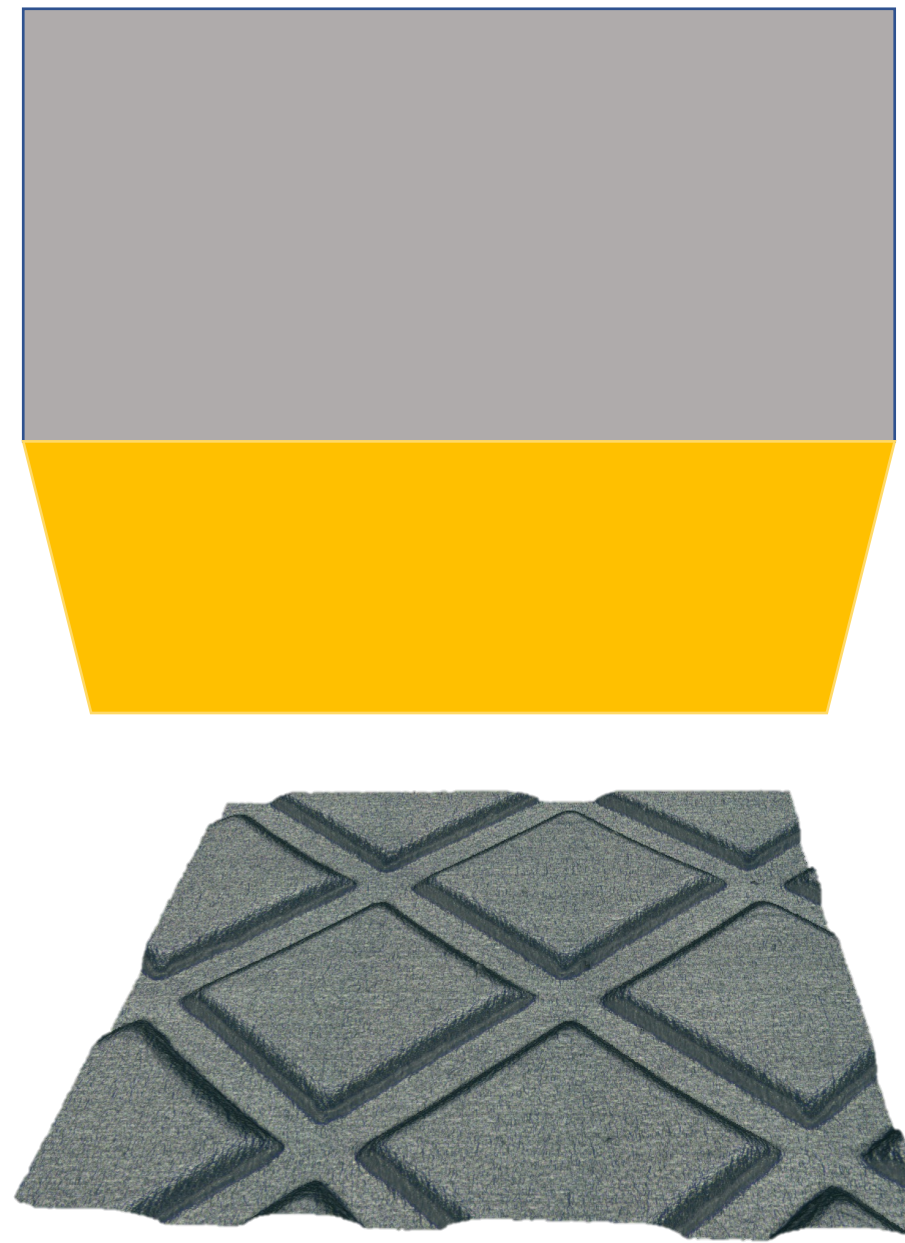
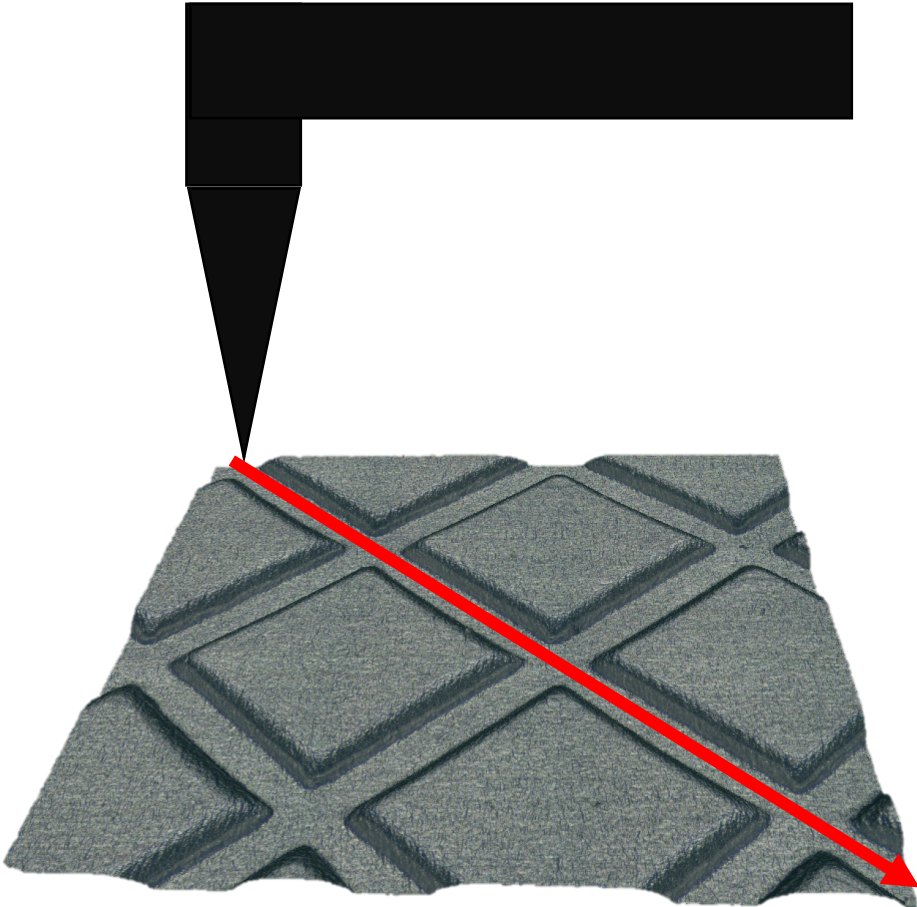


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E LE SUPERFICI?

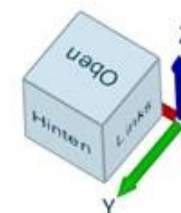
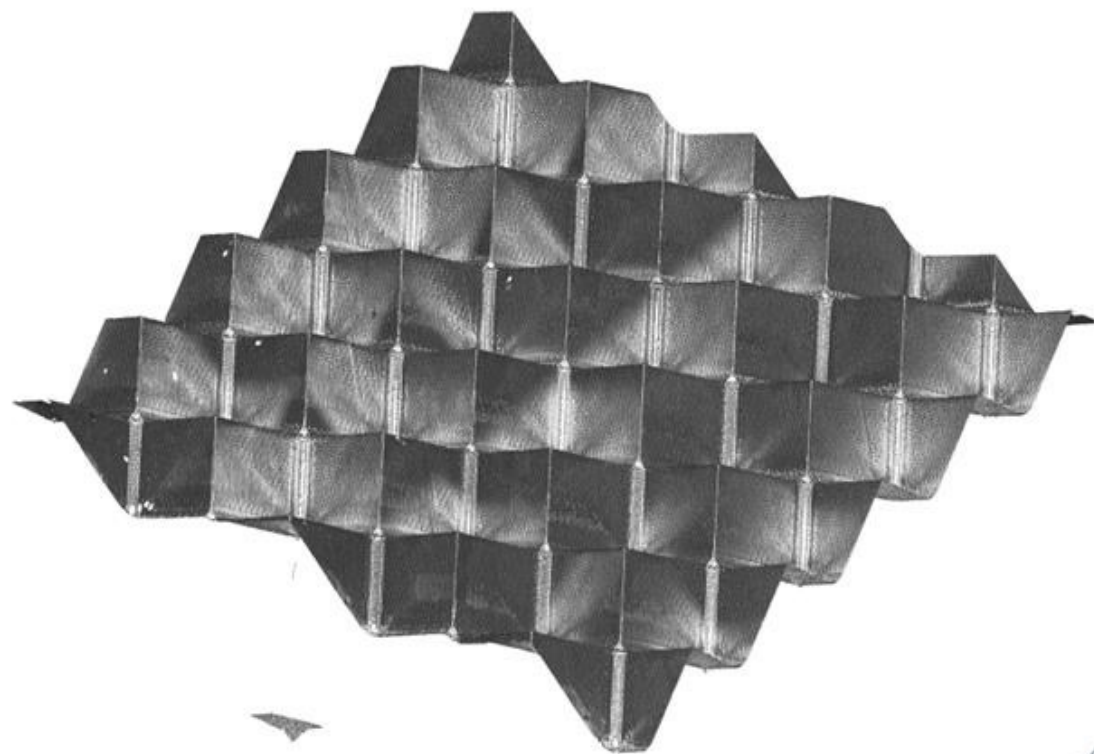
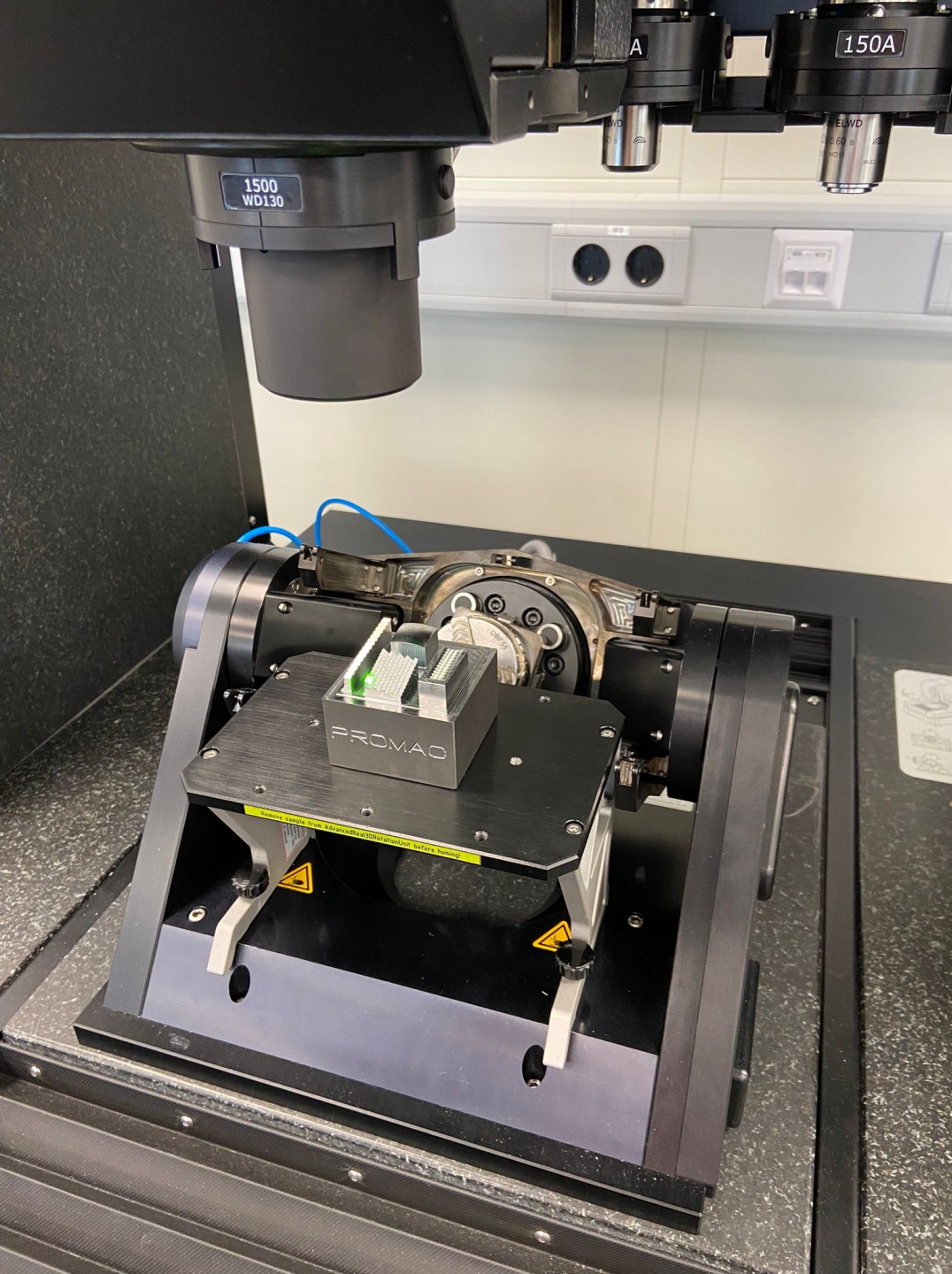


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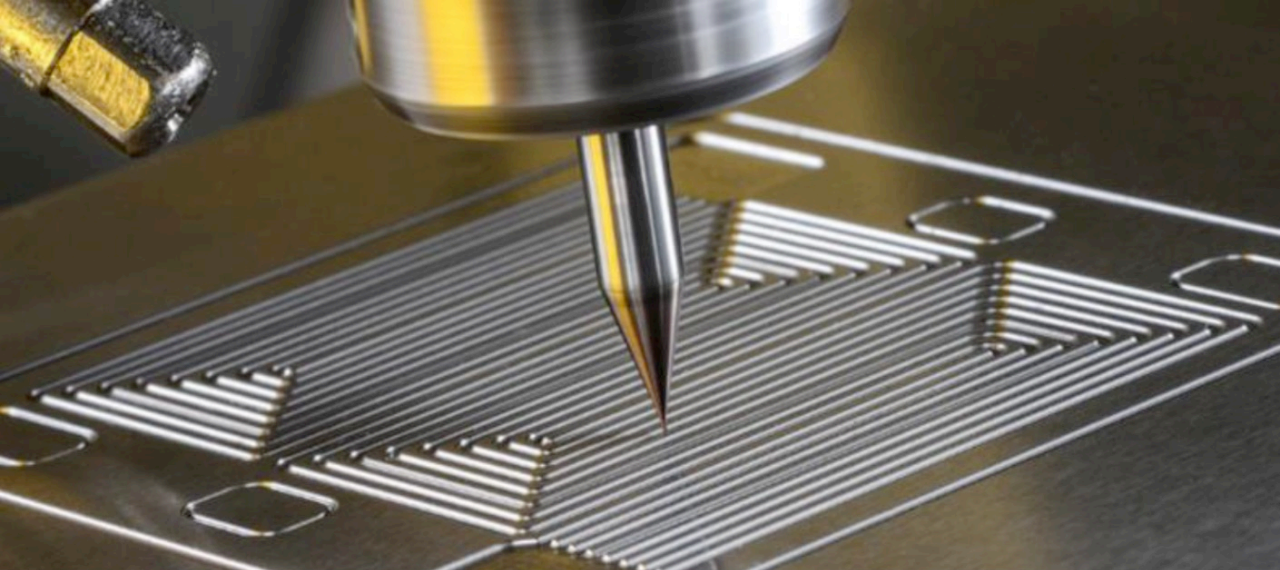
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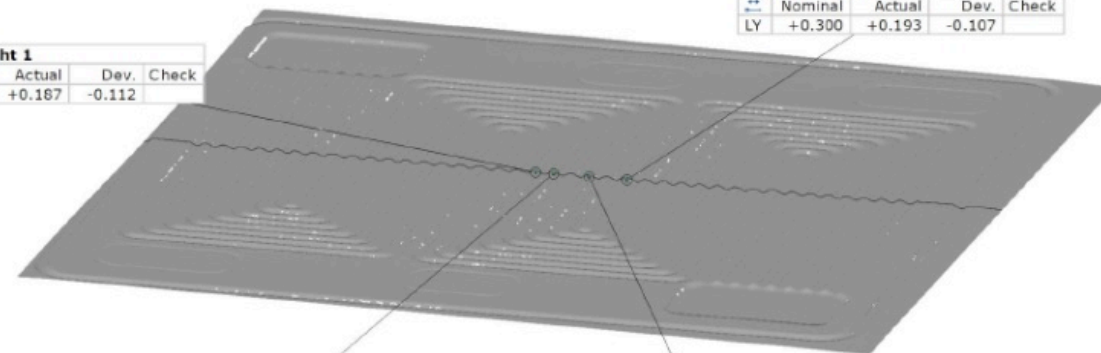


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Channel Height 1				
	Nominal	Actual	Dev.	Check
LY	+0.300	+0.187	-0.112	

Channel Height 4				
	Nominal	Actual	Dev.	Check
LY	+0.300	+0.193	-0.107	

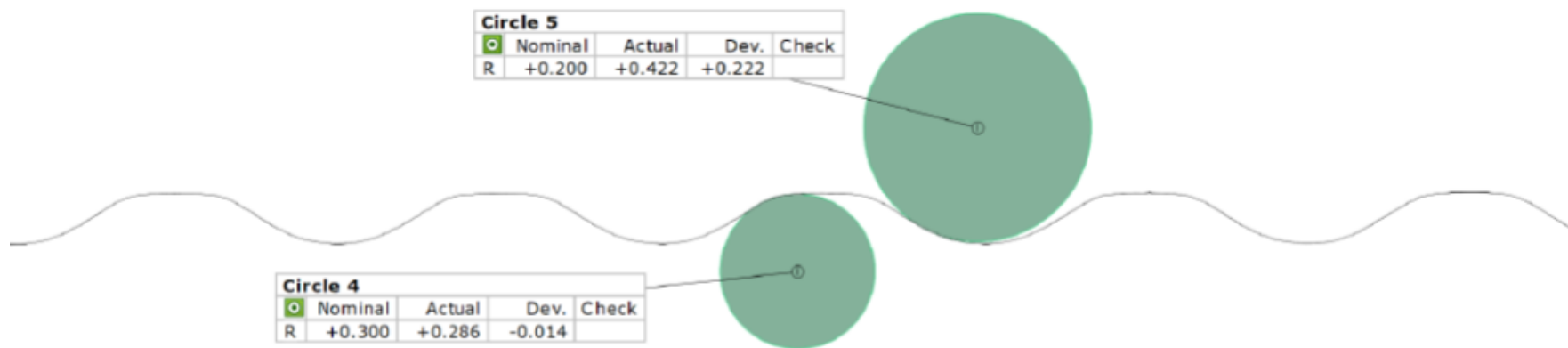


Channel Height 2				
	Nominal	Actual	Dev.	Check
LY	+0.300	+0.187	-0.113	

Channel Height 3				
	Nominal	Actual	Dev.	Check
LY	+0.300	+0.192	-0.108	

Circle 5				
	Nominal	Actual	Dev.	Check
R	+0.200	+0.422	+0.222	

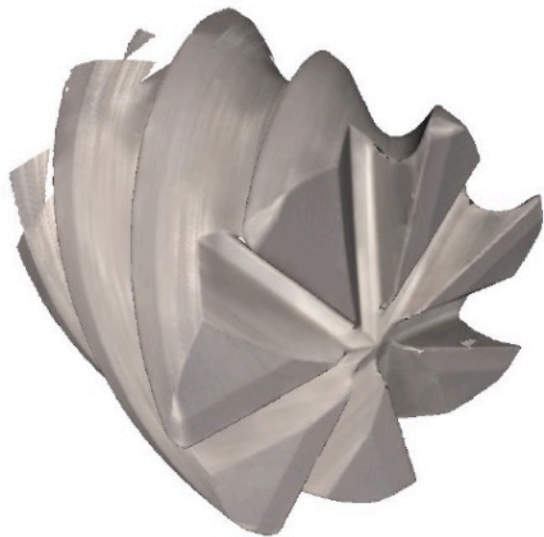
Circle 4				
	Nominal	Actual	Dev.	Check
R	+0.300	+0.286	-0.014	



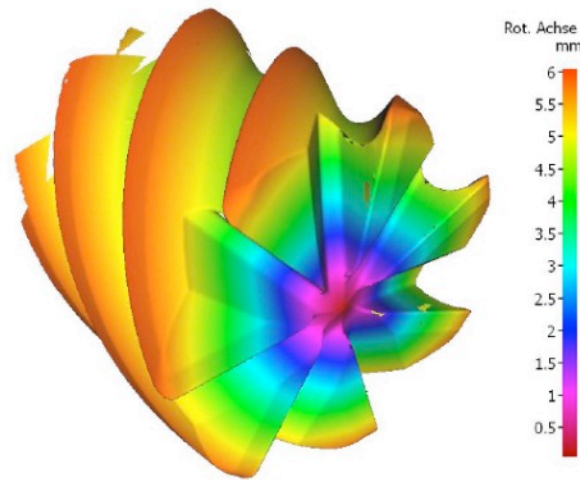
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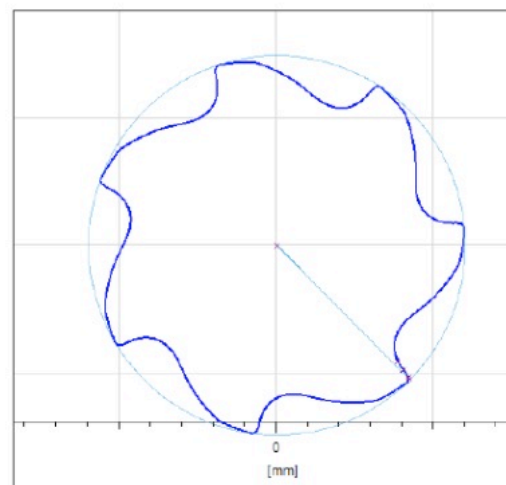
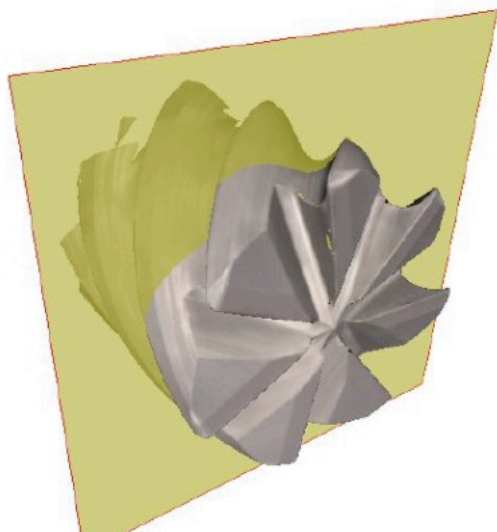
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3D surface dataset, true color

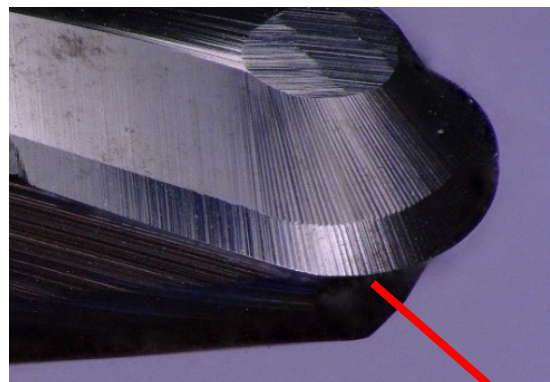


3D surface dataset, pseudo color

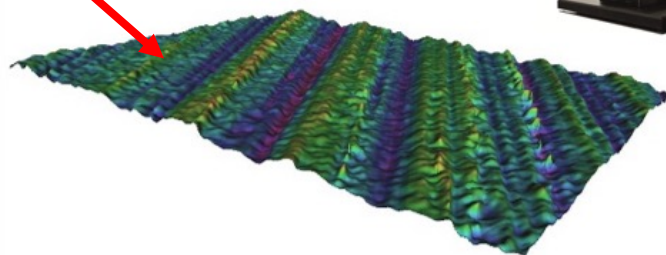


Extracted contour

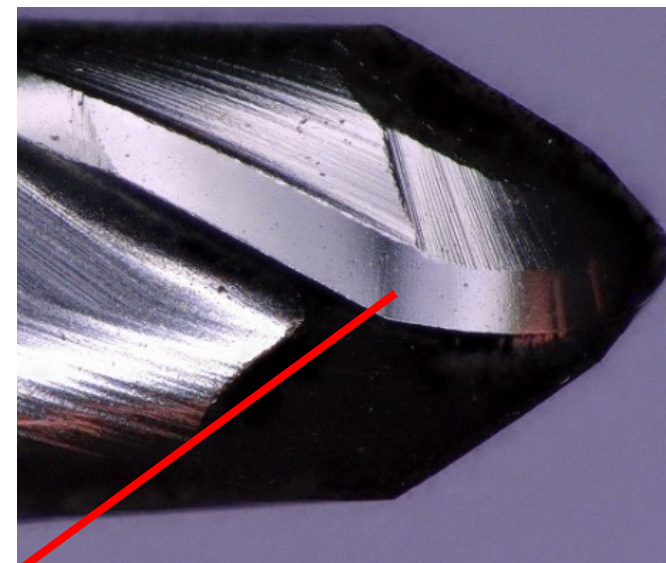
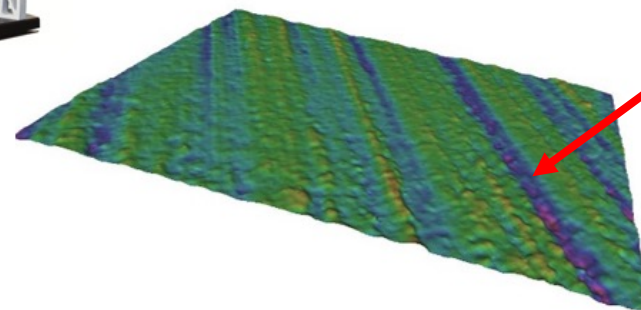




OLD BATCHES



NEW GRINDING PROGRAM
FOR RADIUS



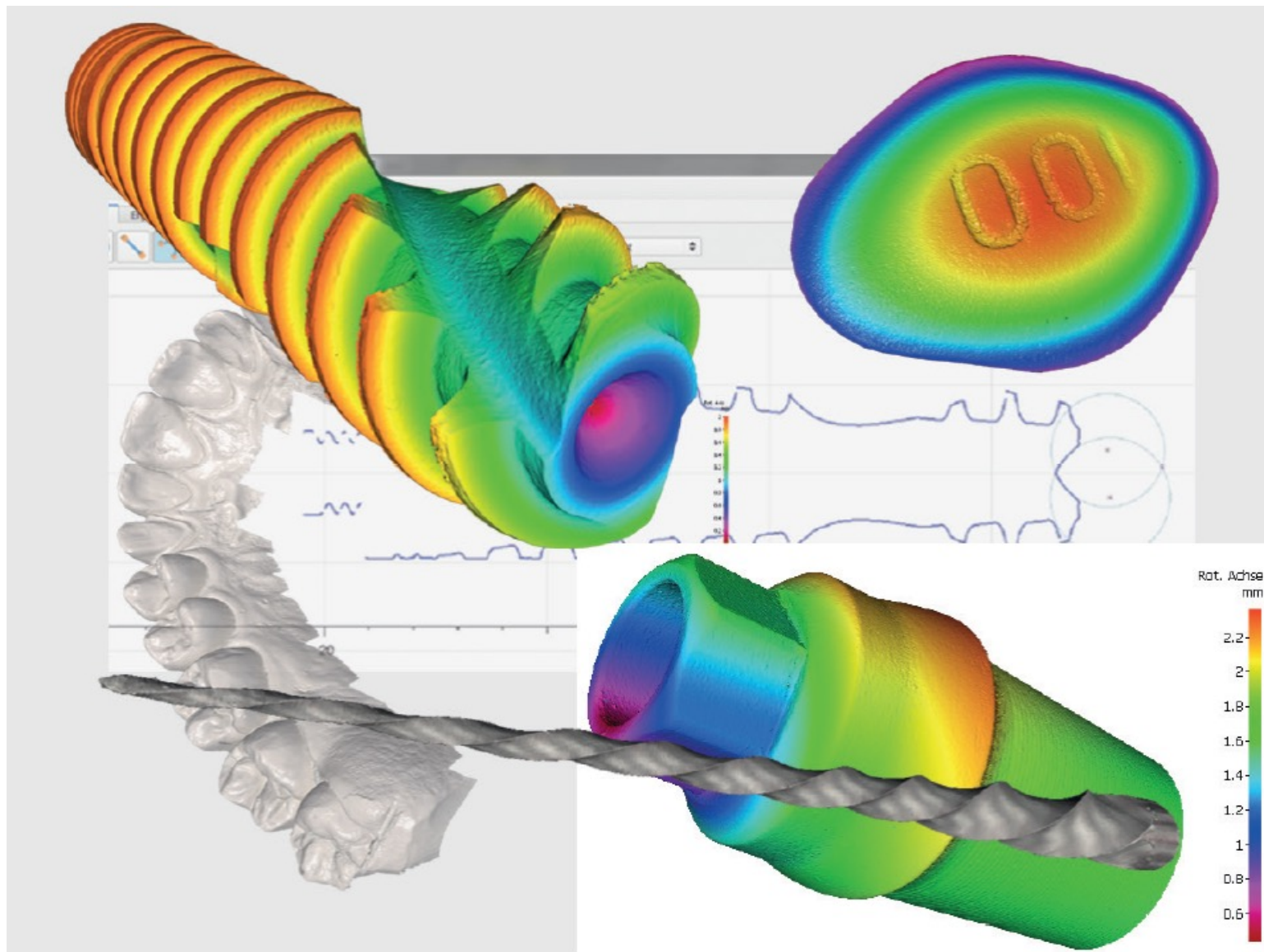
Both images measured with same objective and displayed with same Z scaling (5%)



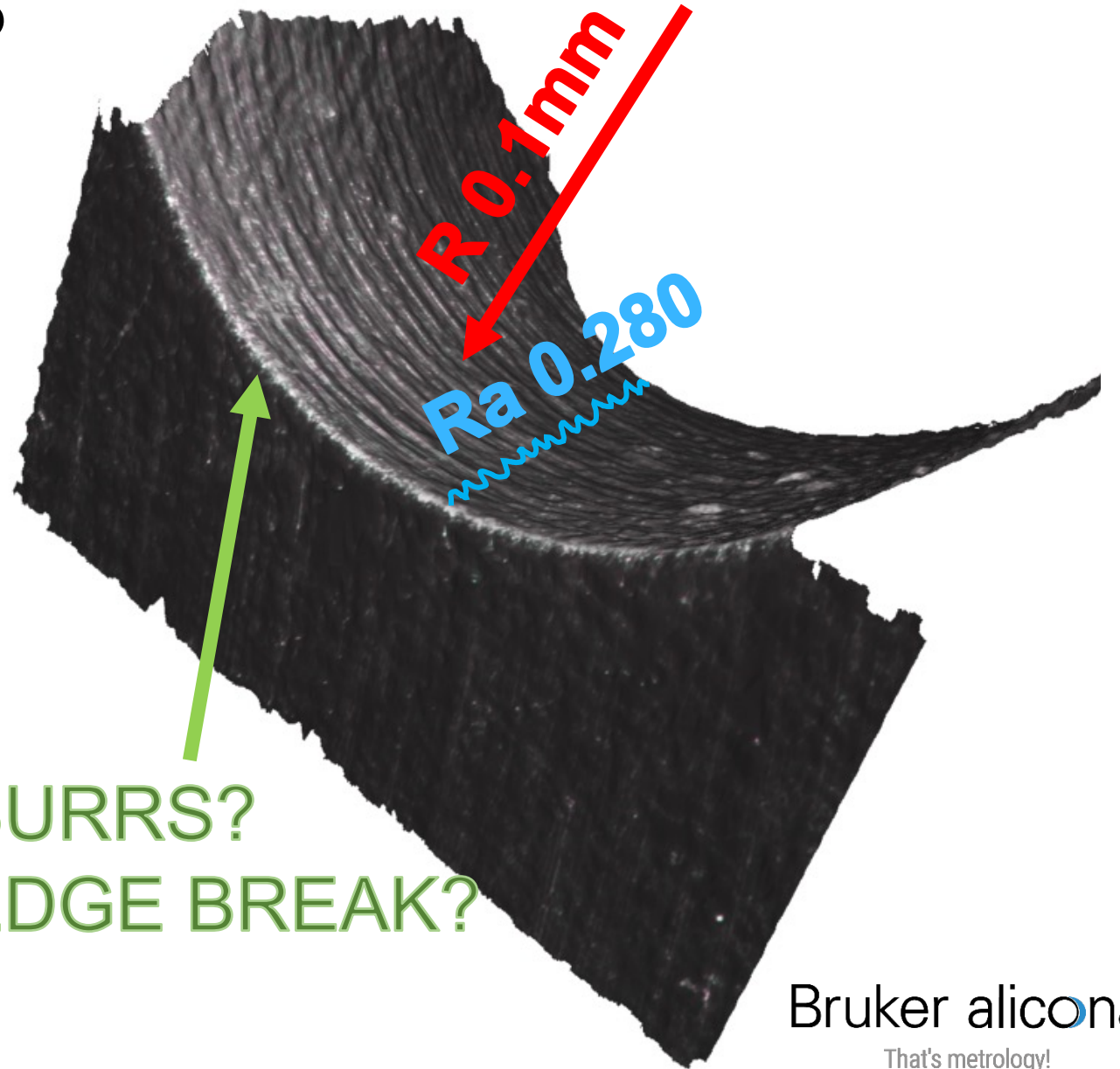
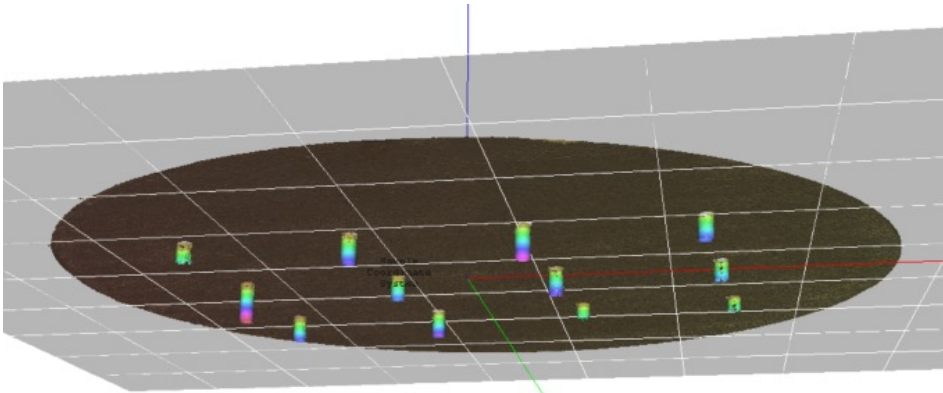
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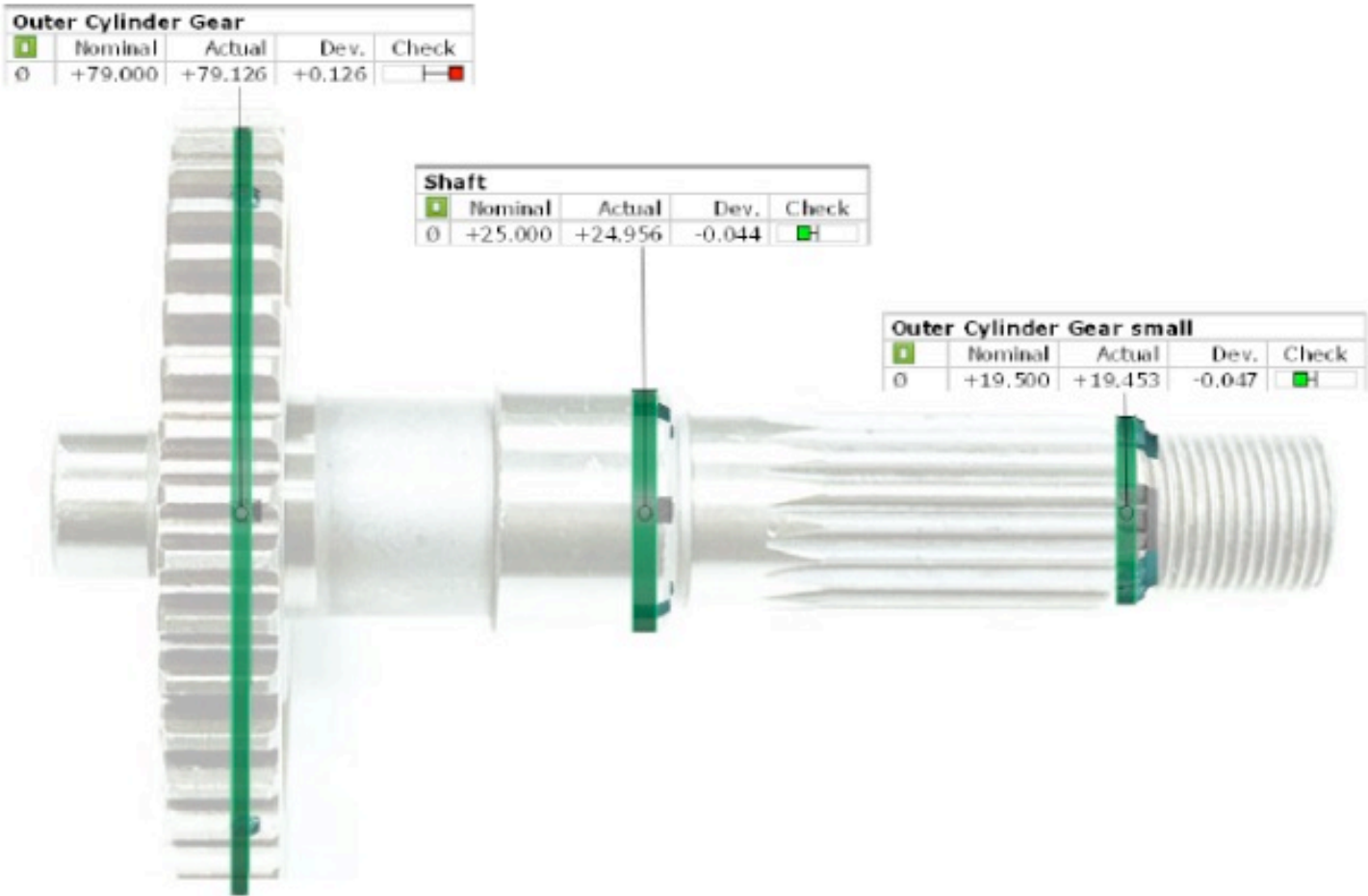


Ø0.2 mm MICRO HOLES



COORDINATES: FREE FORM and GD&T

Diameter measurements

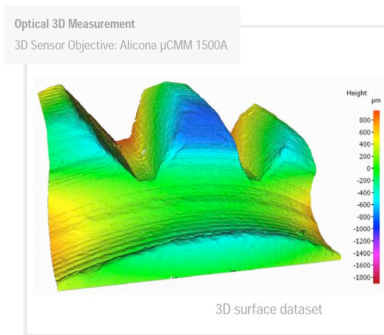
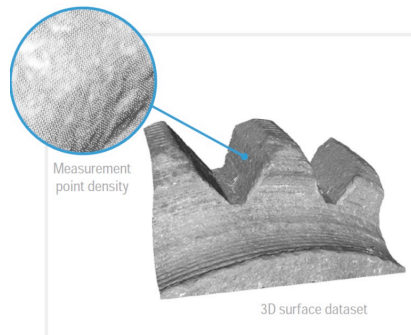


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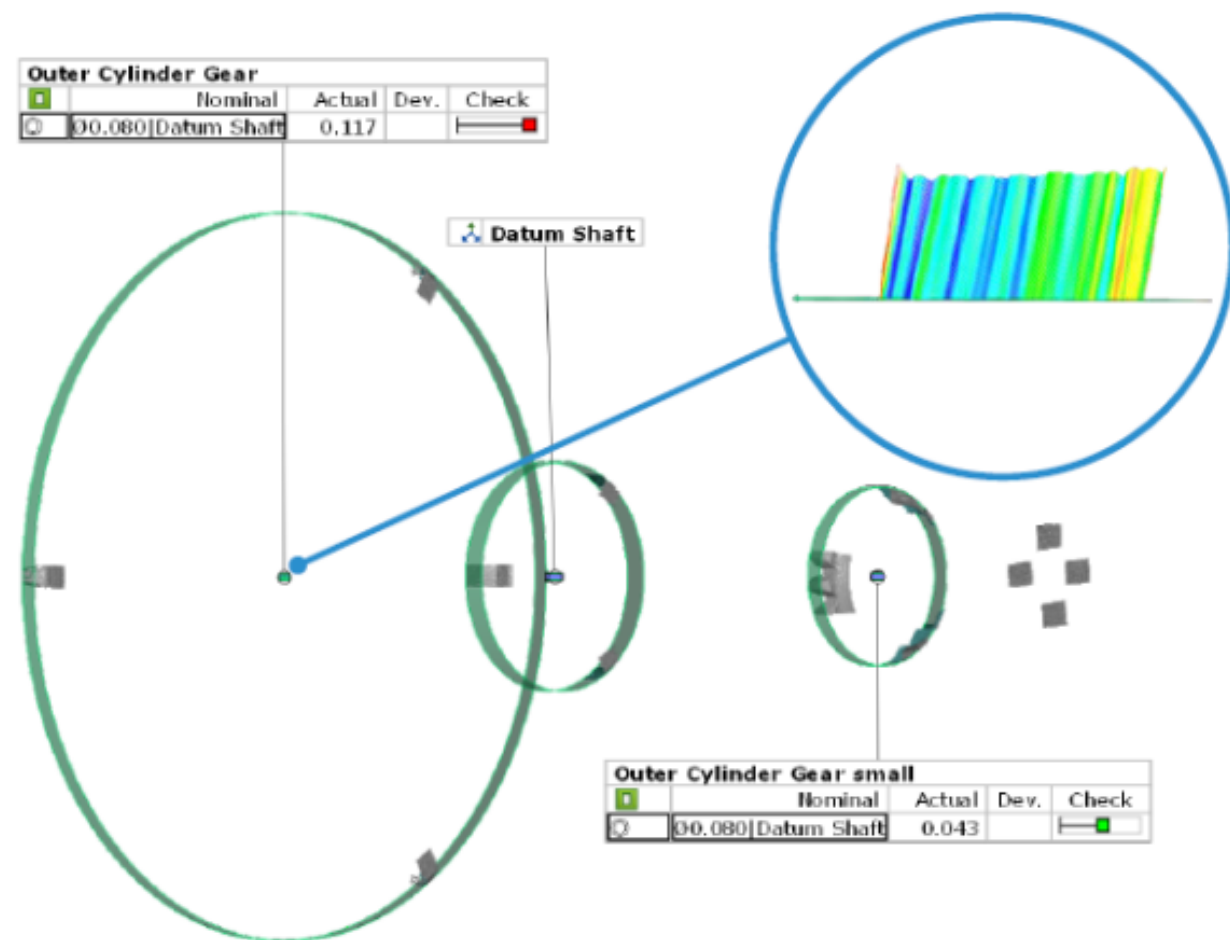
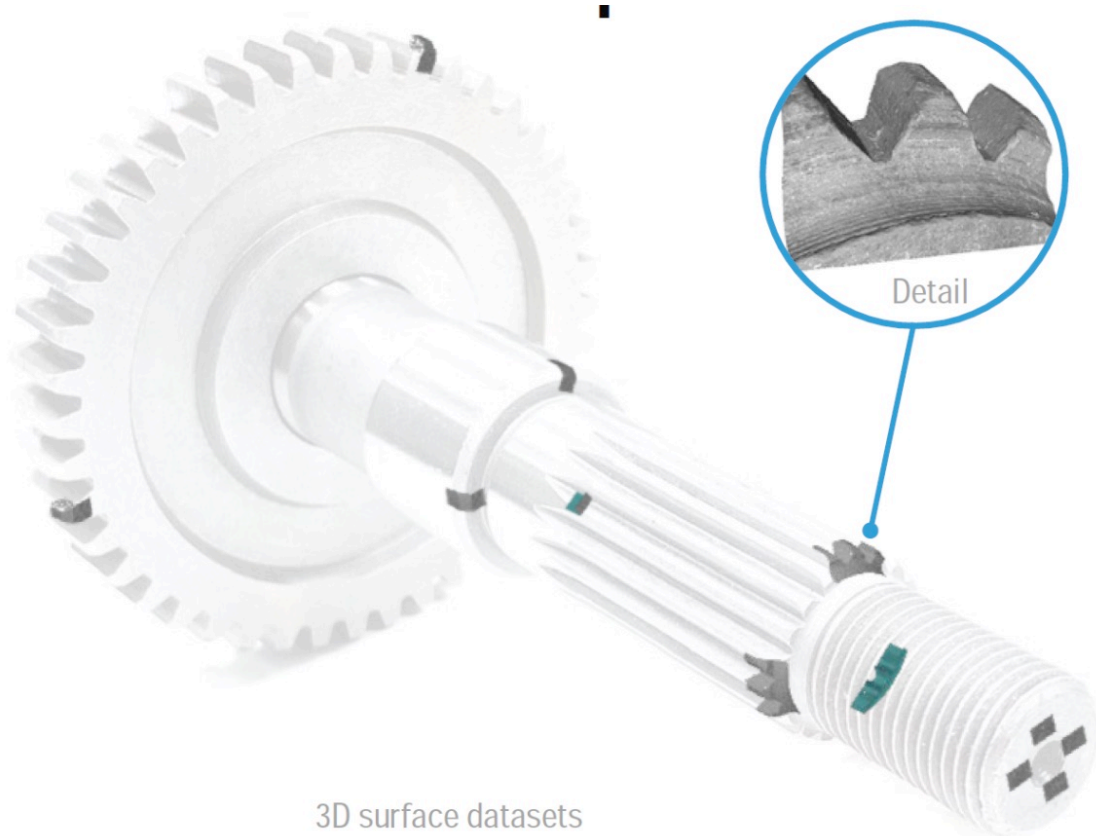
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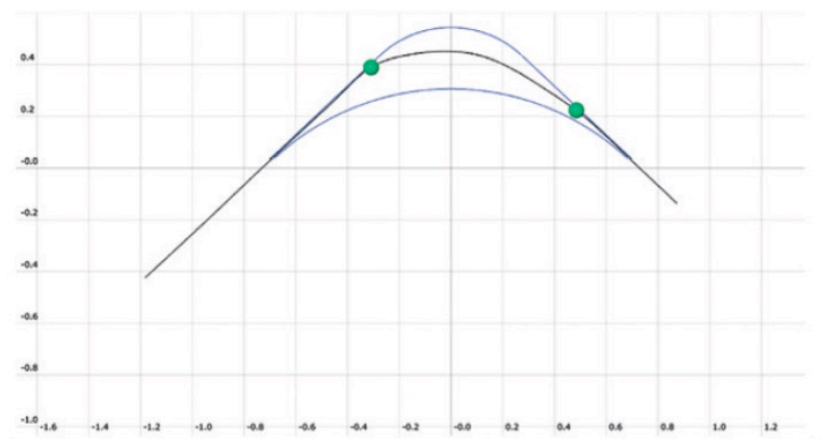
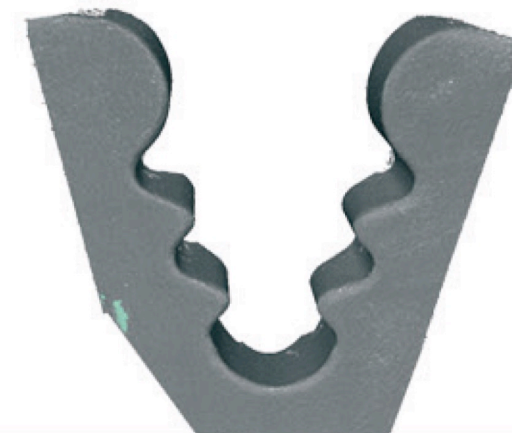
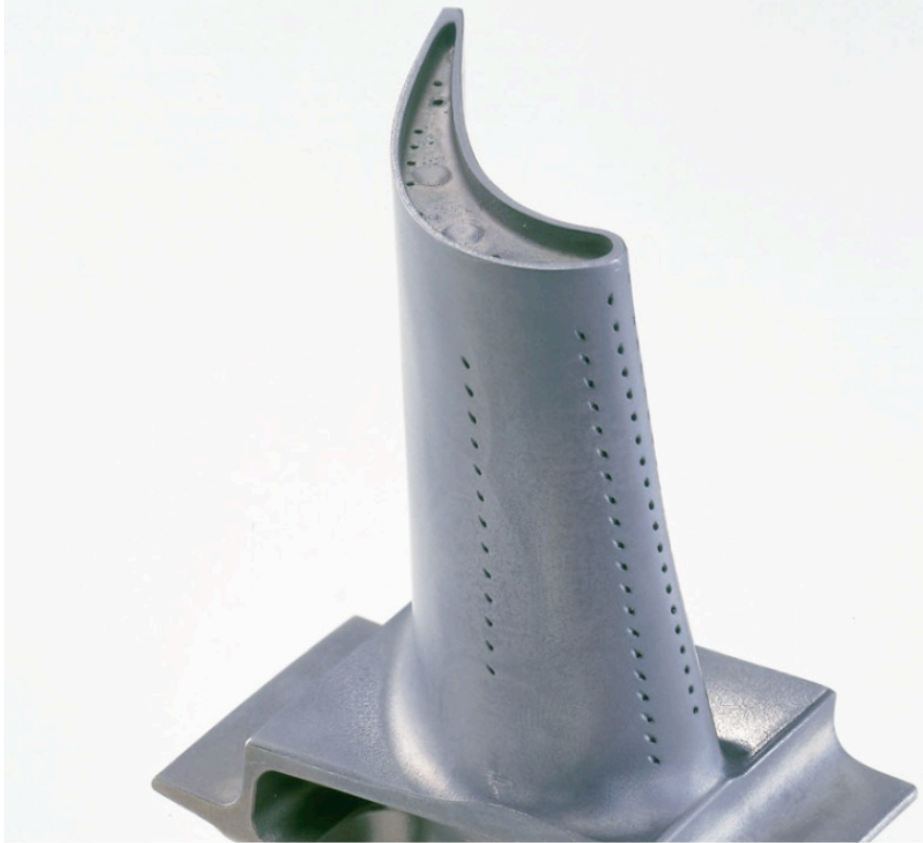
3D data



GEAR SHAFT Coaxiality



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THE END