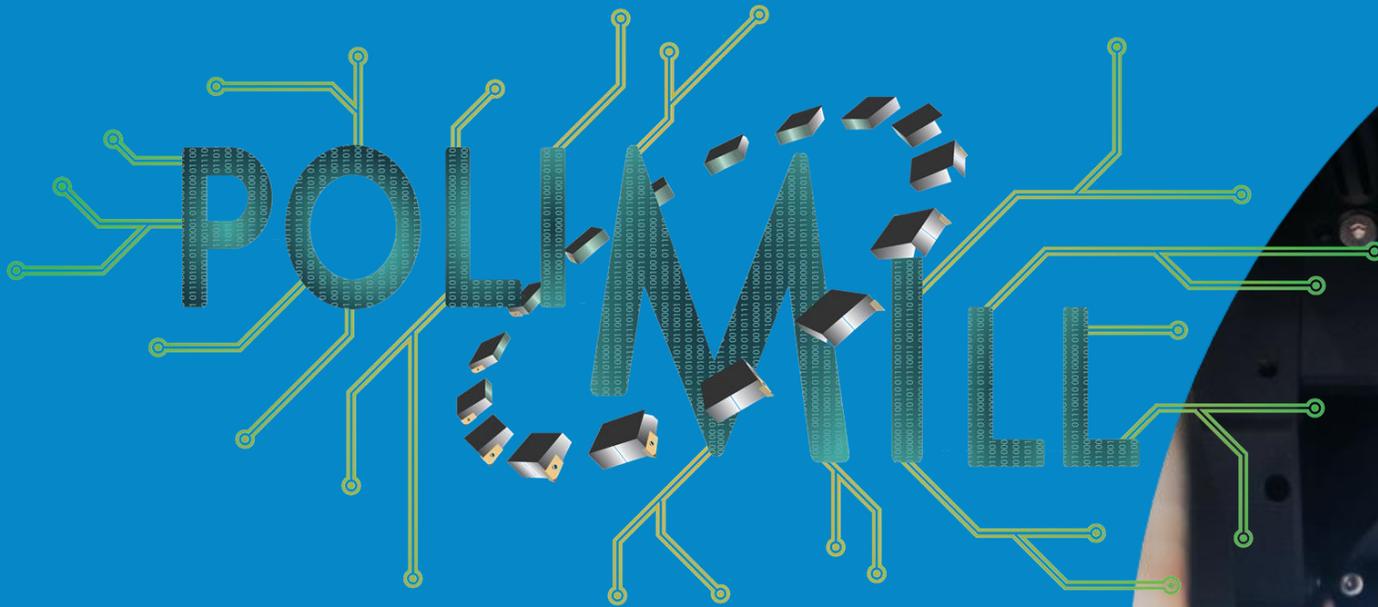


Bruker alicona



**FRESATURA DI STAMPI DI PRECISIONE  
PER CELLE A COMBUSTIBILE  
E LAB ON CHIP**

A person in a blue shirt is operating a Bruker Alicona InfiniteFocus microscope in a factory setting. The microscope is a large, industrial-grade device with a white and black frame. The person is standing to the left of the microscope, looking at the control panel. The background shows a factory floor with various pieces of equipment and a metal safety fence.

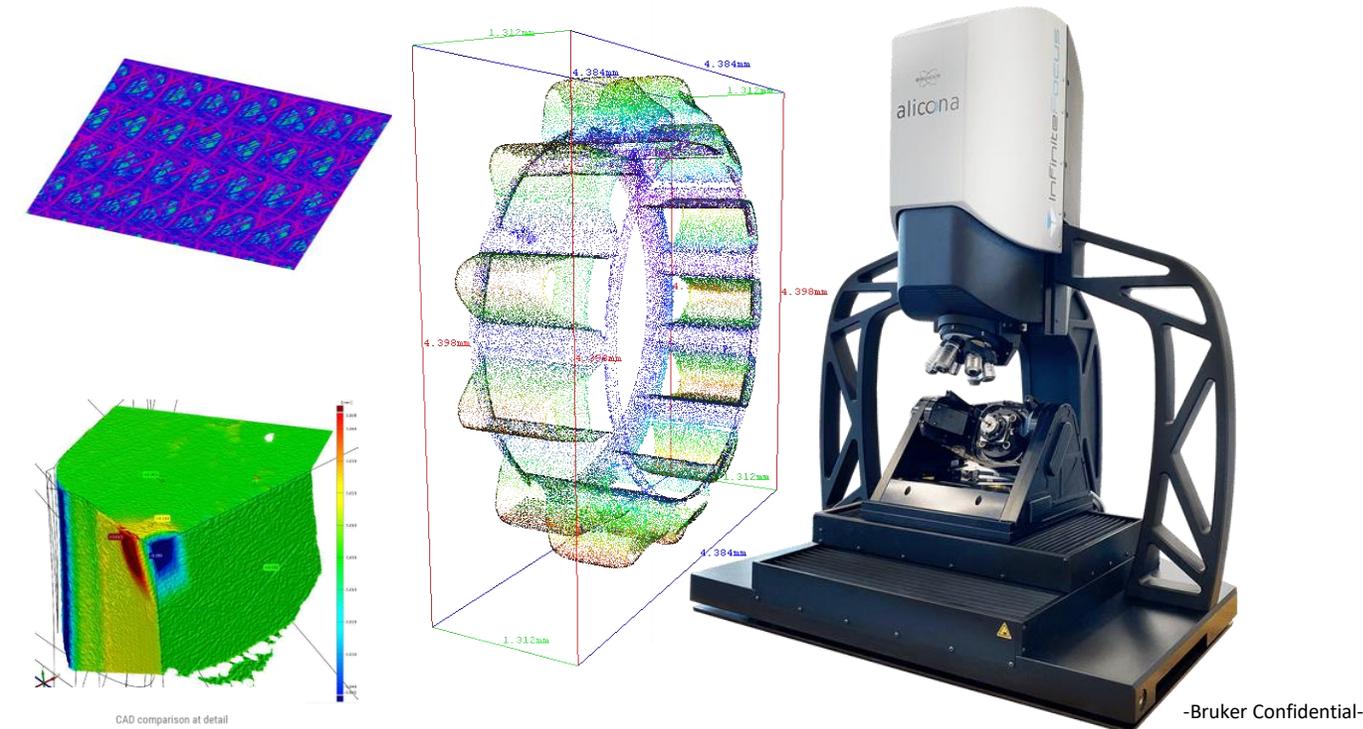
Bruker alicona

# Soluzioni di misura innovative per la produzione

Ottimizzate il controllo qualità in produzione

# Bruker Alicona

- » Fondata nel 2001 in Austria (Graz)
- » Team internazionale di 150 persone
- » Età media 34 anni
- » Bruker (7000 dipendenti)





**Hossein Rastegarian**  
Application Engineer

M +39 389 989 2942

M [hossein.rastegarian@bruker.com](mailto:hossein.rastegarian@bruker.com)



**Massimo Paletta**  
Sales Manager

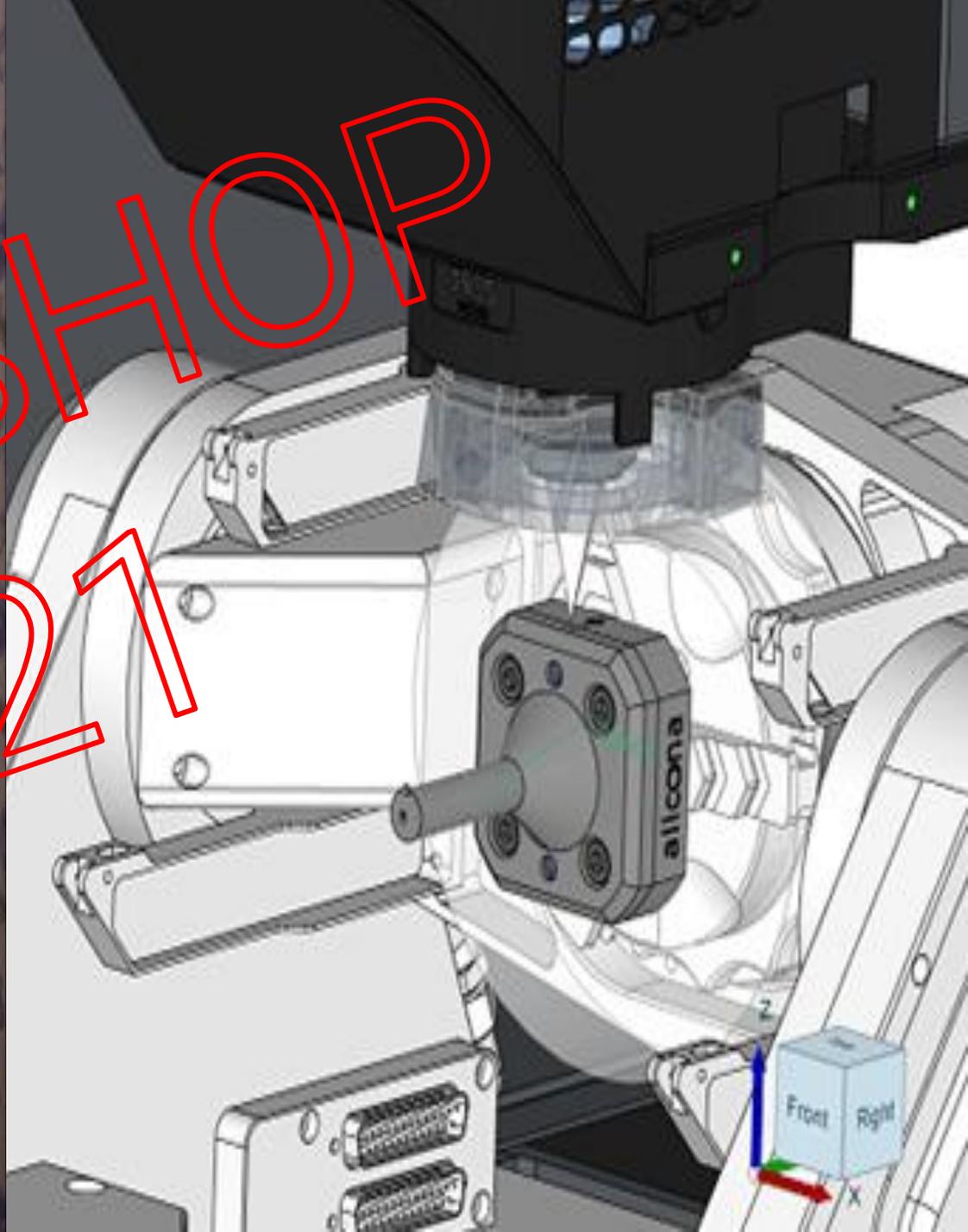
M +39 340 8419670

M [massimo.paletta@bruker.com](mailto:massimo.paletta@bruker.com)



# DIGITAL TWIN

WORKSHOP  
2021



# PROFONDITA'

# WORKSHOP

# 2022





**PILLOLA ROSSA**

CONTINUI A MISURARE  
COME GIA' FAI

**PILLOLA BLU**

PROG.STEP

PMI → CAD

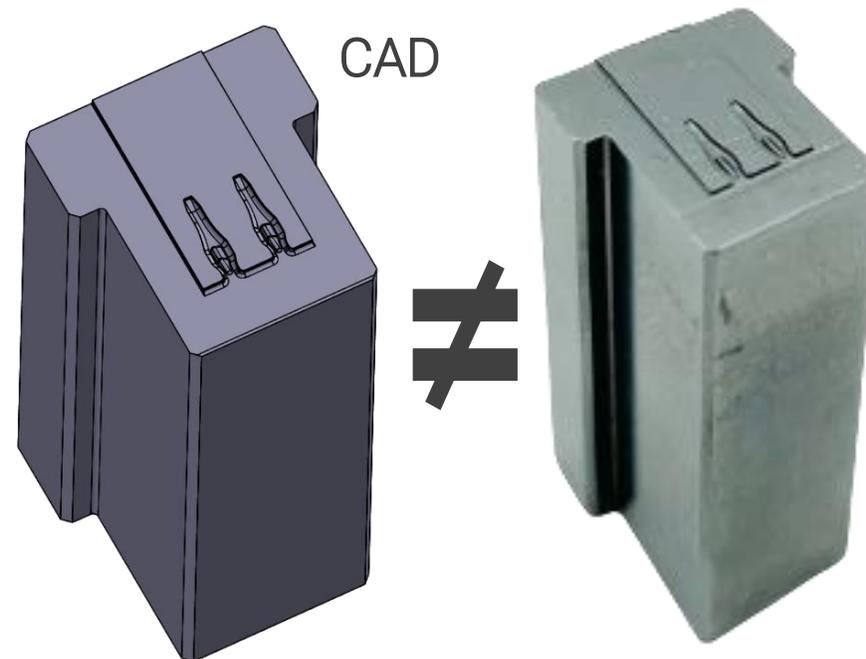
GD&T+Rugosità

Automazione

# La sfida più grande su componenti di precisione



- Performance della macchina
- Programma CAM
- Vibrazioni / Effetti termici
- Utensile: run-out/usura
- Porta Utensile

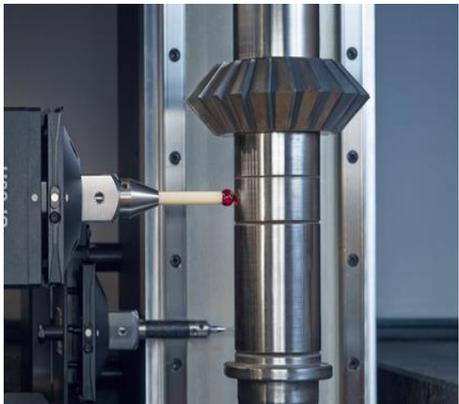
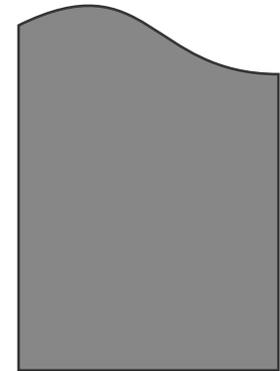
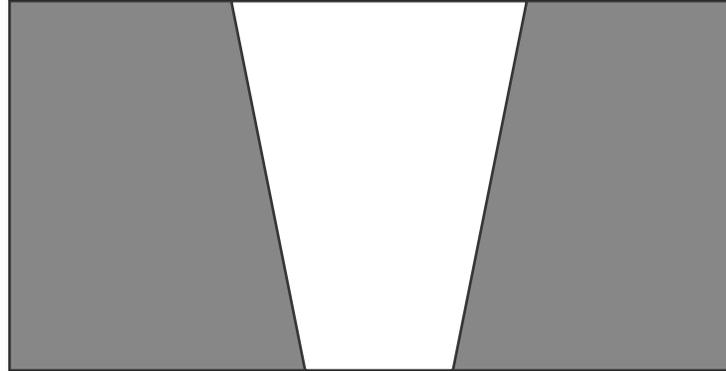
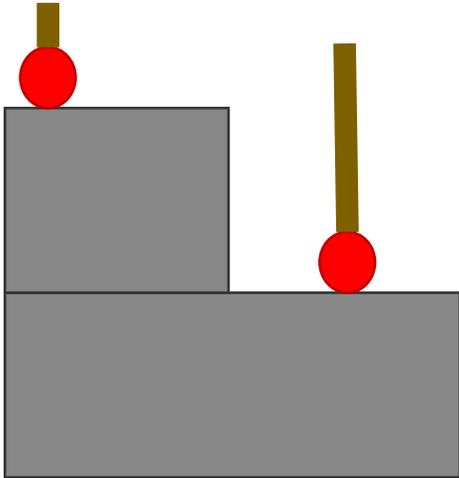


Come posso  
garantire la  
precisione su un  
pezzo

**3D**...misurando  
in 2D



# Precisione & Ripetibilità di una Misura



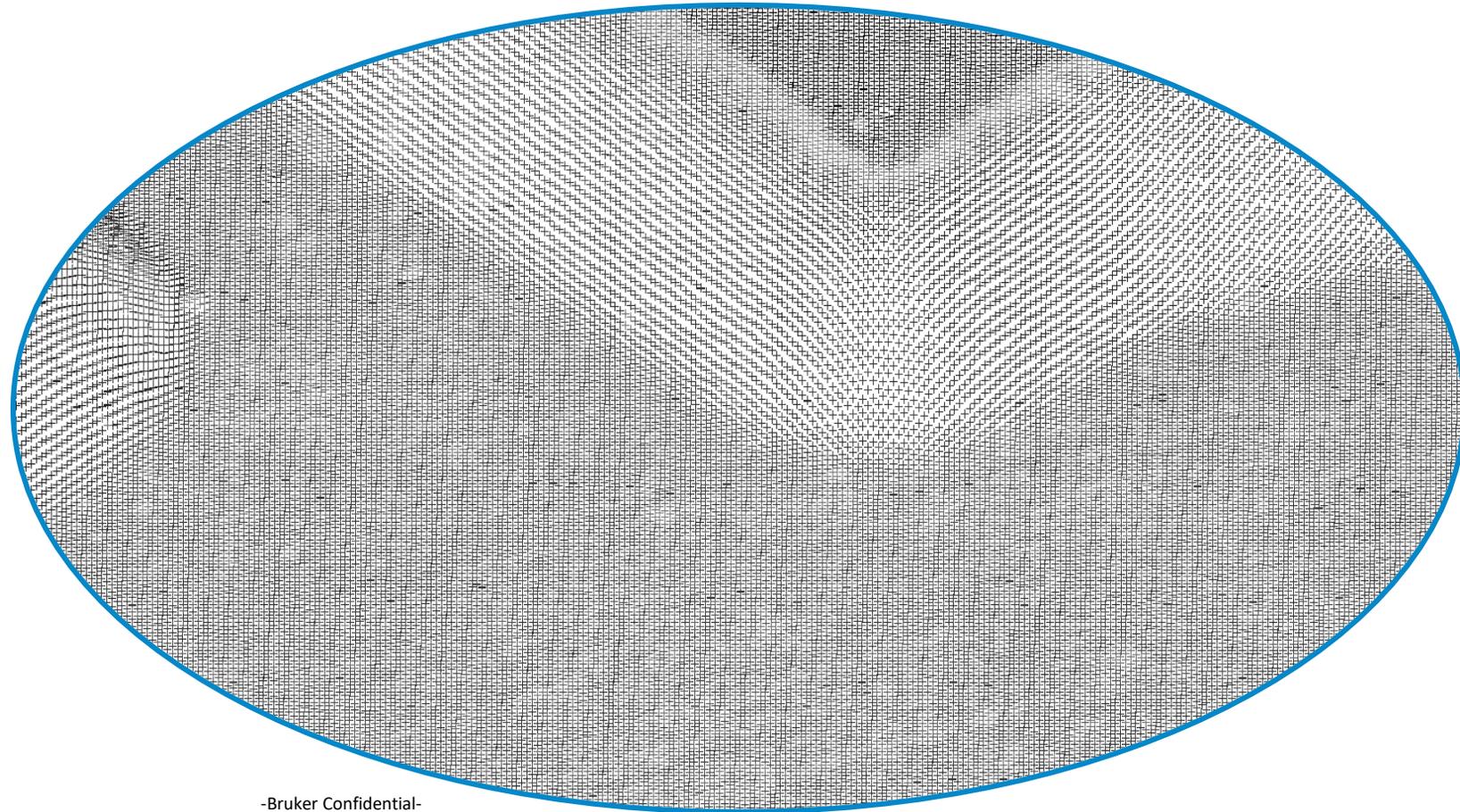
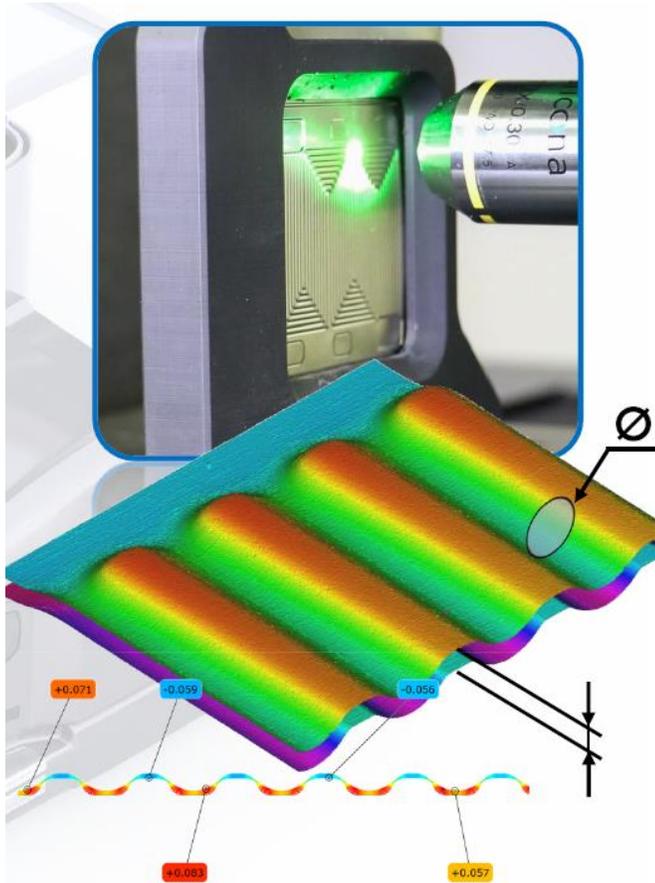
# Focus-Variation: la nuvola di punti per misurare

## Come Funziona?

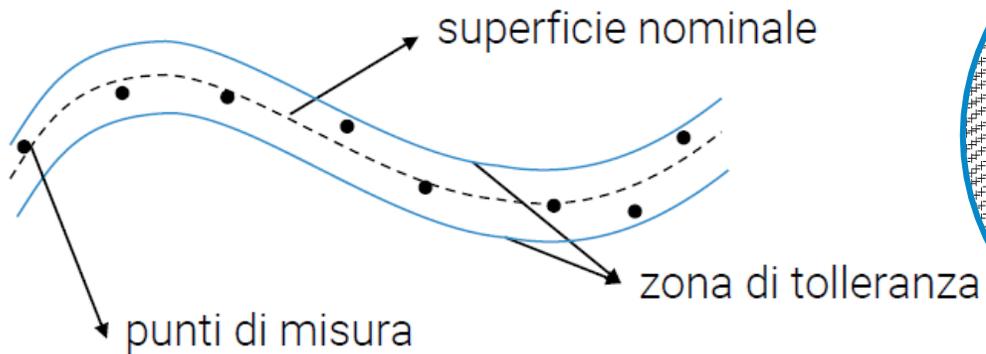
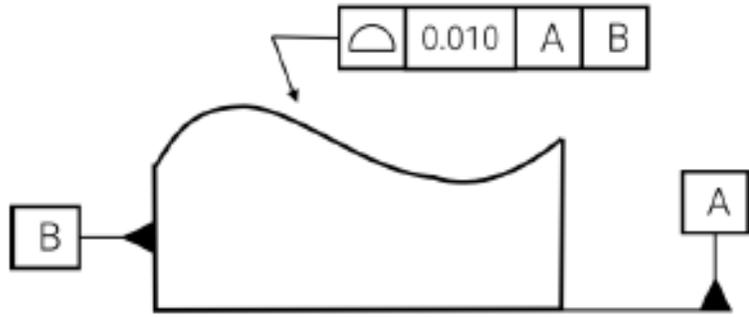
In maniera completamente ottica, ricrea una nuvola di punti misurabili

Soprattutto su componenti iper-precisi e con forme e profili complicati, la nuvola di punti

Permette una misura ripetibile

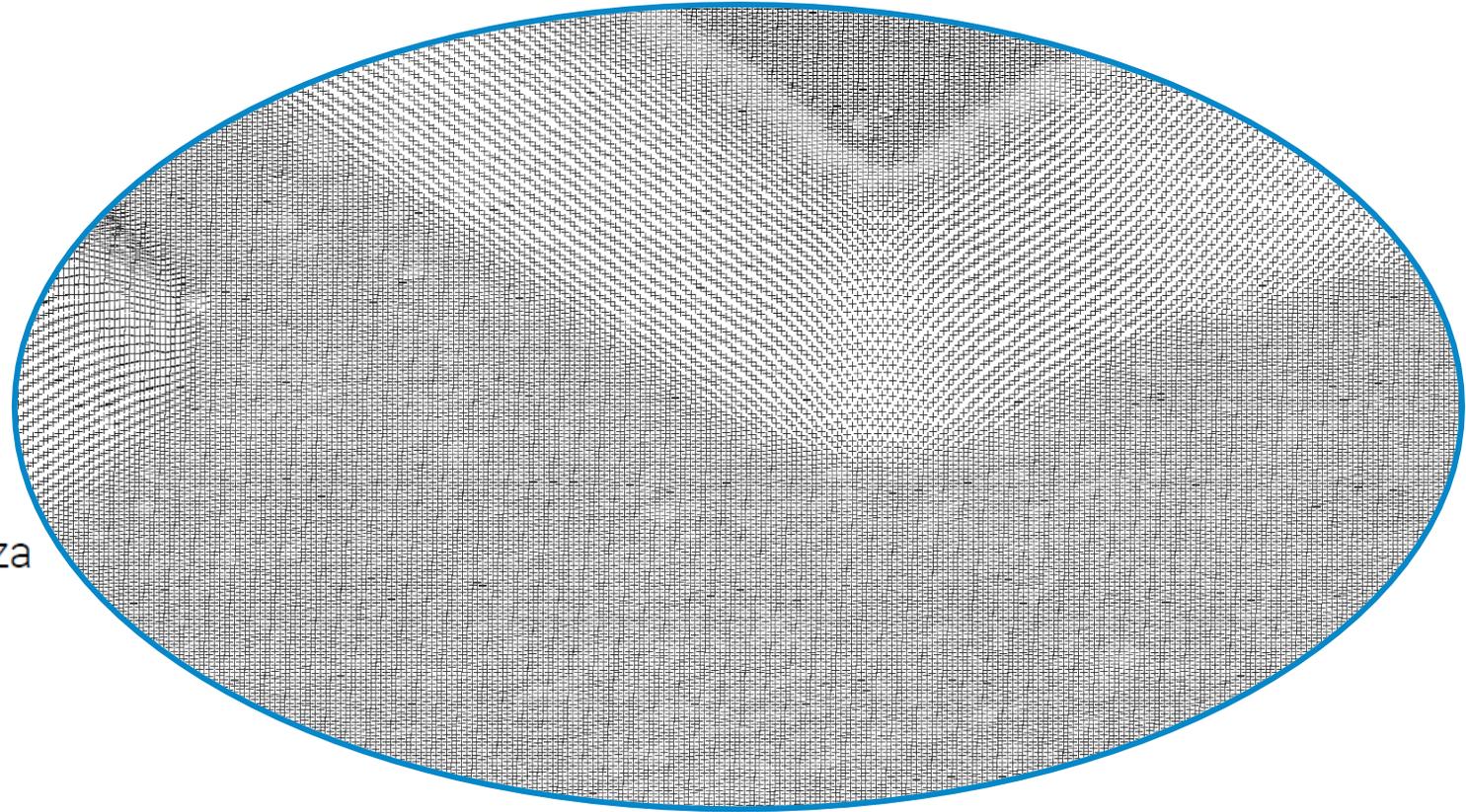


# Precisione



Tolleranze multidirezionali  
< 0,010 mm

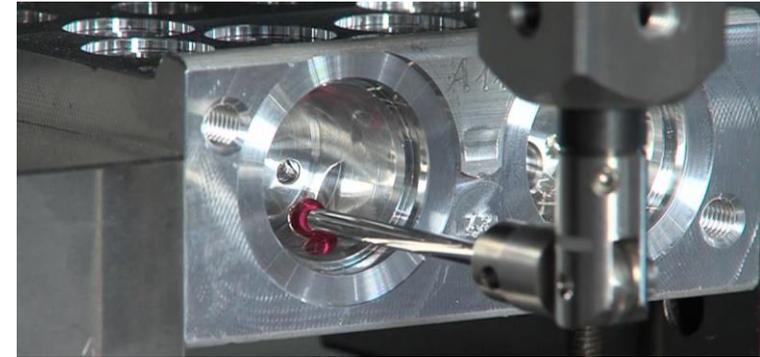
- » Avere una **precisione più volte superiore** sull'intero volume spaziale del pezzo
- » Misurare l'intera superficie con **un'alta densità di punti di misura**



Come posso  
fare misure  
così complicate  
in maniera  
semplice?



# Misurare con uno strumento classico



CI METTO TROPPO TEMPO AD IMPARARE A PROGRAMMARE

NON RIESCO A TROVARE LO SMUSSO

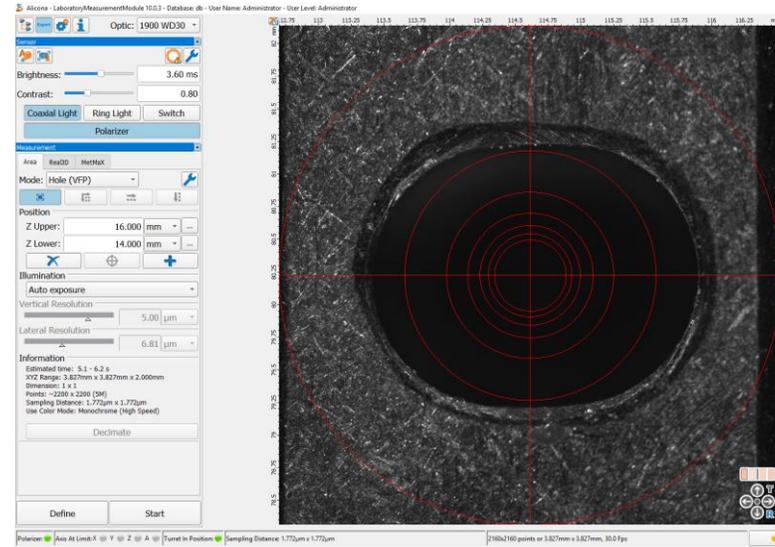
QUALE E' IL MICRO FORO DA MISURARE?

HO TROPPI POCCHI PUNTI SUL PIANO

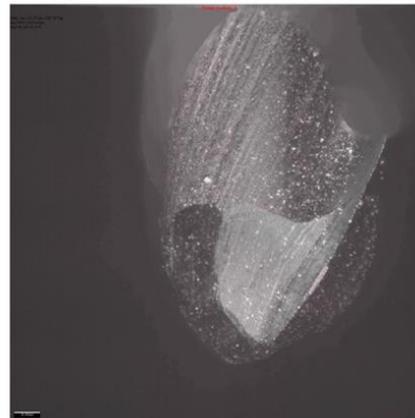
HO PAURA DI FARE UN CRASH

# È facile ed intuitivo creare un programma di misura

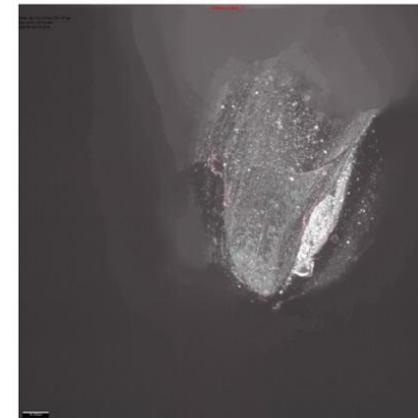
# MetMax



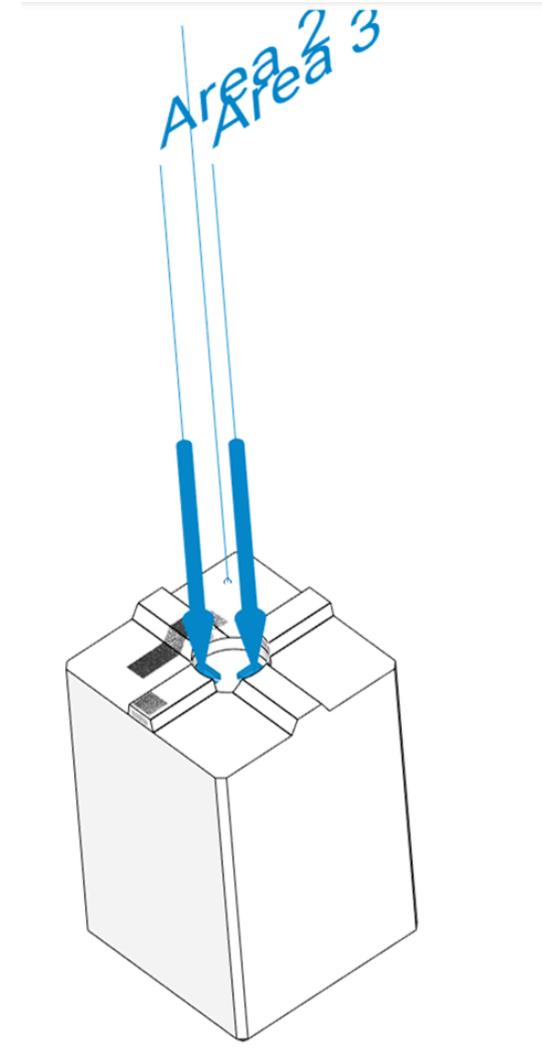
2-Flute Long Neck Ball End Mill  
Edge wear evident on the 2D images



2D image, new tool



2D image, used/worn tool

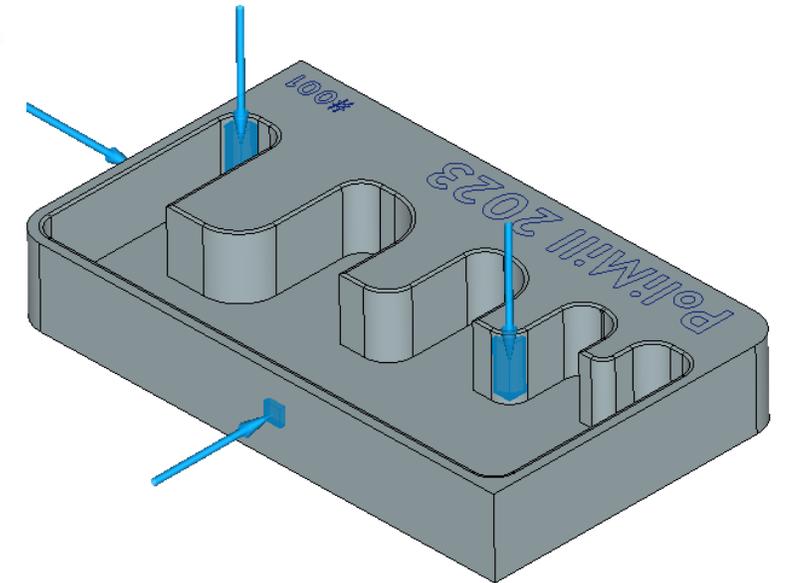
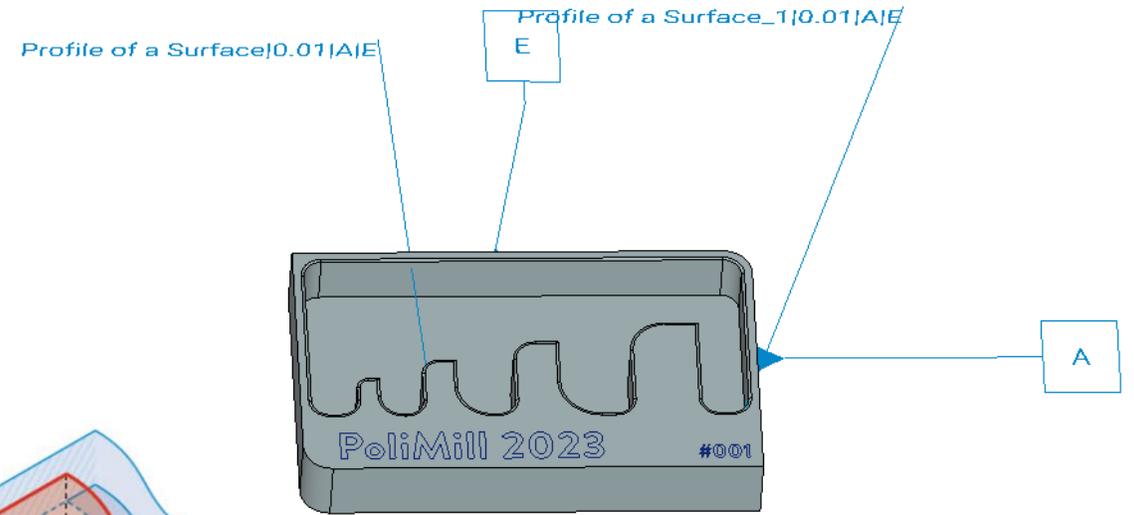
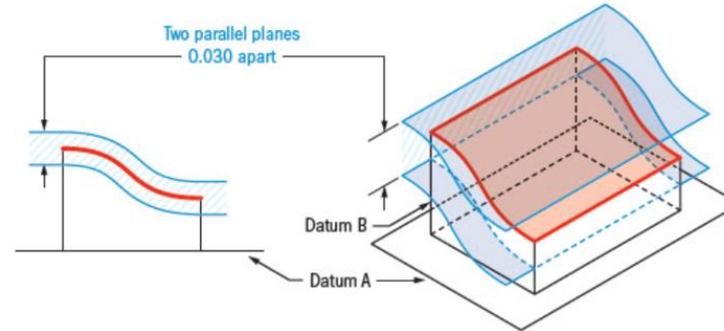
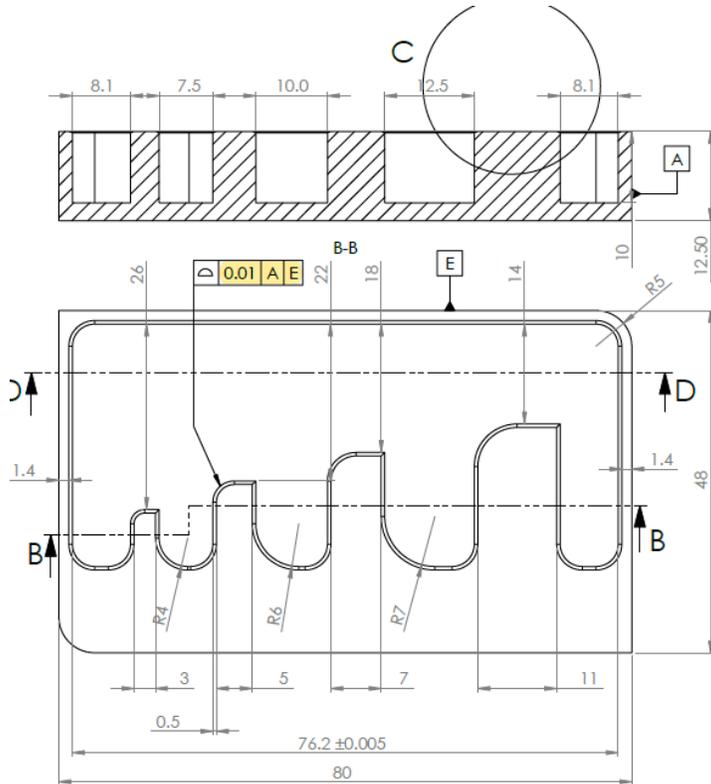


# User Friendly





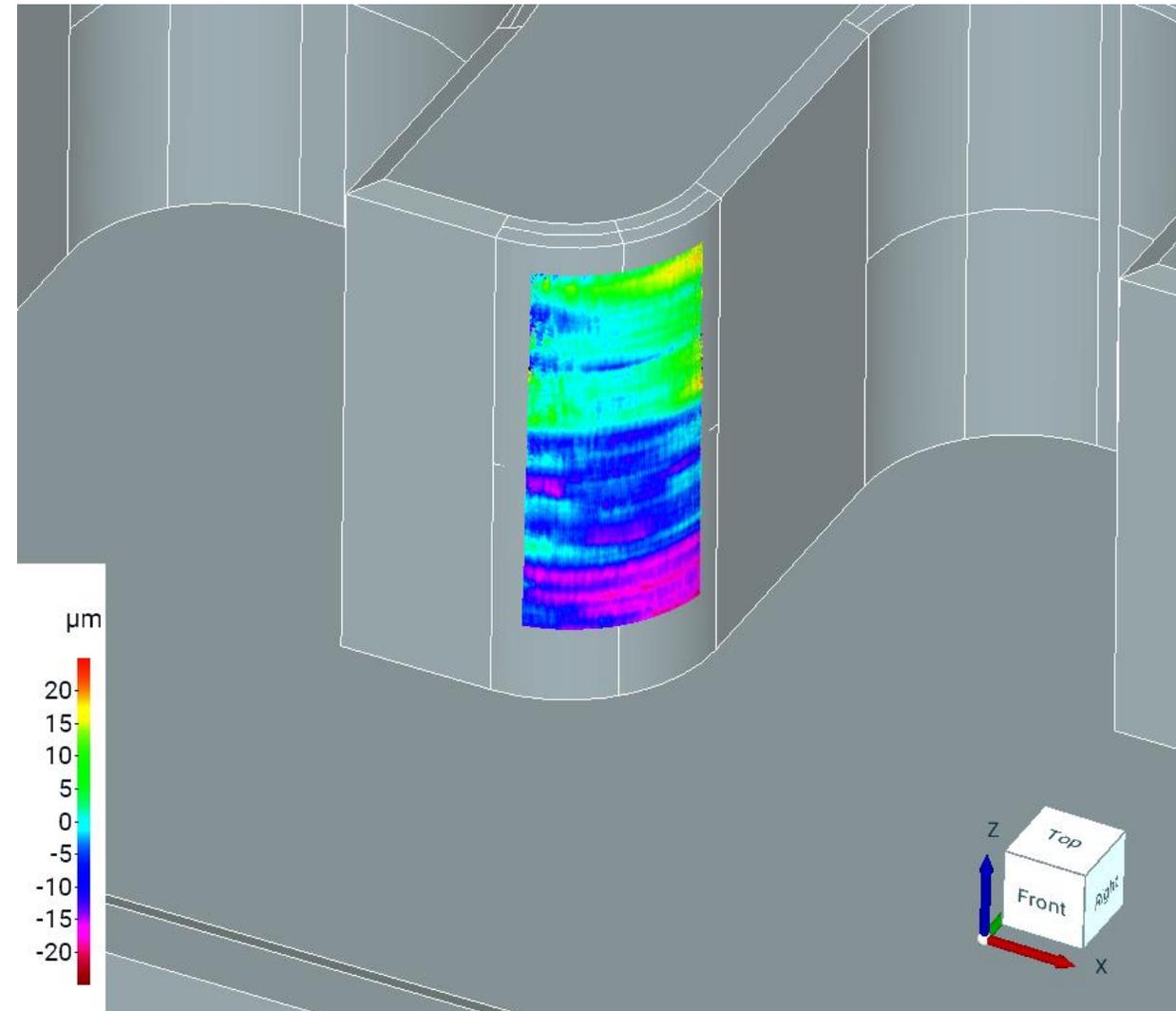
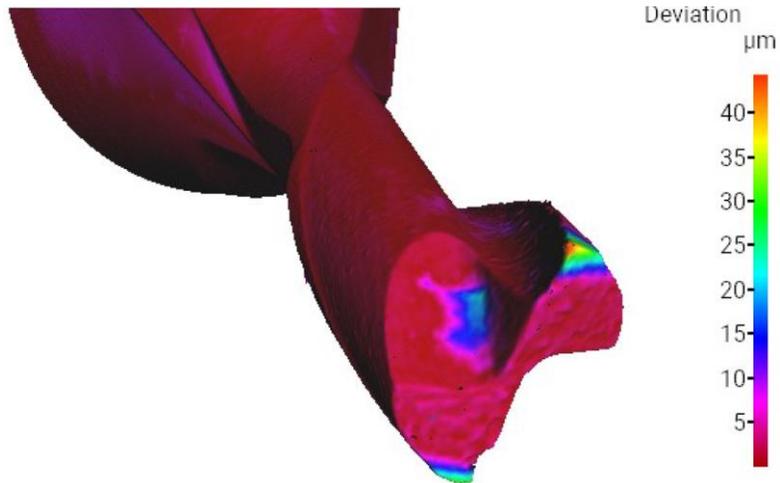
Pianificare le misure direttamente sul CAD o con le PMI



PMI: Profile of a Surface  
Modalità: Focus Variation - Vertical Focus Probing

Esprimere il risultato sia numericamente che visivamente  
Esempio usura-deformazioni...

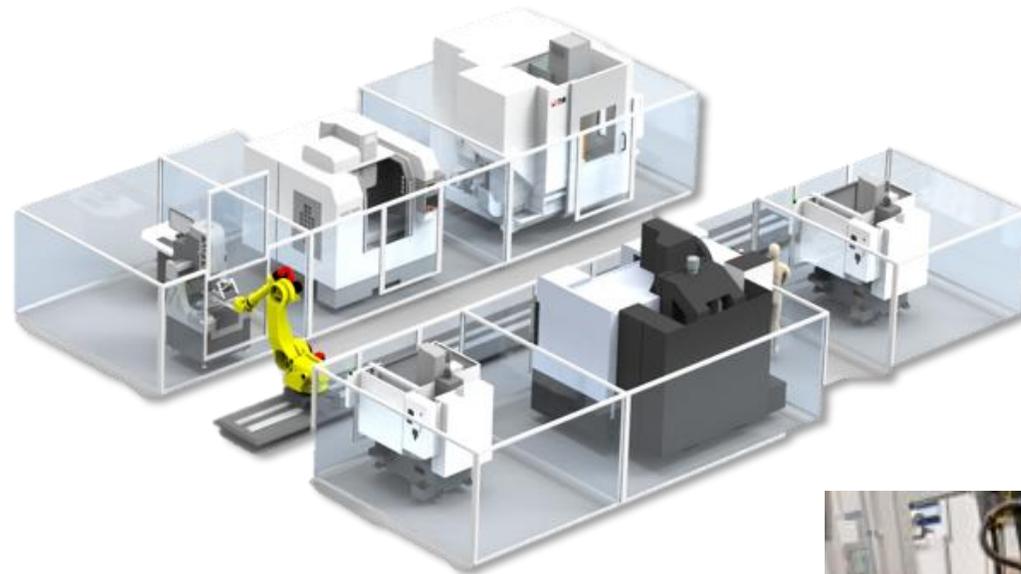
Name	Measured Value	Nominal Value	Tolerance	Chart
Profile of a Surface: Min distance	-0.076 mm	0.000 mm	±0.010 mm	
Profile of a Surface: Max distance	0.068 mm	0.000 mm	±0.010 mm	
Profile of a Surface: Mean distance	-0.003 mm	0.000 mm	±0.010 mm	



Devo misurare  
1000 pezzi al  
giorno  
Come faccio?



# 3 Automazione



- Caricare il CAD
- Allineamento
- Creare i Datum
- Creare le PMI
- Misura!**

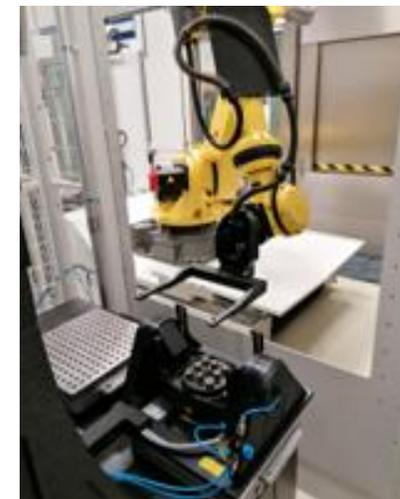


Teach-in semplice ed intuitivo

Operazione con un solo click



Automazione Pick&Place



Pronto per l'integrazione



NON MI ERO  
ACCORTO CHE LA  
FRESA ERA ROTTA

PEZZO TROPPO  
PICCOLO NON  
RIESCO A  
POSIZIONARLO

NON TROVO  
IL FORO

CLIENTE CHE MI  
CONTESTA LA  
RUGOSITA'

DIFETTOSITA'  
NON  
MISURABILE

HO MISURATO  
MALE LO  
SMUSSO