

# Bruker alicona

That's metrology



## Cobots

Turbine | Disc | Compact



# Cobots

The combination of high-resolution, optical 3D measurement sensors and collaborative robots

Cobots consist of a collaborative 6-axis robot and an optical 3D measuring sensor, providing repeatable and traceable measurements in high resolution also in production. All Bruker Alicona Cobots are equipped with our IF-Sensor R25, while its mechanical base can be customized depending on the measuring task and the component to be measured. Cobots are used in all areas of precision manufacturing. Currently, they are most commonly used in the aerospace, tooling and automotive sector. What all designs have in common regardless of the application:

Cobots are “allrounders” in quality assurance, designed for efficient and highly user-friendly measurement automation.

- Easy teach-in of up to 500 measuring positions including CAD CAM connection
- Automatic measurement of surface, GD&T features, defects and more
- High-resolution, optical and repeatable measurement of smallest geometries on large components
- No programming or metrology knowledge necessary for handling, programming and measuring of taught-in measurement series
- Modular application and positioning options, e.g. directly next to the machine tool to measure the tool as well as the workpiece directly inside the machine (measuring without unclamping)
- Optimum integration into existing production lines by means of hand-held, intuitive teach-in process, automatic evaluation and safety concept without protective housing



TurbineCobot

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*DiscCobot*

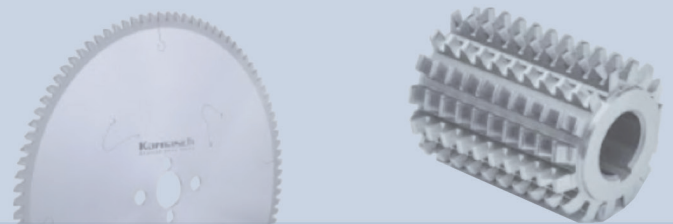


*CompactCobot*



## Applications & benefits in the aerospace industry

- Optical measurement of turbine blades, cases, discs and fan blades
- Verification of break edge to ensure safety regulations
- Defect/Roughness measurement for MRO (Maintenance, Repair and Overhaul)
- Time savings of up to 70% compared to replica measurements



## Applications & benefits in the tooling industry

- Measurement of smallest geometries and surface features on large tools (e.g. saw blade, hob, broach)
- Measurement directly inside the machine tool without unclamping
- Easy implementation of serial measurements with full utilization of the measuring system
- Measurement of cutting edges (edge radii, edge breaks and defects), including roughness measurement



# Cobots

## Collaborative systems enable modern production strategies

The Alicona cobot range is based on the combination of a collaborative 6-axis robot and the robust optical 3D measurement sensor IF-SensorR25, delivering high resolution, traceable and repeatable measurements. Collaborative systems are tailored to the individual measurement task and application. Programming and measuring as well as handling of pre-defined measurement programs require no prior knowledge of metrology. Cobots run in both manual and automatic mode and can be optimally inte-

grated into an existing production line. Users verify surface state as well as dimensional accuracy of components by measuring distances, angles, form deviations and position tolerances.

New Cobots that are proven in the field are the DiscCobot to measure turbine discs, and the ToolCobot, which is applied to measure tools also directly in the machine. The CompactCobot is a universal solution applicable in all industries to measure micro structured surfaces of large components.

### GENERAL SPECIFICATIONS

<b>Robot type</b>	UR-10
<b>Specimen radius</b>	1300 mm
<b>Safety</b>	collaborative – stops at collision with an object; certified by TÜV Nord and TÜV Süd
<b>Axes</b>	6 rotating joints
<b>Repeatability</b>	+/- 0.1 mm
<b>Sensor</b>	IF-SensorR25 - travel range in Z 26mm motorized - LED ring light with 24 segments - 126 mm x 153 mm x 202 mm (W x D x H)
<b>Mass (incl. sensor)</b>	approx. 30 kg
<b>Operation</b>	coarse positioning of the sensor through handles; fine positioning through precise joystick movement
<b>Display</b>	integrated touchscreen to display the live view and 3D view of the measured dataset
<b>Software compatibility</b>	<b>AutomationManager:</b> Easy teach-in of measurement sequences by adding robot positions, SingleField and ImageField measurements. <b>CADCAM:</b> Virtual planning of measurement sequence on CAD model incl. simulation of the measurement task.

## CompactCobot

<b>Dimensions (H x W x L)</b>	0,95 x 0,79 x 1,35 m
<b>Weight</b>	400 kg
<b>Max. sample weight</b>	ca. 100 kg
<b>Operation</b>	Drawer with integrated 19,5" touchscreen
<b>Interface</b>	Hole grid plate for mounting different sample holders and samples
<b>Additional Features</b>	Integrated status lights 4 emergency stops on each corner





## DiscCobot

<b>Dimensions</b>	control console: 1 x 1 x 0.9 m; system: 1.0 x 1.45 x 0.95 m (excl. cobot)
<b>Mass</b>	approx. 1.5 t
<b>Additional axes</b>	rotation axis
<b>Max. specimen weight</b>	approx. 150 kg
<b>Interface</b>	flexible perforated plate for mounting of grips
<b>Safety</b>	laser scanner for additional monitoring of the operating range

## Turbine Cobot

<b>Dimensions</b>	1.5 x 0.95 x 2.15 m
<b>Mass</b>	approx. 900 kg
<b>Additional axes</b>	rotation table lifting axis with 400 mm travel range
<b>Max. specimen weight</b>	approx. 50 kg
<b>Operation</b>	sliding drawer with integrated touchscreen
<b>Interface</b>	Taper50 interface (other options possible) incl. perforated plate for mounting of grips
<b>Mobility</b>	height-adjustable casters for flexible use



# Form and roughness. In one system.

By Alicona.

That's  
metrology!

Optical 3D surface measurement

*Collaborative robots consist of a collaborative 6-axis robot and an optical 3D measurement sensor. They are used to verify surface quality and dimensional accuracy of small features on large components.*

