






TESA HEIGHT GAUGES

1D & 2D measurement modes differences

General Information

All instrument of the TESA height gauge range can measure in one dimension. However, some devices have additionally the possibility to manage a two-directional measuring process as well, which lets the user get and calculate 2D features' characteristics.

Family	TESA-HITE		MICRO-HITE		μ-HITE
Model	Standard	MAGNA	Standard	+M	Standard
					
Type	manual	manual	manual	motorised	motorised
1D	•	•	•	•	•
2D			•	•	•

What does 1D measurement mean for height gauges?

Probing direction

Can either be upward or downward

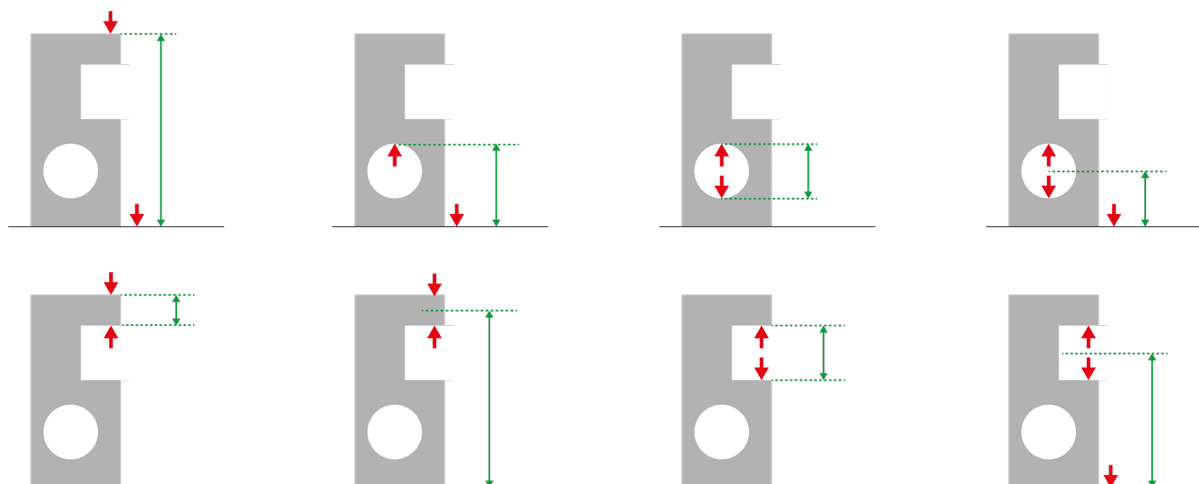
Axis

All measurements/features refer to one coordinate

Features

(non-exhaustive list)

Heights, diameters, bores' centre, grooves' width, grooves' centre, ribs' width, ribs' centre, distances between centres





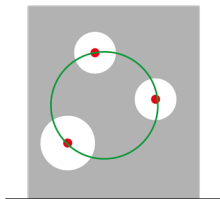
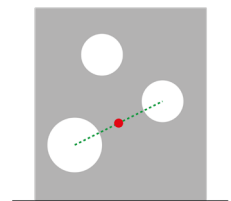
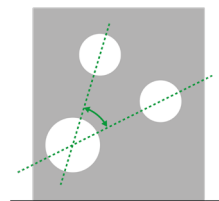
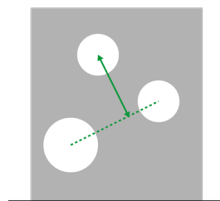
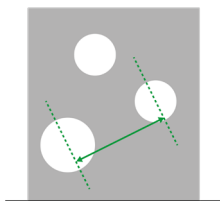
HEXAGON



TESA TECHNOLOGY

What does 2D measurement mean for height gauges?

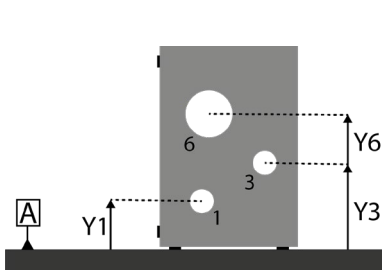
Probing direction	Can either be upward or downward
Axis	<ul style="list-style-type: none">• All measurements/features refer to two coordinates• The coordinates can either be shown in polar or cartesian coordinates
Features (non-exhaustive list)	Distances, perpendicular distances, angles by three circles/points, angles by two lines, mid-points, best-fit circles, best-fit lines



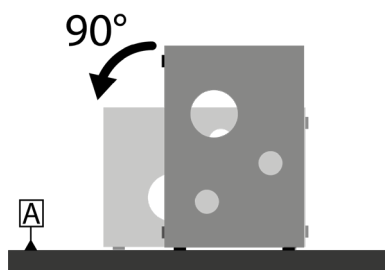
Process

The height gauge is basically a 1D-coordinate measuring instrument. When willing to get a 2D-coordinate measuring result, the user needs to tilt the part to be measured. The angle should be measured and known prior to the measurements.

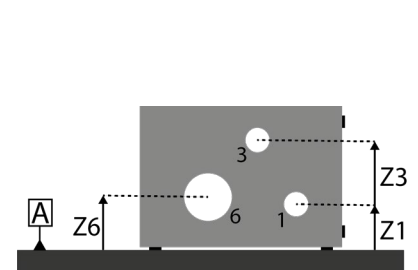
1. Measure the features (coordinates 1)
2. Tilt the part
3. Measure the features (coordinates 2)
4. Calculate the needed characteristics



Measure the 1st coordinates



Tilt the part from a known angle
(90° in this example)



Measure the 2nd coordinates