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<https://carl-zeiss-industrial-metrology-llc.helpjuice.com/knowledge-base-information/special-styli-disk-angled-cylinder>

Special Styli - Disk-Angled-Cylinder

Internal Content

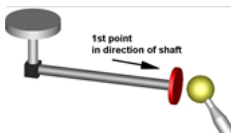
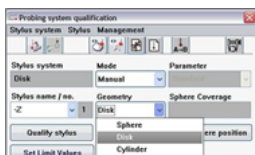
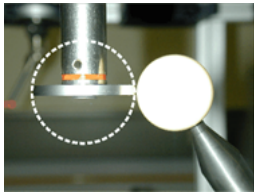
Stylus Systems and Accuracy

Special styli

Disc stylus

Task:

Qualify the disc stylus and subsequently correct on the ring gauge. A disc stylus is not a complete sphere but a section of a sphere. The danger of working with this stylus lies in obtaining probing points with the edge of the disc and not with the sphere section surface. The problem with qualification is hitting the probing points exactly at height of the equator. For this reason, the diameter is corrected afterwards on a ring gauge.



Procedure:

Step 1: Qualify the disc stylus on the reference sphere

Step 2: Requalify on the reference sphere or on the ring gauge

Step 3: Manually correct the stylus data

Step 1:

- Qualify sensor using reference stylus
- Insert the disc stylus and qualify in the *Manual* mode using the *Disc* geometry.
- The first probing must now take place in the shaft direction of the mounted disc. From this, CALYPSO detects the shaft direction and the stylus.
- This probing point will not be included in the calculation.

The following probing points must be obtained on the circumference.

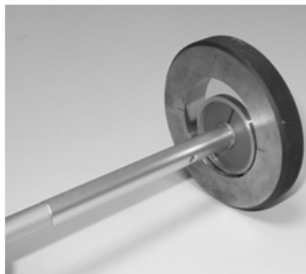
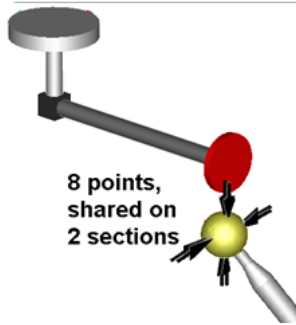
Because this method is not sufficient for very accurate qualification (bending parameter, point recording only on the circumference), you should requalify on using the ring gauge.

Step 2:

- Clamp and align the ring gauge
- Measure the circle with the ring gauge
- Compare the circle diameter with the nominal diameter of the ring
- The diameter of the disc can now be manually corrected

Step 3:

- Output of the diameter in the default printout
- The deviation from the actual diameter must now be corrected Open the stylus data and edit the radius
- Measure the ring/plug gauge again and check the diameter
- Make an additional correction if necessary



Angled stylus

- Qualify an angled stylus visually
- Determine the shaft inclination with the cylinder feature
- Correct the stylus data in the stylus data management system

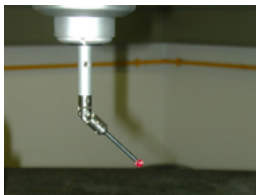
Assemble an angled stylus and use it as a new stylus. Provisional qualification. Qualify the angled stylus on the reference sphere. Mode: same mode as for qualification later. Close the stylus menu. using the stylus shaft, probe eight points in two section planes on the reference sphere. (see illustration) A cylinder is recognized. Set the cylinder to vector display: Resources g Show features

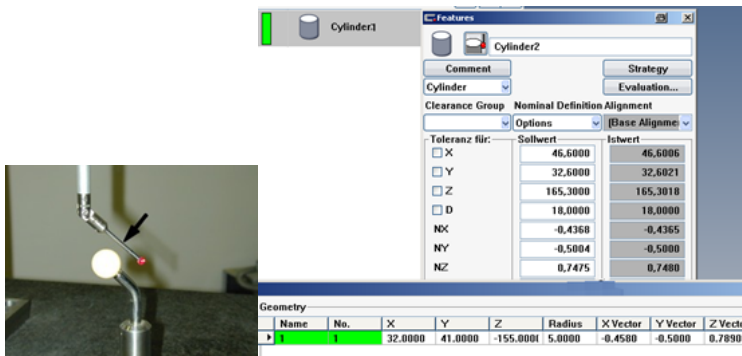
The angle of the cylinder is now shown in the vector display (Nx, Ny, Nz).

- Open stylus data management system.
- Transfer the vector values to the stylus data.

Note the prefix. The prefix from the stylus data list must be kept and not that from the measured cylinder!

Calibrate the stylus in the desired mode. This approach ensures that CALYPSO uses a "hemisphere" under the correct angle for the calibration, which is required for correct probing.





Cylinder stylus

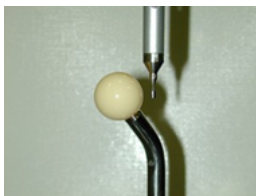
Sequence:

- Qualify a cylinder stylus in manual mode
- Requalify on a reference sphere
- Manual correction of the stylus data

Assembly a cylinder stylus. At three points in each of two planes, measure the stylus in the *Cylinder* mode on the equator of the reference sphere. Upon completion of qualification, you should switch to the features side. Measure a circle on the equator of the reference sphere.

Compare the diameter of the circle with the diameter of the reference sphere. The deviation from the actual diameter must now be corrected

Open the stylus data and edit the stylus radius. (See disc stylus sequence). Repeat this process several times if necessary.



Y	Z	Radius	X Vector	Y
0	0,0036	-1,7025	1,4780	0,0000