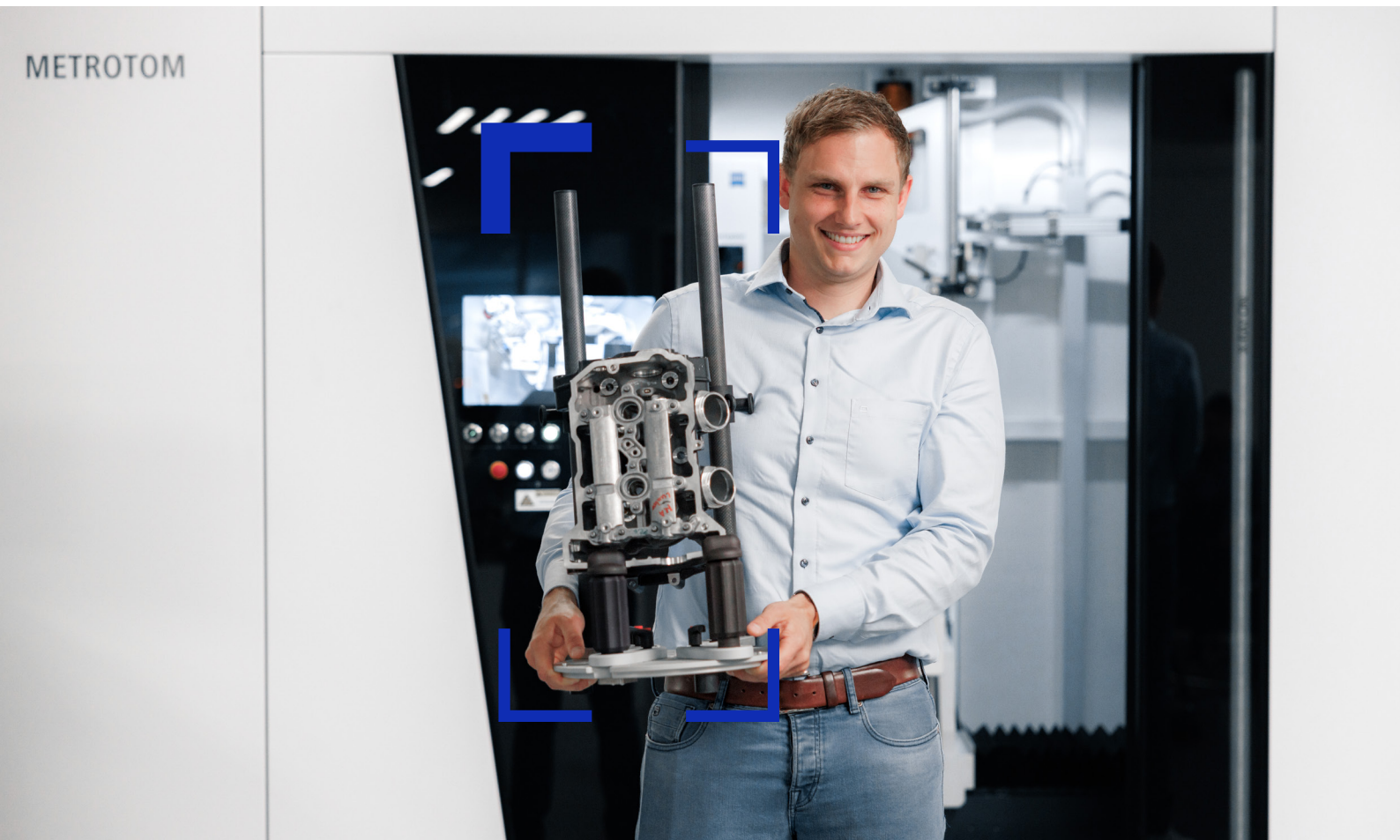




Seeing beyond

ZEISS Metrology Expert Tip



**Correct Positioning of Components for Measurements
with Industrial ZEISS X-Ray Systems.**

Good Scanning Results Thanks to Correct Part Positioning

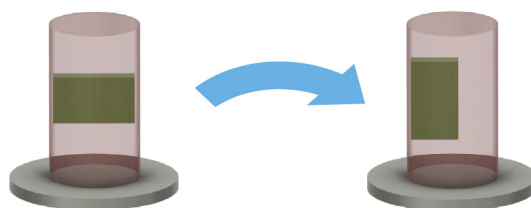
In order to achieve the best possible scan results for complex measurement and inspection tasks with industrial X-ray technology, the positioning of the component to be scanned has an influence on the measurement result in addition to the machine settings, such as voxel size or voltage.

Three basic rules should be observed when positioning the component in order to achieve a shorter scan time and smaller voxel sizes and to avoid Feldkamp artefacts.



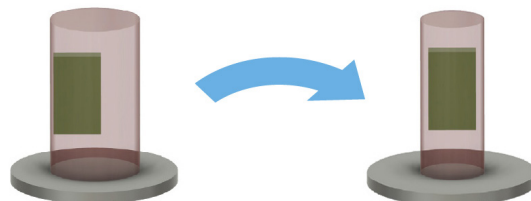
Rule 1:

The aspect ratio (X to Y axis of ZEISS METROTOM) has to be as small as possible. The longest path should be in the Z axis. Then the material thickness along the x-rays is as small as possible. In the case of objects with multiple materials, the transmission length of the optically densest material („heaviest“ material) should be minimized.



Rule 2:

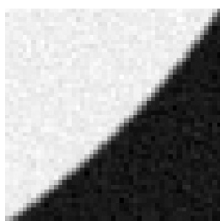
The workpiece has to be clamped in the center of the rotary table. Then the cylinder surrounding the workpiece is as small as possible and smaller voxel sizes can be realized.



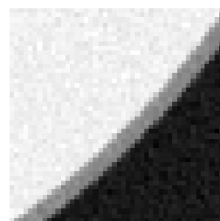
Double edge/blurring



Rotary axis position is defined exactly.



The axis of rotation lies next to it by 0.5 pixels.

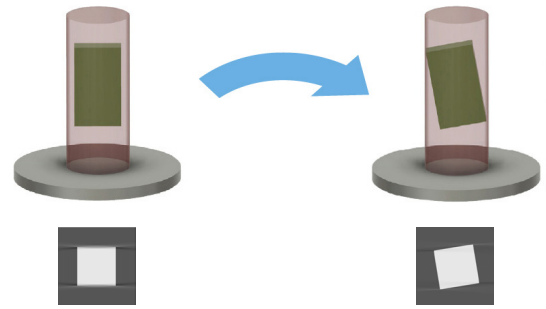


The axis of rotation lies next to it by 2 pixels.



Rule 3:

The workpiece should always be clamped, tilted by 10°-15° degrees. Then possible Feldkamp artifacts are reduced and completely transparent for X-rays.

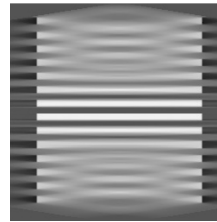


Feldkamp artifacts



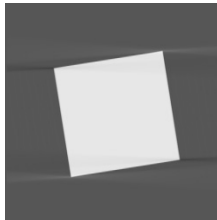
Cube, XZ layer:

The upper and lower boundary is exactly perpendicular to the rotary axis and is strongly „blurred“.



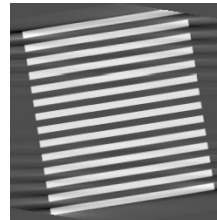
Stack of CDs, XZ layer:

Only the middle CD can be clearly seen, the blurring increase towards the top and bottom.



Cube, XZ layer:

If the cube is tilted by the cone angle, the two boundaries are as sharp as the others.



Stack of CDs, XZ layer:

Tilting by the cone angle generates distinct boundaries.

**ZEISS Original Accessories
are available in the
ZEISS Metrology Shop.**

Carl Zeiss

Industrielle Messtechnik GmbH
Carl Zeiss Straße 22

73446 Oberkochen / Germany

Email: accessories.metrology.global@zeiss.com

Internet: probes.zeiss.com

