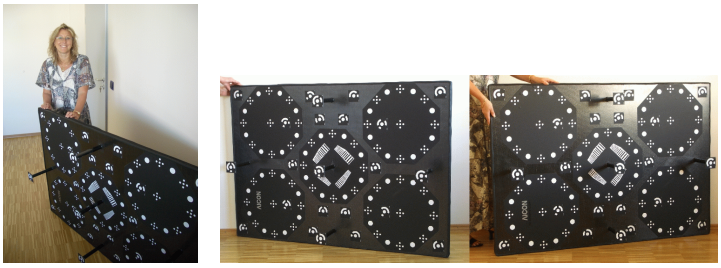
FalCon CamFolder – Camera Calibration FAQ

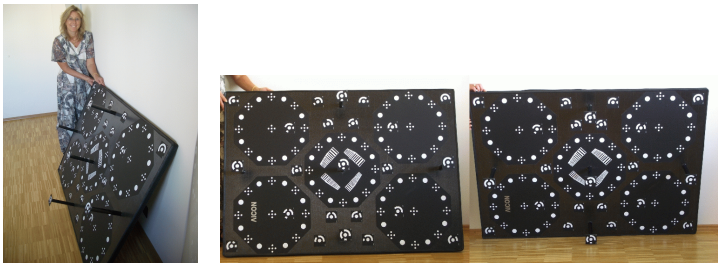
- ***How do I take pictures of the test panel?***

Recording Positions of the Test Panel: scheme "7 plus"

3 x perpendicular with rotation around the view axis: 0°, 90° and 180°



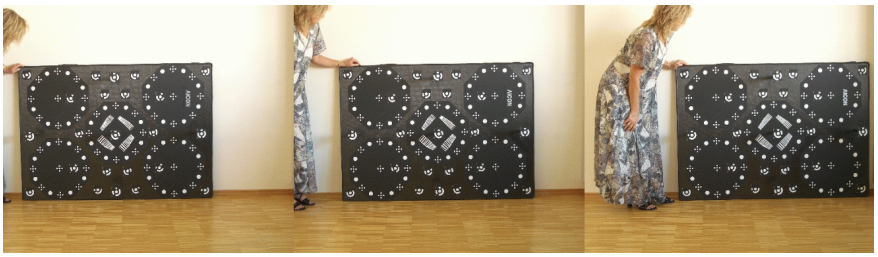
2 x tilting around the vertical test panel axis: ± 20°



2 x tilting around the horizontal test panel axis: ± 20°

= 7 images

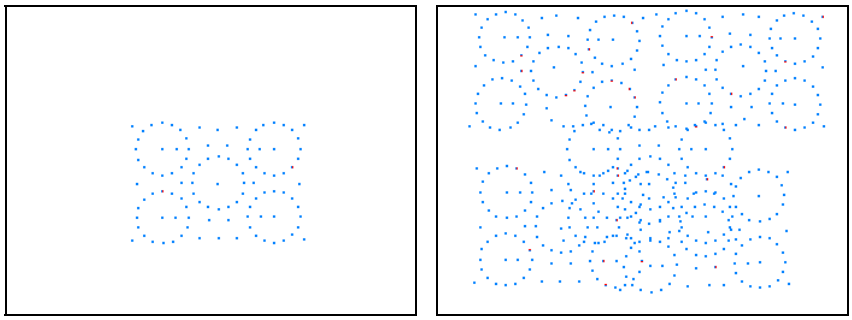
+



optional:

Horizontal and vertical covering of the image field

The panel should be recorded **fully fitting** the images, in order to get sufficiently good distortion parameters for the whole picture format. This requirement needs not to be fulfilled strictly in one picture. Depending on focal length and environment conditions several pictures can be used. Important is, that the accumulation of all points in all pictures is outspread in the image frame. (See also tip below.)



Example: Horizontal and vertical shift of the test panel in five recorded pictures

Distance from test panel to camera

The lens should be focused according to the distance of the test object which will be used in the later impact test. Important: Keep this setting and ensure a manual restoring to the selected focusing value in case of intermediate rearrangement. Provide therefore an adjusting stop ring, a paint stick or an unambiguous log file. Note, that the numerical scale on the lens ring might not match the real object distance (dependent on not adjusted lens adapters)!

Tip:
If the panel does not cover to the image frame at the focus distance, position the panel as close to the camera until it covers the pictures. The panel might not be longer in the focus, but apply this method as long as the markers can be measured even if they look a bit blurred. (Note: Keep the nominal aperture and do not close it in order to get more depth of field, see below.)

The same procedure can be applied, if not all five rings of the panel are fully visible in the picture, i. e. if the panel is cut-off. In this case enlarge the distance to the camera.

Illumination

The recordings should be taken under same illumination conditions as during the real impact test, to ensure a constant setting of the aperture.

In case of inadequate lighting intensity you might use as variable parameter the recording speed of the camera. A lower frequency enables to increase the exposure time.

Whereas recordings of crash tests are mostly optimized for visual assessment, you should pay attention that the calibration pictures should be compliant to the requirements of accurate and automatic measuring:

- Avoid over and strong under exposure as well as highlights.
- Avoid bright background, e. g. floodlights or windows.
- Use indirect illumination.
- Recommended settings: The maximum brightness of > 250 should not be exceeded in the white spots of the markers. Choose a rather "dark" image than too bright!

Picture processing

The picture optimization should mostly be limited just to a simple white balance. Only in case of poor illumination a gamma correction might be necessary. Avoid additional sharpening.
Do not apply either an AVI compression of the 7plus frames/snapshots.