

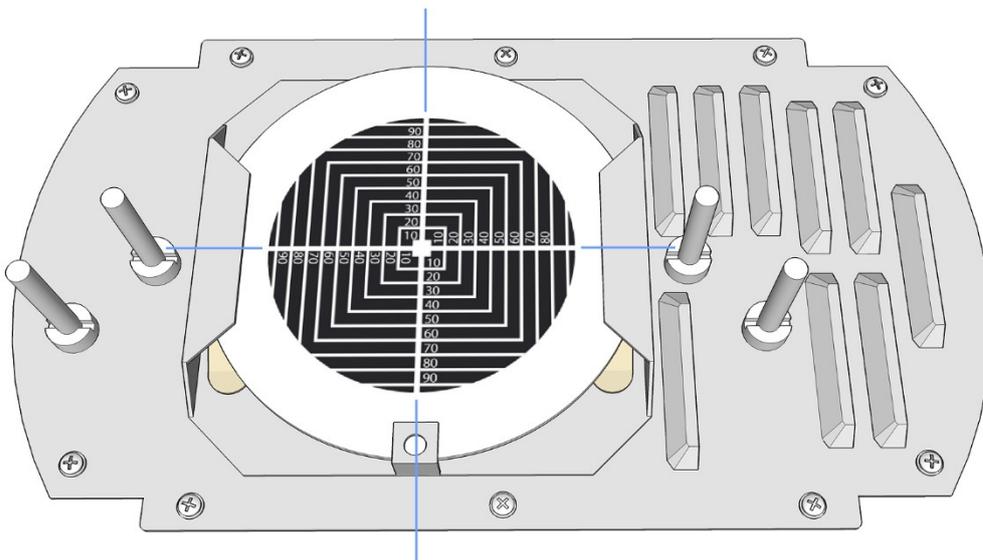
## Keystone Correction

If the projector is not aligned perpendicular to the screen, the projected image is significantly distorted. This is due to a physical phenomenon that can lead to impressive visual effects. But when a distortion is unwanted, an artificial distortion can be created in the artwork on the gobo which compensates the original distortion. Now the projected images appears undistorted in the eyes of the viewer. This procedure is called Keystone Correction, named after the trapezoidal keystone in an arch. Keystone Correction can compensate distortion in the horizontal and vertical axis, up to a deviation of 45°! Primarily, the deviation was measured as an angle. Since this method has however proved difficult Derksen uses a simpler method to measure the projected image. This process allows customers with little effort and without technical expertise to determine the trapezoidal distortion.

**Step 1:** When you order a projection system or a gobo let us know that a Keystone Correction is required. Before we manufacture your gobo you will receive a measuring gobo that you return after successful determination of distortion. Please specify in your order if the image is projected using a deflection mirror.

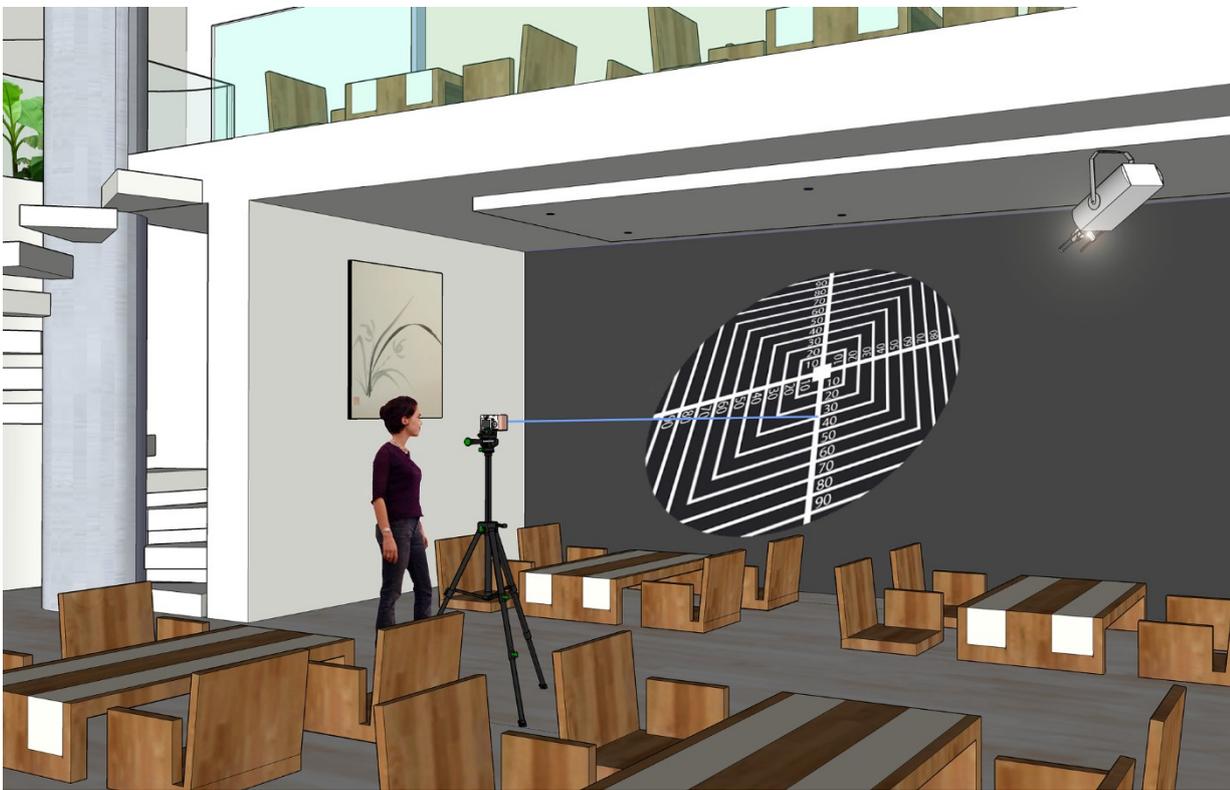
**Step 2:** Mount the projector in its final position.

**Step 3:** Insert the measuring gobo and align the orthogonal lines to the projector.



*Fig. 1: The blue lines show the proper orthogonal alignment of the measuring gobo.*

**Step 4:** Swivel the projector to place the projected image in its exact position. If you are using a deflecting mirror, move the projected image by adjusting the mirror. The center on the measuring gobo, where the orthogonal lines meet, marks the center of the final artwork. Do not move the measuring gobo in the projector now!



*Fig. 2: Take a picture of the projected measuring image! The camera must be aligned perpendicular to the surface, as represented by the blue line.*

**Step 5:** Take a digital picture of the projected measuring image. Please follow these rules to ensure an exact determination:

- Use a digital camera with at least 5 megapixel resolution! Choose the best image quality from the menu of your camera (e. g. Large + JPEG superfine). Do not use a flash.
- Use a camera tripod.
- Go to the viewer's position, do not shoot from the perspective of the projector!
- Position the camera perpendicular to the screen.
- Please keep in mind that you may need a ladder or lift, to photograph an image, which is projected high on the wall.
- Take pictures of outdoor projections on high buildings with a greater distance.

**Tip 1:** Use the integrated bubble of the photo tripod or a bubble level for the camera hot-shoe. If this is not possible, take your time and try to align your camera by eye.

**Tip 2:** The edges of the viewfinder or camera display should necessarily run parallel to the edges of the screen. If the vertical edges of the screen converge to the top, the camera must be tilted down. If the vertical edges of the screen converge to the bottom, the camera must be tilted up.

**Step 6:** Please send your picture via e-mail to: [gobo@derksen.de](mailto:gobo@derksen.de). If you have any further questions on the procedure, we are pleased to offer advice and assistance.