



## Data Sheet for Calibration Plates, rectangular pattern (Product Id. 20019-20030, 20979-20980)

Characteristic	Ceramic Plates	Glass Plates	Float Glass Plates
Layer	Chromium + Chromiumoxide	Chromium + Chromiumoxide	not specified
Material	Rubalit 710	B270	Float Glass
Density	3.78 g/cm <sup>3</sup>	2.55 g/cm <sup>3</sup>	2.5 g/cm <sup>3</sup>
Surface roughness	Ra ≤ 0.1 μm	not specified	not specified
Thermal expansion coefficient (20 - 300 °C)	6.8 × 10 <sup>-6</sup> /K	9.5 × 10 <sup>-6</sup> /K	9.1 × 10 <sup>-6</sup> /K
Refractive index ne	-	1.5251 (546 nm)	-
Transmittance	-	0.9 (546 nm)	-
Reflection	not specified	ca. 0.05 (546 nm)	not specified
Water absorption	0%	not specified	not specified
Hydrolytic class (DIN 12111)	not specified	3	not specified

**Calibration marks:** All plates, except plate "CAL160.0006511" and "CAL170.0006531", have 7 × 7 circular marks. The plates "CAL160.0006511" and "CAL170.0006531" (size 0.65 mm × 0.65 mm) have only 4 × 4 circular marks.

**Plate data:** Description data for the plate can be used in the camera calibration of HALCON.

**Accuracy:** MVTec's ceramic and glass calibration plates of the sizes 0.65 mm to 30 mm are manufactured with lithographic technologies derived from semiconductor production. The copy template used within the lithographic technologies has an accuracy of 0.15 μm. The description files of the calibration plates of the sizes 100 mm and 200 mm are individually checked based on a calibrated optical setup. MVTec provides no third-party certificates for the accuracy of calibration plates. If customers need a third-party certificate it is their responsibility to perform such a certification process at an appropriate authority.