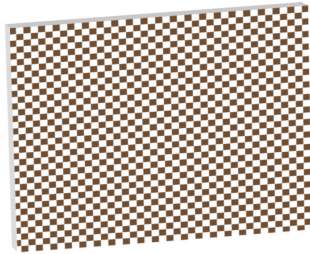


Checherboard calibration patter, Film-on-glass photomask, active area 237.6 x 184.8 mm



Imaging and metrology applications often require to minimize distortion, which can be software-corrected by analyzing the image of a precision pattern whose geometrical features are well known.

For this reason Opto Engineering® offers a full range of patterns optimized for software calibration compatible with most Opto Engineering® telecentric lenses.



SPECIFICATIONS

| | | |
|------------------------------|-----------|-----------------|
| Dimension (W x H) | (mm x mm) | 245 x 196 |
| Thickness | (mm) | 4.8 |
| Active area (Wa x Ha) | (mm x mm) | 237.6 x 184.8 |
| Margins (Wm x Hm) | (mm x mm) | - |
| Square width (Ws) | (mm) | 2.2 |
| Photomask type | | Film-on-glass |
| Substrate | | Soda lime glass |
| Surface quality (MIL-13830B) | | - |
| Class ¹ | | - |
| Grade ¹ | | 4 |
| Certificate ² | | - |
| Compatible CMPH | | - |

¹ Class number (2*) for Emulsion-on-glass photomasks differs from usual Chrome-on-glass. Specifications are in the tech info section.

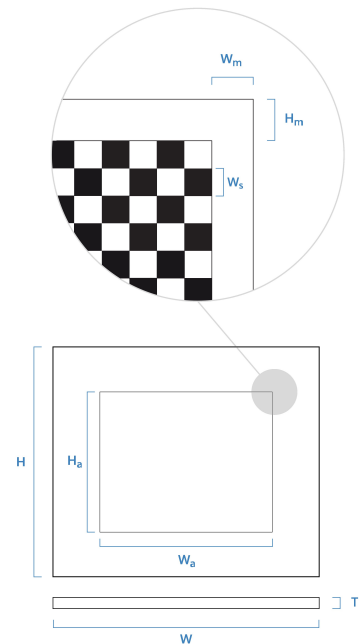
² Download CoC Format Pattern facsimile

COMPATIBILITY

The pattern is compatible with the following telecentric lenses (part number ending in):

- TCCP12192
- TCCP23192

PATTERN DIMENSION



COMPATIBLE PRODUCTS

Full list of compatible products available [here](#).



A wide selection of innovative machine vision components.

All product specifications and data are subject to change without notice to improve reliability, functionality, design or other. Photos and pictures are for illustration purposes only. Data are reported by design, actual lens performance may vary due to manufacturing tolerances.

DIMENSIONAL TOLERANCE

It's possible to calculate dimensional tolerance of pattern's features is calculated as follows:

Dimensional tolerance = $\pm (P + S \cdot D)$

P = Positioning error

S = Speed factor

D = Dimension of interest

CHROME-ON-GLASS PHOTOMASK, SIZE UP TO 200 x 200mm

| Class | Min Feature dimensions; Min spacing (μm) | Positioning error (μm) | Speed factor ($\mu\text{m}/\text{mm}$) |
|-------|---|-------------------------------------|--|
| 1 | 1.4 | 6.4 | 0.016 |
| 2 | 0.8 | 1.6 | 0.008 |
| 3 | 0.4 | 0.6 | 0.004 |
| 4 | 0.2 | 0.2 | 0.001 |

CHROME-ON-GLASS PHOTOMASK, OVER 200 x 200mm

| Class | Min Feature dimensions; Min spacing (μm) | Dimensional tolerance (μm) |
|-------|---|---|
| A | 0.5 | Total Pitch $\pm 2\mu\text{m}$ |
| B | 1.0 | Total Pitch $\pm 4\mu\text{m}$ |
| C | 3.0 | Total Pitch $\pm 6\mu\text{m}$ |

FILM-ON-GLASS PHOTOMASK

| Grade | Min Feature dimensions; Min spacing (μm) | Positioning error (μm) | Speed factor ($\mu\text{m}/\text{mm}$) |
|-------|---|-------------------------------------|--|
| 1 | 9.6 | 10.0 | 0.005 |
| 2 | 4.8 | 10.0 | 0.005 |
| 3 | 2.4 | 10.0 | 0.005 |
| 4 | 1.2 | 10.0 | 0.005 |