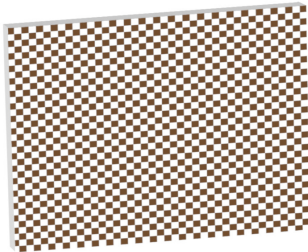




# PT004-009-C | DATASHEET

## Checherboard calibration patter with certificate, Chrome-on-glass photomask, active area 15 x 13 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

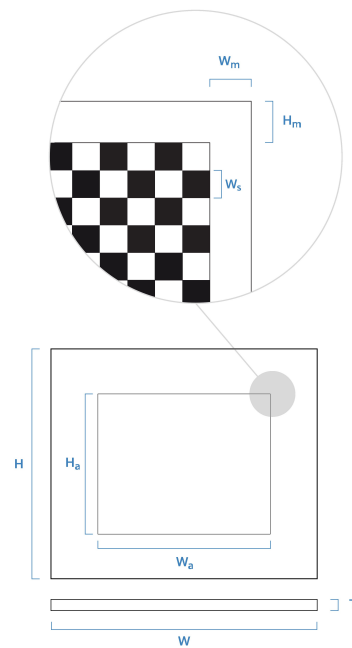
Dimension (W x H)	(mm x mm)	33 x 26
Thickness	(mm)	3
Active area (Wa x Ha)	(mm x mm)	15 x 13
Margins (Wm x Hm)	(mm x mm)	0.3 x 0.1
Square width (Ws)	(mm)	0.2
Photomask type		Chrome-on-glass
Substrate		Soda lime glass
Surface quality (MIL-13830B)		60/40
Class <sup>1</sup>		2
Grade <sup>1</sup>		-
Certificate <sup>2</sup>		with certificate

Compatible CMPH

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

<sup>2</sup> Download CoC Format Pattern facsimile

### 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 ( $\mu\text{m}$ )	Positioning error ( $\mu\text{m}$ )	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 ( $\mu\text{m}$ )	Dimensional tolerance ( $\mu\text{m}$ )
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 ( $\mu\text{m}$ )	Positioning error ( $\mu\text{m}$ )	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