

**Camera Zeiss LMK**

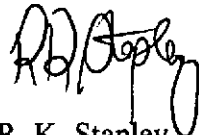
**Lens 90mm**

**Date of Calibration February 9, 2000**

**CAMERA CALIBRATION CERTIFICATE**

Client: D.E.H.A.A.  
Camera: ZEISS LMK 90  
Lens: 267923B  
Filter on camera: AV 2X 420nm  
Date of calibration: February 9, 2000

Approved



R. K. Stapley  
Registered Surveyor

# QASCO VISUAL GONIOMETER CAMERA CALIBRATION

Camera: ZEISS LMK 90  
 Lens: 267923B  
 Filter on camera: AV 2X 420nm  
 Date of calibration: February 9, 2000  
 Calibration temperature: 24 Degrees Celsius  
 Calibrated Focal Length (mm): 88.862

The uncertainty associated with this value does not exceed 0.010 millimeters. The Calibrated Focal Length has been determined such that the sum of the squares of the distortions is a minimum.

Coordinates of Principal Point of Autocollimation (PPA) and Principal Point of Symmetry (PPS) in millimeters, with respect to Fiducial Centre :

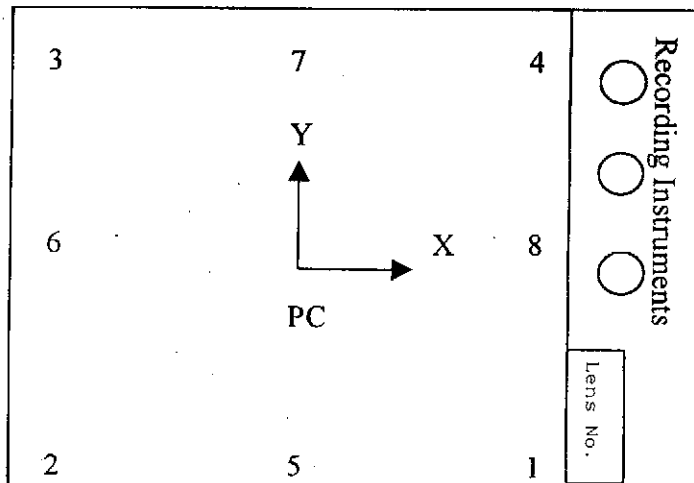
PPA	Xmm	-0.001	Ymm	-0.013	without filter on camera
PPS	Xmm	0.013	Ymm	-0.004	

Coordinates of Fiducial Marks:

No.	X mm	Y mm	No.	X mm	Y mm
1 (E)	110.006	-110.010	5	-0.004	-112.003
2 (F)	-110.001	-110.001	6	-111.993	0.002
3 (G)	-110.001	110.005	7	-0.007	111.997
4 (H)	109.996	109.996	8	112.000	-0.006

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Coordinate system layout, as seen on a positive paper print.



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Radial Distortion in millimeters, referred to the Principal Point of Symmetry (PPS):

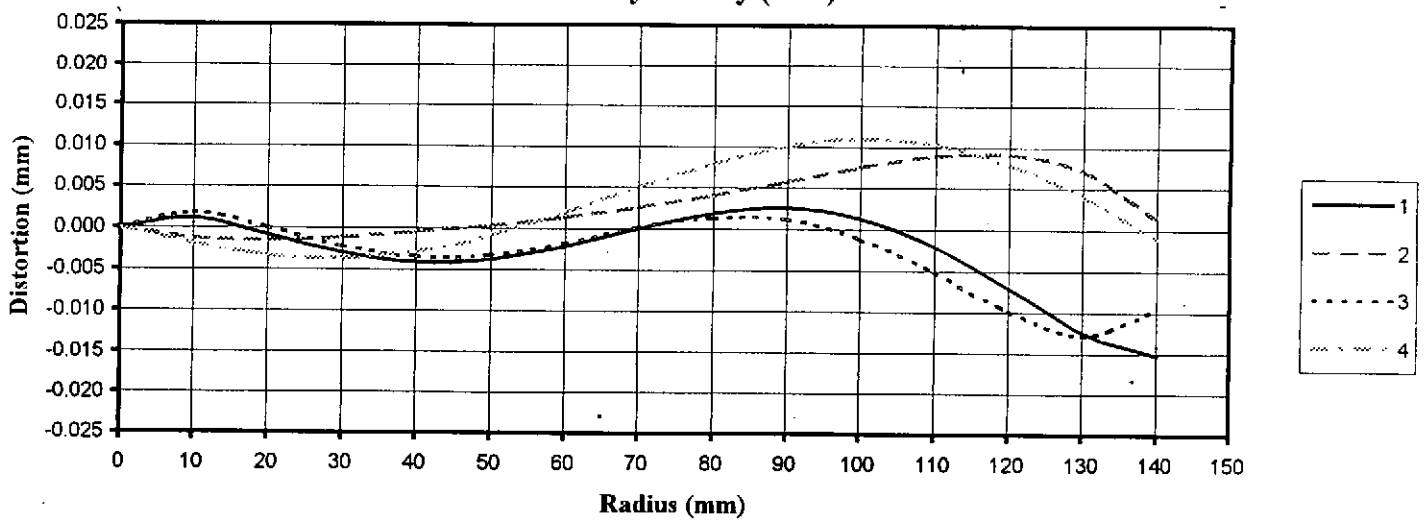
Radius (mm)	1(E)	2(F)	3(G)	4(H)	Mean
0	0.000	0.000	0.000	0.000	0.000
10	0.001	-0.001	0.002	-0.002	0.000
20	-0.001	-0.002	0.000	-0.003	-0.001
30	-0.003	-0.001	-0.002	-0.004	-0.003
40	-0.004	-0.001	-0.004	-0.003	-0.003
50	-0.004	0.000	-0.003	-0.001	-0.002
60	-0.002	0.001	-0.002	0.002	0.000
70	0.000	0.003	0.000	0.005	0.002
80	0.002	0.004	0.001	0.008	0.004
90	0.003	0.006	0.001	0.010	0.005
100	0.001	0.008	-0.001	0.011	0.005
110	-0.002	0.009	-0.005	0.010	0.003
120	-0.007	0.009	-0.010	0.008	0.000
130	-0.012	0.007	-0.013	0.004	-0.004
140	-0.015	0.001	-0.010	-0.001	-0.006

The uncertainty of these values does not exceed 0.005 millimetres.

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**Radial distortion curves for Semi-Diagonals, referred to the Principal Point of Symmetry (PPS)**



**Mean Radial distortion curve, referred to the Principal Point of Symmetry**

