

CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC20
LENS TYPE : 30/4 NATA-F
LENS NO. : 17027

Calibration date: 13.11.1995

LEICA AG, HEERBRUGG

The Leica logo is written in a stylized, cursive script font.

Leica Heerbrugg Ltd
CH-9435 Heerbrugg

Calibration Department
Supervisor

A handwritten signature and a circular stamp containing the number 311 are located below the supervisor text.

Aperture: 4.0
 Filter on goniometer: VIS (400 - 700 NM)
 Filter on camera: --
 Principal distance for focussing distance 850 m : 303.98 mm.

Radial distortion (micrometers) referred to principal point of symmetry (PPS)
 (Positive values denote image displacement away from center)

Radius mm	Half - Sides				Mean
	1	3	2	4	
10	0.3	0.1	0.1	0.4	0.2
20	-0.3	-0.4	-0.1	0.3	-0.1
30	-0.2	-0.9	0.6	-0.4	-0.2
40	-0.3	-0.5	-0.1	-0.3	-0.3
50	-0.9	-1.3	-0.5	-0.6	-0.8
60	-1.9	-1.5	-0.2	-1.4	-1.2
70	-1.6	-2.1	-0.7	-1.3	-1.4
80	-2.1	-1.8	-0.9	-1.5	-1.5
90	-1.5	-1.7	-1.1	-1.4	-1.4
100	-1.8	-1.5	-0.7	-0.8	-1.2
110	-0.6	-0.3	0.5	0.7	0.0
120	0.8	0.9	0.5	1.6	0.9
130	1.1	1.2	2.0	2.4	1.6
140	1.0	1.5	1.9	2.2	1.6
148	0.4	-0.4	1.1	0.6	0.4

Photographic resolution (line pairs per millimeter)

International 3-line test-chart, contrast (log) : 2.0

Aperture: 4.0
 Filter: 450 NM
 Film: KODAK TECHNICAL PAN 2415
 Developer: KODAK HC110

Angle (deg)	0	5	10	15	20	25
Radial:	67	67	66	46	50	48
Tangential:	67	67	58	49	53	55

AWAR (Area weighted average resolution) in lp/mm: 54

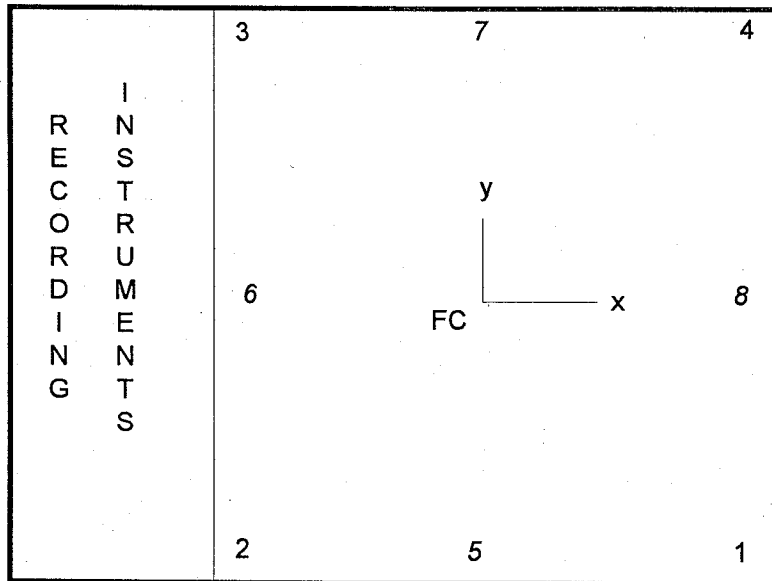
**Principal point of autocollimation (PPA) and
principal point of symmetry (PPS)**

referred to central cross (FC), see diagram

	x (mm)	y (mm)
PPA	-0.010	0.025
PPS	-0.016	0.007

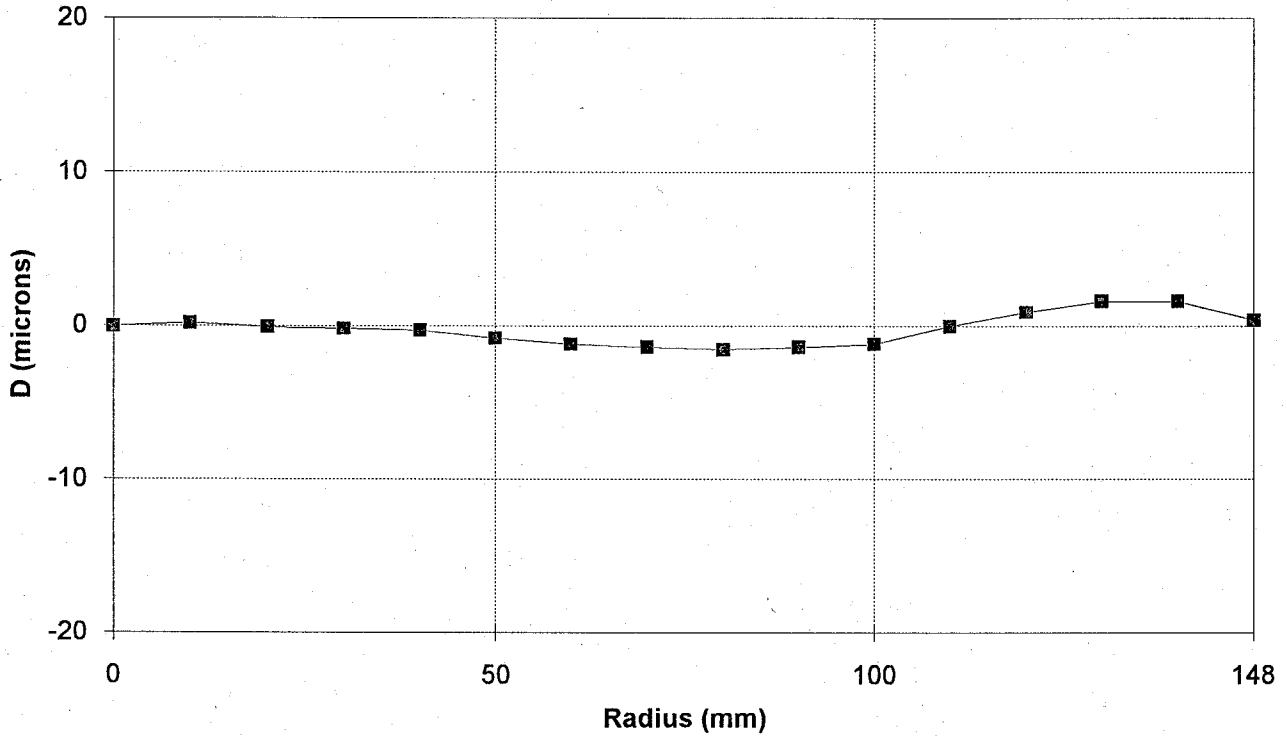
Fiducial marks, referred to central cross (FC)

	x (mm)	y (mm)		x (mm)	y (mm)
1	105.996	-105.999	5	-0.001	-109.992
2	-106.002	-106.001	6	-109.995	-0.005
3	-105.999	106.002	7	-0.005	109.999
4	106.000	105.999	8	109.988	-0.001

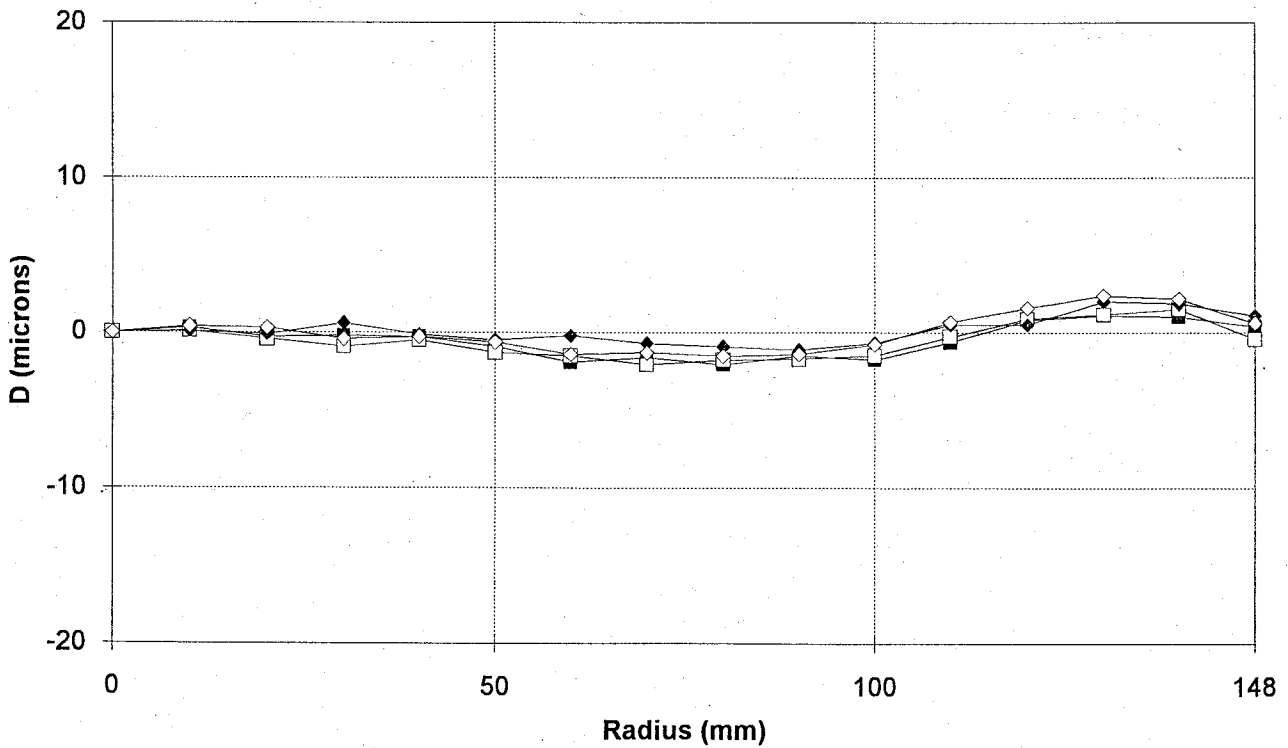


Aperture: 4.0
Filter on goniometer: VIS (400 - 700 NM)
Filter on camera: --
Principal distance for focussing distance 850 m : 303.98 mm

Mean radial distortion



Radial distortion for semi-diagonals referred to PPS



■ 1 □ 3 ◆ 2 ◇ 4

[Handwritten signature]
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