GALILEI G4

ziemer
OPHTHALMOLOGY

THE BEST OF BOTH WORLDS

Dual-Scheimpflug and Placido
Reaching a new level in refractive screening

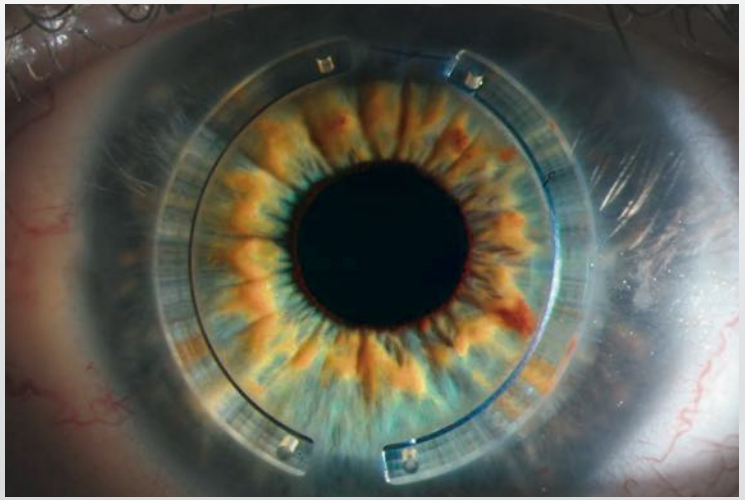
GALILEI G4

Clinical Applications

Corneal Implant Planning

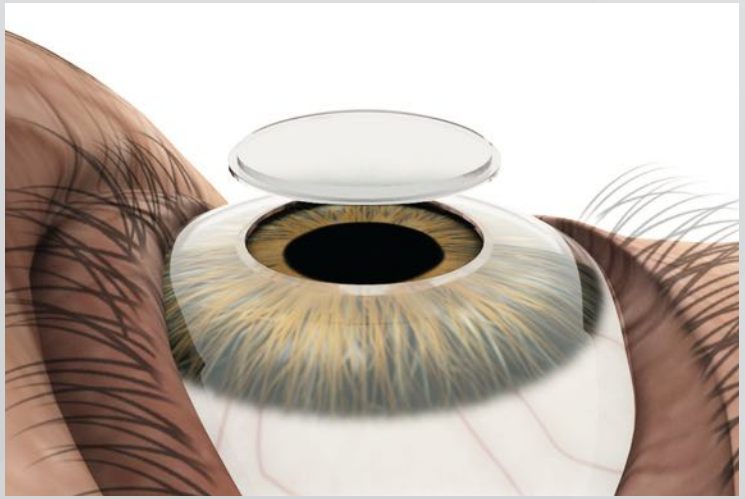
The GALILEI G4 comes with a licensable corneal inlay software module which is optimized to patients with implanted corneal inlays. This ensures an accurate and reliable post-op follow-up of those patients.

When planning an intracorneal ring surgery, corneal pachymetry, high order aberrations, curvature maps and total corneal astigmatism deliver the information needed to decide on the right ring and corneal position for the treatment.



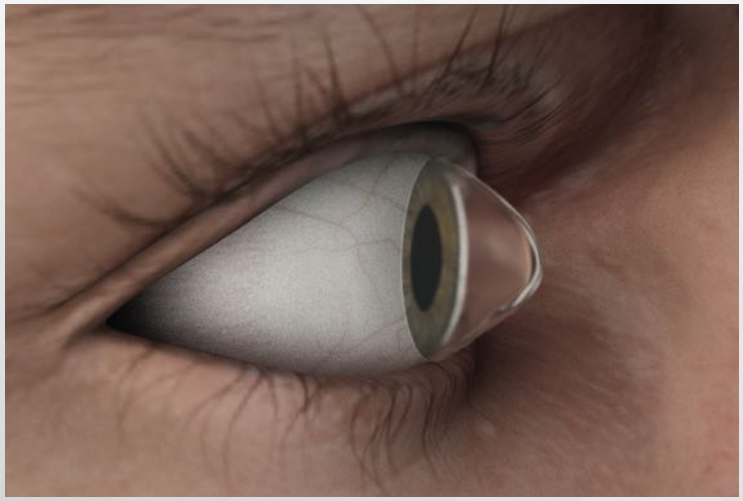
Planning and follow-up of Keratoplasty

With the GALILEI anterior and posterior corneal astigmatism can be closely controlled. This can be particularly helpful when planning a selective suture removal or in order to follow-up on DSAEK surgery outcomes. High definition corneal pachymetry maps deliver important information about donor tissue cut quality and later visual acuity.



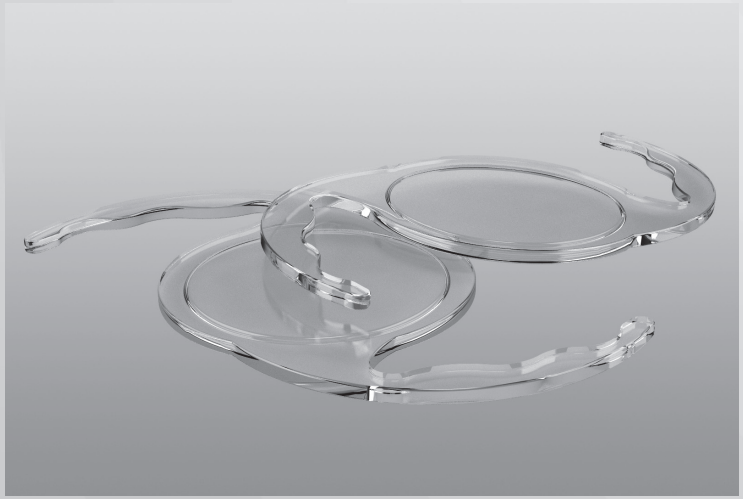
Corneal Asymmetry Analysis

The GALILEI G4 offers a complete dataset for the detection of corneal shape abnormalities. Precise posterior corneal curvature and elevation data make it easy to detect posterior corneal bulging and signs of corneal asymmetry even in very early stages.



IOL Calculation

The GALILEI G4 is a comprehensive tool for IOL planning and calculation. In one measurement, both anterior and posterior corneal data is captured. Data displayed includes anterior and posterior astigmastism, higher order aberrations as well as total corneal power.[1] A licensable IOL calculator integrates the renowned Shammas no-history formula which allows for reliable IOL prediction in post-refractive cases where a patient's clinical history is no longer available.[2]



GALILEI G4

Unique Technology

THE BEST OF BOTH WORLDS

Placido Topography

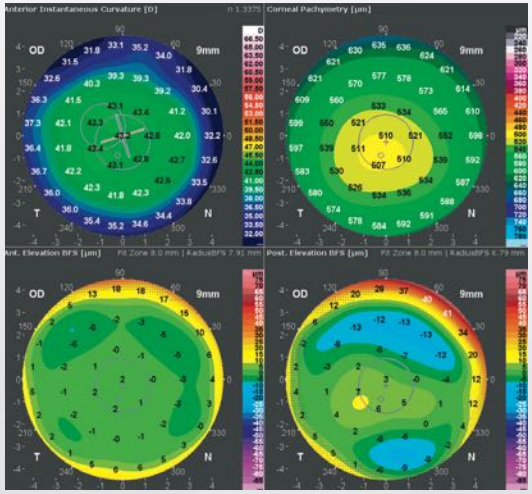
- Highly accurate anterior curvature data
- Precise detection of anterior surface irregularities and tearfilm quality

Dual Scheimpflug Tomography

- Precise pachymetry and elevation data
- 3D anterior chamber analysis
- Ray-traced posterior corneal surface data to detect bulging and asymmetry in early stages

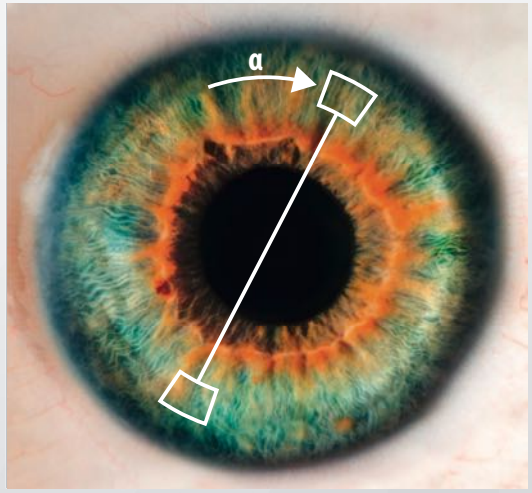
GALILEI G4

Unique Technology



Reliable surface data for refractive and corneal surgery

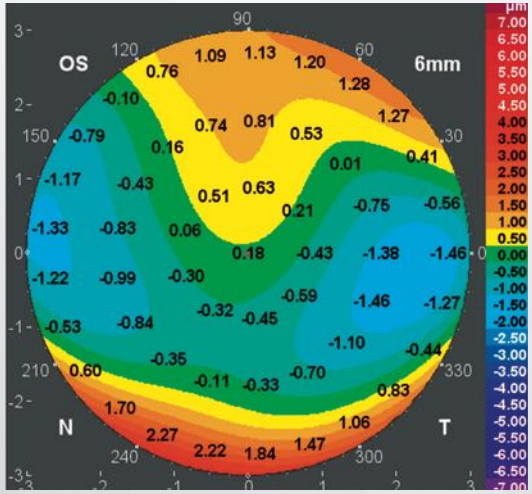
The GALILEI G4 integrates Placido disc topography and Dual-Scheimpflug tomography in one device. This combination of technologies allows for a complete analysis of both the anterior and the posterior corneal surface. The simultaneously recorded Dual-Scheimpflug images produce reliable pachymetry and posterior curvature data, whereas the Placido ring images provide highly accurate and central anterior corneal curvature data fitted to the anterior corneal surface.



Patented iris-based eye motion compensation

Small to moderate eye motions which can lead to clinically relevant surface curvatures cannot be prevented especially in elderly patients or children. The GALILEI G4 comes with a patented iris tracker which compensates for eye motion.

Different than other topography and tomography devices that align data to the pupil or the apex of the cornea, the GALILEI G4 aligns all data to the visual axis using the 1st Purkinje image. This ensures consistent alignment when comparing a series of consecutive measurements over time.



Ray-traced Total Corneal Wavefront solution

With its powerful ray-traced Total Corneal Wavefront solution, the GALILEI G4 precisely measures high order aberrations for highly predictable outcomes in cataract surgery. The high order aberration display helps identifying the most suitable IOL for every patient.

GALILEI PRODUCT FAMILY

The modular solution for your needs

Refractive Displays	GALILEI G4	GALILEI G6
Refractive	•	•
Asymmetries	•	•
IOL Power	•	•
Total Corneal Wavefront	•	•
Custom	•	•
Densitometry	•	•
Eye Metrics	•	•
Difference	•	•
Corneal inlay mode	•	•
CLMI.X Asymmetry Detection	•	•
Z-LASIK	○	•
Santhiago PTA Report™	○	○

Cataract Displays	GALILEI G4	GALILEI G6
Biometry Report (including CCT, ACD, LT, AL)	×	•
IOL Calculator*	○	•
Advanced IOL	×	•
Images	×	•
PhacoOptics / Okulix Connector**	×	○

Connectivity	GALILEI G4	GALILEI G6
DICOM/EMR connection	○	•
Remote workstation	○	•
CSV export for clinical studies	○	•

• Included
○ Optional
× Not available

*IOL Formulae: Shammas no-history (post-refractive), Haigis, Holladay I, Hoffer Q, SRK II, SRK/T

**IOL Calculation Software: The GALILEI G6 connects to the third party ray-tracing software PhacoOptics (phacooptics.com) and Okulix (okulix.de).

All in One: Optical Biometry, Dual Scheimpflug Tomography and Placido Topography

The GALILEI G6 Lens Professional comes with the capabilities of the G4 and adds an optical biometer to measure lens thickness, anterior chamber depth and axial length for IOL calculation. The new Cataract Software Package is optimized to your clinic workflow.

The GALILEI G4 and the GALILEI G6 are CE marked and FDA cleared. For some countries, availability may be restricted due to regulatory requirements. Please contact Ziemer for details.

GALILEI G4

System Information

Measurement Ranges

Central Corneal Thickness	250–800 µm
Keratometry	25–75 D (4.5–13.5 mm)
White-to-White	6 – 14 mm
Pupillometry	0.5 – 10 mm
Anterior Chamber Depth	1.5 – 6.5 mm

In-vivo Repeatability

Parameter	SD specified	SD measured
Central Corneal Thickness	≤ 3.00 µm	1.2 µm
Simulated Keratometry (SimK)	≤ 0.25 D	0.05 D
White-to-White	≤ 50 µm	16 µm
Pupillometry	≤ 50 µm	6 µm (in an artificial eye)
Anterior Chamber Depth	≤ 50 µm	15 µm
Angle of flattest meridian	≤ 10° *	2.9°

* for astigmatism > 0.5 D

Study Design

Internal study of 24 normal eyes in 12 subjects, age range 26–53 years (mean = 38 years).
Repeatability as estimated by the mean standard deviation of consecutive measurements averaged over all subjects and eyes.

Abbreviations

SD specified	Specified repeatability as defined by the mean standard deviation
SD measured	Measured repeatability as estimated by the mean standard deviation
SimK	Keratometric corneal curvature over central area of radii 0.5–2.0 mm

Technical Data

Placido disc:	20 rings
Measurement speed:	60 images in 1 second
Number of measurement points – Scheimpflug/Placido:	up to 100 000 measurement points
Displayed map coverage:	max. 10 mm

Measurement unit characteristics

Measuring principle:	Rotational Scan of Dual Scheimpflug slit images combined with Placido and top view images
Observation illumination:	NIR (near-infrared) LED 810 nm
Scheimpflug illumination:	Blue LED (UV-free) 470 nm
Placido illumination:	NIR (near-infrared) LED 750 nm

Electrical conditions

Power requirement:	100–240 VAC, 50/60 Hz, 400 W
Fuses (110/230 V):	2 × T6, 3 AH, 250 VAC

Classification according to IEC 60601-1

Type of protection against electric shock:	Class 1
Degree of protection against electric shock:	Type B applied part
Degree of protection against damaging penetration of water:	IP20

Ziemer
E-Learning Center

Discover your comfortable way to study!
Register now for free:
e-learning.ziemergroup.com

Ziemer Ophthalmic Systems AG
a Ziemer Group Company
Allmendstrasse 11
CH-2562 Port, Switzerland
Phone +41 32 332 70 70
marketing@ziemergroup.com

www.ziemergroup.com
galilei.ziemergroup.com

Ziemer USA, Inc.
a Ziemer Group Company
620 E. Third Street
Alton, Illinois 62002, USA
Phone +1 618 462 9301
usa@ziemergroup.com

Ziemer Ophthalmology
(Deutschland) GmbH
a Ziemer Group Company
Im Hausgrün 15
DE-79312 Emmendingen, Germany
Phone +49 7641 9333860
info-deutschland@ziemergroup.com

Issue Date: 2018-09
Document No. CM3941-0109-08
REF 410.931.013

References

1 Zhang L, Sy ME, Mai H, Yu F, Hamilton DR (2015). "Effect of posterior corneal astigmatism on refractive outcomes after toric intraocular lens implantation" Journal of Cataract and Refractive Surgery 41(1): 84–89.

2 Shammas HJ, Shammas MC (2007). "No-history method of intraocular lens power calculation for cataract surgery after myopic laser in situ keratomileusis." Journal of Cataract and Refractive Surgery 33 (1): 31–36.