ZEISS IOLMaster 700
with Central Topography

Including clinical cases
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What is Central Topography?

Generally a corneal topography feature is an important non-invasive tool to visualize corneal shape characteristics as a decisive advantage to aid in IOL selection as it allows a clinician to preliminarily visualize corneal asymmetries.*

Central Topography of the IOLMaster® 700 from ZEISS provides anterior and total axial power maps based on its telecentric measurement principle and SWEPT Source OCT.

Central Topography Spheric Regular Astigmatism Irregular Astigmatism Post-Lasik PRK

Image courtesy of Douglas D. Koch, MD, Li Wang, PhD, USA

Central Topography provides visually relevant information on central corneal shape that cannot be detected with keratometry alone.

*Please note that Central Topography is not intended to replace a topographer

At a glance
ZEISS IOLMaster with Central Topography provides important insights on the central corneal shape, which cannot be accomplished by keratometry alone.
Central Topography is designed to provide you with more insights when you start your workflow and before you decide on the IOL and consult with your patient. It is integrated into the standard biometry measurement of the ZEISS IOLMaster 700, with the advantage that surgeons do not need any additional hardware to their current ZEISS IOLMaster 700. The full biometry measurements including Central Topography can be obtained in less than 44 seconds for both eyes.

Central Topography allows easy reading of central corneal shape information. The scaling and hues have been developed in cooperation with Douglas D. Koch, MD, and Li Wang, PhD, USA.

Successful implementation of toric and multifocal IOLs requires regular corneal curvature within the central zone. Central Topography provides central corneal shape information and detects visually relevant corneal asymmetries before deciding on the IOL and consulting the patient.

“Scaling and hues of the ZEISS IOLMaster 700 with Central Topography are optimized for easy and intuitive corneal evaluation.”
Douglas D. Koch, MD, USA

At a glance
Central Topography is easy to use without interrupting the cataract workflow.
What is the technology behind Central Topography?

The ZEISS IOLMaster is the only biometer using a unique distance-independent telecentric measurement principle with SWEPT Source OCT. It provides robust and precise corneal curvature measurement at each of the 18 measured spots. This existing feature enables repeatable and reliable keratometry as well as anterior and total central topography values.

- Anterior curvature is directly converted into local refractive power using the corneal keratometric index as chosen by the user
- The anterior surface model is combined with corneal thickness measurements from SWEPT Source OCT technology to create a posterior surface model
- Anterior and posterior surface model are used to create a total axial power map

At a glance
ZEISS IOLMaster 700 with Central Topography combines keratometry data from the 3-zone Telecentric Keratometry with data of the corneal thickness measurement of the SWEPT Source OCT to create a total power map from the anterior and posterior corneal surface.
What is the benefit of Central Topography?

Central Topography provides details on the central corneal shape, right at the beginning of your workflow which allows you to optimize your clinical decision-making for IOL selection.

The main benefits:

- Add Central Topography to biometry and keratometry
- Gain additional valuable insights on central corneal shape, taking anterior and posterior power into account
- Detect visually relevant corneal irregularities
  - No extra measurement
  - No extra time: complete biometry measurement including Central Topography for both eyes in < 44 sec*
  - No extra hardware
  - Easy interpretation

*depending on experience of operator and eye conditions

At a glance
ZEISS IOLMaster 700 with Central Topography provides you with more information on the central corneal shape right from the start without changing your workflow or taking more of your valuable time.
Clinical cases

The following overview of clinical cases includes a 9 mm topography map (Dual-Scheimpflug/Placido device) and a 4 mm extract of this map to evaluate the comparability of the ZEISS IOLMaster 700 Central Topography. The interpretation was performed by Douglas D. Koch, MD, USA and Li Wang, MD, PhD, USA.

Case 01
Regular Astigmatism – With-the-rule Astigmatism

**Doctor’s interpretation:**
- Normal range of power, meridians straight
- Minimal color differences, low amount of astigmatism
- Same decision for toric or multifocal IOL

**Doctor’s conclusion:**
Excellent comparability

Case 02
Regular Astigmatism – With-the-rule Astigmatism

**Doctor’s interpretation:**
- Central Topography, overall shape similar to the Dual-Scheimpflug/Placido device map
- Same decision for toric or multifocal IOL

**Doctor’s conclusion:**
Excellent comparability, however this one has some differences between the two; note the inferior steepening on Central Topography
Case 03
Regular Astigmatism – Against-the-rule Astigmatism

Doctor’s conclusion:
Excellent comparability

Doctor’s interpretation:
- Against-the-rule astigmatism on Central Topography, overall shape similar to the Dual-Scheimpflug/Placido device map
- Same decision for toric or multifocal IOL

Case 04
Regular Astigmatism – Oblique Astigmatism

Doctor’s interpretation:
- Regular oblique astigmatism on Central Topography, overall shape similar to the Dual-Scheimpflug/Placido device map, both images show mild superonasal steepening
- Same decision for toric or multifocal IOL

Doctor’s conclusion:
Good comparability

It is remarkable how much information we get from Central Topography.
Douglas D. Koch, MD, USA
Clinical cases

Case 05
Pellucid Marginal Degeneration

**Doctor’s conclusion:**
Central Topography misses mild inferior steepening

**Doctor’s interpretation:**
- Against-the-rule astigmatism on Central Topography, overall shape similar to the center of Dual-Scheimpflug / Placido device map
- Same decision for toric IOL, possible different decision on multifocal IOL

Case 06
Irregular Pathological Astigmatism

**Doctor’s interpretation:**
- Small central zone of against-the-rule astigmatism in the Central Topography, not seen with Placido, consistent with the irregular astigmatism
- Dominant feature is the inferior steepening on both devices → further investigation required
- Same decision for toric or multifocal IOL

**Doctor’s conclusion:**
Great comparability
Case 07
Irregular Pathological Astigmatism

Doctor’s interpretation:
- Irregular astigmatism on Central Topography, overall shape similar to the Dual-Scheimpflug/Placido device map
- Same decision for toric or multifocal IOL

Doctor’s conclusion:
Good comparability

Case 08
Irregular Pathological Astigmatism

Doctor’s interpretation:
- Irregular astigmatism on Central Topography, shape of Central Topography is similar to the Dual-Scheimpflug/Placido device map
- No straight meridians: irregular
- Steep and irregular: Be careful!
- Same decision for toric or multifocal IOL

Doctor’s conclusion:
Good comparability
Case 09
Irregular Post LVC Astigmatism – Post Myopic LASIK/PRK

Doctor’s interpretation:
- Flat cornea, irregular and against-the-rule astigmatism
  (Blue color, meridians not straight, “lying eight”)
- Flat, ATR and meridians not straight
  Both are a warning in itself to check further
- Same decision for toric or multifocal IOL

Doctor’s conclusion: Good comparability

Case 10
Irregular Post LVC Astigmatism – Post Myopic LASIK

Doctor’s interpretation:
- Central flat cornea on Central Topography
- Overall shape similar to the Dual-Scheimpflug/Placido device map; showing superior decentration

Doctor’s conclusion: Good comparability
Case 11
Irregular Post LVC Astigmatism – Post Hyperopic LASIK/PRK

Doctor’s interpretation:
- Central steep cornea on Central Topography
- Overall shape similar to the Dual-Scheimpflug/Placido device map
- Dual-Scheimpflug/Placido device map shows peripheral flattening

Doctor’s conclusion:
Good comparability

ZEISS IOLMaster 700 is intended to aid clinicians with IOL selection. While clinicians may find Central Topography helpful in their decision-making process, topographers should be used as primary devices for topographical decisions. The information presented in this guide was an opinion of Dr. Douglas D. Koch (clinician). Douglas D. Koch has a contractual or other financial relationship with Carl Zeiss Meditec AG and its affiliates and has received financial support.