ZEISS IOLMaster 500

Trusting the experience of 100 million
IOL power calculations

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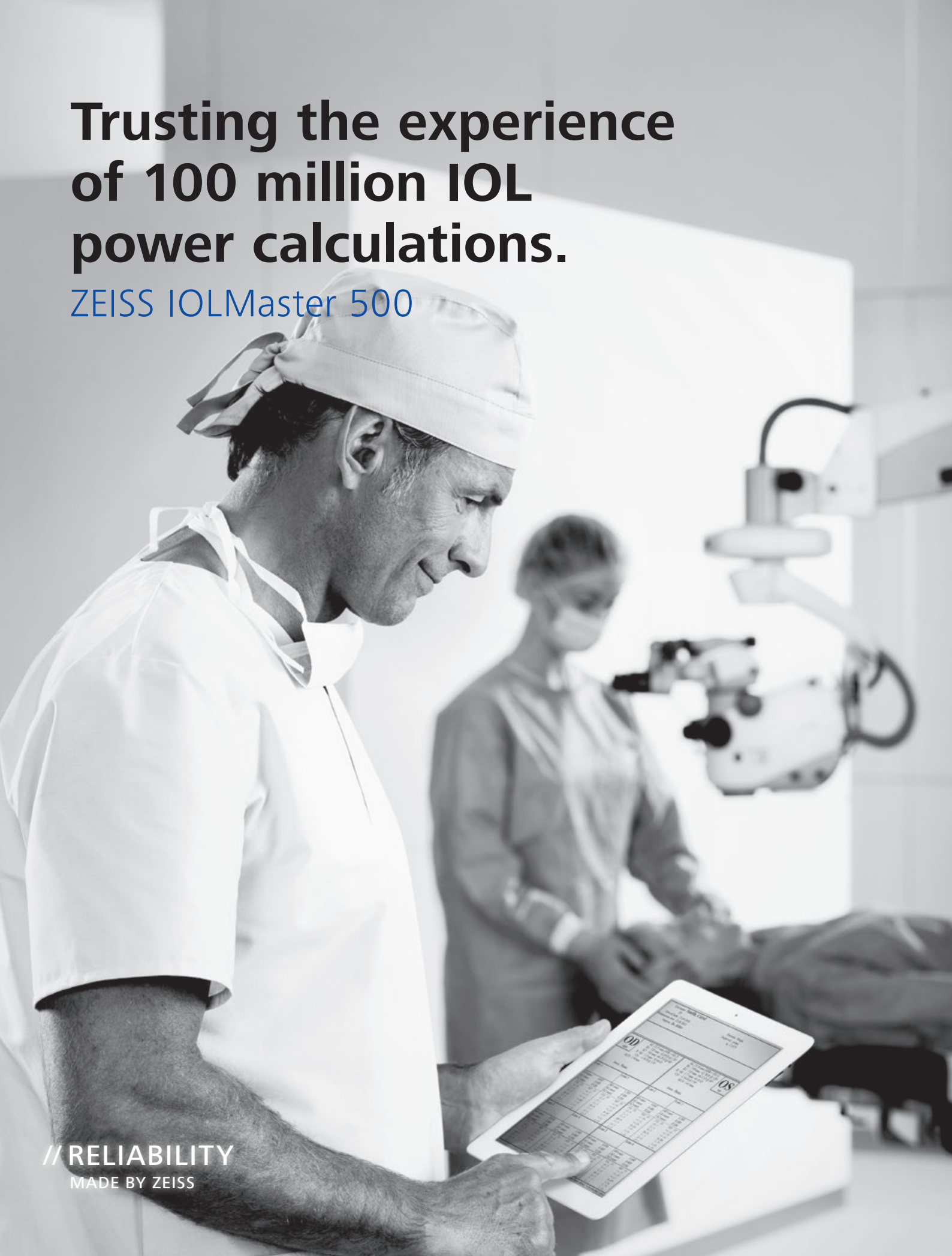


// RELIABILITY
MADE BY ZEISS

Gold standard biometry with the ZEISS IOLMaster 500

To date, with more than 100 million IOL power calculations, biometers from ZEISS have become the most commonly used optical biometers in the ophthalmic world. With the IOLMaster® 500 from ZEISS doctors get a reliable, fast and easy-to-use optical biometer for measurements they can depend on.

Your key benefits

- **Refractive outcomes you can trust**
  Distance independent keratometry, robust and repeatable measurements, more than 300 optimized lens constants
- **Fast and easy to use**
  Well-designed user interface, plausibility checks, less than 60 seconds for both eyes[1]
- **Advanced measurements of challenging eyes**
  >93% cataract penetration rate[2]; measurement of staphyloma, pseudophakic and silicone-filled eyes, post-LVC formula
- **Precise and efficient markerless toric IOL alignment**[3,4]
  Integral part of ZEISS Cataract Suite, no manual marking steps

Refractive outcomes you can trust

Telecentric keratometry
The ZEISS IOLMaster is the only optical biometer to feature distance-independent telecentric keratometry. It enables robust, repeatable measurements and shows excellent agreement with manual keratometry while achieving higher precision.[5]

Over 50,000 cataract surgeries evaluated for better refractive results
The extensive clinical experience of the ZEISS IOLMaster 500 is reflected by the IOL constant database (formally known as ULIB). The database contains more than 300 lens constants continuously optimized with over 50,000 sets of patient data created with the ZEISS IOLMaster – absolutely unique in the industry.[7]

Proven toric outcomes
The results of a meta-analysis of 28 published clinical papers covering more than 1900 cases speak for themselves: you can trust the ZEISS IOLMaster 500 for toric IOL power calculation! It was shown that the reported clinical outcomes for the ZEISS IOLMaster with regard to residual astigmatism "[...] exceed, or are at least as good as those using manual or automated keratometry."[6]

Fast and easy to use

Well-designed user interface
The highly intuitive ZEISS IOLMaster 500 design sets standards in easy-to-delegate biometry. Common sources of error are eliminated through an easy-to-understand traffic light indicator.

Plausibility checks
With the integrated automatic mode, right-eye and left-eye values for axial length and corneal radii are compared and checked for plausibility – providing confidence, especially for challenging eyes.

Automated workflow
The Dual Mode facilitates measurements of axial length and keratometry without the need for manual interaction – minimizing chairtime.

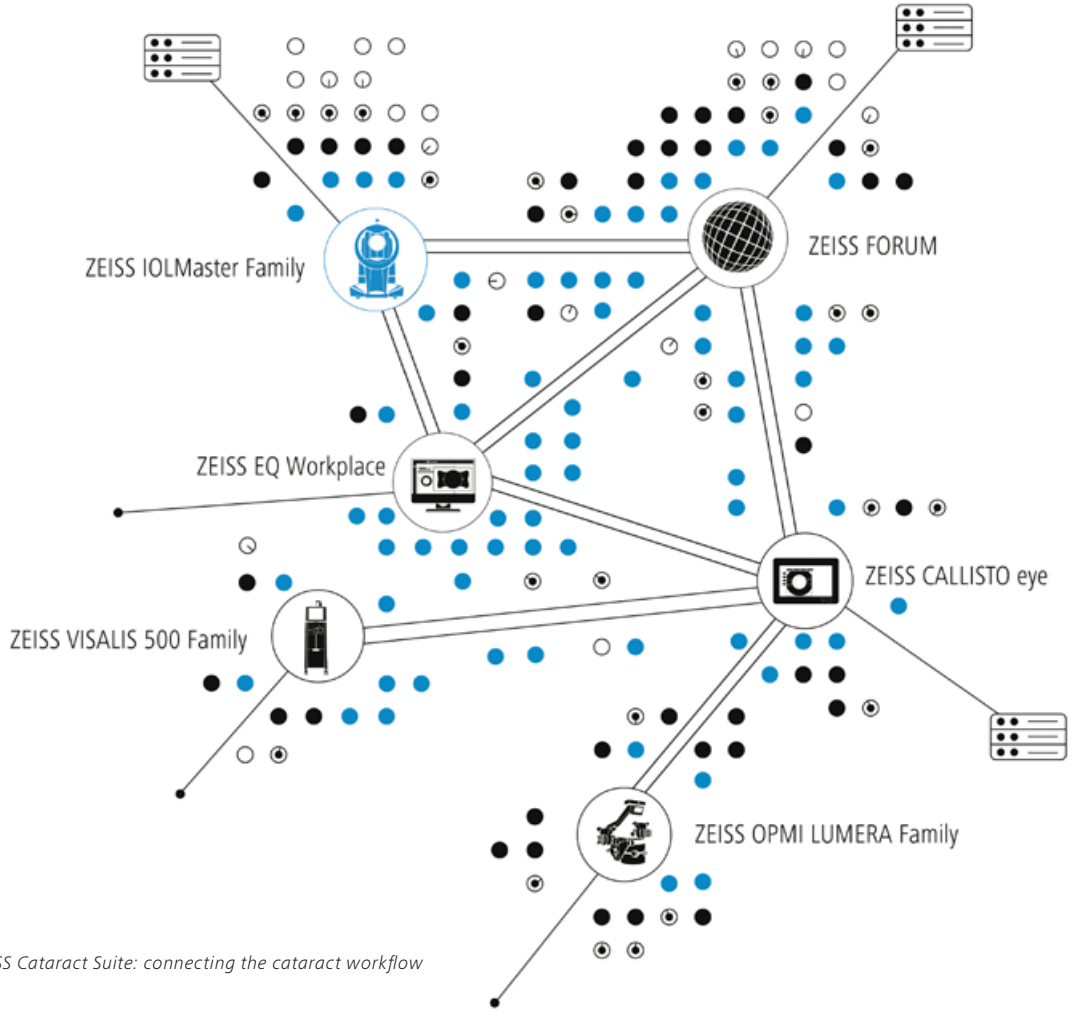
Chairtime
The average time needed to take a reading on the ZEISS IOLMaster 500 is up to 4 times faster compared to other optical devices.[8] You can measure both eyes in less than 60 seconds.[9]

Connect to ultrasound
Connect your compatible ultrasound devices directly via Option Sonolink. This ultrasound interface is LAN-based, workflow approved and compatible with various qualified ultrasound manufacturers.

Precise and efficient markerless toric IOL alignment[3,4]

The ZEISS IOLMaster 500 is an integral part of the ZEISS Cataract Suite. The Reference Image is the starting point of a markerless toric IOL workflow: An image of the eye is taken along with the keratometry measurement. Both reference image and keratometry data are transferred to the computer-assisted cataract surgery system CALLISTO eye® from ZEISS. Finally, all data needed for precise and markerless toric IOL alignment are injected in color and high resolution where they are needed – in the eyepiece of the surgical microscope from ZEISS. Manual marking steps can be skipped altogether for more precise[3] and efficient[4] toric IOL alignment with reduced residual astigmatism.[10]

Reference Image for a markerless toric IOL workflow.



ZEISS Cataract Suite: connecting the cataract workflow

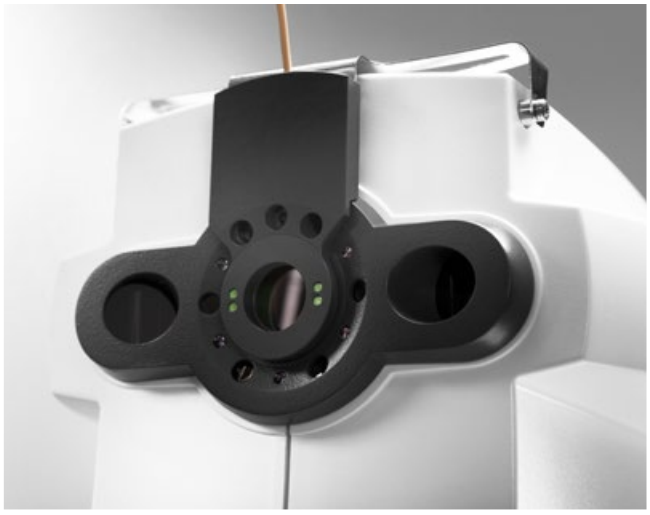
Advanced measurement of challenging eyes

Dense cataracts

In denser cataracts the ZEISS IOLMaster 500 achieves a measurement success ratio that is up to 20 % higher than that of other optical biometry devices.[11] The underlying composite signal evaluation significantly increases the fraction of cataracts measurable with optical technology, allowing a cataract penetration rate of more than 93 %.[2]

Post-LVC, staphyloma, pseudophakic and silicone-filled eyes

Even with staphyloma, pseudophakic and silicone-filled eyes, the ZEISS IOLMaster 500 measures along the visual axis. And with its Haigis-L formula, the ZEISS IOLMaster 500 allows IOL calculation for myopic and hyperopic post-LVC cases.



Technical data IOLMaster 500 from ZEISS

Measurement range	Axial length 14 – 38 mm
	Corneal radii 5 – 10 mm
	Anterior chamber depth 1.5 – 6.5 mm
	White-to-white 8 – 16 mm
Display scaling	Axial length 0.01 mm
	Corneal radii 0.01 mm
	Anterior chamber depth 0.01 mm
	White-to-white 0.1 mm
IOL calculation formulas	SRK® II, SRK® / T, Holladay 1 and 2, Hoffer Q, Haigis
	Clinical history and contact lens fitting method for calculation of corneal refractive power following refractive corneal surgery
	Haigis-L IOL calculation for eyes following myopic / hyperopic LASIK / PRK / LASEK surgery
	Calculation of phakic anterior and posterior chamber implants
	Optimization of IOL constants

Interfaces	Ultrasound data link
	ZEISS eyecare data management system FORUM®
	ZEISS computer-assisted cataract surgery system CALLISTO eye via USB or FORUM (DICOM network or EQ Mobile)
	Data interface for electronic medical record (EMR) / patient management systems (PMS)
	Data export to USB storage media
	Export database for Holladay IOL Consultant and HIC.SOAP Pro
	Ethernet port for network connection and network printer
Line voltage	100 – 240 V ± 10 % (self sensing)
Line frequency	50 – 60 Hz
Performance consumption	max. 75 VA
Laser class	1

[1] Depending on experience of operator and eye conditions

[2] R. Varsits, N. Hirnschall, B. Doeller, O. Findl; Increasing the number of successful axial eye length measurements using swept-source optical coherence tomography technology compared to conventional optical biometry; presented at ESCSR 2016

[3] Proof for "precise": Clinical data of Prof. Findl / Dr. Hirnschall presented at ESCRS 2013 – technically verified pre- / intraoperative matching precision ± 1.0° in mean.

[4] Proof for "efficient": W. Mayer (2017). "Comparison of visual outcomes, alignment accuracy, and surgical time between 2 methods of corneal marking for toric intraocular lens implantation". JCRS, October 2017

[5] Bullimore MA, Buehren T, Bissmann W, Agreement between a partial coherence interferometer and 2 manual keratometers, J Cataract Refract Surg

[6] Bullimore MA, The IOLMaster and determining toric IOL Power, White Paper, Carl Zeiss Meditec, 2013

[7] https://cataract-community.zeiss.com/tools/lensconstantsdownloads

[8] Chen YA, Hirnschall N, Findl O, Evaluation of 2 new optical biometry devices and comparison with the current gold standard biometer; J Cataract Refract Surg. 2011 Mar;37(3):513-517

[9] Depending on experience of operator and eye conditions

[10] Clinical data of Dr. Black presented at ESCRS 2014 – 99% of patients had a post-operative refractive cylinder within +/- 0.50 D.

[11] Rivero L, IOLMaster Version 5 vs. Lenstar LS900, presented at 2010 AAO – MEACO Joint Meeting in Chicago, Illinois.

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