

LENSTAR. Star or Starlett.

Optical biometry and more – for clinics and private practice
Some initial impressions

By Univ. Prof. Dr. Andreas Kruger

Just ten years after the launch of the Zeiss IOL Master in September 1999, our Swiss precision-engineer colleagues are now attempting to make this sector of the market their own. The ESCRS event held in Berlin in September 2008 provided a venue for the official debut of the LENSTAR LS 900 from Haag-Streit AG.

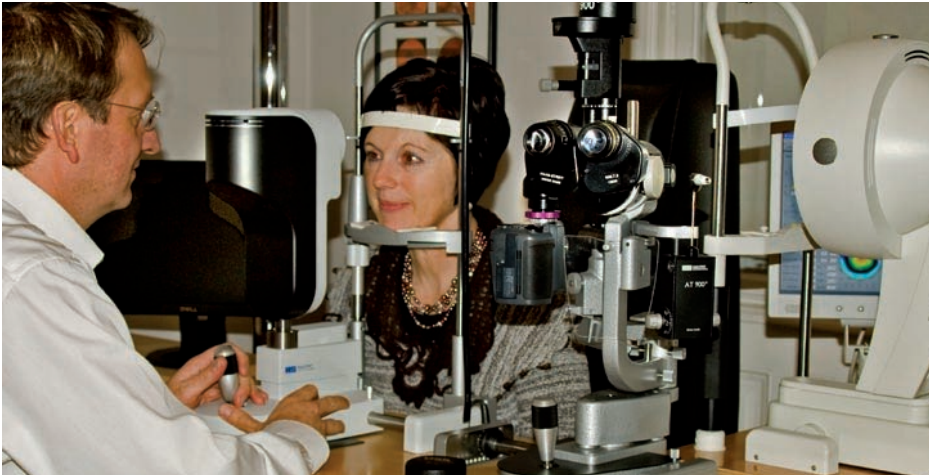
So what does the LENSTAR do that the IOL Master from Zeiss can't? I was able, in the course of a week's testing and comparison, to tot up the various benefits and potential strengths.

Laser interferometry has brought a level of accuracy to biometry that is unlikely to be bettered in clinical terms in the foreseeable future. It sets a new standard. Both the interferometry-based measurement of length of axis and the measurement of corneal radii suppose an approximate margin of error of 0.2dpt.

An experienced "biometrist" will immediately be familiar with the operation and menu-based management system. The display screen on the device is well-designed, up-to-date and conveniently situated. A large screen is naturally better able to show small details.

Marketing is based on an all-in-one approach.

Various different measurements, including readings for keratometry, pachymetry, lens-thickness, white-to-white, anterior chamber depth and so on, are captured using a single procedure. With corresponding effort in terms of time and concentration – for medical professional and patient alike. But it's worth it. Just two minutes per eye are needed to obtain the full array of measurement data required to complete all the usual biometry formulas, making the Zeiss IOL Master and LENSTAR LS 900 comparable in this respect.



The proportion of "non-measurable" eyes lies at around 10% for both devices.

The OLCR (optical low-coherence reflectometry) technology used permits the construction of a compact measuring head for determining the parameters even of anterior oculi segments by optical means. This has made so-called "complete optical biometry" possible.

A strikingly important difference has also arisen in this respect. The LENSTAR LS 900 comes complete with a separate measuring head, computer and monitor. This is a major advantage, as the LENSTAR LS 900 is thus integrated as a second device for use alongside a slit lamp as part of the examination unit. Subsequent upgrades likewise promise to be easier and simpler to carry out.

In a clinical situation, it becomes possible –

In a high volume cataract clinic you will gain a lot of time because of a better workflow. Moving the patient from the biometry unit to the slit lamp unit sometimes is time consuming. Mounting the Lensstat near beside the slitlamp on the same unit is really a winner.

The LENSTAR LS 900 handles measurements of axis-length with partial readings, corneal thickness, anterior chamber depth, lens thickness and retinal thickness. This stands in contrast to the Zeiss IOL Master, where the VKT (anterior chamber depth) is calculated using the lateral light-slit. The logical result is considerably higher accuracy for IOL calculations. Corneal thickness and lens thickness cannot be calculated using the Zeiss IOL Master.



Univ. Prof.
Dr. Andreas Kruger
www.Augenlaserzentrum-Wien.at
Währingerstraße 3
1090 Wien

The question as whether an additional retinal-thickness measurement might be used clinically (oedema), thus giving it an area of application, was not within the scope of this brief set of tests. It is however an interesting detail.

The display of measurement readings is a feature of interest to the patient: The selection of numerical values in the corresponding category produces not only raw measurement data, but also the corresponding graphic details, highlighted in red, of the ocular model. This will prove useful for those with the time and motivation to discuss the readings with the patient.

The moment established for the launch of the device is a thoroughly intelligent choice, as the first optical biometry devices are now beginning to show their age in terms of speed and compatibility.

IN SHORT: "The LENSTAR LS 900 offers important benefits above all to clinics with a high rate of patient-throughput, thanks to its ability to integrate with existing procedures. It deserves to be examined in detail by anyone considering reinvestment in this area."

TO SUM UP: A complete optical-biometry unit, enhanced with pachymetry and retinal-thickness measurement features, supplied as a compact device suitable for use in the examination room.