

## **Press Release**

### **Unmatched exact positioning of the laser ablation Eye Tracking with the SCHWIND AMARIS**

Kleinostheim, Germany, June 2008

The eyes can move involuntarily an average of 90 micrometres per millisecond in any direction for short periods of time while fixating, due to the combination of saccadic, vestibular, optokinetic, vergence and miniature movements of the eye. For this reason, exact centering and constant positioning of the eyes is decisively important for a successful eye treatment. The SCHWIND AMARIS offers the presently by far furthest developed eye tracking system on the refractive surgery market. The combination of several outstanding performance features provides for the best possible eye tracking. The SCHWIND AMARIS eye tracker system monitors the position of the eye 1050 times per second. With more than one kilohertz performance the turbo eye tracker is more than twice as fast as the 500 hz laser. Altogether, the total reaction time of the SCHWIND AMARIS eye tracker is about an unparalleled three thousandths of a second. This minimizes the lateral deviation of each laser spot to within  $\pm 0.2$  millimetres. The deviation of other conventional eye trackers lies on average at  $\pm 1.2$  millimetres, about 5 times higher.

#### **Cyclotorsion control during aspheric based treatments**

This eye tracker of the latest generation further impresses through the ability to compensate eye movements in all five dimensions. Along with the usual linear left/right, up/down movements (1st and 2nd dimensions), rolling movements, caused by a tilting of the eye, are compensated (3rd and 4th dimensions).

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Furthermore, the AMARIS eye tracker takes into account rotations around the visual axis, known as cyclotorsion. Thereby, both static cyclotorsion, the torsional differences of the eye between a patient in an upright and supine position, and dynamic cyclotorsion, that is rotation of the eye during the laser treatment, are compensated. Cyclotorsion control has a significant influence on results already from a cylinder value of 2 D. The combination of static and dynamic cyclotorsion control plays a decisive role in the reduction of higher-order aberrations, especially with customized treatments. The SCHWIND AMARIS is currently the only laser with which cyclotorsion control can also be employed for aspheric based treatments (Aberration-Free treatments). Further advantage: As a unique feature, the SCHWIND AMARIS monitors the pupil size during the static cyclotorsional control and the illumination is then automatically adjusted in such a way that the pupil is exactly the same size at the beginning of the treatment as it was at the preliminary examination. Thus, the original center of ablation is maintained throughout.

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