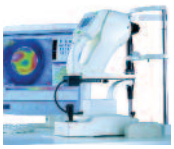
SCHWIND
eye-tech-solutions

SCHWIND Diagnostic Devices – Safety through diagnosis

SCHWIND Diagnostic Systems – Safety through diagnosis

SCHWIND Diagnostic Systems provide an extensive array of measuring methods for refractive and therapeutic corneal surgery. They offer you a multitude of possibilities for individual diagnoses – whether corneal and ocular wavefront data or corneal pachymetry. Furthermore, information which can be used for refractive procedures, such as the insertion of intraocular lenses or other phakic lenses, is also available.

SCHWIND CAM software does not miss out a single important detail for the customised treatment planning, which you can conduct on the SCHWIND diagnostic systems or directly on the SCHWIND AMARIS laser systems. SCHWIND diagnostic systems combine extreme precision with a high level of user-friendliness.

	Corneal Wavefront Analyzer (CWA)	Ocular Wavefront Analyzer (OWA)	SCHWIND SIRIUS (Scheimpflug Analyzer)	Combi Wavefront Analyzer (OWA + SCHWIND SIRIUS)	Combi Wavefront Analyzer (CWA + OWA)
					
Scheimpflug			●	●	
Topography	●		●	●	●
Corneal Wavefront	●		●	●	●
Ocular Wavefront		●		●	●
Comparison of Corneal and Ocular Wavefront				●	●
Keratoconus Screening	●		●	●	●
Pachymetry			●	●	
Pupillometry	●	●	●	●	●
Corneal Posterior Segment Analysis			●	●	
Keratometry Readings	●	●	●	●	●
Link to Static Cyclotorsion Control (SCC)	●	●[1]	●	●	●
Accommodation		●		●	●
IOL Function			●	●	
CL Function	●		●	●	●
Data Export to SCHWIND AMARIS Laser Systems	●	●	●	●	●
Print Function via WLAN	●	●	●	●	●

[1] with Registration Camera

The Corneal Wavefront Analyzer offers you all the possibilities of an innovative topography system. This includes the analysis of corneal wavefront data and thus a particularly precise diagnosis of the symptomatic aberrations of the cornea.

Extreme precision

The Corneal Wavefront Analyzer fulfils the extremely high requirements of precision with resolution of one micrometre. The smallest of irregularities is identified with the aid of more than 80,000 analysis points. The topography system is a perfect tool for the preparation of a broad range of refractive treatments with the SCHWIND AMARIS laser systems.

The measuring process does not require any medical pupil dilation – the eye can be measured in its natural shape. The Corneal Wavefront Analyzer also analyses several images from one measurement by comparing them and assists the planning of treatment by its selection of the best image quality. As the system is equipped with two measuring cones, you will attain highly reliable results with deep-set as well as small eyes.

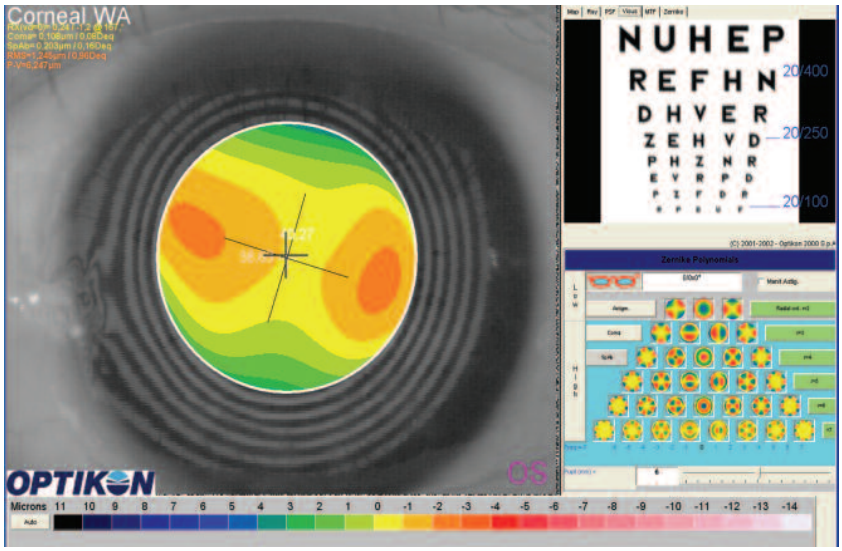
Corneal wavefront

The corneal wavefront analysis by SCHWIND has redefined the measurement of corneal topography. Thanks to the ray tracing method it documents the type and size of all optical errors existing on the anterior corneal surface and allows a high-precision diagnosis for the suitable choice of treatment. It also provides all the key topographical information needed to enhance power calculation and selection of contact lenses. A significantly high percentage of aberrations in the human eye appear in the corneal region. Only a slight percentage is found in the lens and vitreous body. The aberrations are mathematically described by means of Zernike polynomials and converted into individual, customised ablation profiles.

Pupillometry

Pupil diameter can be measured under both scotopic and photopic lighting conditions with the aid of the integrated pupillometry function.

Corneal Wavefront Analyzer

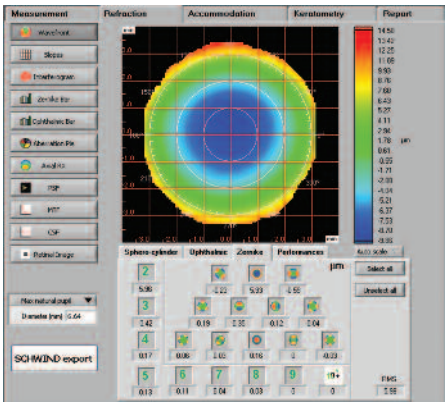


Corneal Wavefront Map

SCHWIND's Ocular Wavefront Analyzer is the latest generation of multi-functional aberrometers. It analyses the optical characteristics of the entire eye in a single measuring process.

Ocular Wavefront Analyzer

Its one-of-a-kind ability is based on a high-resolution Hartmann-Shack sensor. With an excellent resolution of 230 µm and 1024 measuring points, the Ocular Wavefront Analyzer analyses the wavefront aberrations up to the tenth order in unparalleled highly detailed resolution and precision. Thanks to the integration of different diagnostic tools in one device, you can measure the ocular wavefront of the whole eye as well as measuring its accommodation, the curvature of the cornea and the pupil diameter. Series measurements can be conducted in both a time-saving and comfortable manner.



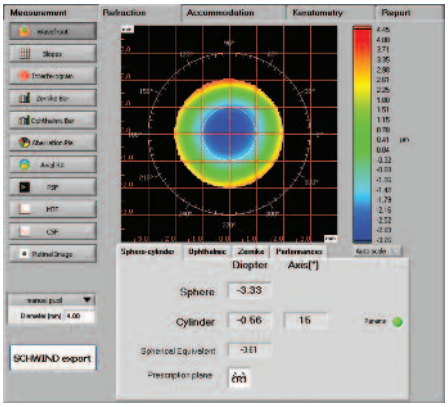
Ocular Wavefront

Extensive software package

The Ocular Wavefront Analyzer's software offers you many analysis options – whether in tabular form, as a bar diagram or as a wavefront map. You can quickly and easily navigate the menus, obtain detailed information or a complete overview for the analysis of individual patient data.

Accommodation measurement

The Ocular Wavefront Analyzer impresses with its objective methodology for the measurement of an eye's accommodation. In order to calculate the quality of the retinal image, different accommodation conditions are stimulated and measured on the basis of the ocular wavefront. You can also analyse in-depth presbyopia with the aid of the measurement results and evaluate the accommodation effect of intraocular lenses.



Zernike Refraction

Keratometry function

Yet another advantage: The integrated keratometry function gives you the ability to measure the curvature of the cornea. The keratometry reading is displayed in either dioptres or millimetres and is presented in a 3D colour graphic. These are important parametres for aberration-free aspheric treatment.

SCHWIND SIRIUS offers the perfect combined solution for refractive and therapeutic corneal surgery. The highly precise, multi-functional diagnostic device combines a rotating Scheimpflug camera and a topography device with a placido disc.

The "2 in 1" system provides you with a quick, three dimensional analysis of the entire cornea and the anterior segment in only one step. The SCHWIND SIRIUS captures the anterior segment in less than one second. The extremely high resolution of only one micrometre and more than 100,000 analysis points detect the smallest of irregularities on the anterior corneal surface and therefore offer an extremely precise diagnosis of the aberrations. This non-contact measurement allows you to analyse the complete corneal wavefront, the topography of the anterior and posterior corneal surface (including the tangential and axial curvature) as well as the anterior chamber. In addition, SCHWIND SIRIUS calculates the keratometry readings and can be used for power calculation of intraocular and contact lenses.

Corneal Wavefront

The corneal wavefront analysis documents the type and size of all existing optical errors on the anterior corneal surface with the aid of the ray tracing method.

Keratoconus Screening

SCHWIND SIRIUS aids you with its extensive keratoconus screening. The diagnostic system offers detailed descriptions of the morphology as well as the classification of the keratoconus.

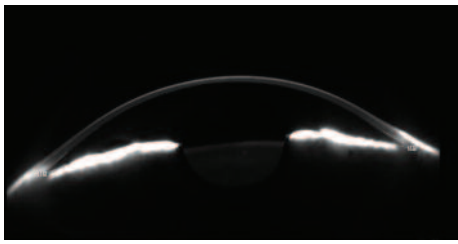
Corneal Pachymetry

Thanks to the extremely detailed measurement results provided by SCHWIND SIRIUS, you have the option to generate an eye's corneal pachymetry map for corneal transplants. Combined with the ablation by the SCHWIND AMARIS lasers, this leads to the best possible results in pachymetry assisted laser keratoplasty (PALK).

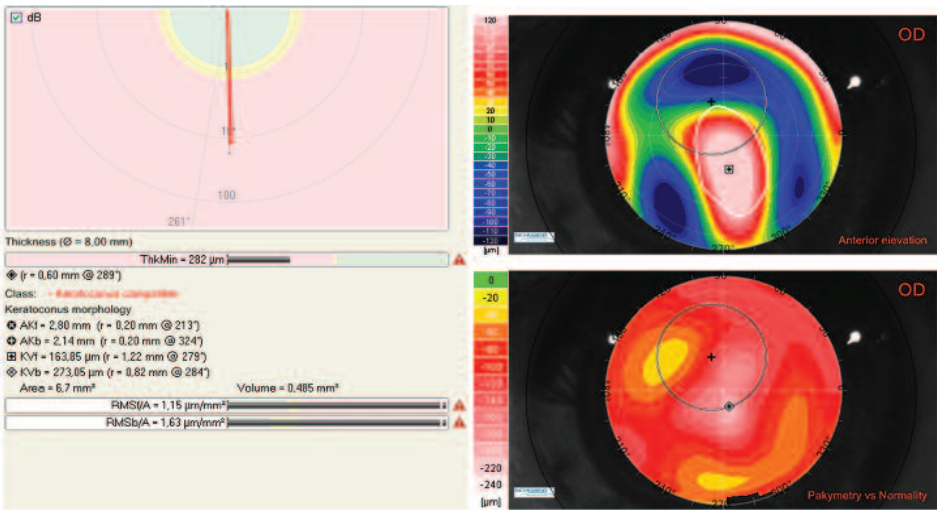
Pupillometry

The integrated pupillometry captures the pupil diameter either dynamically or statically according to the defined lighting conditions.

SCHWIND SIRIUS



Scheimpflug Imaging



Keratoconus Screening

Versions of the Combi Wavefront Analyzer

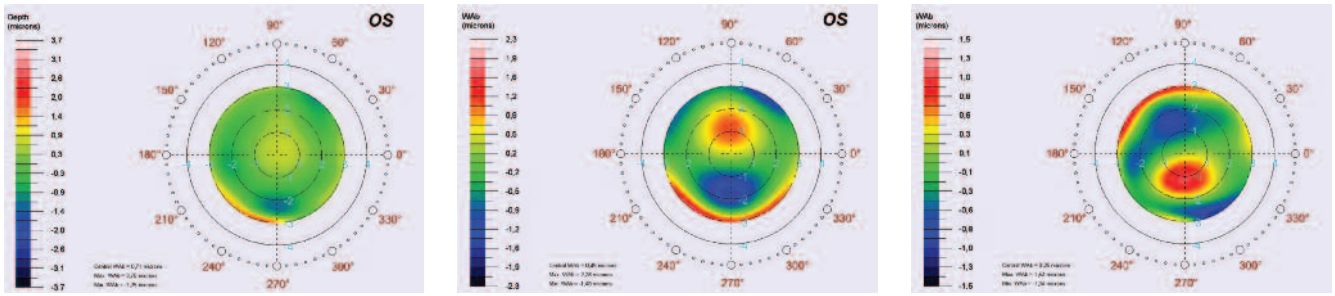
The two versions of the SCHWIND Combi Wavefront Analyzer integrate a range of unique functions and thus contribute to optimal surgical and diagnostic decision-making.

They combine alternatively the abilities of the Ocular Wavefront Analyzer with the abilities of the Corneal Wavefront Analyzer or the SCHWIND SIRIUS diagnostic system.

The extremely high detail resolution provides the foundation for a comprehensive and particularly precise diagnosis with the Combi Wavefront Analyzers. More than 80,000 analysis points (Corneal Wavefront Analyzer) or 100,000 analysis points (SCHWIND SIRIUS) are taken as the basis for the corneal wavefront. The Hartmann-Shack sensor in the Ocular Wavefront Analyzer uses up to 1,024 measuring points to analyse ocular wavefront aberrations.

The corneal and ocular wavefront data of a patient can be compared in both combinations of diagnostic devices. The direct comparison provides information on whether there is an optical error on the corneal surface or in the interior of the eye. You can thus identify and evaluate internal aberrations. In addition, the Combi Wavefront Analyzer version with SCHWIND SIRIUS provides detailed information on the entire anterior segment of the eye and all necessary information for a pachymetry assisted laser keratoplasty (PALK) thanks to the Scheimpflug camera.

You simply manage complete data input and data analysis on one Panel PC. The result: a perfect treatment plan tailored to the needs of the patient and an easy to use, efficient and convenient procedure for you.



Ocular Wavefront – Corneal Wavefront = Internal Wavefront

CORNEAL WAVEFRONT ANALYZER

At a glance

Device type	Placido-based Videokeratoscope (Optikon Keratron Scout)
Camera	High Resolution Camera
Measuring Heads	Small cone Far cone for deep-set eyes
Analysed Area	max. Ø 11 mm
Placido Rings	28
Analysed Points	> 80,000
Measured Points	7,168
Measuring Range	1 to 120 D
Resolution	± 0.01 D, 1 µm
Analysis Diameter (Keratometry Readings)	3, 5 and 7 mm
Pupillometry	static scotopic, photopic
Data export to SCHWIND AMARIS laser systems	Corneal Wavefront
Static Cyclotorsion Control (SCC)	optional
Weight	approx. 8.6 kg
Voltage/Power Consumption	230/120 VAC, max 2.4 A
Dimensions (L x W x H)	30 x 16 x 41 cm
Compliance	CE conformity in accordance with Medical Device Directive (MDD) 93/42/EEC

OCULAR WAVEFRONT ANALYZER

At a glance

Device type	Aberrometer (irx3, Imagine Eyes)
Sensor Type	Hartmann-Shack
Analysed Area	max. Ø 7.2 mm
Measured Points	1,024
Measuring Range	+20 to -15 D Sphere ±10 D Cylinder
Resolution	0.003 D, 230 µm
Analysis Diameter (Keratometry Readings)	3 mm
Pupillometry	static
Data export to SCHWIND AMARIS laser systems	Ocular Wavefront
Static Cyclotorsion Control (SCC)	optional[1]
Weight	16.2 kg
Voltage/Power Consumption	230/120 VAC, max 2.4 A
Dimensions (L x W x H)	54 x 33 x 50 cm
Compliance	CE conformity in accordance with Medical Device Directive (MDD) 93/42/EEC

[1] With Registration Camera

SCHWIND SIRIUS

At a glance

Device type	Placido-based Videokeratoscope combined with Scheimpflug camera
Camera	2 monochromatic VGA CCD cameras 1 central, 1 rotating (Scheimpflug)
Analysed Area	max. Ø 12 mm
Placido Rings	22
Analysed Points	>100,000
Measured Points	21,632 (Corneal Anterior Surface) 16,000 (Corneal Posterior Surface)
Measuring Range	1 to 100 D
Resolution	± 0.005 D
Measuring Time	< 1 second
Analysis Diameter (Keratometry Readings)	variable
Pupillometry	static and dynamic scotopic (0.04 Lux), mesopic (4 Lux), photopic (40 Lux)
Data export to SCHWIND AMARIS laser systems	Corneal Wavefront, Pachymetric Data
Static Cyclotorsion Control (SCC)	optional
Weight	14.2 kg
Voltage/Power Consumption	230/120 VAC, max 2.4 A
Dimensions (L x W x H)	32 x 25 x 51 cm
Compliance	CE conformity in accordance with Medical Device Directive (MDD) 93/42/EEC

All technical specifications are subject to change without notice.

Optimum functionality, reliability and compliance with all legal regulations can only be assured through the use of products supplied by SCHWIND – whether as single items or as a combined system.

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