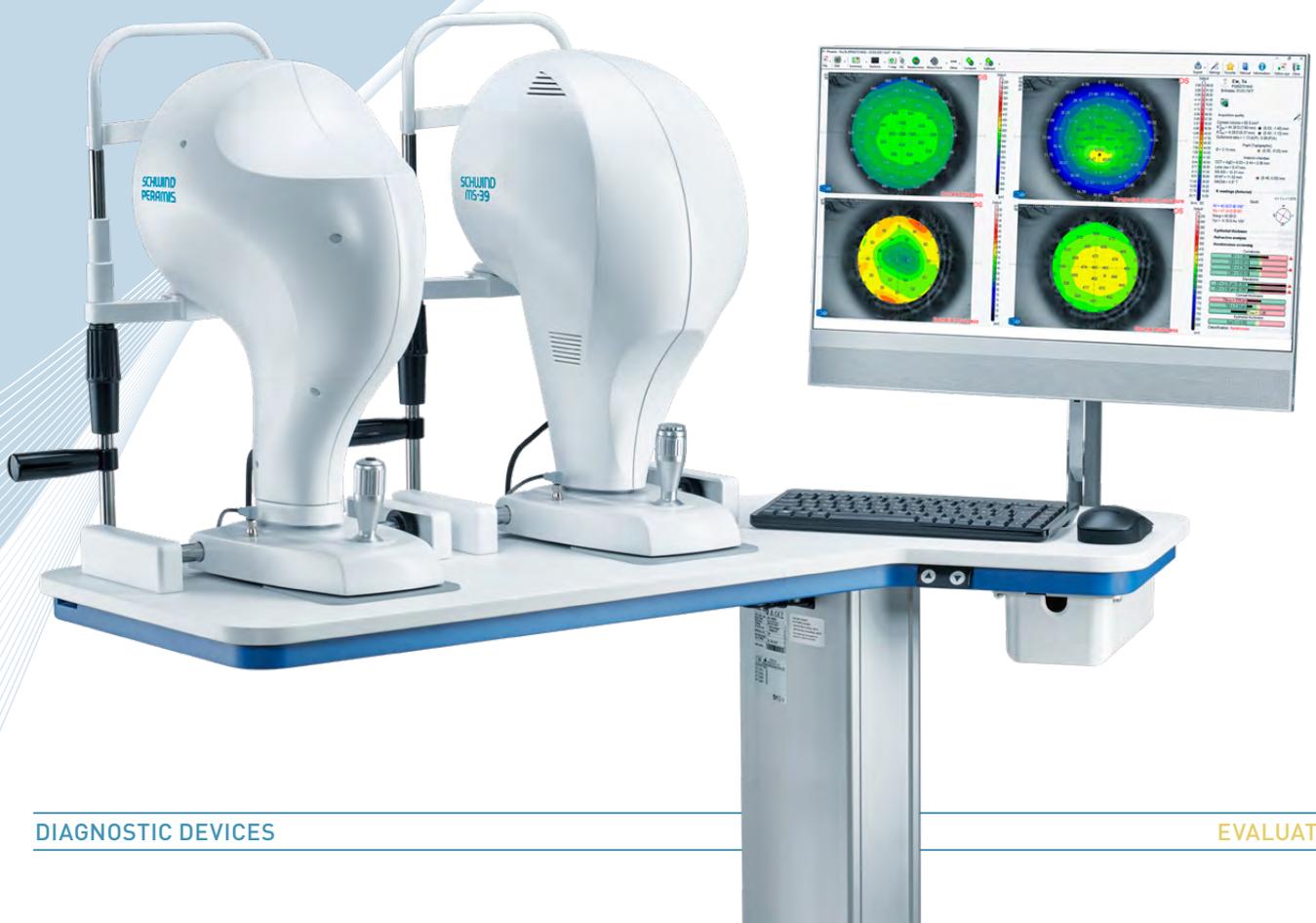


High-performance diagnosis for individual treatment decision



SCHWIND diagnostic devices – High-precision, multi-functional, easy to use

The SCHWIND MS-39, SCHWIND SIRIUS+ and SCHWIND PERAMIS contactless diagnostic devices offer an impressively wide range of measurement methods for refractive and therapeutic corneal surgery.

Equipped with high-resolution technologies, they provide comprehensive support for the individual treatment decision – whether with corneal and ocular wavefront data, pachymetric or epithelial data (OCT-based).

The systems impress with ergonomically well thought out detail functions, a high level of user-friendliness and a seamless connection to the SCHWIND laser systems, and work with the convenient Phoenix software. Patient data and reports from all three diagnostic devices can be saved in a shared database.

Summary: high-performance diagnosis paired with improved efficiency in daily clinical practice.

The diagnosis data can be imported into SCHWIND treatment planning software with a click of the mouse.

Benefits at a glance

- ✓ High-performance diagnosis for well-founded treatment decisions
- ✓ Easy to link with the treatment planning software
- ✓ More precise centring and enhanced results through static cyclotorsion correction information for treatment with SCHWIND AMARIS and SCHWIND ATOS laser systems



Wide range of diagnostic measurements

SCHWIND provides the diagnostic devices SCHWIND MS-39, SCHWIND SIRIUS+ and SCHWIND PERAMIS as single devices as well as a combination of two devices.



SCHWIND MS-39

OCT-based tomography



SCHWIND SIRIUS+

Scheimpflug-based tomography



SCHWIND PERAMIS

Aberrometry & topography

	SCHWIND MS-39	SCHWIND SIRIUS+	SCHWIND PERAMIS
Placido-based Topography			
Anterior corneal surface analysis	✓	✓	✓
Corneal wavefront	✓	✓	✓
Keratoconus screening (anterior corneal surface)	✓	✓	✓
OCT/Scheimpflug			
Analysis of the entire anterior segment	✓	✓	
Pachymetry map	✓	✓	
Cross-sectional images (max. 16 mm)	✓	✓	
High-resolution epithelial map	✓		
Keratoconus screening (posterior corneal surface)	✓	✓	
Aberrometry			
Objective refraction			✓
Ocular wavefront			✓
Internal wavefront			✓
Pupillography	✓	✓	✓
Tear film analysis/dry eye analysis	✓	✓	
IOL calculation function	✓	✓	
Planning of intrastromal ring placement	✓	✓	
Link to SCHWIND laser systems (including static cyclotorsion control)	✓	✓	✓

SCHWIND MS-39

High-performance OCT and topographer

HD imaging for more corneal details



The SCHWIND MS-39 optical coherence tomograph (OCT) provides a quantum leap in corneal diagnosis. Best possible treatment decisions can be made thanks to an impressive level of detail.

The combination of the latest generation of spectral domain OCT and Placido topography offers excellent resolution and reveals the structure of the cornea down to the last detail. Cross-sectional images with an extremely large diameter of a maximum of 16 millimetres can be displayed for the entire anterior segment of the eye.

HIGHER LEVEL OF DETAIL

With the SCHWIND MS-39, epithelial and stromal tissue can be examined separately from one another - particularly helpful before transepithelial treatments or during keratoconus screening or postoperative evaluation of the lenticule.

The high resolution sections also allow for more precise analysis of the depth extension of corneal opacities.

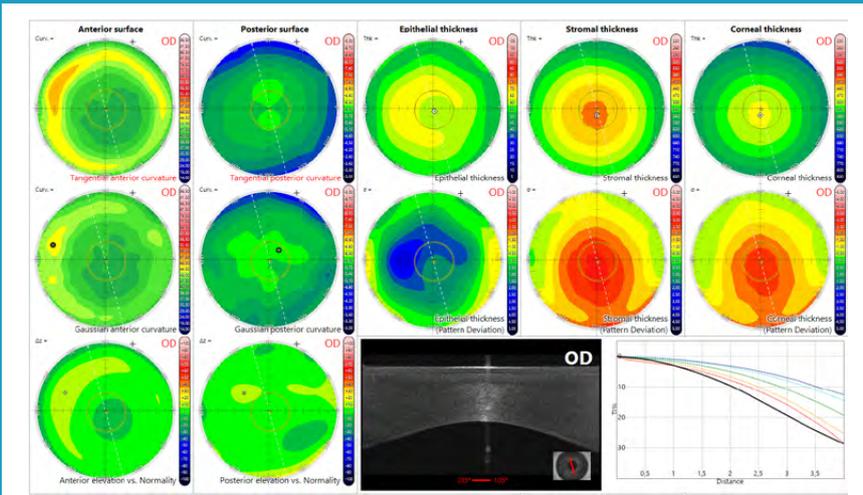
The epithelial masking effect is a well-known phenomenon, and its morphological evaluation is a useful method for the assessment of anomalies on the corneal surface.

In addition to high-resolution cross-sectional images of the cornea, the SCHWIND MS-39 also provides imaging details of the iridocorneal angle, iris, and lens. This allows for a well-founded diagnosis which is individually tailored to the patient and makes the laser treatment even safer.

CORNEAL ABERRATIONS

The SCHWIND MS-39 allows for a particularly detailed overview of the cornea including the corneal aberrations. Here, the user can differentiate between the anterior, posterior, or entire cornea. Maps and simulations help with analysis, as well as when talking to patients.





Keratoconus screening provides important information about the patient's cornea

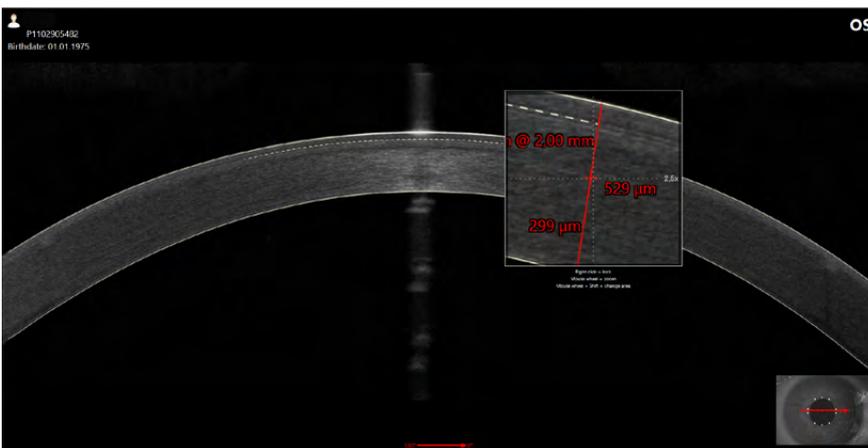
BENEFITS AT A GLANCE

- ✓ Particularly detailed measurement of the structure of the cornea in all its layers
- ✓ High-precision information on pachymetry and elevation, curvature, and dioptric power, each in relation to the anterior and posterior corneal surface
- ✓ Greater diagnostic certainty thanks to in-depth information about the epithelium
- ✓ Particularly precise representation as an epithelial thickness map with a resolution of 3.6 micrometres thanks to spectral domain technology
- ✓ Excellent image quality for the anterior segment of the eye across a diameter of up to 16 millimetres
- ✓ More precise centring and results through static cyclotorsion correction information for treatment with SCHWIND AMARIS and SCHWIND ATOS laser systems

MORE BENEFITS

- ✓ Sophisticated keratoconus screening
- ✓ Raytracing-based IOL calculation*
- ✓ Pupillography
- ✓ Intrastromal rings
- ✓ Glaucoma screening
- ✓ Lens biometrics
- ✓ Advanced tear film analyses

* Axial length from a third part device is required



High-resolution cross-sectional images provide precise representation of the epithelium and include a zoom function

SCHWIND SIRIUS+

Scheimpflug-based tomography and topography



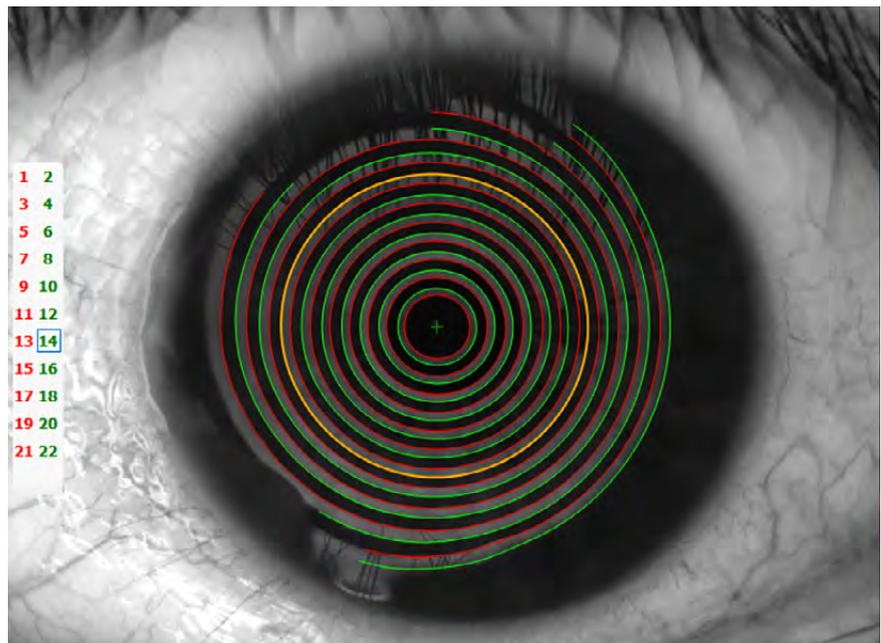
Precise data on the corneal thickness and corneal wavefront in one step

SCHWIND SIRIUS+ offers detailed information regarding corneal thickness and comprehensive support for corneal diagnosis.

The combination of a sophisticated 3D Scheimpflug camera and well-established Placido topography provides highly precise information about the entire anterior segment of the eye. All biometric measurements allow up to 100 corneal sections for each acquisition.

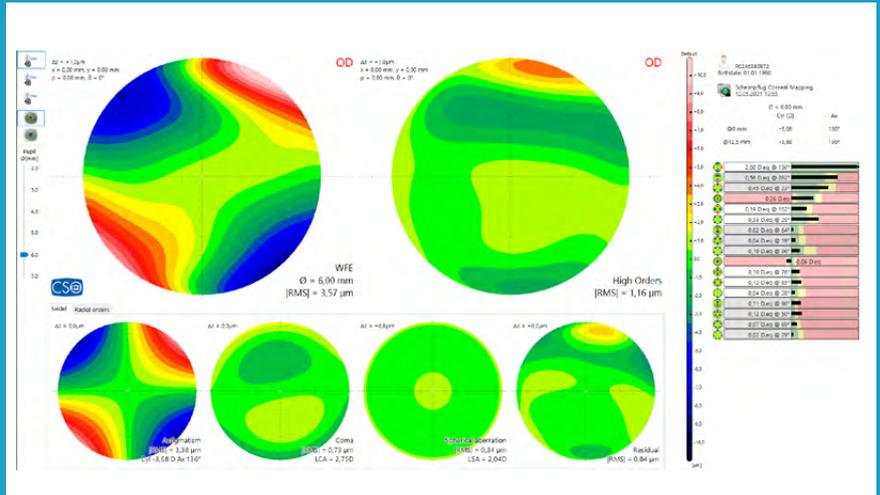
BENEFITS AT A GLANCE

- ✓ Precise information on pachymetry, elevation, curvature and dioptric power, each in relation to the anterior and posterior corneal surface
- ✓ Diagnosis of the entire anterior segment of the eye in one step
- ✓ High image quality over a corneal diameter of 16 millimetres
- ✓ Calculation of all biometric measurements for the anterior segment of the eye with up to 100 high-resolution corneal sections. The user can select among 25, 50 and 100 sections per measurement.
- ✓ More precise centring and results through static cyclotorsion correction information for treatment with SCHWIND AMARIS and SCHWIND ATOS laser systems



High-resolution, Placido-based topography

Overview of corneal wavefront aberrations



MORE BENEFITS

- ✓ Advanced keratoconus screening
- ✓ Raytracing-based IOL calculation*
- ✓ Pupillography
- ✓ Intrastromal rings
- ✓ Glaucoma screening
- ✓ Video keratoscopy
- ✓ Comprehensive “dry eye” analyses

* Axial length from a third part device is required



QUICK AND PRECISE

With 25 cross sections, SCHWIND SIRIUS+ records the entire anterior segment of the eye in about a second. The intelligent diagnostic system records detailed data on the corneal wavefront, topography of the anterior

and posterior surface of the cornea, pachymetry and the anterior chamber. The user can choose between particularly high image quality and particularly rapid measurement.



COMPREHENSIVE ANALYSIS

SCHWIND SIRIUS+ uses the rotating 3D Scheimpflug camera to generate a pachymetry map of the eye and provide information about corneal thickness. The high-resolution Placido-based topography allows for a particularly

detailed overview of the cornea including corneal aberrations. Here, the user can differentiate between the anterior, posterior and entire cornea. Maps and simulations help with analysis, as well as when talking to patients.

SCHWIND PERAMIS

“2 in 1” aberrometer and topographer

Exact data on the corneal and ocular wavefront in one step



SCHWIND PERAMIS offers a precise measurement of the optical properties of the anterior corneal surface and the entire eye.

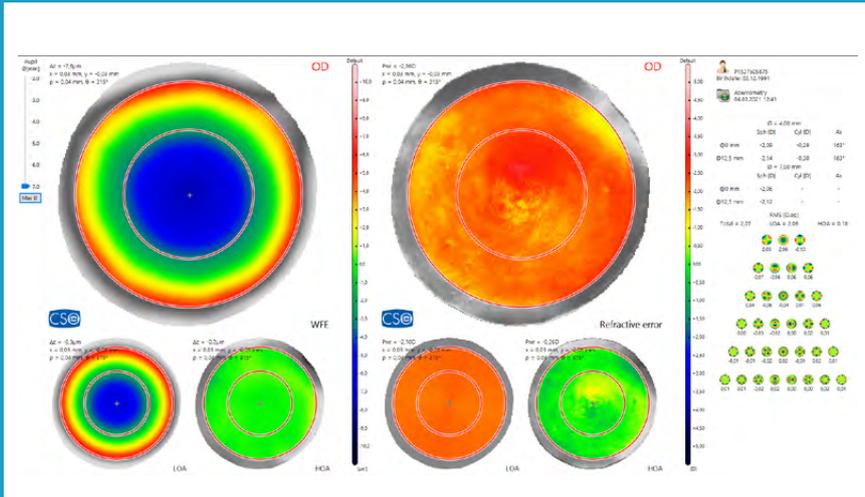
SCHWIND PERAMIS combines a high-resolution topography device with an aberrometer which, with its unique pyramidal sensor, identifies ocular wavefront aberrations particularly precisely. The data from the cornea and the entire eye can be compared and aberrations can be exactly located.

HIGH DETAIL RESOLUTION

With 45,000 and 5,632 measurement points respectively, the aberrometer and Placido topographer achieve an excellent resolution. Corneal and ocular aberrations can be captured with particular precision as a result.

The aberrometer takes up to 33 images per second in a single contactless measurement process. This allows refractive changes to be recorded and depicted, while the patient is accommodating. SCHWIND PERAMIS automatically selects the image with the best measurement.





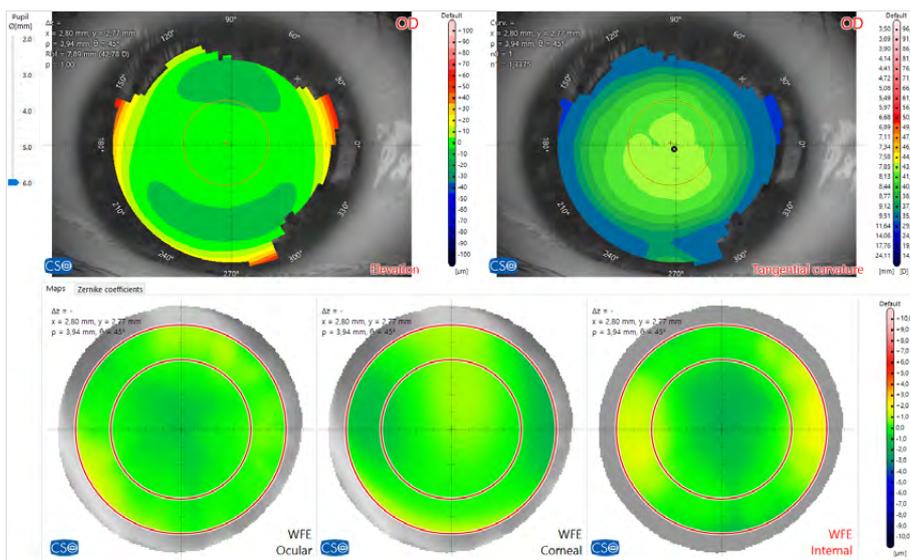
Ocular wavefront and refraction

WELL-FOUNDED ANALYSES

Thanks to integration of the two diagnostic tools into one device, the corneal and ocular wavefront data for the entire eye can be quickly accessed, compared and analysed. SCHWIND PERAMIS also offers maps and simulations for more in-depth analysis. This makes it easier for the ophthalmologist to decide what treatment method is most suitable and supports them when speaking to the patient.

BENEFITS AT A GLANCE

- ✓ Comprehensive assessment of corneal and ocular wavefront data in one step
- ✓ Three to six-times higher aberrometer resolution than is usual on the market thanks to up to 45,000 measurement points
- ✓ High accuracy of the Placido topographer thanks to 5,632 measurement points
- ✓ Precise centring and results through static cyclotorsion correction information for treatment with SCHWIND AMARIS and SCHWIND ATOS laser systems



MORE BENEFITS

- ✓ Keratoconus screening
- ✓ Pupillometry
- ✓ Densitometry image

The internal wavefront results from ocular wavefront minus corneal wavefront

Technical data

SCHWIND MS-39 • OCT-based tomography and topography

Data transfer	USB 3.0
Power supply	External power source: 24 VCC In: 100-240 VAC - 50/60 Hz - 2 A - Out: 24 VDC - 100 W
Power cable	IEC C14 plug
Dimensions (height x width x depth)	505 x 315 x 251 mm
Weight	10.4 kg
Chin rest configuration	70 mm ± 1 mm
Minimum distance from the chin rest to the table	23 cm
Measuring head travel (xyz)	105 x 110 x 30 mm
Working distance	74 mm
Light source	
Placido disk	LED @635 nm
OCT	SLED @845 nm
Pupillography	LED @950 nm
Topography	
Placido rings	22
Measurement points	31,232 (anterior corneal surface) 25,600 (posterior corneal surface)
Topographic coverage	ø 10 mm
Measurement accuracy	Class A in accordance with UNI EN ISO 19980-2012
OCT (Spectral Domain)	
Image cross section	16 mm x 8 mm (in tissue)
Axial resolution	3.6 µm (in tissue)
Transversal resolution	35 µm (in air)
Operating system	Windows 10 (64 bit)
Approval	CE conformity in accordance with the Medical Device Directive 93/42/EEC

SCHWIND SIRIUS+ • Scheimpflug-based tomography and topography

Data transfer	USB 3.0
Power supply	External power source: 24 VCC In: 100-240 VAC - 50/60 Hz - 0.9-05A - Out: 24 VDC - 40 W
Power net cabler	IEC C14 plug
Dimensions (HxWxD)	515 x 315 x 255 mm
Weight	7 kg
Chin rest movement	70 mm ± 1 mm
Minimum height of the chin cup from the table	24 cm
Base movement (xyz)	105 x 110 x 30 mm
Working distance	74 mm
Light source	
Placido disk	LED @400-700 nm
Scheimpflug	LED @475 nm UV-free
Pupillography	LED @940 nm
Fluoresceine lighting	LED @470 nm UV-free
Auxiliary lighting	LED 400-700 nm
Topography	
Placido rings	22
Measured points	42,032 to 151,232 (corneal front surface) 36,400 to 145,600 (corneal rear surface)
Topographic coverage	ø 12 mm
Measurement accuracy	Class A according to UNI EN ISO 19980-2012
Operating System	Windows 10 (64 bit)
Compliance	CE conformity in accordance with Medical Device Directive (MDD) 93/42/EEC

SCHWIND PERAMIS • Aberrometry and topography

Data transfer	USB 3.0
Power supply	External power source: 24 VCC In: 100-240VAC - 50/60Hz - 0.9-05A - Out: 24VDC - 40W
Power net cable	IEC C14 plug
Dimensions (HxWxD)	515 x 315 x 255 mm
Weight	7 kg
Chin rest movement	70mm ± 1 mm
Minimum height of the chin cup from the table	24 cm
Base movement (xyz)	105 x 110 x 30 mm
Working distance	74 mm
Light source	
Aberrometer	LED @850 nm
Fixation	LED @450-650nm
Placido disk	LED @635 nm
Pupillography	LED @780nm
Aberrometry	
Measured points	45,000 at maximum pupil diameter
Spatial resolution	41 µm
Pupil size range	2 to 9 mm
Dioptric range	Sph from -15 to +15 D Cyl ± 10 D
Topography	
Placido rings	22
Measured points	5632
Topographic coverage (43 D sphere)	ø 9.16 mm
Measurement accuracy	Class A according to UNI EN ISO 19980-2012
Operating system	Windows 10 (64 bit)
Compliance	CE conformity in accordance with Medical Device Directive (MDD) 93/42/EEC

Manufacturer of the diagnostic devices SCHWIND MS-39, SCHWIND SIRIUS+, and SCHWIND PERAMIS:
C.S.O. S.R.L. - COSTRUZIONE STRUMENTI OFTALMICI
50018 Scandicci (Firenze) ITALY - V. Degli Stagnacci 12/E.

The specifications and images presented are not binding and may be changed without advance notice.

Optimum functionality, reliability and compliance with all legal regulations can be only assured using products by SCHWIND.

