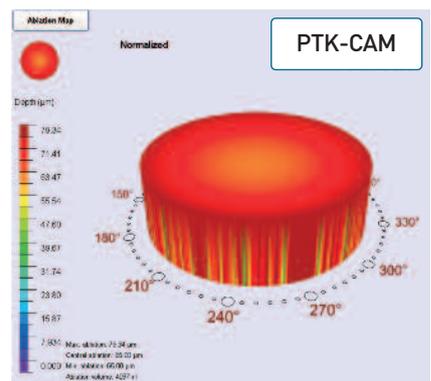
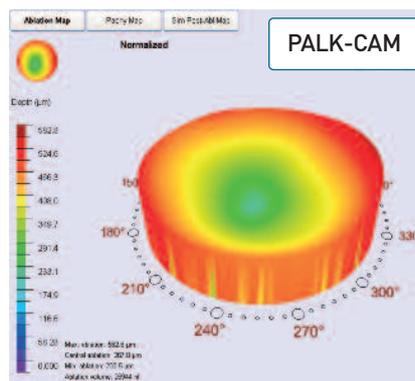
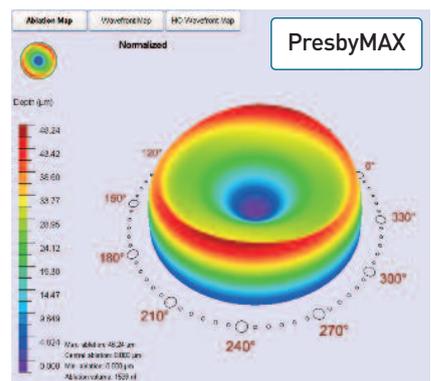
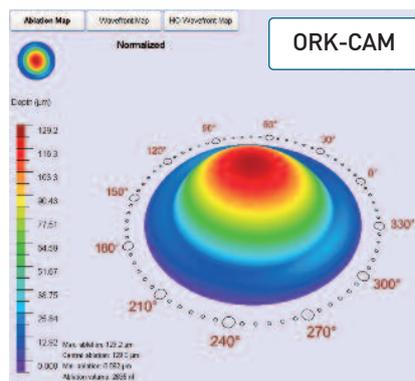


SCHWIND CAM

Perfect Planning – wide range of applications



SCHWIND CAM – the system solution

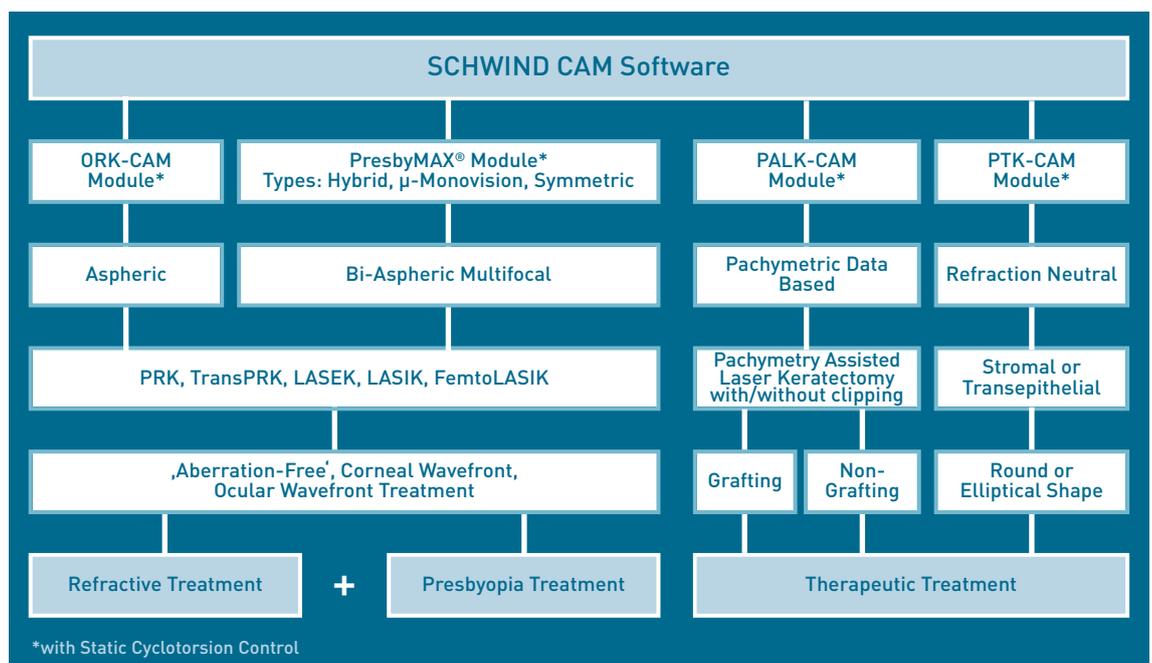
The latest version of the modular SCHWIND CAM represents an even more efficient system solution. The ORK-CAM, PresbyMAX and PALK-CAM modules have all been considerably expanded and optimised. PTK-CAM has been integrated as a new module. Consequently, the new SCHWIND CAM now offers a tailored treatment planning solution for a uniquely wide range of applications in refractive and therapeutic corneal surgery.

Whether performing corneal wavefront, ocular wavefront or corneal pachymetry, all of the necessary diagnostic data are included in the planning. This ensures that no important information concerning the individual ablation is overlooked. Practice-related default settings enable you to achieve optimal treatment results. Of

course, you can also adjust individual parameters to suit your personal requirements and preferences. Each setting, for example the residual stromal thickness, is checked for plausibility, thus ensuring that each and every treatment is planned safely and conveniently.

Static cyclotorsion control can be performed with all of the modules. New parameters such as the expected postoperative corneal keratometry, colour coding of the treatment methods and a virtual keyboard offer extra convenience.

The planning files can be created in advance with a minimum of time and effort. Treatment is planned either on the SCHWIND diagnostic systems or directly on the SCHWIND AMARIS laser systems.



Refractive treatment

ORK-CAM module

The ORK-CAM is an intelligent planning tool for refractive laser treatment. Aspheric ablation profiles are employed for “Aberration-Free” and “Customised” treatments based on corneal or ocular wavefront data. These profiles minimise the induction of aberrations and provide superb contrast vision.

“Aberration-Free” treatment: Only spherical and/or cylindrical refraction values are corrected. The patient retains his normal visual perception. This procedure is suitable for patients whose vision is not impaired by pronounced higher-order aberrations.

Customised treatment: Corneal or ocular wavefront data from the high-resolution SCHWIND diagnostic systems are directly integrated in the planning.

Asymmetrical centration strategy: You can already enter a treatment offset during planning for the centring of sphere and

cylinder within the treatment zone. Which ever treatment method is employed (“Aberration-Free” or “Customised”), the difference between the centre of the pupil and the visual axis/corneal vertex is taken into account. The treatment zone remains concentric to the centre of the pupil. The otherwise required enlargement of the optical zone is not necessary.

“Minimise” functions: The ablation volume and depth can be adjusted in customised treatments with the aid of “minimise” functions. The advantage: less tissue ablation and shorter ablation times.

Intelligent, dynamic transition zone: For every treatment, the ORK-CAM calculates the optimal size of the transition zone – depending on the refraction, treatment method and selection of the optical zone. This shortens the planning process for your treatment and ensures the smallest possible tissue ablation.



Hyperopic ablation profile with corneal wavefront



Myopic ablation profile with ocular wavefront

Wide range of treatments: All key treatment methods can be performed with the ORK-CAM. In addition to LASIK and FemtoLASIK, this also includes surface treatments such as TransPRK, PRK and LASEK.

Enlargement of the optical zone: The optical zone can always be set optimally, even if the wavefront data available for a "Customised" treatment are limited, as a result of small pupils, for example. This optimisation is ensured by a peripheral, aspheric enlargement of the treatment zone.

Ablation per pulse: The pulse efficiency of laser ablation is dependent on the tissue depth and cell structure. A LASIK procedure ablating deeper tissue layers requires different parameters from those needed for a surface treatment. For this reason, the ORK-CAM defines the ablation per pulse depending on the treatment method. No personalised nomograms are required.

Presbyopia treatment

PresbyMAX® module offers three treatment types

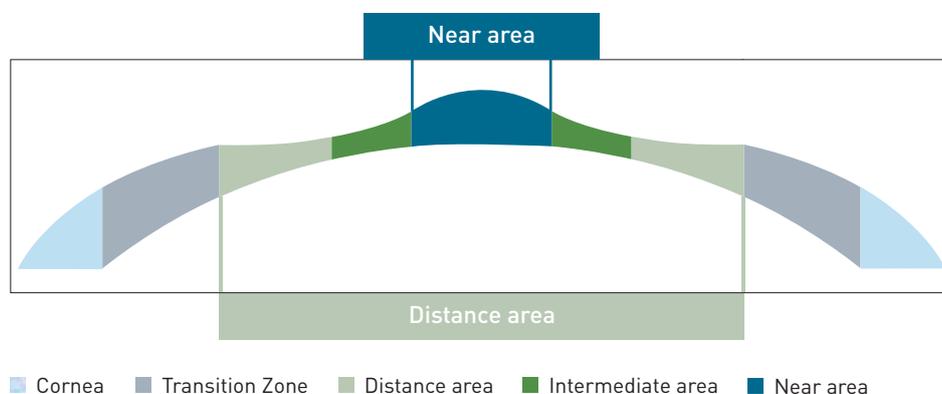
PresbyMAX allows safe and efficient treatment of emmetropic, myopic and hyperopic patients as well as patients with astigmatism whose accommodative response is restricted.

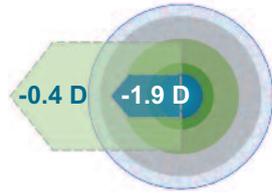
Bi-aspheric profiles: PresbyMAX is based on bi-aspheric, multifocal ablation profiles. For each of the patient's eyes, the central region of the cornea is optimised for near vision and the peripheral region for far vision.

Binocular vision: Both eyes contribute to visual acuity at all distances. In other words, both eyes are active in the visual process and ensure binocular perception.

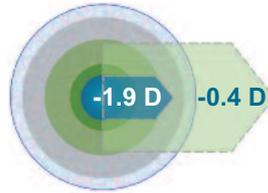
Comfortable vision at all distances: Your patients obtain comfortable vision at all distances because PresbyMAX optimally increases the depth of focus and minimises contrast losses.

Bi-aspheric profiles:
The PresbyMAX procedure

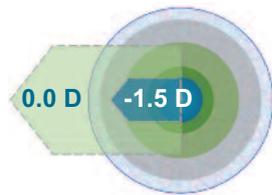


Dominant Eye (DE)

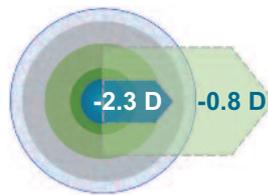
DoF 1.5 D
 Δ 0.0 D
 \frown 1.5 D

Non-dominant Eye (NDE)

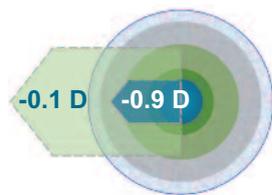
PresbyMAX Symmetric: Planned refractive outcome in dioptres



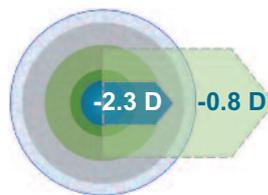
DoF 1.5 D
 Δ 0.8 D
 \frown 0.7 D



PresbyMAX μ -Monovision: Planned refractive outcome in dioptres



DoF 0.8 D (DE)
 DoF 1.5 D (NDE)
 Δ 0.7 D (P)
 Δ 1.4 D (C)
 \frown 0.1 D



PresbyMAX Hybrid: Planned refractive outcome in dioptres

Legend:

D = Dioptre

\frown = Intersection

DoF = Depth of Focus P = Periphery

Δ = Difference

C = Centre

Uniquely wide range of treatments:

Every visual condition can be corrected with either aberration-free or customised treatment – whether PRK, TransPRK, LASEK, LASIK or FemtoLASIK.

Combined, high-precision ablation profile: PresbyMAX creates a highly accurate ablation profile, which includes sphere, cylinder, corneal vertex distance and addition alongside an adequate optical zone.

Ablation in just one step: The SCHWIND AMARIS ablates the combined ablation volume gently by the flying spot method – in just one step and without any interruptions or unnecessary pauses.

“Presby Reversal”: This function makes it possible to remove the induced multifocality partially or entirely.

Treatment types:

With the PresbyMAX module, it is now possible to choose between three different treatment types. PresbyMAX Symmetric treats the dominant and non-dominant eye equally regarding depth of focus and the refractive target, thus ensuring optimal near vision. PresbyMAX μ -Monovision creates the same depth of focus in both eyes. However, the dominant eye focuses slightly more on distance while the non-dominant eye focuses slightly more towards near vision. The result: A faster visual recovery and better intermediate and far vision quality. The latest generation PresbyMAX Hybrid is also based on different refractive target values. But in contrast to μ -Monovision, a different depth of focus is generated in the dominant and in the non-dominant eye. This ensures an extremely fast visual recovery and an especially high quality of distance vision.

Therapeutic treatment

PALK-CAM module with Clipped PALK option

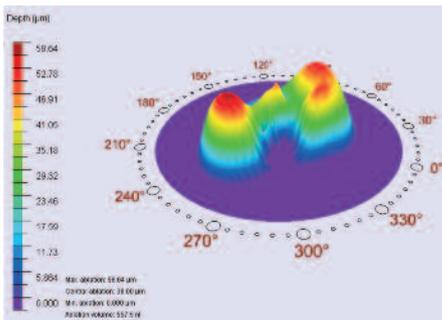
The PALK-CAM module permits safe, precise planning of corneal transplants and other therapeutic treatments for corneal conditions. It is based on pachymetry-assisted laser keratectomy (PALK). The method is suitable for patients who require a corneal transplant and whose endothelium is intact. It can also be employed in patients with a pathological corneal thickness structure. The medical indications include keratoconus in varying stages, scars resulting from bacterial infection, leucoma and radial keratotomy.

Comprehensive measurement: A detailed pachymetry map is generated by the high-resolution Scheimpflug system SCHWIND SIRIUS. The corneal pachymetry can now be expanded mathematically by means of a new extrapolation function. A simplified map can be generated by entering individual measurements manually. This can be expedient if the cornea cannot be measured reliably with the Scheimpflug system because of severe scarring. The PALK-CAM then calculates with high precision the volume that the SCHWIND AMARIS laser systems ablate exactly.

Homogeneous residual thickness: PALK permits customised corneal ablation. This ensures a homogeneous residual stromal thickness, whether as a basis for successful corneal collagen crosslinking or for a lamellar transplant.

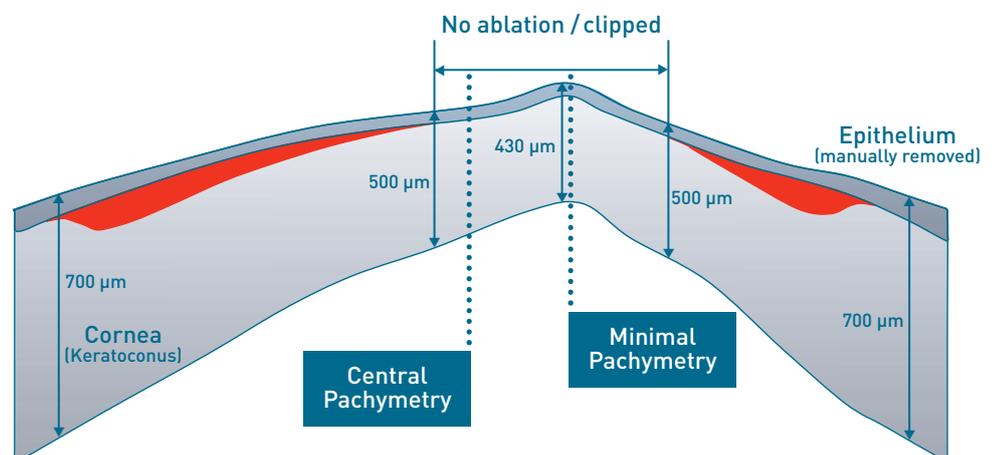
Clipped PALK

Corneal irregularities in cases of keratoconus could only be treated with customised procedures in the past. Basing the treatment on topographical wavefront information meant that tissue ablation in the thinner cone area was factored in. The latest version of the PALK-CAM module integrates the innovative Clipped PALK option. For the first time, Clipped PALK allows particularly thin cornea areas to be excluded from the ablation planning. Thanks to the detailed pachymetry data, the cornea is ablated uniformly around the cone, while the cone itself is not ablated. This improves the quality of vision decisively, as the cornea obtains an altogether homogeneous and thus more stable structure. Clipped PALK is particularly suitable for the treatment of keratoconus in combination with corneal collagen crosslinking.



Keratoconus ablation map with Clipped PALK

Clipped PALK allows particularly thin cornea areas to be excluded from the ablation. The ablated area is displayed in red.



PTK-CAM module

The SCHWIND CAM portfolio now integrates the PTK-CAM module. It is employed in the therapeutic treatment of superficial corneal scars, recurrent corneal erosion, corneal dystrophy and corneal degeneration. PTK-CAM is based on the method of phototherapeutic keratectomy (PTK).

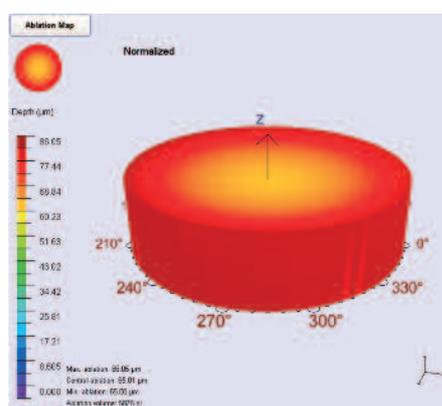
Preoperative treatment planning: You can use PTK-CAM to plan and also save the requisite ablation profiles.

Two offset options: PTK-CAM offers two possibilities for adjustment of the ablation profile. The ablation offset allows the entire profile to be moved in accordance with the pathological findings. The profile can be shifted to the corneal vertex with the help of the pupil offset. Simultaneous use of the two options guarantees transparency and the highest possible precision. This allows the exact, topographical localisation of superficial scars and minimises the tissue ablation volume.

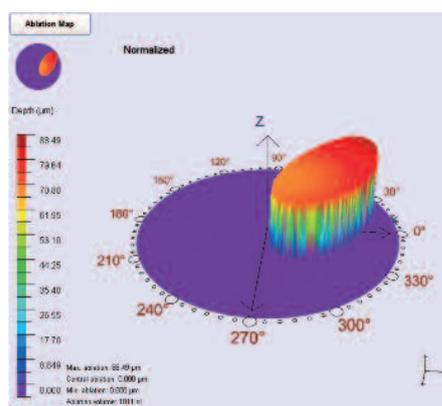
Circular or elliptical: The PTK-CAM module can ablate the tissue in both circular and elliptical shapes within a maximum diameter of 10 millimetres.

Two ablation versions: The epithelium can be removed manually followed by the laser ablation; or the ablation can be performed as so-called TransPTK through the epithelium.

Refraction neutrality: The profile takes into account the different ablation behaviour of the epithelium and stroma. The stromal ablation shortens the length of



Circular ablation profile



Elliptical ablation profile

the eye between the anterior corneal surface and the retina accordingly. This shifting of the focus in relation to the retina is included in the ablation profile. Refractive consequences such as hyperopia or irregular astigmatism are thus avoided. The result is refraction neutrality in the ablation.

Specifications (General)

Pre-op and Post-op Keratometry	7.50 to 60.00 D; 5.63 to 45.00 mm
Pupil Diameter [in mm]	2.00 to 8.00
Pupil Offset [radius in mm]	0.00 to 1.50
Total Ablation Zone [in mm]	Up to 10.00
Epithelial Thickness [in μm]	Central: 55, Peripheral: 65
Add-On	Static Cyclotorsion Control (SCC)

Specifications (Refractive)

ORK-CAM

Aspheric Treatment Methods	Aberration-Free; Corneal Wavefront; Ocular Wavefront
Refractive Treatment Methods	PRK; TransPRK; LASEK; LASIK; FemtoLASIK
Refraction (VD = 0) [in D]	SEQ: -15.00 to +8.00; Ast: -7.00 to +7.00
Vertex Distance [in mm]	0.0 to 24.0
Optical Zone [in mm]	4.00 to 9.80
Transition Zone [in mm]	0.20 to 2.50 (automatic)
Residual Stromal Thickness Safety Limits [in μm]	250 to 500
Flap Thickness [in μm]	50 to 250
Add-On	Extended Ablation Zone, Filtered Aberrations

Specifications (Presbyopic)

PresbyMAX®

Refraction (VD = 0) [in D]	SEQ: -8.00 to +8.00; Ast: -6.00 to +6.00; Add: +0.25 to +3.00
Pupil Offset [radius in mm]	0.00 to 0.75
Anisometropia [in D]	0.50 to 0.75 (μ -Monovision)
Optical Zone [in mm]	5.50 to 7.50
Types	Hybrid, μ -Monovision, Symmetric, Presby Reversal

Specifications (Therapeutic)

PALK-CAM

Inner Diameter of the Masking Ring [in mm]	8
Central Residual Corneal Thickness [in μm]	80 to 500
Peripheral Residual Corneal Thickness [in μm]	80 to 740
Optical Zone [in mm]	7.26 to 9.80
Transition Zone [in mm]	0.20 to 1.75 (automatic)
Definition of Transition Zone	Flat or Linear
Add-On	Clipped PALK, Manual Pachymetry Map, TransPALK

Specifications (Therapeutic)

PTK-CAM

Ablation Depth [in μm]	5 to 150
Ablation Zone [in mm]	1.00 to 10.00
Transition Zone [in mm]	0.50
Definition of Ablation Zone	Circular or Elliptical Shape
Ablation Offset [radius in mm]	0.00 to 4.00
Residual Stromal Thickness Safety Limits [in μm]	400 to 500
Add-On	TransPTK

Optimal 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 system combination.