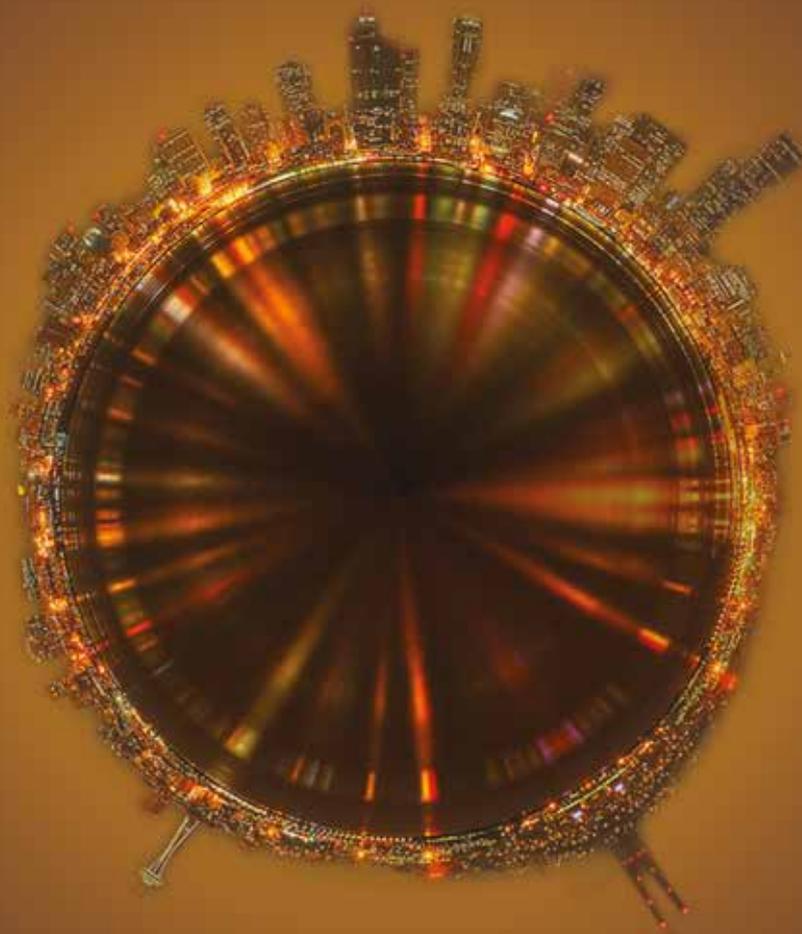


OPTIKON™
Man and Technology

DESIGNED AND
MANUFACTURED
IN ITALY



THE SHARPEST VISION.

Keratron™



Keratron™ *Piccolo*

Keratron™ Piccolo combines excellent performance with transportability and easy handling.

Thanks to its limited size it guarantees maximum compatibility with any slit lamp, ensuring the same precision, performance, repeatability and corneal range of the other instruments of the Keratron™ family.

The exclusive design of the “mires cone” with EPCS (Eye Position Control System) makes **Keratron™ Piccolo** fully adaptable to the most complex cases, ensuring the best efficiency and a lower number of repeated attempts.

Main functions:

- Wide Range Corneal Topography
 - Corneal Aberrometry
 - Non-invasive Break-up Time
 - Real Time Control of Eye Position on the PC Screen
-

EPCS ALIGNMENT SYSTEM
WITH RECLINABLE AND
INTERCHANGEABLE MIRES CONE

QUICK PLUG IN
FOR THE SLIT LAMP



SUPPORT BASE WITH
INTEGRATED CHARGER

Technical Specifications **Keratron™ Piccolo**

PARAMETER SPECIFICATION

Model	Keratron™ Piccolo
Ref.	161301

CONFIGURATIONS

Portable	Easily mounted on any slit lamp
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VIDEOKERATOSCOPE

Area of Analysis	10mm x 14mm (visible on the monitor)
Keratoscope Cone	28 border mires, equally spaced on a 43D sphere
Analyzed Points	Over 80,000
Measured Points	7,168
Corneal Coverage	From 0.33mm (minimum diameter) on a 43D sphere up to 11 mm on a normal eye
Measured Area	90% of the corneal surface (normal eyes)
Dioptric Power Range	From 1D to over 120D
Resolution	+/- 0.01D - 1 micron
Focusing Device	Eye Positioning Control System (EPCS patented) and automatic acquisition, with decentration correction
Camera	High resolution (C.C.I.R.)
Other Features	Tiltable mires cone (0°-10°)
Accessories Included	Calibration kit, Scout software

COMPUTER (Recommended Minimal Requirements)

Operating System	Windows 7/8/10 (32 e 64 bit) and Windows updates
Processor/Memory	Intel i3, 2GB RAM
Disks	Internal 180 GB HD, CD-ROM
Monitor	Super VGA color monitor 14", 1024x768 points, 16 millions color
Printer	Color printer
Ports	Ethernet

SOFTWARE

Dioptric Scale	Absolute, normalised, adjustable
Keratometric Values and Indices	K-readings, meridians, hemi-meridians, Maloney indices, eccentricity, CLM keratoconus indices, keratoconus follow-up
Pupil	Definition of the edge, diameter and decentring (angle K)
Zone and Grids	Indication of the diameters 3, 5 and 7mm, Cartesian axes and millimeter grid
Maps	Local curvature, axial curvature, wavefront OPD or wavefront error (WFE) and refraction, height map with 3D insert
Axis Moving	Position of the axis selectable as corneal vertex, pupil center on any other choice
Print	Print screen with header of the institution or personalized print templates
Special Functions	Profiles, difference, repeatability check, maps comparison, caliber, refraction calculator, follow-up, TBUT
Image Acquisition and Videos	Enabled with TV camera mounted on slit lamp and any video capture board (not included)

On-line Help	Detailed on-line multi language help for all functions
Contact Lenses	Fluorescein pattern simulation of most international contact lenses manufacturer geometries. Tilting to simulate lid pressure. Lens displacement in any position. Eccentricity measure at 6 and 8 mm, over refraction calculator. Personalised auto-fit for customised lenses. Ortho-K custom fitting. Adjustable clearance scale. Link to third party software.
Internet Connection	Maps can be sent as attachments to e-mails
Local Network and Database	Management of one or more independent database shareable in a network

OPTIONALS

Kit for Contact Lenses Analysis	Permits obtaining the topographic map of the inner and outer surfaces of gas permeable contact lenses with continuous surface. By manually positioning up to three rings on the maps in the areas to be measured, the mean radius, apical radius and eccentricity are measured (Ref. 162216)
Power Lifting Base	Stative for base with joystick (Ref. 163102)
Far Mires Cone	For deep set eyes, 28 border mires, 3mm more than standard cone, corneal coverage 75-80% (Ref. 162211)
Movable Base with Joystick	with table and chin-rest (Ref. 163202)

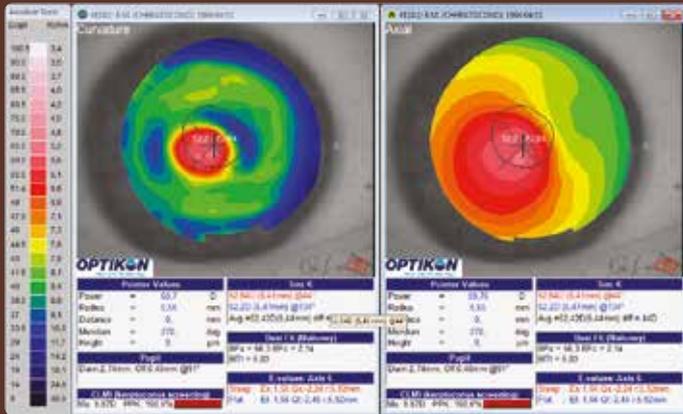
REGULATORY

CE Mark Directive 93/42/CEE

PESO:
1 Kg

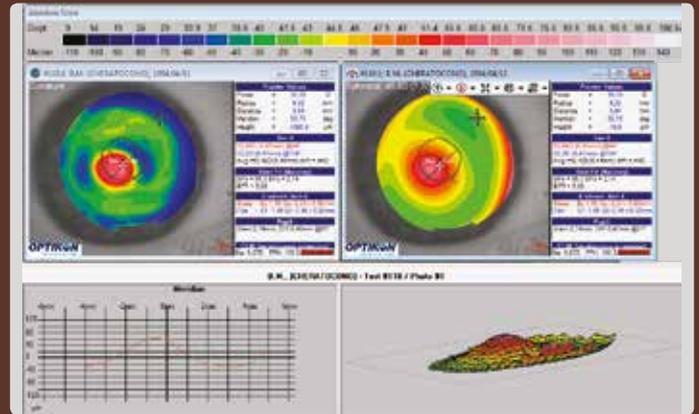
L x P x H:
110 x 160 x 250 mm





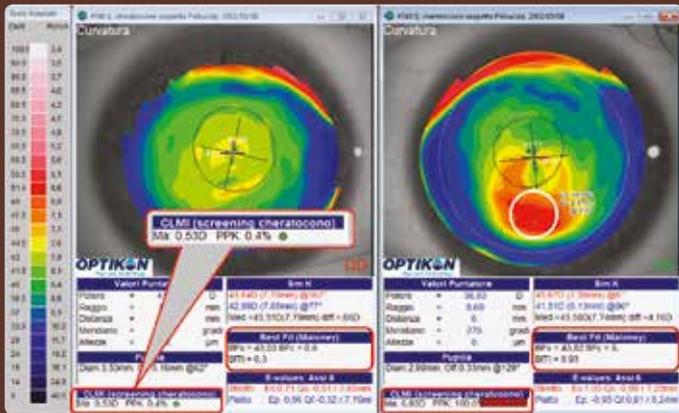
KERATOKONUS LOCAL AND AXIAL MAPS

The map of the local curvatures, contrary to that of the axial maps, highlight even the smallest details, enabling a certain diagnosis in the presence of peripheral phenomena or ones of very small entity.



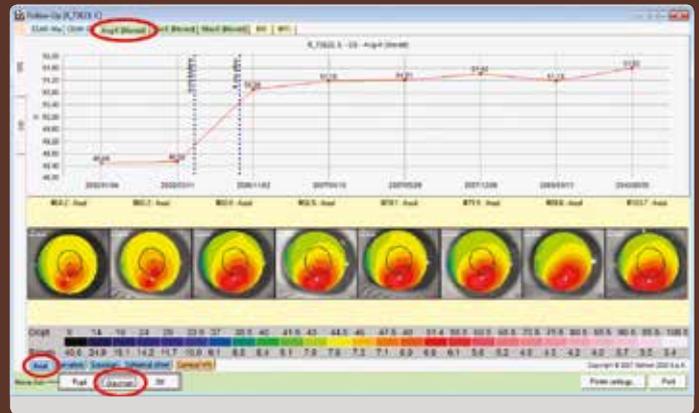
ALTIMETRIC MAPS (SPHERICAL OFF-SET) ELEVATIONS, 3D

The altimetries of all the corneal points are representable with respect to a sphere of reference that can be positioned at will. The altimetric differential maps (for example, Post-Pre Op) are obtained by aligning the three reference points and cancelling the relative "Tilting".



BEST FIT (MALONEY) AND CLMI INDICES

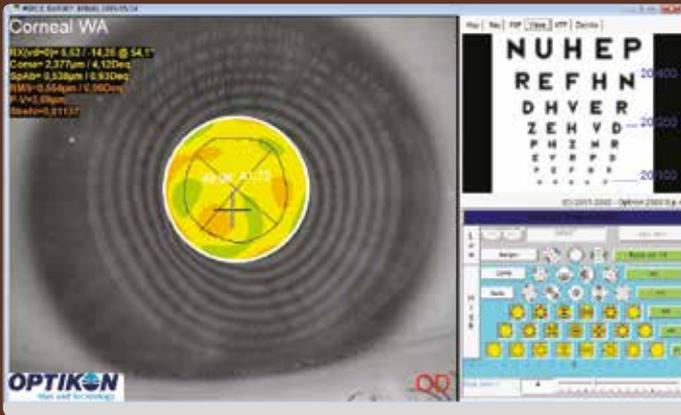
Designed and validated statistically by Doctor Roberts and her colleagues at OSU (Ohio State University) support the clinical diagnosis and follow-up of the keratoconus, indicating the KPP (Keratoconus Percentage Probability), as well as the position and average power of the apex on the map.



FOLLOW-UP

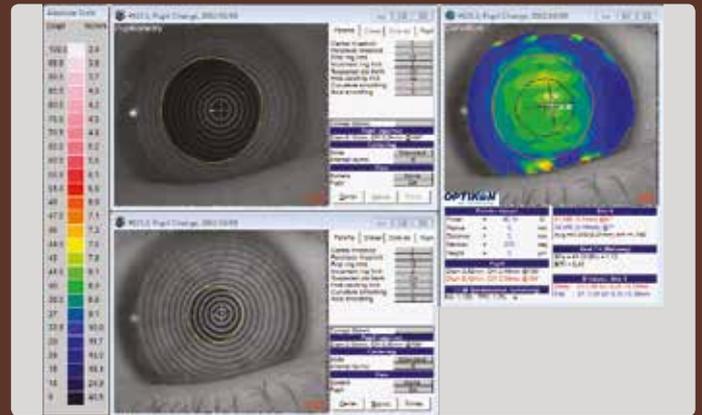
The evolution in time of the topography of the eye can be represented on any kind of map, together with the chart of a chosen parameter among the CLMI, Sim-K, Best Fit indices or quantity of RMS of the main corneal aberrations.

Corneal Topography Maps



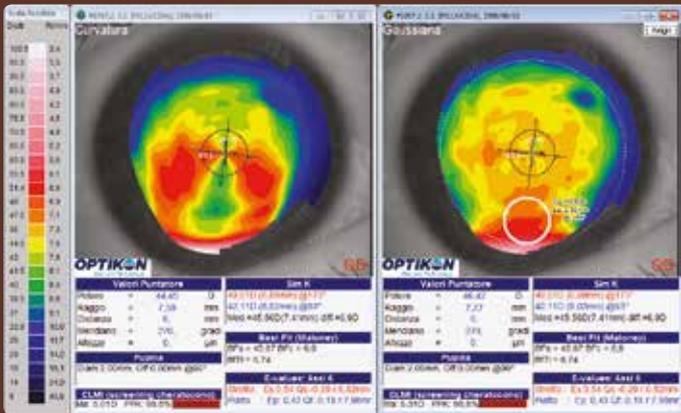
VISUS
CORNEAL ABERROMETRY

The examination of the corneal aberrations has opened a new chapter in the "Topographic Link" with various excimer lasers. The cornea is examined in order to measure the contribution to the wave front or rather the corneal aberrometry.



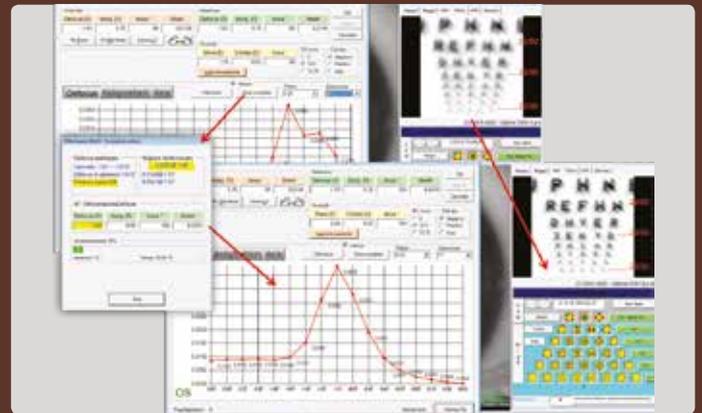
PUPILLOMETRY

The double lights of the Placido rings, visible and infrared, measuring the pupil's dimensions and centre in the different lighting conditions.



GAUSSIAN MAP

The Gaussian curvature is an independent map from the axis and from the fix point. It enables to highlight ectasias and other inelastic corneal deformities. Concealing the permanent astigmatisms it enables, for example, to objectively localise the apex of a peripheral keratoconus or a pellucida.



REFRACTIVE FUNCTIONS
MAX STREHL RATIO CALCULATION

The "Max Strehl" function searches a spherical-cylindrical-axis adjustment that optimises the visus of eyes with complex aberrations. Ideal if calculated on the front of the ocular wave front measured with Keratron™ Onda. It can in any case provide a useful evaluation also of the corneal wave front (if the internal component is less critical).

Contact Lenses

The kit for analysing contact lenses enables to measure the curvature but also the geometry of the lens and the α -spherical measurements of each area.

Therefore it is possible to verify if the characteristics of the lens have changed over time or, if the origin of the lens is unknown, find its original shape and characteristics.

The device consists in a support on which the lens is placed with the help of a drop of water. Two different racks enable to measure the two faces of the lens.

The photograph of the lens with the Placido rings reflected from the topographer gives an idea of the quality level on the regularity of the surfaces and the presence of deposits.

The map gives curvature measurements of each surface point and detects the geometry of the lens.

The system is very accurate and repeatable and finally allows to document the status and the parameters of the lenses in an unmistakable and evidentiary manner; in fact being in possession of archive document that can be used in case of claims by the user or the user's ophthalmologist has become today increasingly recommended. It should be noted, however, that since the method is based on the reflection of Placido rings, the system only works if the surface is continuous.

This device enables the **Keratron™**, **Keratron™ Nova**, **Keratron™ Scout** and **Keratron™ Piccolo** corneal topographers an important added function that enables the use of the topographer in contactology in a complete manner.

A sophisticated software enables the perfectly realistic simulation of the fluorescent patterns of any RGP contact lens according to the following:

- Choice of lens of production
- Use of personal automatic protocol
- Automatic choice recommended by the producer
- Custom lenses (CALCO, Wave etc.)

The geometries of the main RGP contact lenses producers are available.

The user can easily create new trial sets.

Some laboratories have provided protocols for automatic selection of the best lens which, when put in practice, have recognised to be the best choice in 90% of cases.

Personalised autofit methods enable to standardise one's own application choice with lenses that have an optimal fit on the cornea at all times.

In this way custom-made lenses of any geometry may be made, including inverse geometry lenses for orthokeratology or cases of post refractive surgery.

The possibility to connect the topographic data to a computer for the production of personalised geometry special lenses enables the production of the "Custom Cornea" lenses.