NAVEX *Quest*

NIDEK ADVANCED VISION EXCIMER LASER SYSTEM

Eye & Health Care

Begin & End Your Voyage with the **NAVEX *Quest***
Delivering to You the Ability to Achieve Your Quest with **NAVEX *Quest***

NAVEX *Quest*

NIDEK ADVANCED VISION EXCIMER LASER SYSTEM

Delivering Ultimate Solutions Today

NIDEK delivers **NAVEX *Quest***, the evolutionary customized refractive surgery platform.

NAVEX *Quest* is a unique combination - incorporating the new and advanced and full integrated NIDEK EC-5000CXIII excimer laser system, the NIDEK OPD-Scan™ refractive power / corneal wavefront analyzer, NIDEK's OPD-Station software, NIDEK's FinalFit™ software and NIDEK's MK-2000 keratome system - all these solutions in a combined platform offering advanced technologies, superior engineering, excellent workmanship and outstanding clinical performance and clinical outcomes. With these advanced and innovative technologies, NAVEX *Quest* provides all the tools needed for performing customized refractive surgery procedures and helps surgeons achieve the optimum visual outcome, making perfect vision a reality for all patients.

NAVFocus

To provide **easy alignment with greater accuracy and precision**, using the advanced technology of NIDEK's Torsion Error Detector (TED), 200Hz Eye Tracking System and Automatic Magnification Control of the EC-5000CXIII.

NAVScan

To realize a uniform ablated surface and **the optimized custom ablation with highest precision**, using an innovative scanning technology including Super Flex Scan and MultiPoint™ Ablation systems of the EC-5000CXIII.

NAVWave

To offer **optimum refractive treatments with greater precision**, using intelligent diagnostic technologies of the OPD-Scan™, OPD-Station and Final Fit™ software.

NAVTone

To deliver **micro-smooth operation**, using an incomparable keratome technology - NIDEK's MK-2000 Keratome System.

EC-5000CXIII Excimer Laser System

NIDEK offers the **EC-5000XCIII Excimer Laser** - the ultimate refractive corneal surgery system built over years of experience and endeavoring to provide safer and more reliable performance with greater accuracy and stability.

- **Advanced Ergonomics & User Friendly Platform -** The NIDEK EC-5000CXIII is 15% smaller in dimensions compared to NIDEK's other conventional models, offering small foot print yet greater versatility.

- **The PC Unit & Hardware Modules are integrated** into the main console and unit.

- **Innovative Algorithms for Optimized Laser Treatments & Surgical Outcomes**

- **Superior Protective & Safety Mechanisms -** The system has integrated and automated mirror protection windows to keep the optical mirrors clean. The special window opens when the "Laser Ready" button is pressed and closes when the operation is completed.

- **A Special Function LCD Monitor on Laser Arm*** (optional) displays various information and laser parameters for easier operation - these include eye tracking image, TED image, laser operation time and other clinically relevant paraments.

- **Nitrogen Free****
  The Nitrogen purge gas is no longer necessary.

*optional
**There are environments where the use of Nitrogen is required.

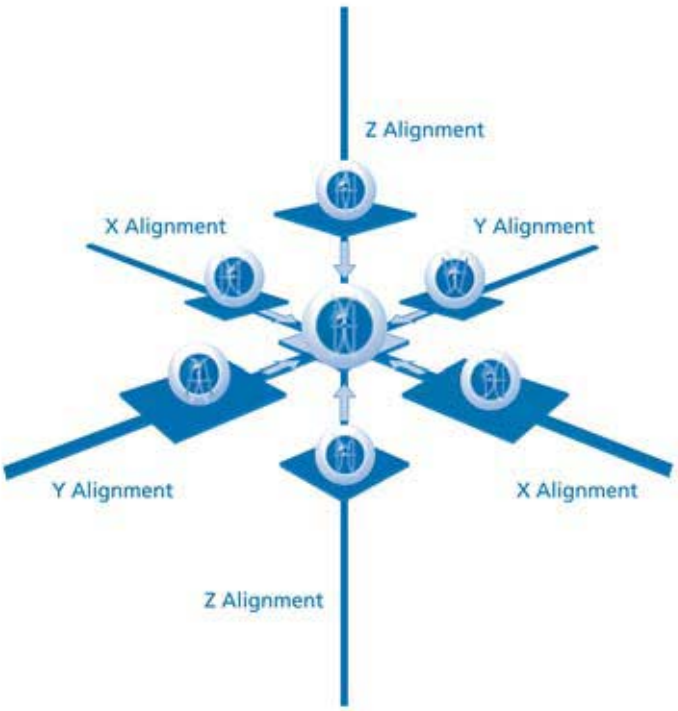
EC-5000CXIII Excimer Laser System

- **Advanced & Automated Magnification Controls -**NAVFocus
- **Faster Operation -** The system check and mechanical alignment time is 30 - 50% faster compared to our conventional model.
- **High Speed 200Hz Eye Tracking System -** NAVFocus
- **Torsion Error Detector (TED)*** -NAVFocus
- **MultiPoint™ Ablation*** -NAVScan
- **Super Flex Scan -**NAVScan
- **User Friendly Operation -** employing advanced joystick controller mechanisms
- **Greater Stability** with enhanced drive capacity

EC-5000CXIII Excimer Laser System

NAVFocus

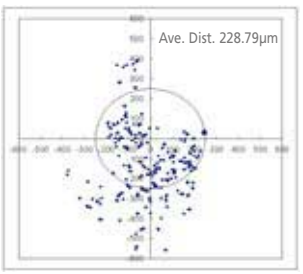
An advanced technology to provide **easy alignment** with greater accuracy and precision.



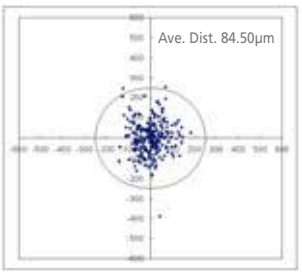
200Hz Eye Tracking System

Built-In Advanced **Eye Tracking Systems (200 Hz)** utilizes high-speed digital image processing technology to follow the patient's eye, ensuring accurate and precise laser alignment and delivery during the procedure. With the advanced offset function, the surgeon can set the tracking point at anywhere within ±1mm from the pupil center as needed.Also, the alignment speed has been greatly improved, allowing faster and smoother operation.

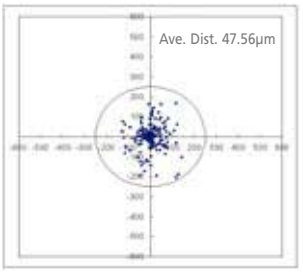
Without ETC



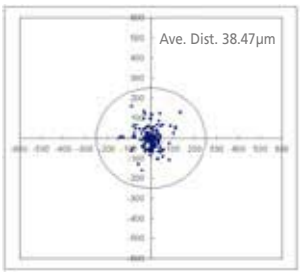
60Hz ETC



200Hz ETC



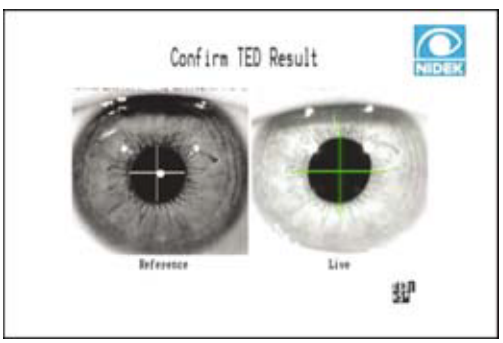
200Hz ETC on CXIII



*All of sampling rate are 100 msec.

Torsion Error Detector

NIDEK's **Torsion Error Detector (TED)** detects and compensates for Cyclo-Torsion (rotation of the eye ball), and improves cylinder correction accuracy while ensuring that the EC-5000CXIII laser ablates with unparalleled precision during conventional and customized refractive surgery procedures.



Automatic Magnification Controls

The EC-5000CXIII offers **advanced & automated magnification controls**, allowing the surgeon to change the magnification easily, using a switch on the controller.

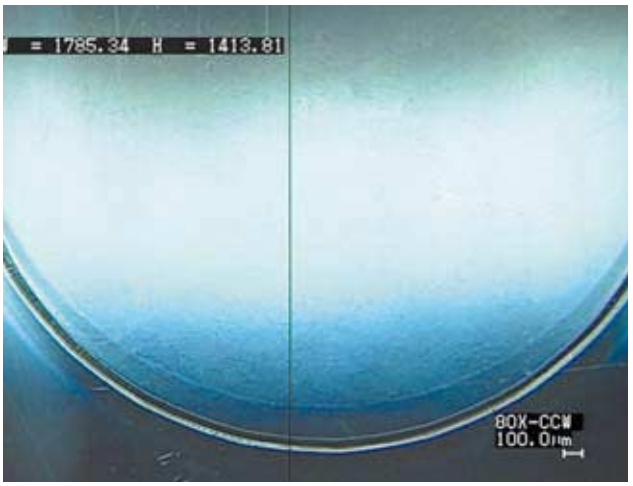
EC-5000CXIII Excimer Laser System

NAVScan

An innovative scanning technology to realize a uniform ablated surface and **the optimized custom ablation with highest precision.**

Super Flex Scan

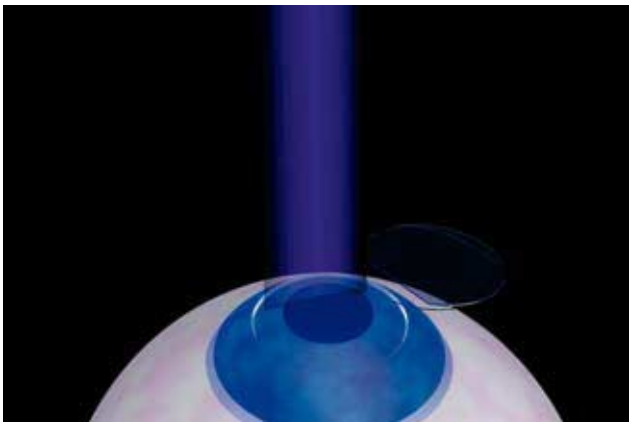
Advanced Energy Delivery Systems - **Super Flex Scan** - is an unique slit scanning ablation profile that improves accuracy of the refractive correction. The scanning slit beam smoothly sweeps the cornea, quickly ablating tissue with cool, overlapping ultraviolet energy.

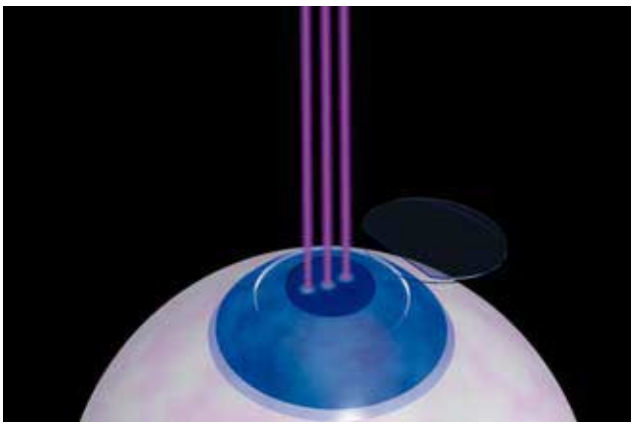


Slit Scanning Ablation Surface

MultiPoint™ Ablation

MultiPoint™ Ablation system can correct certain high-order aberrations before the conventional scanning-beam ablation of sphere and cylinder error components of low order aberrations are performed. MultiPoint™ Customized Ablation module divides the rectangular-shaped laser beam into six equal gaussian spots of 1.0 mm in diameter, which can be individually or simultaneously projected onto the cornea for a highly precise ablation of small area irregularities.





OPD-Scan Refractive Power / Corneal Analyzer

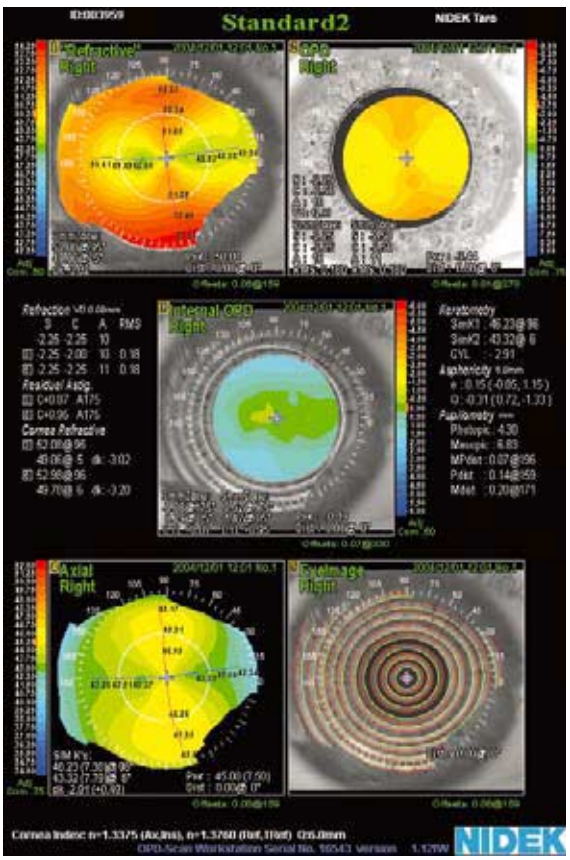
The NIDEK **OPD-Scan**™ combines refractometry, keratometry, corneal topography and wavefront analysis - providing accurate and reliable data for refractive and corneal surgery.

NAVWave An intelligent diagnostic technology to offer **optimum refractive treatments with greater precision**.

- **XYZ - Fully Automated Alignment**
- **Touch Screen Operation -** High Resolution 10.4 TFT Color LCD
- **Space Saving Footprint**
- **Database Management Capability**

- **Wide Range of Measurement for Both Sphere And Cylinder** (Sph: -20.0 to +22.0D; Cyl: 0.0 to ±12.0D)
- **Precise Mapping of Irregular Astigmatism**
- **Multiple Pre-set Map Layouts** for Display and Printing

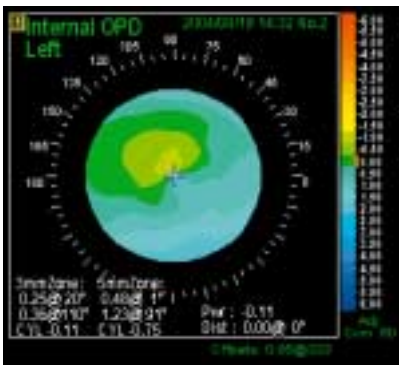
Combined refractive power map



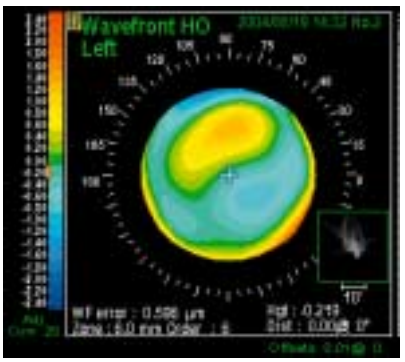
OPD-Scan Refractive Power / Corneal Analyzer

OPD Map (Refractive Error Map)

Internal OPD Map



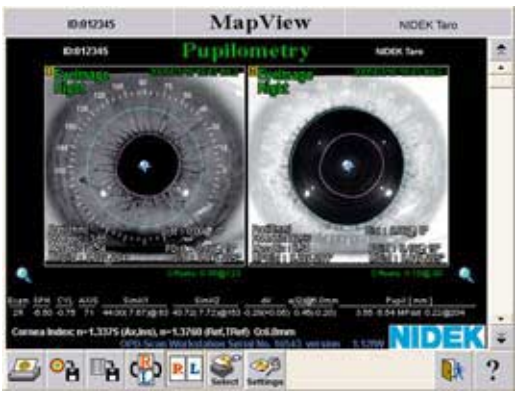
Wavefront HO Map



Zernike Graph

PSF (Point Spread Function)

Integrated Pupilometry Measurement



Photopic Conditions:
100-150 cd/m^2

Mesopic Conditions:
10-12 cd/m^2

OPD-Station Comprehensive Visual Analysis Software

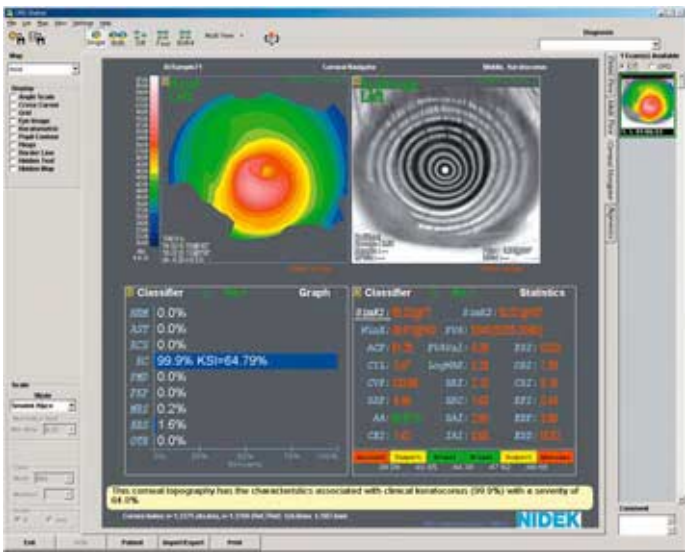
The NIDEK **OPD-Station** software makes a variety of corneal, total eye and internal eye analysis possible using advanced, unique and intelligent functions including the Corneal Navigator and Holladay Summary.

NAVWave An intelligent diagnostic technology to offer **optimum refractive treatments with greater precision**.

Corneal Navigator

The advanced & highly sophisticated Corneal Navigator software is included in all NIDEK OPD-Station software packages. The technologically advanced and unique software assists surgeons in their patient diagnoses process. Utilizing various corneal parameters from topography, the Corneal Navigator automatically determines corneal features and shows by percentage the possibility of having a condition of normal (NRM), astigmatic (AST), keratoconus suspects (KCS), keratoconus (KC), pellucid marginal degeneration (PMD), myopic refractive surgery (MRS), hyperopic refractive surgery (HRS), and penetrating keratoplasty (PKP).

**The Corneal Navigator is developed in collaboration with Stephen D. Klyce, PhD & Michael K. Smolek, PhD.*



OPD-Station Comprehensive Visual Analysis Software

Holladay Summary*

The NIDEK OPD-Station provides PSF, MTF and retinal image simulations for total eye, cornea and internal eye.

PSF Simulation

Calculates the Point Spread Function (PSF) based on the OPD-Scan measured data and corneal topography data, and displays in simulation the distribution of the point spread.

Retinal Image Simulation

Calculates the distortion of incoming light based on the results of PSF analysis, and displays the simulated retinal image of the projected chart.

** The Holladay Summary mapping is developed in cooperation with Jack T. Holladay, MD.*

Contact Lens Fitting

The contact lens fitting software “CL-Fit” is bundled with the NIDEK OPD-Station. Based on the OPD-Scan corneal topography data, the CL-Fit automatically selects the most appropriate contact lens, achieving an optimal contact lens fitting for the patient.

Final Fit™ Custom Ablation Software

The NIDEK **Final Fit™** software receives the measured data from the OPD-Scan, and performs a simulation of postoperative corneal shape, and generates excimer laser shot data using the data imported from the OPD-Scan and target correction data that are entered.

NAVWave An intelligent diagnostic technology to offer **optimum refractive treatments with greater precision**.

Shot Data Generation

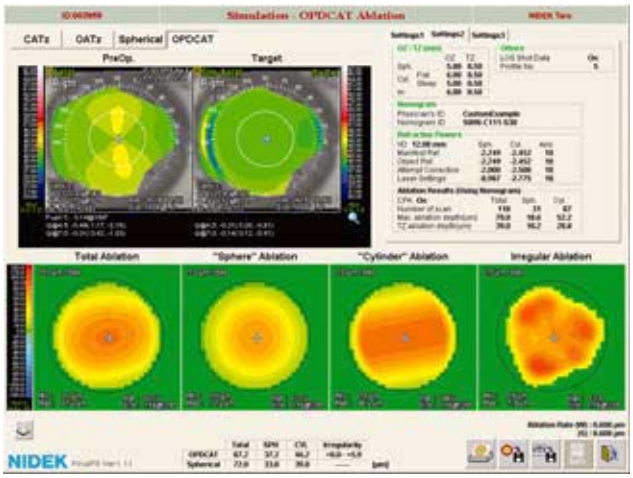
The Final Fit™ software evaluates and converts the OPD-Scan's refractive and topographic data to produce the precise customized ablation parameters for the EC-5000CXIII excimer laser system. These unique algorithms control the EC-5000's MultiPoint™ Ablation Module to enable multiple, simultaneous localized ablations to correct higher order optical aberrations, corneal irregularities and decentered ablations.

Comparison of Postoperative and Preoperative Data

The Final Fit™ software compares post-operative data measured by the OPD-Scan with the pre-operative or target data.

Nomogram Functions

The Final Fit™ software offers NIDEK's standard nomograms, which are tables for correcting theoretical amounts of correction in diopters based on clinical results and using various environmental factors like temperature and humidity.



Component Maps: Illustrates the stereoscopic or contour ablation amounts which were put through a simulation.

Total Ablation - illustrates the simulated ablation amount.

"Sphere" Ablation - illustrates only symmetric components with respect to rotation axis such as spherical/aspherical components.

"Cylinder" Ablation - illustrates only axisymmetric components such as cylindrical components.

"Irregular" Ablation - illustrates only irregular (astigmatic) components that have been extracted. ("CATz" or "OPDCAT" ablation mode only)

Final Fit™ Custom Ablation Software

New Innovative Ablation Algorithms

New innovative ablation algorithms (**CATz, OATz, OPDCAT**) provide exceptional treatment accuracy and visual outcomes.

OATz

-Optimized Aspheric Treatment Zone-
Ablations with Transition Zone (TZ) optimized to prevent Longitudinal Spherical Aberration (Red Ring), which can cause the loss of night vision, halos, glares and star bursts.

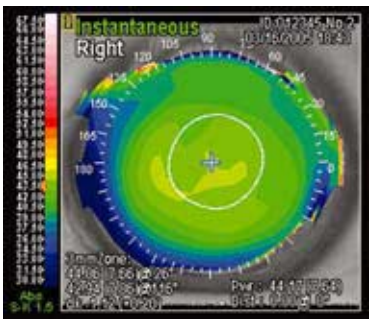
CATz

-Customized Aspheric Treatment Zone-
OATz with topography-guided multipoint ablation to reduce corneal irregularities, such as irregular astigmatism, de-center, central island, etc.

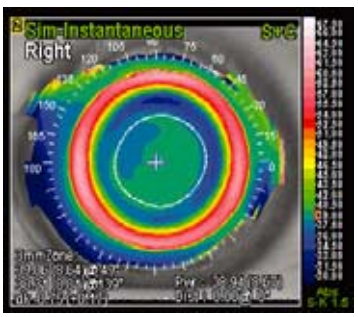
OPDCAT

-OPD-Guided Customized Aspheric Treatment-
Maintains corneal asphericity with aspherical ablation, and applies OPD-Guided (Wavefront Guided) multipoint ablation to reduce aberrations for the total eye.

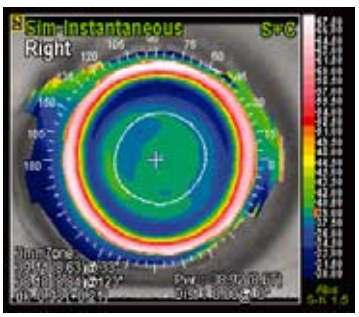
S=-6D, C=-0.5Dx90° Postoperative Simulations:



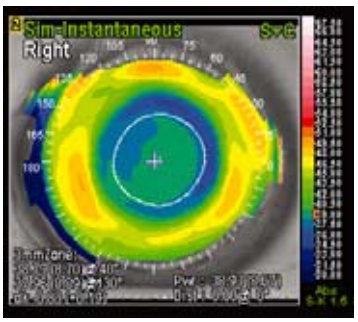
Pre-op.



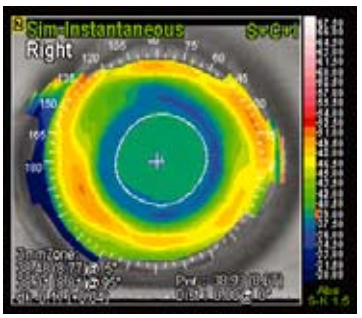
Conventional
5.5/7.5 mm



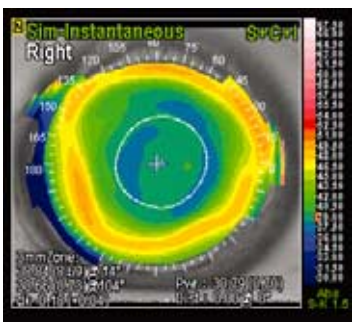
Conventional
6.5/7.5 mm



OATz #4 5.0/9.0 mm



CATz #4 5.0/9.0 mm



OPDCAT #4 5.0/9.0 mm

MK-2000 Keratome

The NIDEK **MK-2000 Keratome System**- provides accuracy, safety and excellent reliability

NAVTone An incomparable keratome technology to deliver **micro-smooth operation**.

Safe, One-Handed Operation

The one-piece, lightweight design of the MK-2000 allows the surgeon to make corneal flap incisions with one-hand operation.

EVENT

NIDEK Refractive Surgery Symposium

NIDEK holds its Refractive Surgery Symposium for all those who have an interest and dedication in advancing laser vision correction. The symposium offers an open platform for refractive surgeons to communicate and exchange their opinions on advancements in refractive surgery and technology. The latest techniques and clinical results are presented through presentations, panel discussions, workshops and wet-labs.

For further information, please visit the NIDEK website or email:

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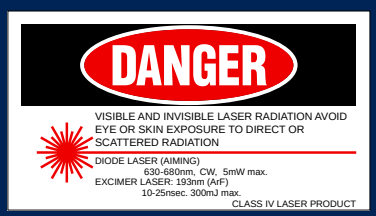

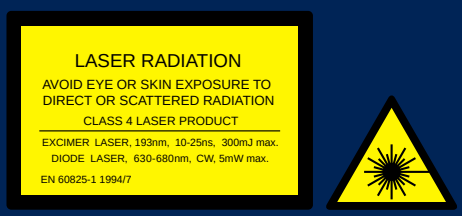

VISIONARY PERFORMANCE

Some components of the NAVEX Quest System are add-on features and upgrades. Please contact your local distributor for further information. NAVEX Quest, Hyperopia & Custom Ablation are not approved by the FDA for distribution in the United States.

PRINTED WITH SOY INK

Printed on environment-friendly recycled paper.