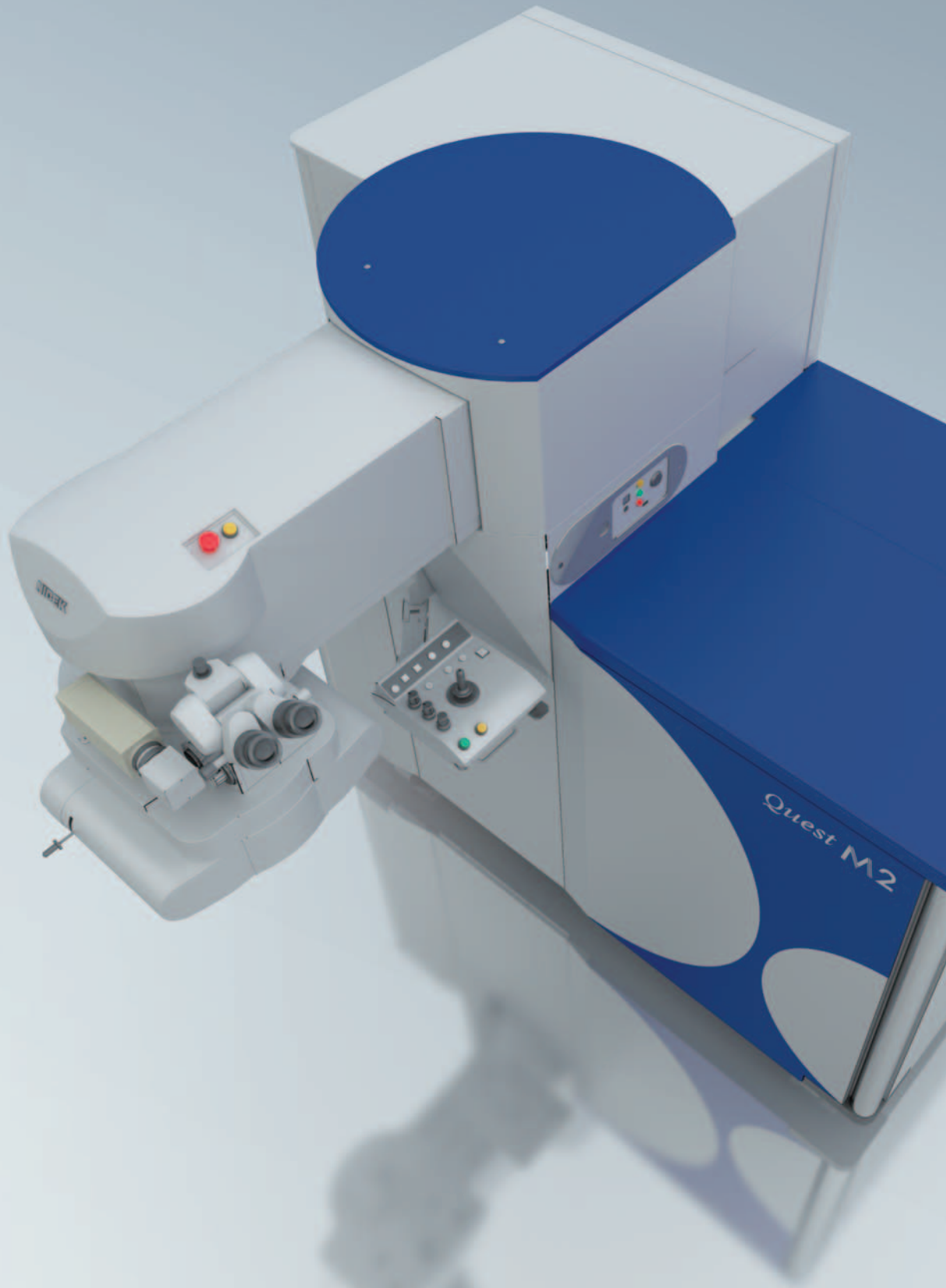




NIDEK Advanced Vision Excimer Laser System

# NAVEX Quest M2



THE ART OF EYE CARE

# NIDEK Advanced Vision Excimer Laser System NAVEX *Quest*™ M2

## The Ultimate Solution for Customized **Refractive Surgery**

NIDEK delivers the NAVEX *Quest* M2, an advanced customized refractive surgery platform.

The NAVEX *Quest* M2 is a unique combination of technologies - incorporating the *Quest* M2 excimer laser system, the OPD-Scan III whole eye aberrometer and corneal topographer, and the Final Fit™ software - that offers state-of-the-art technologies, superior engineering, excellent workmanship, and outstanding clinical outcomes.

By incorporating these innovative technologies in one platform, the NAVEX *Quest* M2 provides all the tools necessary for Topography guided / Wavefront guided refractive surgery and therapeutic procedures with the goal to achieve the optimum visual outcomes.

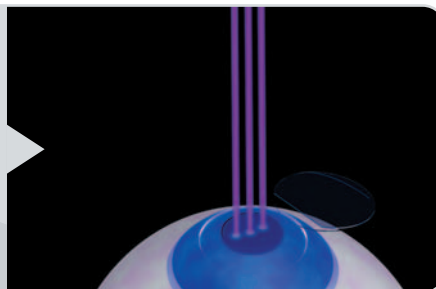


### Precise Tracking

For easy alignment with greater accuracy and precision

### Innovative Laser Algorithms

For delivering a homogenous ablation to the cornea by incorporation super flex scan and multipoint ablation for optimized custom ablation.



### Unified Diagnostics and Analysis

For optimal treatment planning and outcomes with Nidek technology

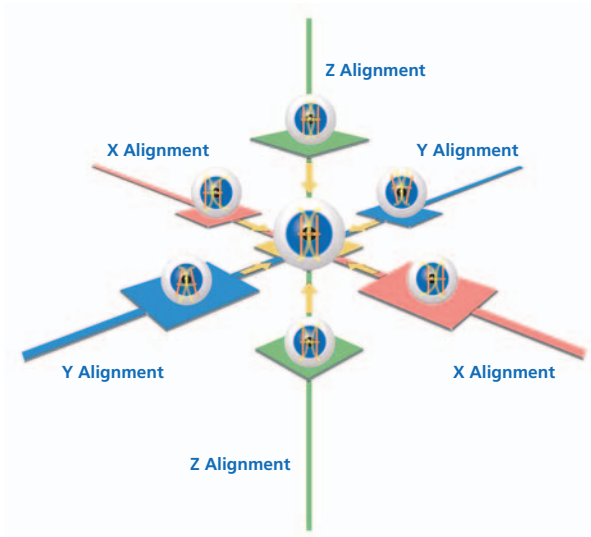




The Proven Excimer Laser  
for Refractive and Therapeutic  
Corneal Corrections



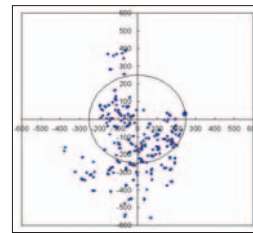
## Precise Tracking



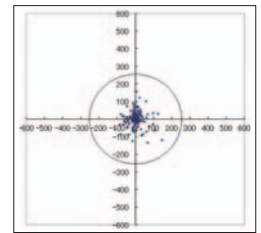
### ■ 1 kHz Eye Tracking System

The built-in advanced 1 kHz Eye Tracking System (ETS) utilizes high-speed digital image processing technology to follow the patient's eye, ensuring accurate laser alignment and delivery.

With the advanced offset function, the treatment can be performed closer to the visual axis by setting the tracker within  $\pm 1$  mm from the pupil center as needed. An increase in alignment speed allows faster and seamless treatments. The safety laser stop function automatically stops laser ablation in case of fixation loss.



Without ETS



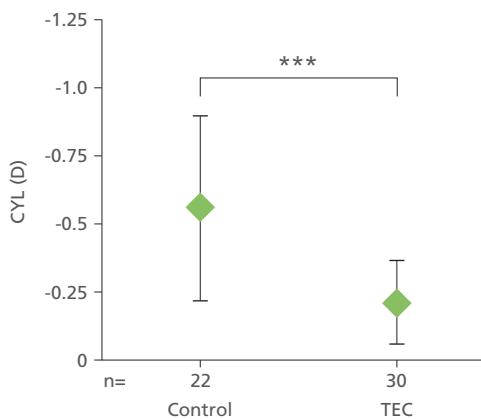
With 1 kHz ETS

\*Sampling rates are 100 milliseconds.

### ■ Torsion Error Correction

The Torsion Error Correction (TEC) detects and compensates for cyclotorsion and improves the accuracy of cylinder correction while ensuring that the laser ablates the patient's eye with unparalleled precision.

Laser ablation is automatically halted in cases of fixation loss or significant eye movements.



Manifest refractive cylinder at 3 months of eyes that underwent myopic LASIK or PRK with or without active torsion error compensation (TEC).

(\*\*\*  $p < 0.001$ , Welch's test)

### ■ Motorized Magnification Control

Advanced motorized magnification control allows the surgeon to smoothly toggle between magnifications using a switch on the controller.



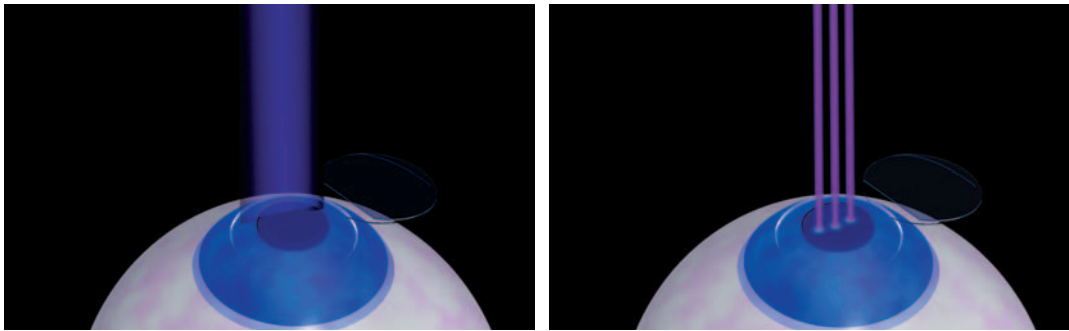
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## Innovative Laser Algorithms

### ■ **MultiPoint™ Ablation**

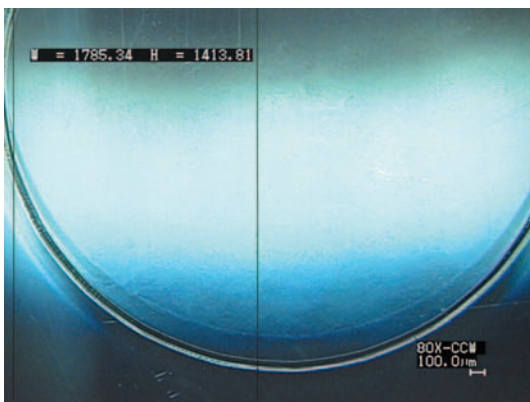
Multipoint ablation is approximately three times faster with the incorporation of advanced engineering technology. MultiPoint™ ablation system can correct specific high-order aberrations.

MultiPoint™ customized ablation module divides the 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 corneal or optical irregularities.



### ■ **Super Flex Scan**

Advanced energy delivery systems - super flex scan - creates a unique slit scanning ablation profile that improves the accuracy of the refractive correction. The scanning slit beam rapidly delivers smooth and overlapping laser pulses to the cornea.



Slit scanning ablation surface

# Refractive Power / Corneal Analyzer OPD-Scan III

The OPD-Scan III provides information on wavefront aberrometry, corneal topography, refraction, keratometry, and pupillometry in one unit, offering highly accurate and reliable data for clinical diagnostics.

## Unified Diagnostics



### ■ **Wider Measurement Area**

The OPD-Scan III's 9.5 mm diameter wavefront aberrometry ensures full coverage of almost any pupil.

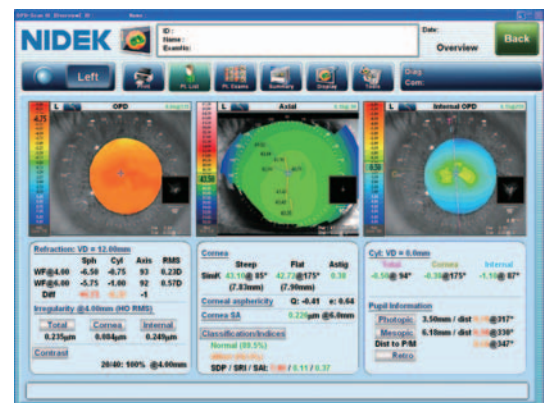
Using data from 2,520 data points to increase results in greater spatial resolution and accuracy.

### ■ **Greater Topography Resolution, Blue Placido Rings**

33 blue placido mires allow greater precision in ring detection. The reduced illumination results in a comfortable patient experience.

### ■ **A Summary Map and Guide for Optimal Clinical Decisions**

The overview summary provides refractive data and incorporates corneal disease analysis software and data for cataract and refractive surgery.



### ■ **Tiltable Color LCD Touch Screen**

The 10.4-inch color LCD touch screen tilts, allowing viewing from different angles for easier measurements.

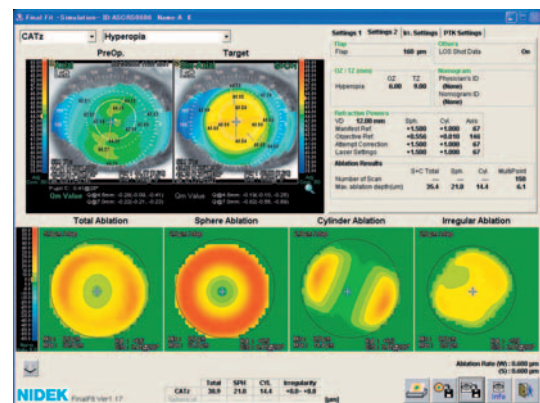
# Custom Ablation Software Final Fit™

The Final Fit™ software uses OPD-Scan III data, and performs a simulation of postoperative corneal shape, and generates excimer laser shot data. This is comprehensive surgical treatment planning tool that provides a variety of options to maximize treatment outcomes.

## Unified Analysis

### ■ Shot Data Generation

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



### ■ Nomogram Functions

The Final Fit™ software offers NIDEK's standard nomograms.

### ■ Comparison of Postoperative and Preoperative Data

The Final Fit™ software compares postoperative data measured by the OPD-Scan III with the preoperative or target data.

### ■ Eye Tracking Offset Function\*

The Final Fit™ software generates the eye tracking offset information based on shot data calculation. This functions allow treatment close to visual axis if required.

\*This function is available with Final Fit version 1.17 or later.

## Quest M2 Specifications

Treatment laser Laser medium Wavelength Frequency	ArF 193 nm 5, 10, 20, 30, 40, or 50 Hz (Other than hyperopia or hyperopic astigmatism correction) 34, 41, or 46 Hz (Hyperopia or hyperopic astigmatism correction)
Aiming laser Laser medium Wavelength	Diode 630 to 680 nm
Ablation size Myopia or myopic astigmatism correction Hyperopia or hyperopic astigmatism correction PTK mode	ø3.0 to 6.5 mm (on the cornea) ø5.5, 6.0, 6.5 mm ø0.7 to 10.0 mm, 0.1 to 10.0 mm width x ø0.7 to 10.0 mm
Alignment illumination Type Illumination shape Straight slit Cross-shaped Round Illumination bulb	Dual inclined (35°)  0.3 mm width x 10 mm length 0.3 mm width x 10 & 2.7 mm length ø9.5 mm Halogen lamp 6 V / 20 W - G4
Coaxial illumination Type Illumination shape Illumination bulb	Coaxial Round LED
Oblique illumination Type Illumination shape Illumination bulb	Single inclined (48° from the back) Round LED
Optical axis adjustment Up and down Forward and backward Left and right	±25 mm ±25 mm ±40 mm
Eye tracking Sampling frequency Detectable pupil diameter	1 kHz (1 ms) ø1.5 to 7.8 mm (Tolerance ±0.2 mm)
Torsion Error Detection / Online Torsion Error Detection Torsion detection angle range OTE TED	±6° (with reference to the reference image for surgery) ±15° (with reference to the anterior eye reference image captured by the OPD-Scan III)
Detectable pupil diameter*	ø1.5 to 6.0 mm (tolerance ±5%)
Torsion Error Correction Angle correction resolution Angle correction accuracy Angle correction range	1° or less Within ±1° Within ±6°
Cooling	Ambient air cooling
Power supply	AC 200 to 240 V 50 / 60 Hz
Power consumption	3.3 kVA
Dimensions / Mass	1,442 (W) x 1,400 (D) x 1,400 (H) mm / 650 kg 56.8 (W) x 55.1 (D) x 55.1 (H) " / 1,430 lbs.
Standard accessories	Foot switch, Duct hose, Dust cover, Laser goggles, Calibration unit, Calibration plate, Lensmeter, DANGER label, Gas valve caution plate, Sterilization cap, Sterilization sheet, SNOOP, ETS target, ETS model eye, Spare parts (Start key, Key for cylinder box, Alignment illumination bulb, Printer paper, Deodorant filter), TAKAGI microscope
Optional accessories	CCD camera, CCD camera power supply, Color monitor, ZEISS microscope, Foot controller, Cylinder stand (large, small), Laser goggles, Sterilization cap, Sterilization sheet

\* Pupil needs to be detectable by the Eye Tracking system.

The difference between a pupil diameter measured by the OPD-Scan III and that detected by the EC-5000CXIII should be 45% (tolerance ±3%) or less.

Product / Model name: Excimer Laser Corneal Surgery System EC-5000CXIII

Brochure and listed features of the device are intended for non-US practitioners.

Specifications may vary depending on circumstances in each country.

Specifications and design are subject to change without notice.



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## OPD-Scan III Specifications

Wavefront aberrometer Measurement principle	Automated objective refraction (dynamic skiascopy)
Spherical power range	-20.00 to +22.00 D
Cylindrical power range	0 to ±12.00 D
Axis range	0 to 180°
Measurement area	ø2.0 to 9.5 mm (7 zone measurement)
Data point	2,520 points (7 x 360)
Map type	OPD, Internal OPD, Wavefront, Zernike graph, PSF, MTF graph, Visual acuity
Topographer Measurement rings	33 vertical, 39 horizontal
Measurement area	ø0.5 to 11.0 mm (R = 7.9 mm)
Data point	11,880 points and more
Map type	Axial, Instantaneous, "Refractive", Elevation, Gradient, Wavefront, Zernike graph, PSF, MTF graph, Visual acuity
Auto tracking	X-Y-Z directions
Display	10.4-inch color LCD touch screen
Printer	Built-in thermal type line printer for data print External color printer (optional) for map print
Power supply	AC 100 to 240 V, 50 / 60 Hz
Power consumption	110 VA
Dimensions / Mass	284 (W) x 525 (D) x 533 (H) mm / 23 kg 11.2 (W) x 20.7 (D) x 21.0 (H) " / 51 lbs.

## Final Fit™ Specifications

Ablation mode	OATz ablation (OATz version) CATz ablation (CATz version) OPDCAT ablation (OPDCAT version)
Data import / export	Interface connectors provided with the computer
Database	Patient information, Exam data
Computer requirements CPU Memory	Pentium III 1 GHz or higher 256 MB or more (512 MB or more is recommended.)
Free disk space Graphic	500 MB or more 1,024 x 768 pixels or more, 32 bit true color or more
CD-ROM drive USB port Keyboard & mouse OS	Windows Vista Business SP2 32 bit English version Windows 7 Professional SP1 32 bit / 64 bit English version

\* Windows is a trademark of Microsoft Corporation U.S.A.

