MicroScan

Excimer laser system for all types
of vision corrections

OPTOSYSTEMS LTD.

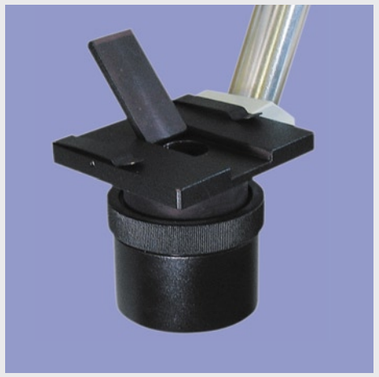
MicroScan is a new generation excimer laser system for all types of vision corrections: *myopia*, *hypermetropia*, *astigmatism*.

MicroScan is produced by Optosystems Ltd. – the leading Russian manufacturer of lasers for medicine, science and technologies. MicroScan is ophthalmological system designed by Optosystems in collaboration with Physics Instrumentation Center of General Physics and Institute Fedorov's Eye Microsurgery Center (Moscow).

More than 15 years experience of manufacturing and operation of laser ophthalmologic equipment have allowed to create a system with high level of safety, accuracy, reliability and efficiency.

MicroScan is the optimal operation mode and high level of result:

- Short treatment time
- High-speed eye tracking system
- Built-in aspiration system
- Permanent computer control of laser energy
- Full compliance of the ablation zone with a given recreational zone
- Formation of an ideally smooth cornea surface with a smooth transition zone
- Ability to work with keratotopographer and aberrometer data



Application

LASIK	–	Laser-Assisted in Situ Keratomileusis
PRK	–	Photorefractive Keratectomy (transepithelial or with scarification)
LASEK, E-LASIK	–	Laser Epikeratomileusis
Epi-LASIK	–	Superficial laser keratomileusis
PTK	–	Phototherapeutic Keratectomy

Refraction anomalies	LASIK	PRK	Ablation zone	Optic zone
Myopia	up to -20 D	up to -16 D	up to 9 mm	from 5.5 to 7 mm
Myopic astigmatism	up to 10 D	up to 6 D	up to 9 mm	from 5.5 to 7 mm
Hyperopia*	up to +10 D	up to +5 D	up to 9 mm	from 5.5 to 6.5 mm
Hyperopic astigmatism*	up to 10 D	up to 5 D	up to 9 mm	from 5.5 to 7 mm
Mixed astigmatism*	up to 10 D	up to 6 D	up to 9 mm	from 5.5 to 7 mm

** LASIK recommended*

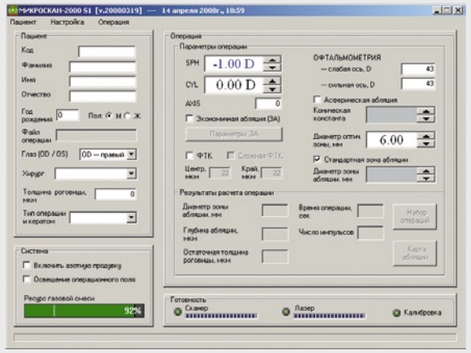
- Flying-Spot Technology
- Spot diameter – 0.7 mm
- Pulse repetition rate – up to 500 Hz (basic 200 Hz)

- **LASIK**
- **PRK**
- **LASEK**
- **Epi-LASIK**
- **PTK**

Software

MicroScan user interface software (Windows XP-compatible)

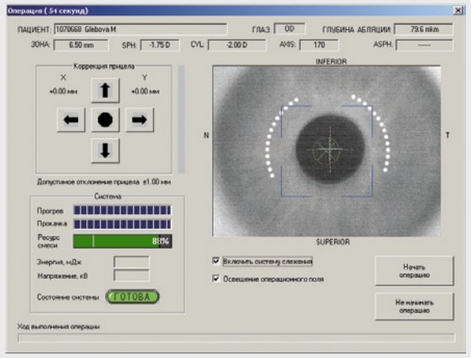
- Correction of any combinations of regular spherical and astigmatic correction, including mixed astigmatism
- Aspheric ablation provides postoperative cornea surface having improved optical quality
- Economized ablation (optional)
- Correction of irregular vision defects (personalized ablation) based on data provided by a keratotopograph
- Correction of irregular vision defects (personalized ablation) based on data provided by an aberrometer
- User can assemble a set of operations and execute this set as a whole



Eye tracking system

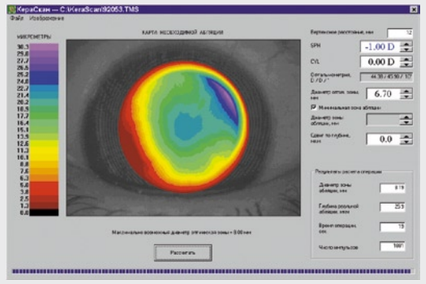
The eye tracking system registers the patient's eye movements

- Eye tracking system includes high-frequency infrared TV camera which provides stable eye image containing pupil image
- In the eye tracking system there are implemented both active and passive eye-tracking
- Active eye tracking provides shifting of all the operation process following patient eye movements
- Passive eye tracking ensures that operation is paused when the eye leaves pre-specified central area of the operation field and that the operation is resumed when the eye return into this area
- The user can set operation center in the pupil's mass centre as well as in any other point of the cornea



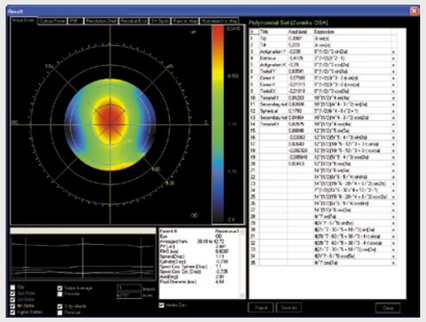
Personalised ablation based on topographer data

The irregular cornea features can be taken into account by using topographer data. Special KeraScan software precalculates operation using full volume of the TMS-4 keratotopographer data. During such operation the cornea irregularities are removed and cornea takes the shape of ideal ellipsoid.



Personalised ablation based on aberrometer data

In complicated cases a higher order aberration correction with the use of aberrometer data is needed. ATACA software allows the calculation of an operation on the basis of the Multi-Spot-1000 aberrometer data. During such operation refraction cornea defects as well as the irregularities of the whole eye optical tract are corrected.



Practical experience

Now MicroScan works in ophthalmologic clinics in more than 40 cities of Russia and abroad. MicroScan is the leader in quantity of excimer laser systems presented on Russian market, including systems from Japan, the USA and Germany.

With MicroScan excimer systems more than 300,000 FRK and LASIK operations has been performed. In 96 per cent of cases of myopia and myopic astigmatism the group results are within ±1D of the specified and in 83 per cent are within ±0.5D of the specified. In 85 per cent of cases of hyperopia, hyperopia astigmatism and mixed astigmatism group results are within ±1D of the specified and in 67per cent are within ±0.5 D.

Advantages for doctors:

- Ergonomic design
- High-speed eye tracking system
- Built-in aspiration system
- High quality illumination system

Advantages for patients:

- Short treatment time
- Reliable treatment results
- Stability of postoperative vision quality
- Rapid recovery of health

Specification

Laser surgical block including:
- excimer laser
- gas system
- surgical microscope
- beam delivery system
- control panel
  (with joystick of the operational table)

Foot pedal
Operational table
Surgeon's chair
Computer desk
Monitor
Software

MICROSCAN

Technical characteristics

Laser	Eximer Laser
Wavelength	193 nm, ArF
Pulse duration	8–10 ns
Pulse repetition rate	Up to 500 Hz (basic 200 Hz)
Beam profile	Gaussian
Beam delivery	Flying spot
Diameter of the laser spot on patient's cornea	0.7 mm
Maximum diameter of the treated zone of patient's eye (ablation zone)	9 mm
Working distance	180 mm
Power	220 V ± 22 V, 50 Hz ± 1 Hz, 10 A
Dimensions (LxWxH)	1530 × 1370 × 1050
Weight with operational table	400 kg
Microscope	Leica MS 5; five-step magnification
Aspiration system	Built-in highly effective system
Eye tracking system	IR, active and passive
Cooling	Air, noise-reduced
Gas supply	1 integrated ArF-premix cylinder 16l
Operation table / Surgeon's chair	LOP614 / AK444
Software	MicroScan user interface software, KeraScan – Extra Software for personalized correction (Windows XP-compatible)

OPTOSYSTEMS LTD.

Russia 142190 Troitsk Moscow region
phone: +7 (4967) 51-08-95, fax: +7 (4967) 51-02-16
www.microscan.ru • www.optosystems.ru