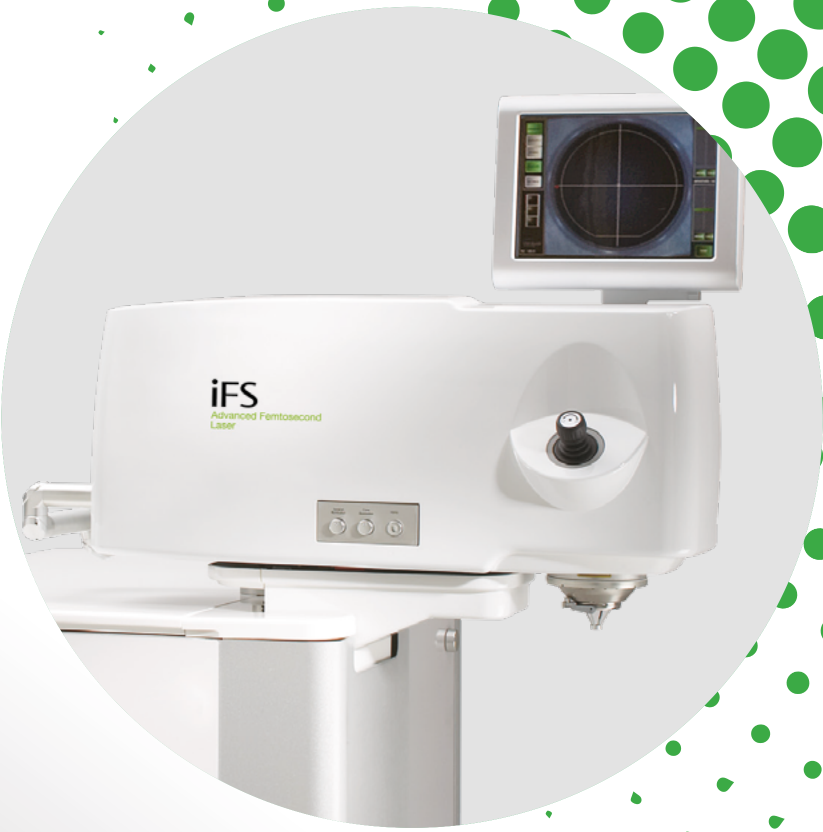
iFS
Femtosecond Laser



OUTSTANDING VERSATILITY

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Johnson & Johnson VISION

Innovation at the core

The **iFS** advanced femtosecond laser is built from a legacy of innovative **IntraLase** technologies—a proven, trusted, and versatile platform available today.

- Proven results: Delivers greater precision and predictability for optimal patient outcomes compared to mechanical keratomes[1-4]
- Proven versatility: Modular, upgradeable design allows multiple applications beyond LASIK flaps

A comprehensive platform of surgical capabilities

The **iFS** advanced femtosecond laser goes well beyond LASIK flaps to enable the creation of full individualized corneal incisions for your ophthalmic procedures utilizing a single laser system.

- LASIK flaps
- **IntraLase**-Enabled Keratoplasty (IEK) incisions
- Intracorneal ring segments
- Inlay pocket channels
- Arcuate incisions
- Clear corneal and paracentesis incisions

The **iFS** laser is the ideal choice for your subspecialty

- Refractive surgery
- Corneal surgery
- Cataract surgery

The **iFS** laser system offers you the following treatment options:

1. Customizable and precise LASIK FLAP CREATION
2. Corneal PROCEDURES
3. Customizable inlay POCKET CHANNELS
4. Bladeless ARCUATE INCISIONS
5. Customized CATARACT INCISIONS

1 Customizable and precise
LASIK FLAP CREATION

Customizable and precise LASIK flap creation

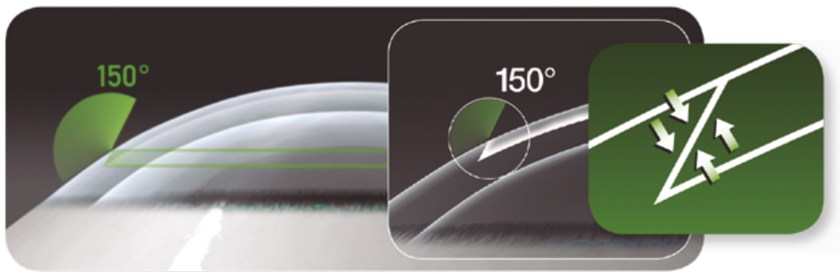
The **iFS** laser system provides you with customization of all surgical parameters to fit the needs of your patients

- Inverted bevel-in side cut up to 150° for optimal biomechanical stability[5]
- Elliptical flap option to maximize stromal bed exposure[6]
- Lower energy, tighter spot and line separation for smooth stromal beds and easy flap lifts[5,6]
- Reduces risk of infection and lessens patient discomfort, as epithelial integrity is preserved[5,6]

Benefits of inverted bevel-in side cut up to 150° vs standard side cut

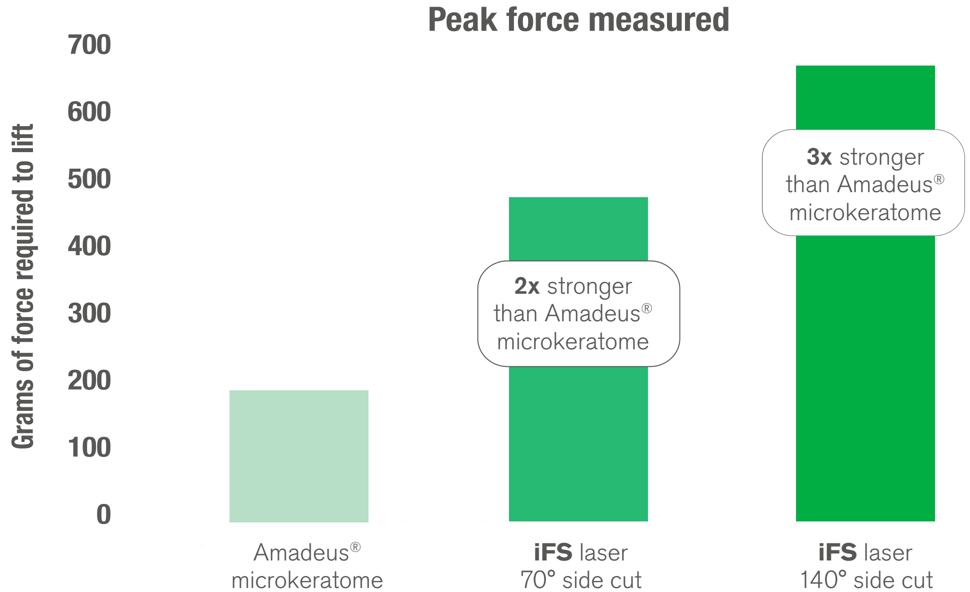
- 3x more flap adhesion strength than the Amadeus® microkeratome[7]
- Increased flap stability post operatively[7]
- Fewer dry eye signs and symptoms than with the 30° side cut[8]

Inverted bevel-in side cut, customizable to 150°, promotes flap replacement, positioning, and adhesion for optimal biomechanical stability of the post-LASIK cornea.[7]



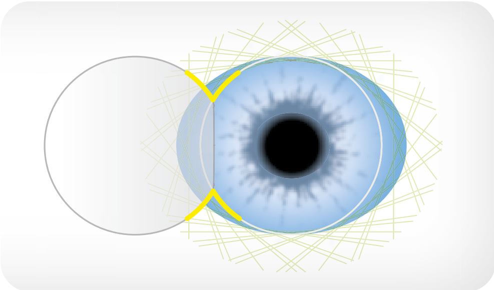
3-Month Comparative Measurement of Flap Tensile Strengths[7]

In New Zealand white rabbit eyes, three groups of flaps were created with either the Amadeus® microkeratome, **iFS** laser 70° side-cut angle, or **iFS** laser 140° side-cut angle. At 3 months, a force gauge was attached to a curved lens and pulled perpendicularly until the flap dehisced and peak force could be measured.

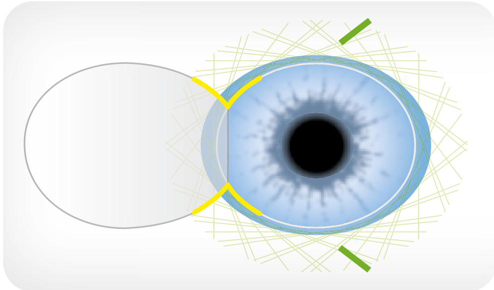


Elliptical flap option maximizes stromal bed exposure[6] for full delivery of excimer ablation

STANDARD ROUND FLAP



ELLIPTICAL FLAP OPTION AVAILABLE WITH **IFS** LASER



- Follows the natural contour of the cornea, allowing the vital lamellar fibers to be preserved during flap creation[6,9]

Low energy, tight spot and line separation for smooth stromal beds and easy flap lifts[5,6]

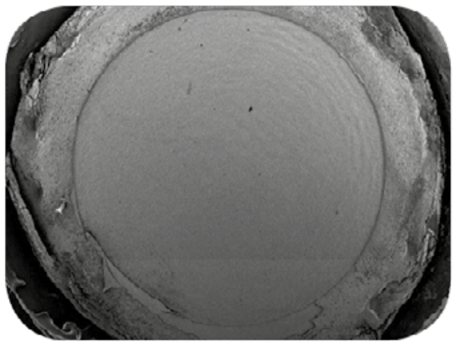
Reduces risk of infection and lessens patient discomfort, as epithelial integrity is preserved[5,6]

iFS laser offers

- low energy
- a tight spot and line separation

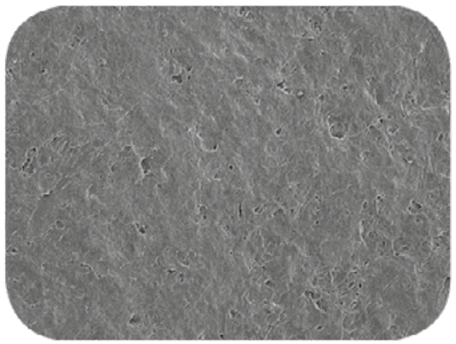
BENEFITS

- Results in smooth stromal beds for easier flap lift[6]
- Provides smoother flap edges to facilitate repositioning on the stroma[4]
- Helps minimizing inflammatory tissue reaction[5]
- May reduce flap creation time resulting in a higher patient comfort[5]



9x

iFS laser[9]



300x

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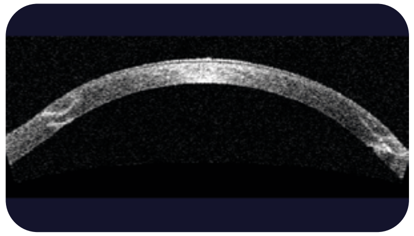
2 Corneal PROCEDURES

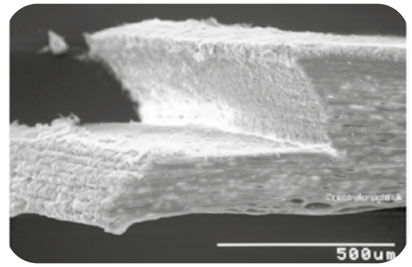
Reproducible grafting of donor and host cornea

Benefits of improved tissue alignment[10]

- Complex incision patterns, which are reproducible between donor and host cornea[10]
- Precisely shaped angled edges for complementary fit[10,11]
- Unlimited pattern configurations including:
  - Top hat
  - Mushroom
  - Anterior side
  - Zig-zag
  - Half zig-zag
  - Christmas tree



Optical coherence tomography (OCT) image of **iFS** laser-created zig-zag pattern performed on the cornea.[12]

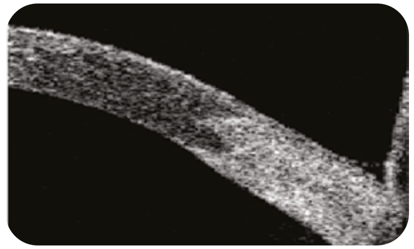


Scanning electron microscope (SEM) image showing the precisely shaped angled edge.*

*Zig square image courtesy of Sheraz M. Daya, MD, Centre for Sight, UK

Speeds wound healing in full-thickness corneal transplants

- Better wound integrity and 7x higher resistance to wound leakage than manual techniques[10]
- Utilizing incisions with multiplanar pattern configuration ensures a snug fit that allows the use of less suture tension and facilitates wound healing[10,12]



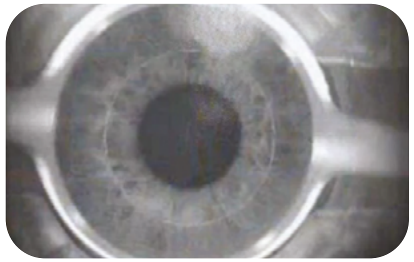
OCT image showing multiplanar pattern configuration to ensure a snug fit.[12]

More control in intracorneal ring segments (ICRS)

Precise channels for ICRS

Available adjustable parameters include channel width, surgical zone offset, channel depth, laser energy, and spot/line separation.

Customized channels for your patients' individual ICR anatomy. Create a better match between the created channel and various ring segment dimensions.

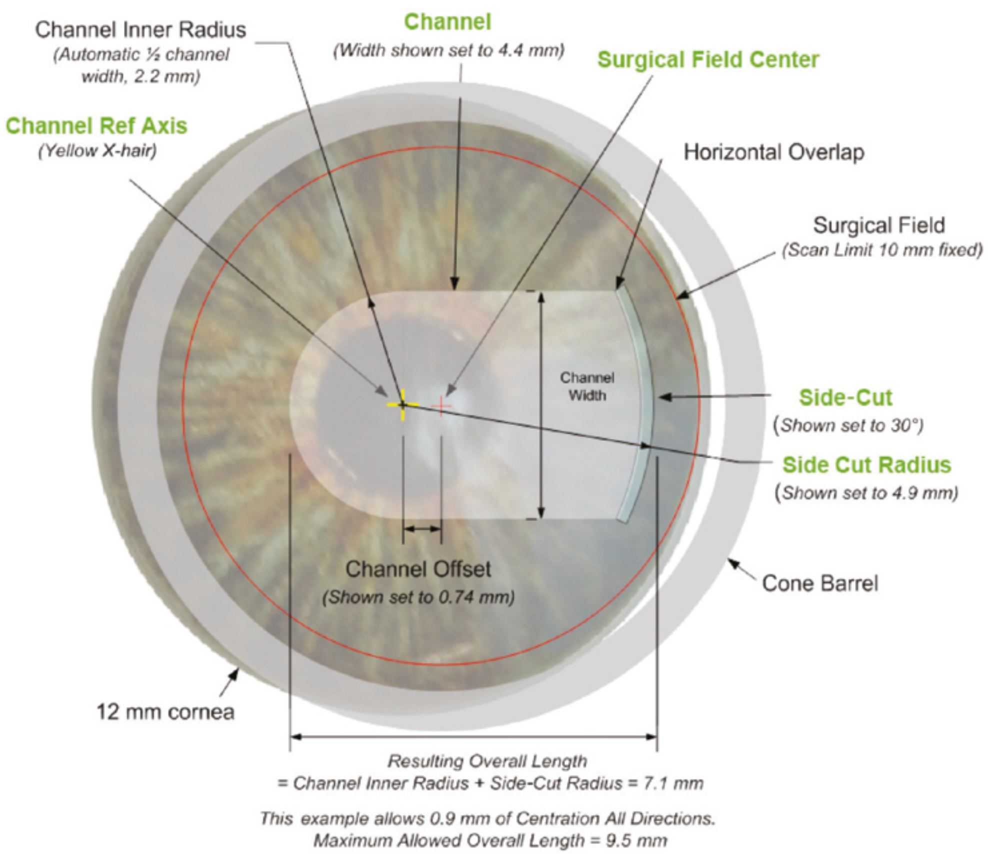


3 Customizable inlay POCKET CHANNELS

Design and create inlay pocket channels customized to your needs

- Features adjustable parameters such as pocket width, pocket offset, pocket depth, side-cut radius and side-cut angle[13]
- Performs customized pockets for each individual cornea and inlay[13]
- The pocket channels are created to match the various inlay dimensions[13]

Create customizable inlay pocket channels in the cornea of each patient through adjustable parameters, including channel width and offset and side-cut angle and radius.

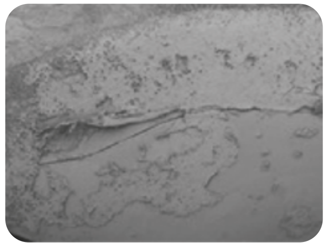


4 Bladeless ARCUATE INCISIONS

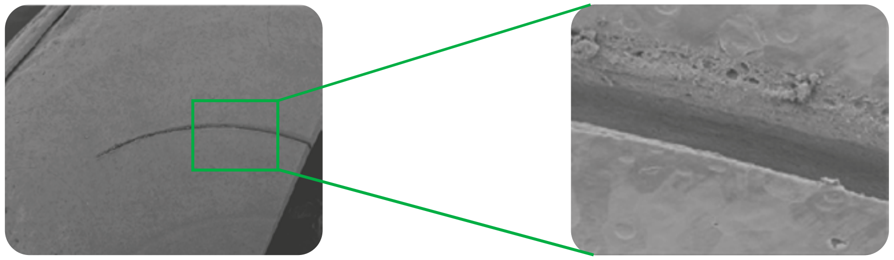
Greater precision and customization[14]

- Allows creation of intrastromal incisions[13]
- Individualizes each incision using customizable parameters for greater surgical confidence[15]
- Allows complete control of angles, placement, and orientations with micron-level accuracy[15]

Scanning Electron Microscopy image showing irregular arc pattern created with a manual blade[15]



SEM images showing very regular, arc-shaped penetrating arcuate incision with the **iFS** laser. Note: sharply cut epithelium and Bowman's layer[15]



Intrastromal arcuate incisions can potentially provide several clinical advantages

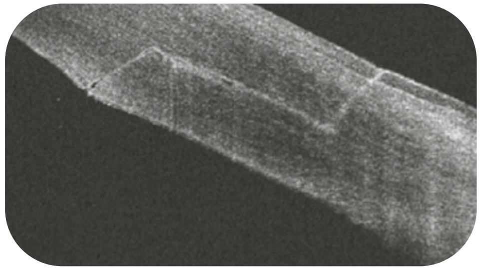
- Preserves corneal integrity with fewer stromal lamellae incised and Bowman's layer preserved reducing possible risks[14]
- Rapid recovery and stability of vision[14]

5 Customized CATARACT INCISIONS

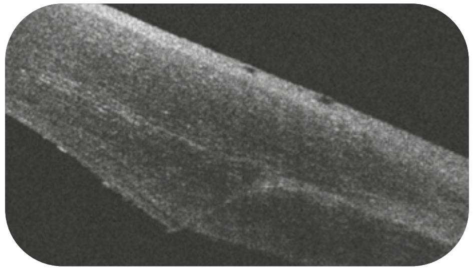
Do even more with proven **iFS** technology

Laser Cataract Suite for the creation of intact, customized cataract incisions

- Full customization of all laser parameters to individualize multiplanar incision designs
- Multiplanar clear corneal and planar paracentesis incisions remain intact until you decide to open them



OCT side view image of the cornea after creation of a triplanar clear corneal incision. Note: incisions have a precise construction with clear, defined planes[16]



OCT image of 1-day postsurgical clear corneal incision[16]

A comparative study between manual and **iFS** laser-created Clear Corneal Inicisions (CCI) demonstrates:

- The **iFS** laser created a three-plane CCI which did not induce significant changes in simulated K or corneal higher-order wavefront aberrations over the mesopic pupil size.[17]
- There was no leakage at the end of the surgery with either technique as proven by the Seidel test, however, the CCI created by the **iFS** laser did not require stromal hydration of the incision lateral walls, which was always used after the manual CCI and required visible whitening of the stroma.[17]

iFS
Femtosecond Laser

SYSTEM SPECIFICATIONS[13]

System Dimensions and Weight	
Height	60 in (1524 mm)
Width	47 in (1194 mm)
Length	41 in (1042 mm)
Weight	865 lbs (410 kg)
Crate Parameters	61 in (W) x 59 in (L) x 70 in (H) (1549 mm x 1499 mm x 1778 mm)
Shipping Weight	1462 lbs (663 kg)
Shipping Contents	Console (Chassis, Beam Delivery Device, Video Microscope, Display Panel and Keyboard), Footswitch, System Master Keys, Interlock Connector, UPS System

System Specifications	
Laser Type	Mode-locked, diode-pumped Nd:glass oscillator with a diode-pumped regenerative amplifier
Pulse Repetition Rate	150 kHz
Laser Pulse Duration	600 fs to 800 fs (±50 fs)
Maximum Laser Pulse Peak Power	4.2 MW (0.8 MW)
Central Laser Wavelength	1053 nm
Remote Interlock	Yes
Beam Delivery Device Height	Minimum 32.5 in (825.5 mm) (floor to applanation lens) Maximum 42.5 in (1042 mm) (floor to applanation lens)
Energy Consumption	Approximately 2400 BTU/HR = 703 Watts UPS — Approximately 225 BTU/HR = 66 Watts

Chair Selection Criteria Requirements are driven by the vertical travel	When the BDD is at its lowest point in Z-down, the height of the floor to the applanation lens is 32.5 in (82.55 cm)
(Z-direction) of the Beam Delivery Device (BDD).	When the BDD is at its highest point in the Z-up, the height of the floor to the applanation lens is 42.5 in (104.14 cm)

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Femtosecond Laser

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