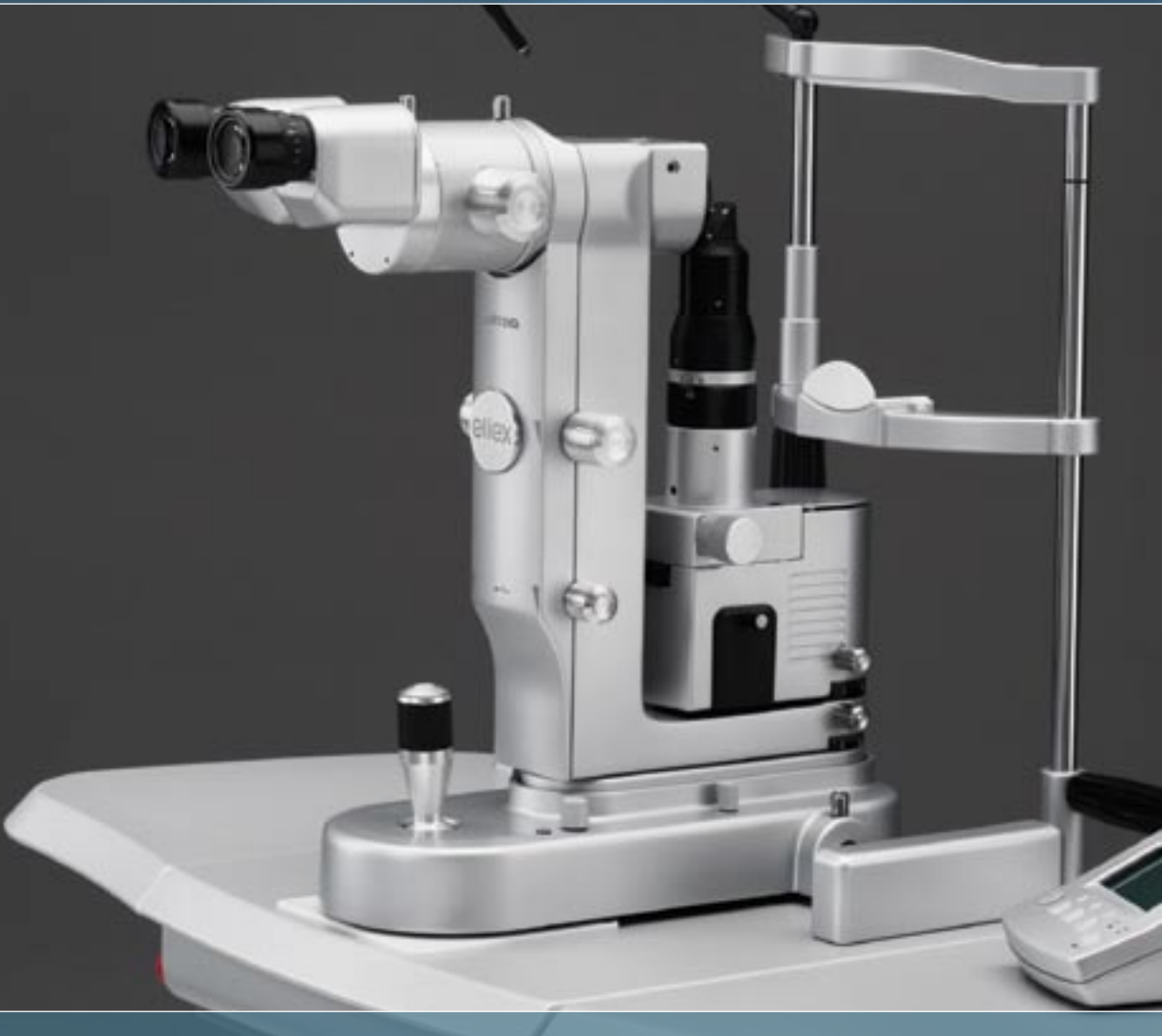


# The ULTRA Q™ ADVANTAGE

Ultra-Efficient, Ultra-Precise Photodisruption



## The Ultra Q™ Advantage

The Ellex Ultra Q is the ophthalmic industry's premier anterior segment laser. It features an Ultra Gaussian beam profile and fast pulse rise time that create ultra-low energy optical breakdown (in air) of approximately 1.8mJ, in optimal conditions. Other photodisruptors, in comparison, typically achieve optical breakdown in air of 3 to 4mJ in optimal conditions.

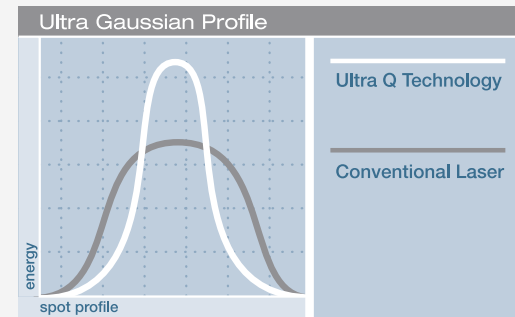
This optimized laser energy enables posterior capsulotomy and peripheral iridotomy procedures to be performed at lower, safer power levels and results in less risk of lens pitting, more efficient tissue cutting with fewer shots and less cumulative energy delivered to the patient.

### Capsulotomy for Presbyopic IOLs

A precise capsulotomy is essential for intraocular lenses that correct presbyopia through implantation in the posterior chamber's capsular bag. Good IOL centration, in terms of the pupil, optimizes lens performance, while decentration can cause halos and poor vision. The goal is a perfectly centered, precise capsulotomy that will not affect the tension of the bag and the position of the IOL in the visual axis. The precision and lower energy optical breakdown provided by the Ultra Q creates a capsulotomy opening that is precisely controlled, and does not damage valuable lenses – even if the lack of a ridge makes the capsule adhere to the optic.

### Iridotomy for Phakic IOLs

Refractive IOLs that are designed to correct myopia, or hyperopia (also known as Phakic IOLs) can be placed in front of the iris or between the iris and the natural lens. To prevent any possibility of IOL-induced pupillary block, these lenses require peripheral iridotomies prior to surgery. The iridotomy aperture must be large enough to ensure a balanced aqueous flow, and small enough so that no light is transmitted back to the pupil, which can cause double vision. The Ultra Q enables the ophthalmologist to create a precise size of the iridotomy, often in a single shot that uses lower energy than other lasers.



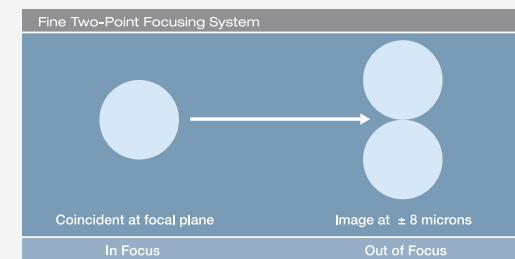
### Efficient

The Ultra Q's specially designed laser cavity consistently produces optical breakdown at low energy levels. This low energy breakdown can only be achieved by a custom-designed laser cavity optimized to produce an Ultra Gaussian, high peak energy pulse of no more than four nanoseconds.

Optical breakdown at low energies creates a more confined shockwave and reduces the risk of damaging IOLs. The power density required to reach optical breakdown in air is  $>10^{10}$  W/cm<sup>2</sup> and is given by the equation:

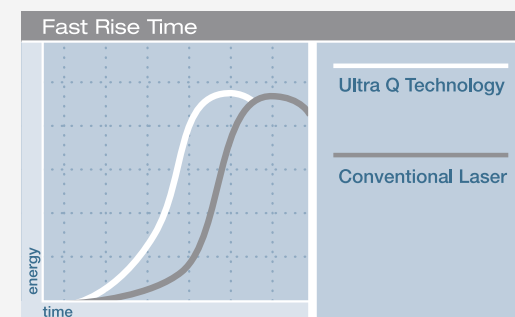
$$PD = \frac{E}{A \times T}$$

E = energy, A = spot size area, T = pulse duration



### Precise

Detection of aiming deviations of as little as 8 microns from the focal plane ensures that energy is placed where intended in relation to the target. With the Ultra Q's tolerance range of ± 8 microns, the physician can easily detect if the system is out of focus.



### Safe

The Ellex Ultra Q employs high-speed electronics and software to ensure even greater precision in plasma formation. This is achieved through the faster pulse rise time, which ensures optical breakdown takes place instantaneously, and always at the same point. Because the energy is confined in a tight plasma ball, more precise results are possible.

## Exceptional Lifespan

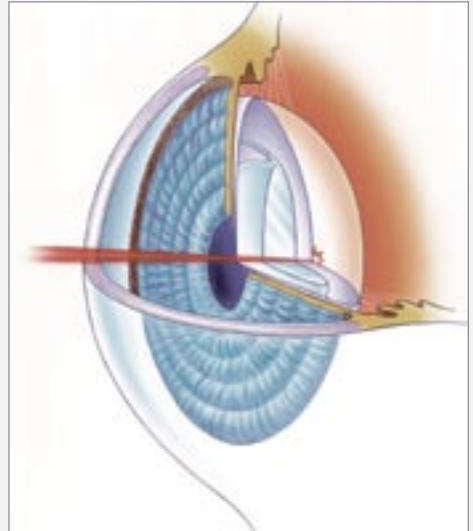
The Ultra Q's unique, solid-state Q-switch optical shutter has been life-tested to more than 400,000 shots without deterioration over time, ensuring a dramatic reduction in long-term operating costs.

## Faster Treatment

Innovative electronics and software routines provide firing rates of up to 3 shots per second (3Hz), which makes treatment time up to three times faster than common YAG laser systems.

## Superior Ergonomics

The integrated Ultra Q design provides easy access for patient and doctor, ambidextrous controls and an easy to read remote display panel.



### Worldwide

82 Gilbert Street  
Adelaide, SA  
5000 AUSTRALIA  
+61 8 8104 5200

### USA

7138 Shady Oak Road  
Minneapolis, MN  
55344 USA  
1 800 824 7444

### Japan

4-3-7 Miyahara 4F  
Yodogawa-ku Osaka  
532-0003 JAPAN  
+81 6 6396 2250