



# RayOne<sup>®</sup> Hydrophobic IOL

**New design. New standard**



MADE IN UK



# Setting new standards since 1949

## About Rayner

When Sir Harold Ridley designed the world's first IOL in 1949, he chose Rayner to manufacture this ground-breaking invention. Rayner has remained at the forefront of innovation for nearly 70 years, focused on providing you and your patients with the best IOLs - always driven by science to improve patient outcomes and safety.

Rayner is the only manufacturer of IOLs in the UK, with its state of the art manufacturing plant and global headquarters on the south coast of England.

Supplementing Rayner's family of IOL systems is a full spectrum of OVDs, as well as range of tear film and anti-inflammation pharmaceutical solutions.

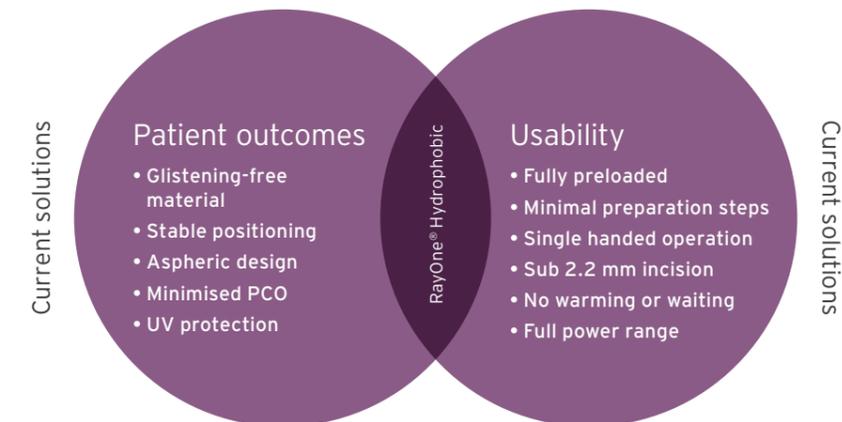


# Ultra glistening-free. Ultra smooth. Ultra stable

RayOne® Hydrophobic was born out of a desire to deliver a better operating room experience for surgeons and better visual outcomes for patients, by challenging the current hydrophobic IOL solutions available to them.

Never a company to follow the crowd, when we developed the high performance RayOne® platform, we set a new standard for fully preloaded injection systems with our 1.65 mm nozzle. Today, we are expanding the potential of this innovative technology with our first hydrophobic IOL made of Rayner's brand new proprietary material.

**RayOne® Hydrophobic is designed to eliminate the compromises that surgeons have had to put up with - until now.**



### Best of both worlds

Using our high performance hydrophilic RayOne® system as a foundation, RayOne® Hydrophobic has been designed so that surgeons can offer patients excellent visual outcomes whilst still being user friendly in the operating room.

# RayOne® injector



For predictable and efficient delivery, every time

### Supplied in saline

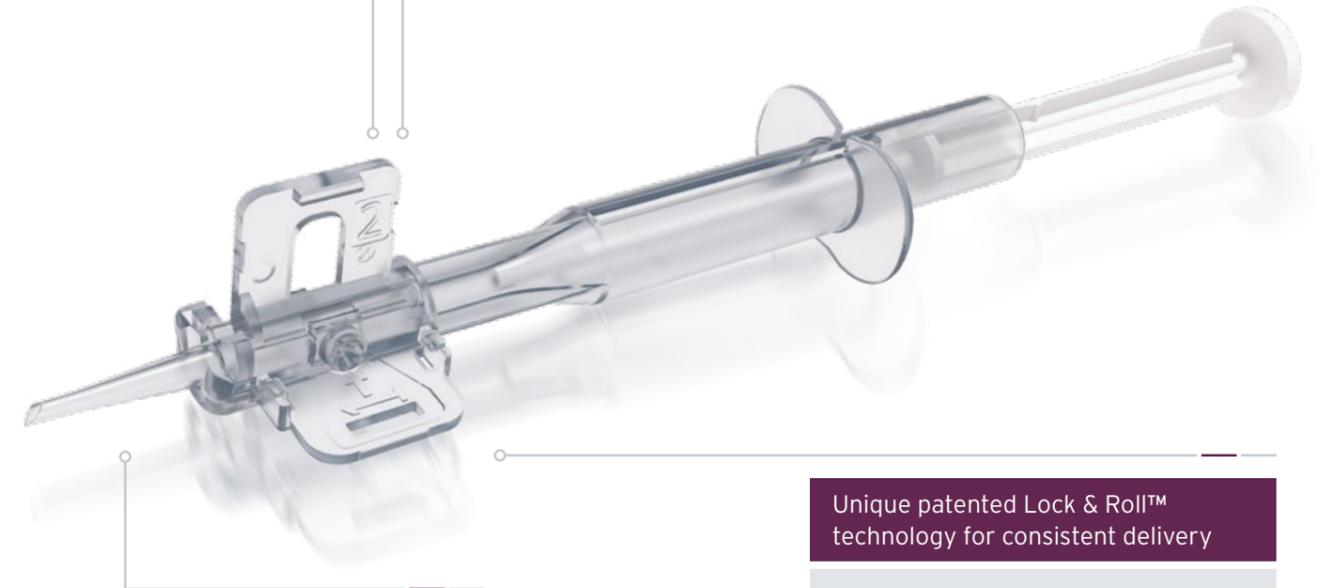
- Special lubricious injector coating - activated when wet
  - i. Smooth lens delivery
  - ii. Repeatable performance
- Equilibrated state
  - i. Dimensionally stable
  - ii. Reduced chance of lens movement

### True 2-step system

- Simple and intuitive
  - i. Minimal learning curve
  - ii. Minimises error
- Increase efficiencies
  - i. Designed for repeatability
  - ii. Reduces operating time
- **Step 1:** Insert OVD into cartridge via port
- **Step 2:** Lock cartridge ready for implantation

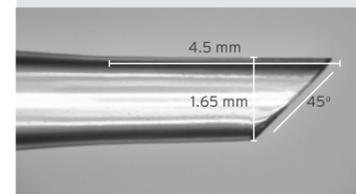
### Ease of use

- Single handed plunger
  - i. Minimal force required
- Ergonomic design
  - i. Ease of handling



### Sub 2.2 mm incision

- 1.65 mm RayOne® nozzle for sub 2.2 mm incision**
- Smallest fully preloaded injector nozzle
    - i. Ease of insertion
    - ii. Enables true micro incision
  - Parallel sided for minimal stretch
    - i. Sub 2.2 mm delivery
    - ii. Maintains incision architecture



### Unique patented Lock & Roll™ technology for consistent delivery

- Rolls the lens to under half its size before injection
  - i. Consistent, smoother delivery
  - ii. Reduces insertion forces
- Fully enclosed cartridge with no lens handling
  - i. Reduces the risk of lens damage
  - ii. Minimises chance of contamination

### Lock & Roll™ technology



Consistently locked and rolled to under half its size in one simple action

# New RayOne® Hydrophobic 6 mm optic

## Ultra glistening-free. Ultra smooth

### Ultra glistening-free

An independent *in-vitro* study against four leading hydrophobic IOLs found Rayner's lens to be glistening-free and equivalent or superior to the other lenses<sup>1</sup>.

### Suitable for all patients

Aberration-neutral technology for visual quality and acuity in all light conditions.



### Designed to minimise PCO

Thanks to our Amon-Apple 360° Enhanced Square Edge and its natural bioadhesivity, our hydrophobic lens is designed to minimise the risk of PCO.

### Ultra smooth

Our patented Lock & Roll™ system rolls the lens inside the injector for a single smooth movement into the eye, with minimal force needed.

Once in the eye, our hydrophobic lens unrolls smoothly at a natural speed for efficient surgery time.

### Full preloaded power range

-10.0 D to +32.0 D power range means only one IOL solution is needed for all your monofocal patients.

### Always ready to implant

Our proprietary material is not dependent on the temperature within the operating theatre, so it arrives ready-to-use with no warming needed.

### Improved performance and quality

All hydrophobic acrylic IOLs absorb water once *in situ* within the eye, causing expansion in size. Our lens is supplied in 0.9% saline solution so that it is in an equilibrated state and dimensionally stable from manufacture to implantation - reducing the chance of undesirable post-implant lens movement.

# New Cornerstone™ technology

## Ultra stable

Our patented Cornerstone™ lens design ensures the IOL is perfectly balanced as it travels down the injector nozzle. Once in the eye, the unique Cornerstone™ tabs lock against Rayner's anti-vaulting haptics for superb stability.

### During lens delivery

As hydrophobic lenses are made of a naturally stiffer material than their hydrophilic counterparts, they are typically more difficult to compress and fold inside the injector.

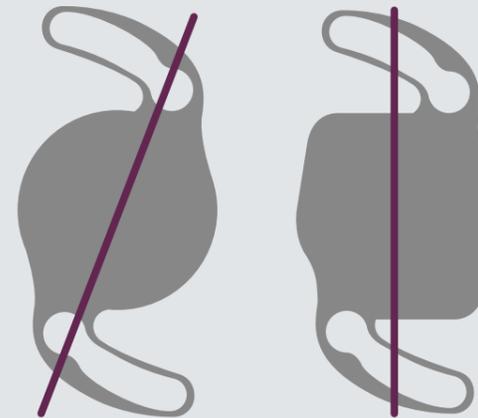
If the IOL is not folded symmetrically then it can exit the injector nozzle unpredictably - for example, in the undesired 'S' position.

**Our Cornerstone™ tabs balance the volume of material on both sides of the lens - resulting in:**

1. Balanced weighting inside the injector
2. Controlled haptic orientation
3. Controlled speed of exit

### How it works:

Our Lock & Roll™ system rolls the hydrophobic lens with improved symmetry, meaning that it travels down the injector nozzle in a more stable and predictable manner, with a controlled exit into a 'Z' orientation.

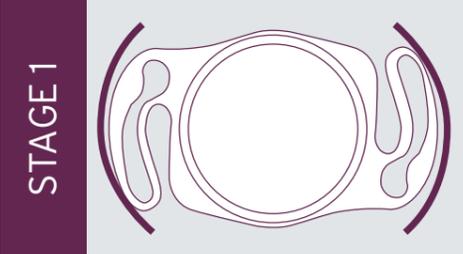


Traditional lens design

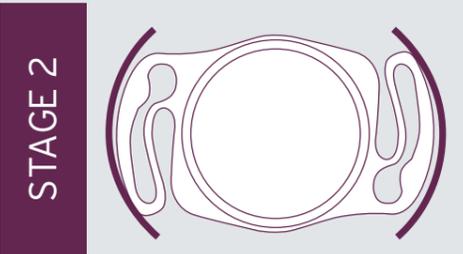
RayOne® Hydrophobic

### In the eye

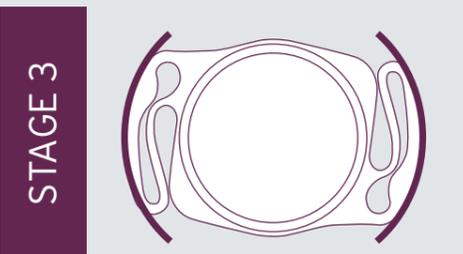
Combining the Cornerstone™ tabs with our anti-vaulting haptic technology creates superb stability once inside the capsular bag.



Outer haptics begin to take up the compression forces of post-operative capsule contraction



Outer haptics engage the inner haptics



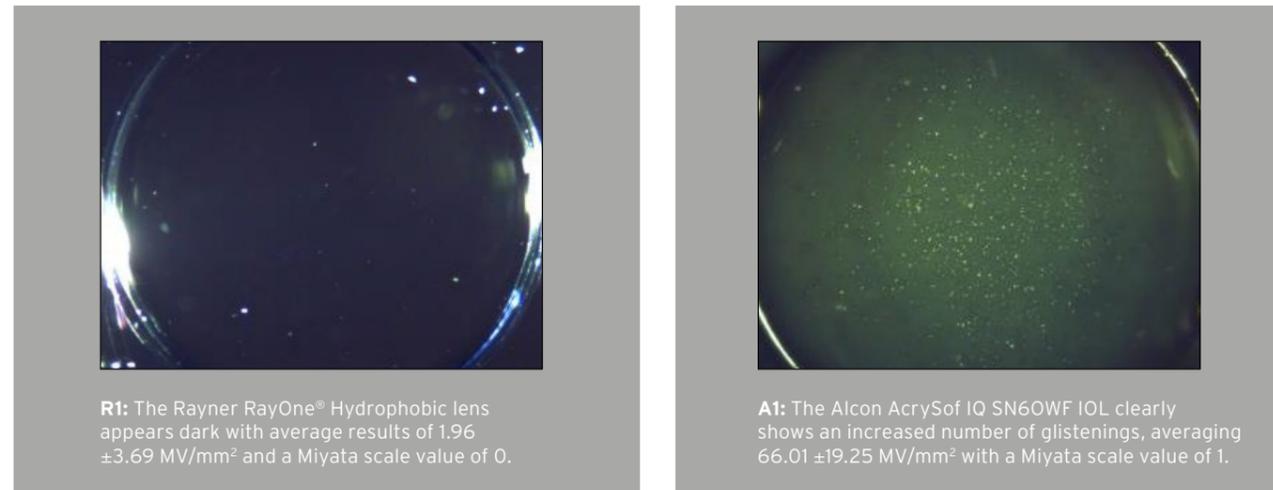
Haptic tips gently meet the optic corners and are effectively locked into position

# The difference with RayOne® Hydrophobic

Glistenings are fluid-filled microvacuoles that form within the matrix of the lens when exposed to an aqueous environment<sup>1</sup>. High levels of glistenings can create disturbances for patients, with the scattering of light impacting their contrast sensitivity and unnecessarily compromising their post-surgery satisfaction.

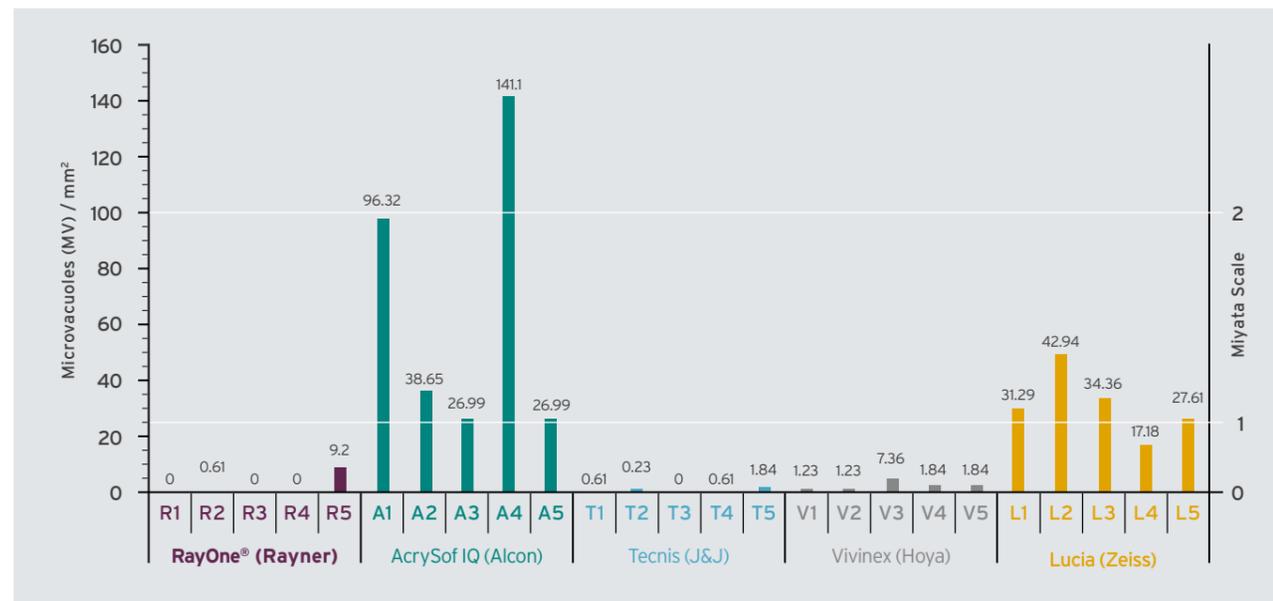
## Independent comparative study

The images below are from an independent study conducted at the University Hospital Heidelberg in Germany. They show the results after glistening induction at 14x magnification.



Following an established protocol, RayOne® Hydrophobic was tested against four commercially available hydrophobic IOLs. The chart below shows the test results of five IOLs of each model which were subjected to an *in-vitro* aging procedure designed to simulate clinical conditions over time, and evaluate the resultant level of glistenings in each IOL material. A score below one on the clinical Miyata scale will not produce any significant visible glistenings on a slit lamp examination and is considered 'glistening-free'.

**The independent study report concludes that our ultra glistening-free RayOne® Hydrophobic is 'absolutely equivalent or even superior' to the best hydrophobic IOLs currently available on the market<sup>1</sup>.**



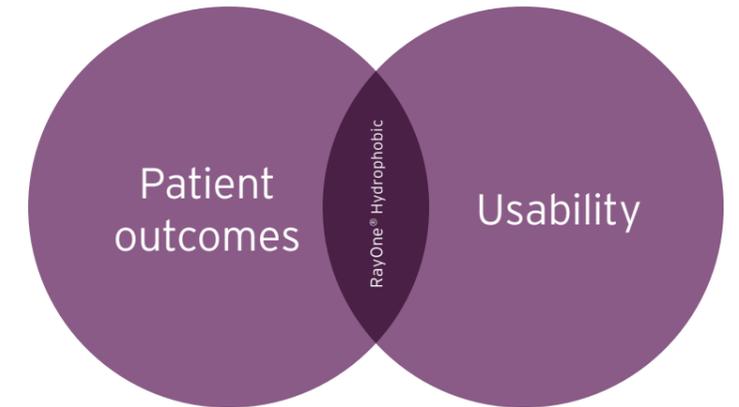
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# Designed for a better experience than current hydrophobic IOLs



## RayOne® Hydrophobic

Unwilling to accept the compromises inherent with many hydrophobic lenses, RayOne® Hydrophobic is designed to provide patients with the visual outcomes they demand in a high performing preloaded system that supports surgeons in the operating room.



**Superb stability in the eye:**

- ✓ Unique lens design combines our Cornerstone™ shape with anti-vaulting haptics for stability from the nozzle and into the eye
- ✓ Dimensionally stable

**Optimised visual qualities:**

- ✓ Ultra glistening-free
- ✓ Aspheric, aberration-neutral design
- ✓ UV protection

**Minimised risk of complications:**

- ✓ Sub 2.2 mm incision via 1.65 mm injector nozzle
- ✓ Designed to minimise PCO due to Amon-Apple 360° Enhanced Square Edge

**Easy to use and manage:**

- ✓ Fully preloaded, true 2-step injector system with patented Lock & Roll™ technology
- ✓ Proprietary hydrophobic material with no warming or waiting required
- ✓ Full range of powers -10.0 D to +32.0 D means only one monofocal solution for all your patients

RayOne® family

RayOne® Hydrophobic is the newest member of the RayOne® family of IOLs.

Based on the well-known, high performance Rayner platform that **performs again and again.**

Model Name:	RayOne® Hydrophobic Aspheric
Model Number:	RA0800C
Power Range:	-10.0 D to +7.0 D (1.0 D increments, inc. Plano) +8.0 D to +30.0 D (0.5 D increments) +31.0 D to +32.0 D (1.0 D increments)

Delivery System	
Injector Type:	Single use, fully preloaded IOL injection system
Incision Size:	1.65 mm nozzle for a sub 2.2 mm incision
Bevel Angle:	45°

Aspheric Monofocal IOL	
Material:	Single piece hydrophobic acrylic
UV Protection:	UV absorption 10% cut-off is 385 nm
Refractive Index:	1.51
Water content:	<3%
Diameter:	Optic: 6 mm, Overall: 12.5 mm
Optic Shape:	Biconvex (positive powers), Plano, concave (negative powers)
Asphericity:	Posterior aspheric surface with aberration-neutral technology
Optic Edge Design:	Amon-Apple 360° Enhanced Square Edge
Haptic Angulation:	0°, uniplanar
Haptic Style:	Cornerstone™ lens design with anti-vaulting haptic (AVH) technology

Estimated Constants for Optical Biometry					
SRK/T	Haigis			HofferQ	Holladay
A-constant	a0	a1	a2	pACD	SF
118.6	1.17	0.40	0.10	5.32	1.56

For Contact Ultrasound, the estimated A-constant is 118.0

Please note that the constants indicated for all Rayner lenses are estimates and are for guidance purposes only. Surgeons must always expect to personalise their own constants based on initial patient outcomes, with further personalisation as the number of eyes increases.

<sup>1</sup>Independent in-vitro study, IOL material purity report (University Hospital Heidelberg, Germany)



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To find out more about how we're setting new standards for both surgeons and patients, visit [rayner.com/hydrophobic](http://rayner.com/hydrophobic)