

# Technical information

Model Name	RayOne EMV
Model Number	RAO200E
Power Range	+10.0 to +30.0 D (0.5 D increments)
Delivery System Type	Fully preloaded IOL injection system
Incision Size	Sub 2.2 mm

Delivery System	
Injector Type	Single use, fully preloaded IOL injection system
Nozzle Size	1.65 mm
Bevel Angle	45°
Lens Delivery	Single handed plunger

Aspheric Monofocal IOL	
Material	Single piece Rayacryl hydrophilic acrylic
Water Content	26% in equilibrium
UV Protection	Benzophenone UV absorbing agent
UV Light Transmission	UV 10% cut-off is 380 nm
Refractive Index	1.46
ABBE	56
Overall Diameter	12.50 mm
Optic Diameter	6.00 mm
Optic Shape	Biconvex (positive powers)
Asphericity	Aspheric anterior surface
Optic Edge Design	Amon-Apple 360° enhanced square edge
Haptic Angulation	0°, uniplanar
Haptic style	Closed loop with anti-vaulting haptic (AVH) technology

Estimated Constants for Optical Biometry								
SRK/T	Haigis			HofferQ	Holladay	Holladay II	Barrett Universal II	
A-constant	a0	a1	a2	pACD	SF	pACD	LF	DF
118.6	1.17	0.40	0.10	5.32	1.56	5.32	1.67	0

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.

**PRECAUTION:** The safety and effectiveness of the RayOne EMV (RAO200E) has not been substantiated in clinical trials. The effects of the RayOne EMV IOL optical design on quality of vision, contrast sensitivity, and subjective visual disturbances (glare, halo, etc.) have not been evaluated clinically. MTF testing of the RayOne EMV IOL may aid the Surgeon in understanding the theoretical image quality expected with the RayOne EMV IOL compared to the RayOne Aspheric IOL. However, these do not fully assess all aspects of clinical difficulties under all conditions. Surgeons must weigh the potential benefits of the modified optical design of the RayOne EMV IOL against the potential for risks associated with a degradation in vision quality and the lack of clinical data to characterize the impact of the RayOne EMV IOL optical design on contrast sensitivity and subjective visual disturbance. These considerations may be especially relevant to patients with certain pre-existing ocular conditions (prior corneal refractive surgery, irregular corneal astigmatism, severe corneal dystrophy, macular disease, optic nerve atrophy, etc.) or intraoperative conditions (posterior capsular rupture, complications in which the IOL stability could be compromised, inability to place IOL in capsular bag, etc.).



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Not all Rayner products are approved for sale in every country. Please contact your local Rayner distributor for details of which products are available in your area.

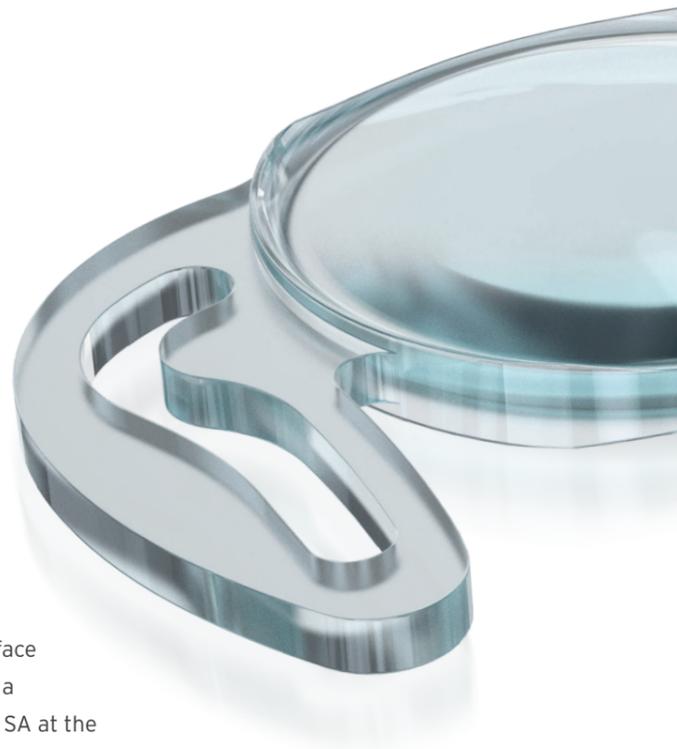
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## A new non-diffractive IOL solution

RayOne EMV, a new fully preloaded non-diffractive IOL, was designed in collaboration with world renowned surgeon, Professor Graham Barrett.

RayOne EMV offers reduced dysphotopsia compared to diffractive IOL designs. This is achieved through a unique aspheric anterior surface which adds to the positive spherical aberration (SA) of the cornea in a controlled manner. This positive SA smoothly transitions to negative SA at the periphery to prevent reducing image quality from positive SA at larger pupil sizes.\*



## Early clinical results

Dr. Mariano Royo, Director of Ophthalmology at the Hospital San Rafael in Madrid and Director of the Ophthalmic Institute of Madrid, shared his clinical results of 22 eyes of 11 patients implanted with RayOne EMV at six months post-op and 70 eyes of 35 patients implanted with TECNIS Eyhance (Johnson & Johnson Vision) measured at one-year post-op. Figure 1 reports the binocular defocus curve obtained using the best distance correction. A progression of plus and minus lenses in 0.5 D increments was consecutively added (range +3.0 to -5.0 D) to produce defocus after which visual acuity was tested again.

### RayOne EMV and TECNIS Eyhance Comparative Clinical Defocus Curve

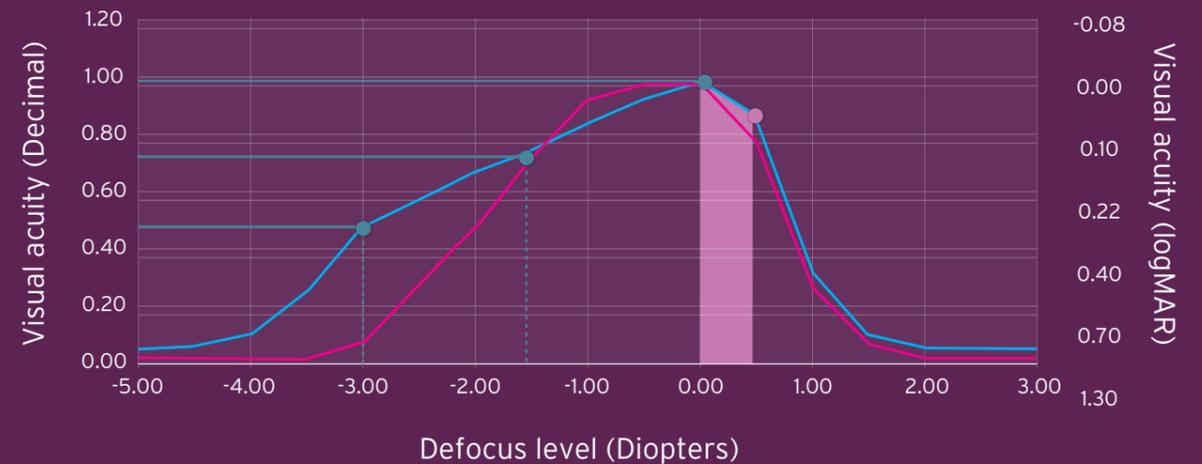


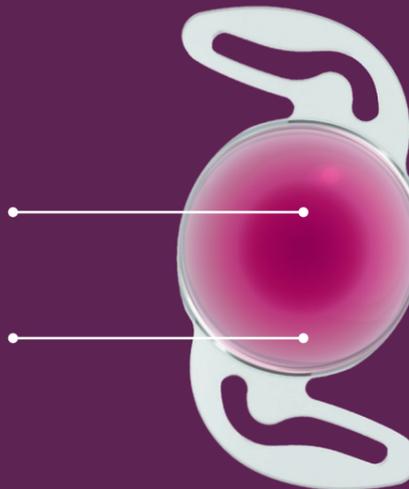
Figure 1

— RayOne EMV — TECNIS Eyhance

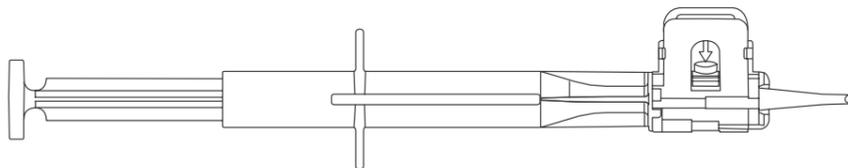


**Centre region:** Induced positive spherical aberration

**Blended edge region:** Smooth transition into negative SA to maintain visual acuity and contrast sensitivity under mesopic conditions



RayOne EMV comes fully preloaded in the award winning RayOne injector which offers a 1.65 mm nozzle for sub-2.2 mm incision. The easy-to-use two-step system minimizes error and learning curve while ensuring consistent delivery and reduced operating time.



The defocus curves of both IOLs showed a peak at defocus 0.00 D (4 m) and a reduction in visual acuity with the increase in negative defocus. However, Dr. Royo found that RayOne EMV achieved a smoother profile along the entire curve with a less abrupt decrease in visual acuity, especially within the defocus range from -2.00 (corresponding to 50 cm) to -3.00 D (corresponding to 33 cm).

Dr. Royo reported that 100% of his patients that received RayOne EMV achieved spectacle independence in the distance and intermediate range. The average reading aid at 33 cm was reported to be +1.5 D. One in three patients that received RayOne EMV had functional near vision without the need for spectacles.<sup>1</sup>

Visit [rayner.com/EMV](http://rayner.com/EMV) or email [USMarketing@rayner.com](mailto:USMarketing@rayner.com) for more information and to request an evaluation.

Patient outcomes for RayOne EMV can be tracked using RayPRO, a free contactless telehealth solution that collects three years' worth of Patient Reported Outcomes after cataract or refractive surgery.

\*Patient with large pupils (> 5 mm) may not be suitable candidates for this intraocular lens.  
1. Royo, M. RayOne EMV and TECNIS Eyhance: A Comparative Clinical Defocus Curve. Data on file. 2021.