



ArtisSymbiose®
BINOCULAR PHASE CONTINUITY

Complementary implants with continuous phase, FROV system

A unique hybrid multifocal
complementary set

SYMBIOSE MID & SYMBIOSE PLUS,
two complementary profiles for
presbyopia correction

Continuous vision from 40 cm to infinity,
a Full Range Of Vision system

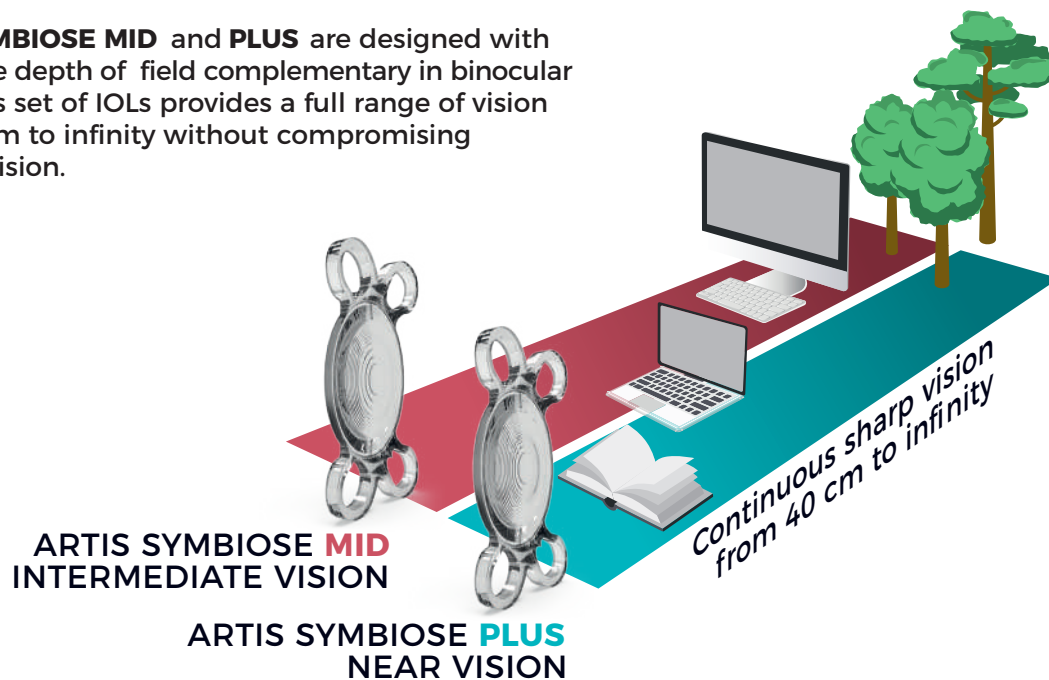


Made in France

 **CRISTALENS**

IOLs WITH PROGRESSIVE COMPLEMENTARITY

ARTIS SYMBIOSE MID and **PLUS** are designed with progressive depth of field complementarity in binocular vision. This set of IOLs provides a full range of vision from 40 cm to infinity without compromising distance vision.



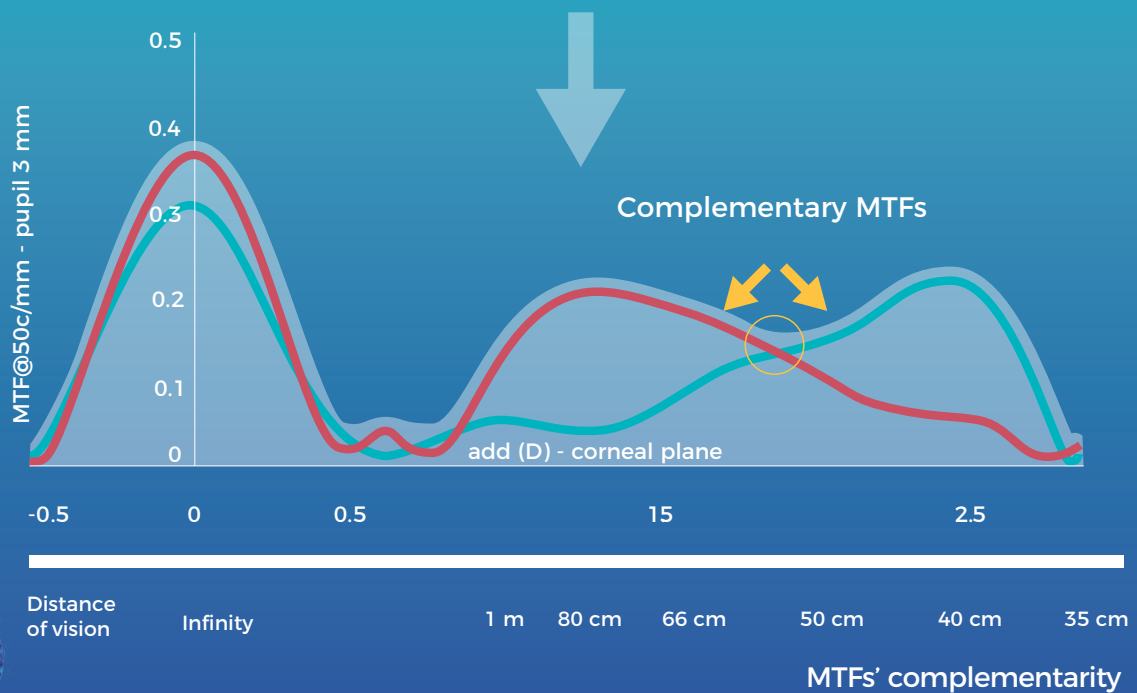
ARTIS SYMBIOSE MID

Superior continuum for intermediate vision



ARTIS SYMBIOSE PLUS

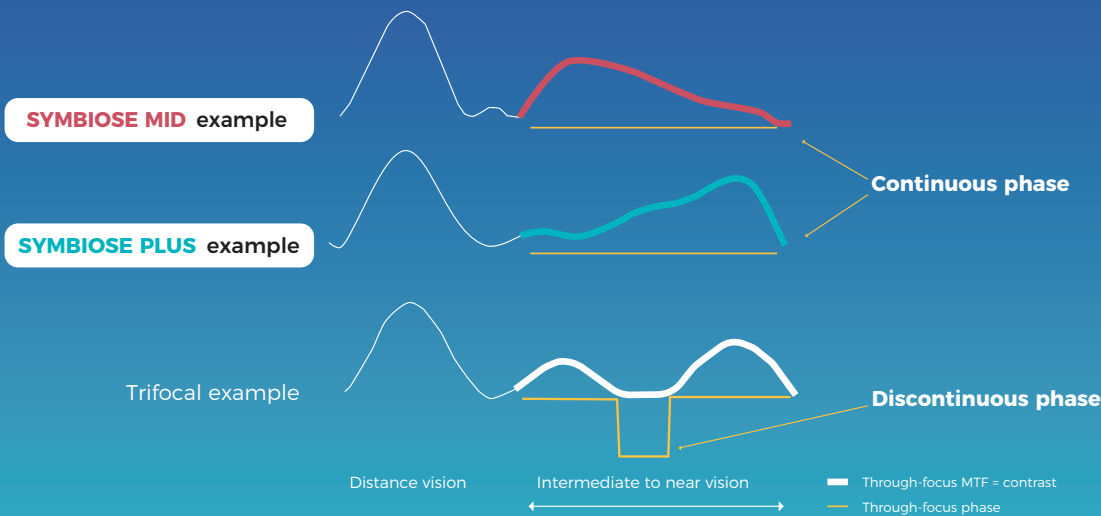
Superior continuum for near vision



Both IOLs provide distance vision

IOLs WITH PHASE CONTINUITY

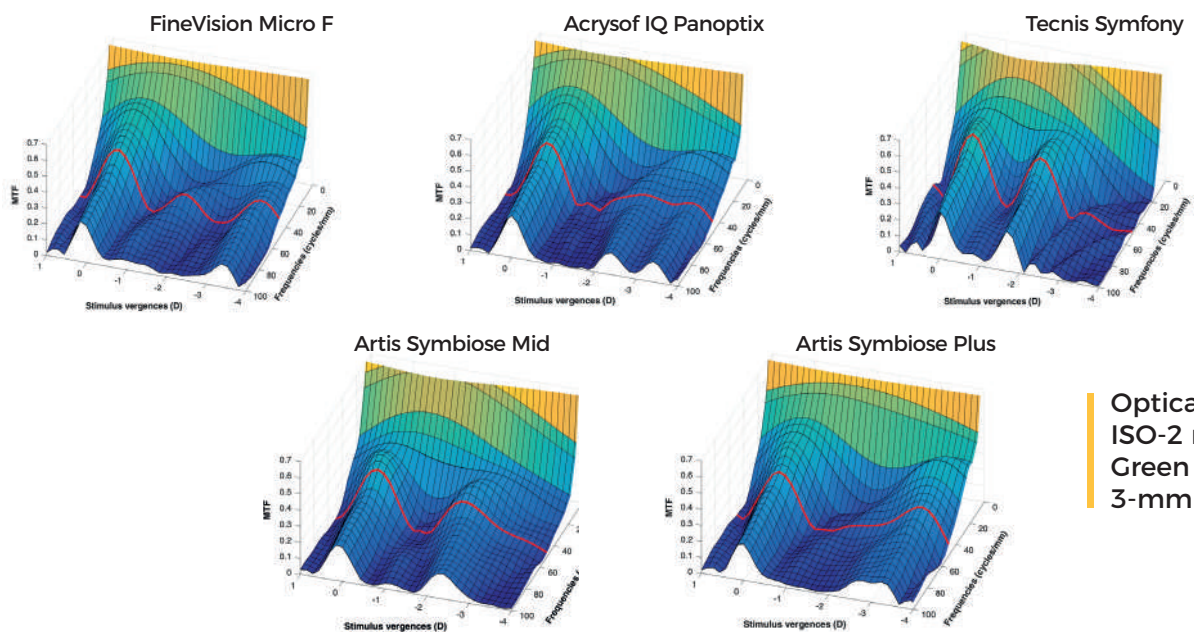
The through-focus continuous phase insures image sharpness throughout depth of field from intermediate to near vision.¹



Theoretical diagram: MTF & PTF @50c/mm - Pupil 3 mm

The complementarity of the MID and PLUS implants is based on asymmetrical diffraction profiles that provide continuous phase for a range of vision from 40 cm to infinity

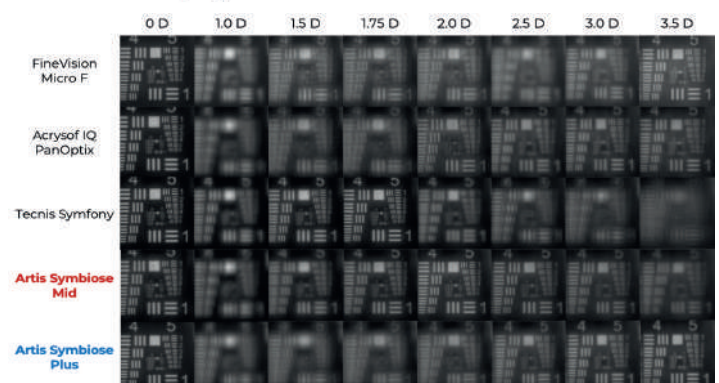
THROUGH-FOCUS MTF CURVE COMPARISON ²



Optical bench:
ISO-2 model
Green (546nm)
3-mm pupil

Through-focus USAF target imaging. The upper row shows the defocus steps at which the images were recorded. D = diopters.

The FineVision is manufactured by PhysiOL; the Acrysof IQ PanOptix is manufactured by Alcon; the Tecnis Symfony is manufactured by Johnson & Johnson; and the Artis Symbiose Mid and Artis Symbiose Plus are manufactured by Cristalens Industrie.

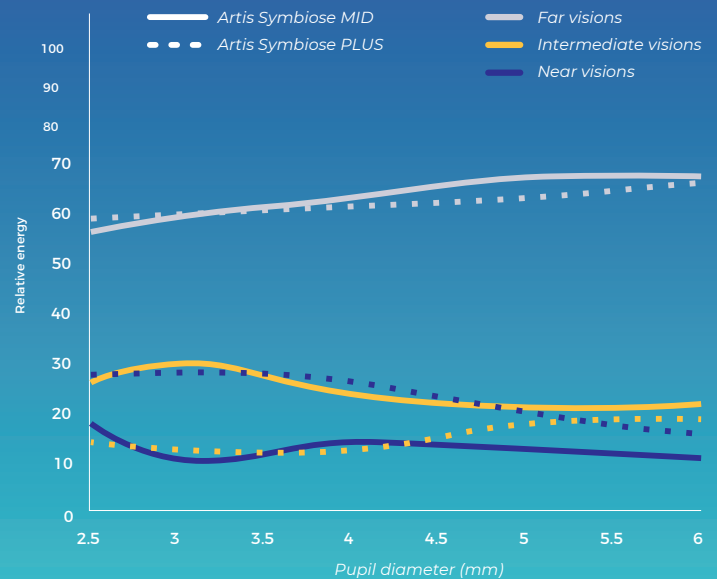


IOL TECHNOLOGIES AGAINST PHOTIC PHENOMENA



- Combine refraction and diffraction technologies
- Apodized (both lenses)
- Few diffractive steps (10/12)
- Tailored foci to distribute light energy wisely
- Binocularity

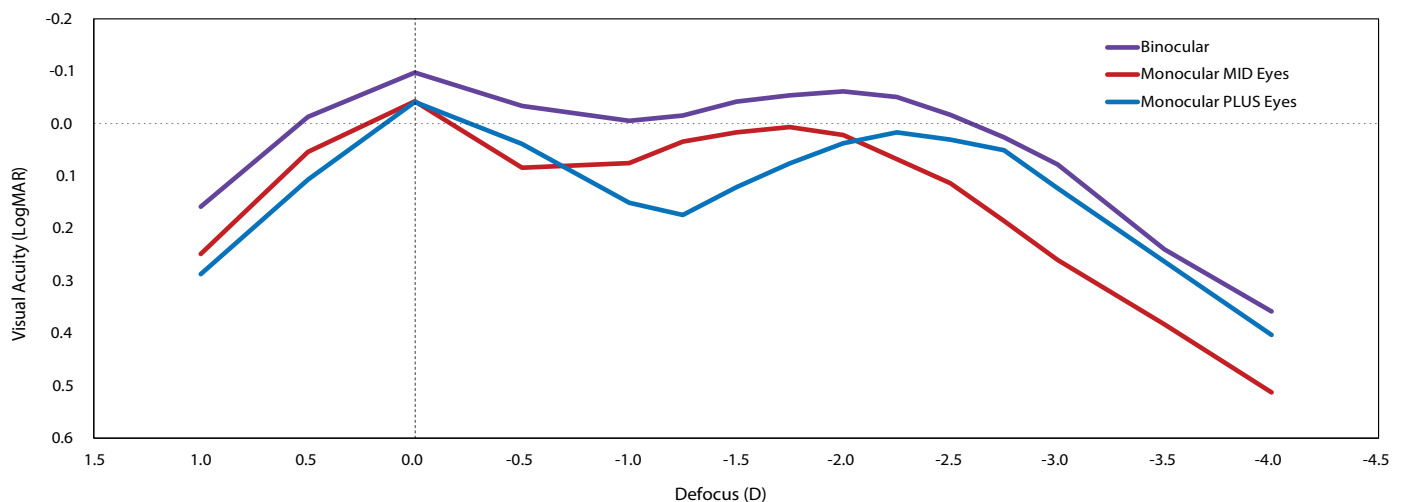
Distribution of light energy



CLINICAL OUTCOMES

DEFOCUS CURVE³

Defocus Curves
(27 patients, 4 months postOp)



Binocular depth-of-field of 3 D over 0 LogMAR
(and 3.75 D over 0.1 LogMAR)

"Cristalens Artisymbiose is now my go to lens combination when freedom from glasses is paramount."

Prof. Jonathan E. Moore, Cathedral Eye Clinic, Belfast, UK

POSTOPERATIVE SUBJECTIVE QUALITY-OF-LIFE³

Patient reported outcomes with the VF-14 questionnaire (score from 0 to 100) (23 patients, 10 months postOp)

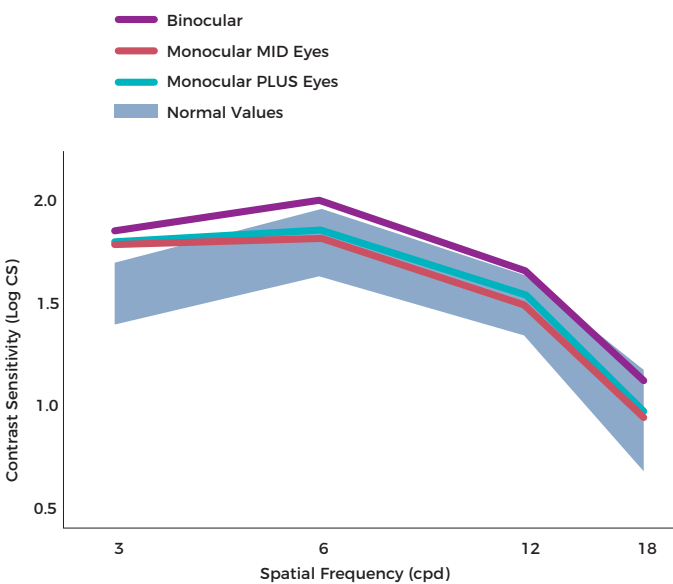
VF-14 score **95.99 (7.14)**
(Median, IQR)

SIZE OF PHOTIC PHENOMENA (LIGHT DISTORTION)³

| | |
|-----------------------------------|--------|
| ARTIS SYMBIOSE MID ³ | 12.57% |
| ARTIS SYMBIOSE PLUS ³ | 14.99% |
| TRADITIONAL TRIFOCAL ⁴ | 28.60% |
| QUADRIFOCAL ⁴ | 26.10% |
| DIFFRACTIVE EDOF ⁴ | 34.60% |
| REFRACTIVE EDOF ⁵ | 14.36% |
| MONOFOCAL ⁵ | 13.03% |

CONTRAST SENSITIVITY³

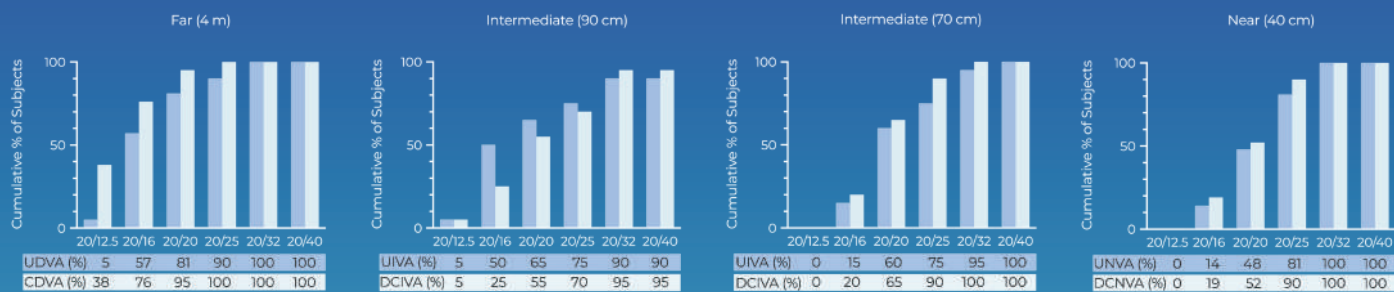
Contrast Sensitivity
(27 patients, 4 months postOp).



Patients' postoperative contrast sensitivity was within the normal range.

CUMULATIVE BINOCULAR VA ³

Percentage of patients that achieved different levels of VA (n = 21 patients)



Cumulative binocular VA at 10 months postoperatively

TECHNICAL SPECIFICATIONS

MULTIFOCAL

| | |
|---|--|
| Lens type | For implantation in the capsular bag |
| Optic diameter | 6.00 mm |
| Overall diameter | 10.79 mm |
| Design | One-piece square edge on 360° |
| Optic design | Diffractive multifocal extended depth of focus, with binocular complementarity Aspherical with negative spherical aberration to partly correct corneal spherical aberration Diffractive pattern on the anterior face, biconvex |
| Angulation | 5° |
| Material | Hydrophobic CBK 1.8 from Cristalens |
| Dioptric powers | From +10.0D to +35.0D by 0.5D |
| Additions (at IOL plane) | MID: Superior intermediate vision - PLUS: Superior near vision |
| Estimated A-Constant (SRK-T) | 119.3 Ultrasound biometry 119.7 Interference laser biometry |
| Suggested Anterior Chamber Depth (ACD) | 5.77 mm Ultrasound biometry 6.03 mm Interference laser biometry |
| Refractive index | 1.54 |
| Sterilization | Ethylene oxide |
| Injection system | Preloaded system |
| Recommended incision size | 2.0 mm |

TORIC MULTIFOCAL

Also available in TORIC version to correct corneal astigmatism for astigmatic patients:

| | |
|---|---|
| Optic design | Diffractive multifocal extended depth of focus, with binocular complementarity and toricity Aspherical with negative spherical aberration to partly correct corneal spherical aberration Diffractive pattern on the anterior face, toricity and marks on the posterior face, biconvex |
| Dioptric powers (spherical equivalent) | From +10.0D to +35.0D by 0.5D |
| Additions (at IOL plane) | MID: Superior intermediate vision - PLUS: Superior near vision |
| Cylinder powers | +0.75D / +1.50D / +2.25D (+3.00D / +3.75D on request) |



Dr Ramon Ruiz Mesa
Oftalvist Andalucia
Jerez de la Frontera,
Spain

“To achieve two innovative different profiles that are complementary, we combined:

- One continuum, which is superior for intermediate vision, this profile has a wide continuum of MTF from intermediate to near vision.
- In the other eye the patient will be implanted with another wide continuum, which is superior for near vision.
- Besides the large depth of focus of both profiles, the concept of this technology is based on the complementarity of the two defocus curves. Each profile gives an asymmetrical peak between intermediate and near vision, and the slopes cross at an intermediary point, where the heights reach a value of 0.15 of MTF, which correspond to a limit level of visual acuity. Thus, those asymmetrical complementary peaks allow the distance of the two summits of the MTF curves to be enhanced, without fearing the deleterious effect that limits the simple M&M and monovision concepts.

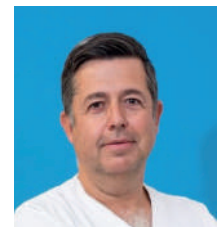
I have also had the opportunity to do a study on its toric version and the results have been very satisfactory in terms of refractive and rotational stability.”

“A logical approach: binocularity.

A different technology: two complementary lenses.

A novel result: great patient satisfaction and therefore ours.

Artis Symbiose is a new approach that achieves a new outcome: good distance vision and a continuous range from intermediate to near. My patients love it, it is finally the beginning of continuous vision.”



Dr Salvador García Delpech
Co CEO at AIKEN
Valencia, Spain



Dr Julio Fernández Mendy
Director Médico Instituto
de la Visión Presidente
de la Sociedad Argentina
de Oftalmología
2021-2022
Buenos Aires,
Argentina

“The Artis Symbiose intraocular lens introduces us to a new concept as its name tell us: Complementarity, “the art of symbiosis”.

It is not a mix and match, in which two different lenses are implanted, but rather the use of two COMPLEMENTARY lenses (MID and PLUS), designed to work together, with which you can see with both iols at all distances.

One of the features of these lenses is the Continuity Phase, which allows you to gain quality of vision at all distances without phase inversion.

The design of the six millimeter diameter optics is refractive and diffractive (hybrid) for a full range of extended focus (FROF) with 10 rings for the MID and 12 for the PLUS. The Haptics, four “lugs” provide perfect centering and great stability in the effective lens position. The material, hydrophobic acrylic, has been proven for many years in Cristalens monofocal and toric platforms, and with the convenience of the pre-loaded injector that avoids unnecessary manipulation.

The study of the defocus curves of the MID and the PLUS explain the sum of the depth of focus of both lenses combined, which is greater than the trifocals studied. A reduction in photic phenomena measured with the Light Distortion Analyzer is also observed in clinical studies, which is 10.36 when measured bilaterally, with photic phenomena while individually the MID 12.57 and the PLUS 14.99, and much lower than other trifocals.

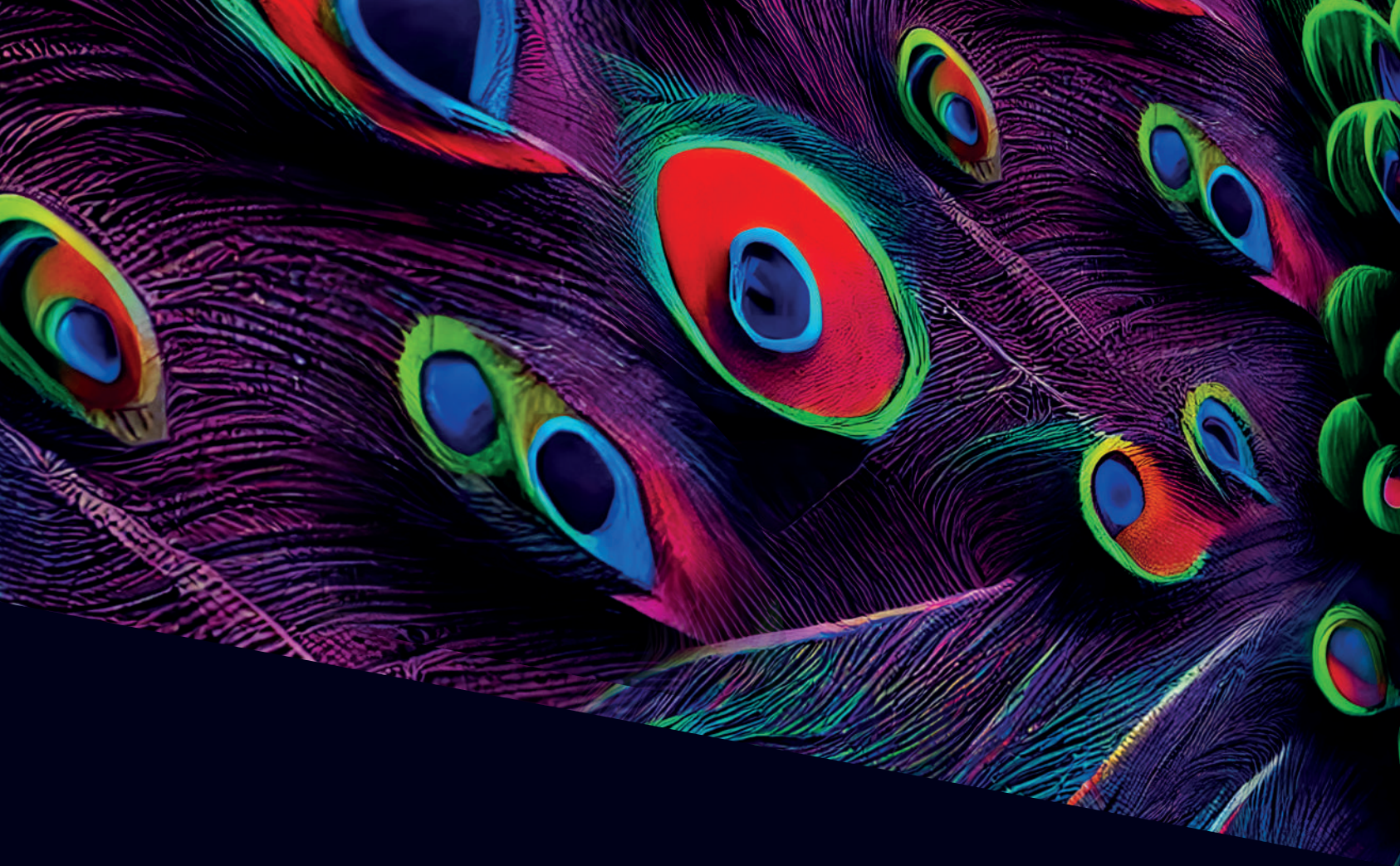
My experience with these lenses is very promising, frankly surprising, in terms of the accuracy of the refraction and the ease of reading at all distances.”

“The modern lifestyle demands flawless vision, from near to far, without the need for spectacles. This goal is achievable with Artis Symbiose, the only IOL platform that combines multifocal and EDOF profiles seamlessly. Patients express high satisfaction, and in my opinion, Artis Symbiose stands out as the top-performing premium IOL available.”



Dr Oren Mark Feuerman,
Cataract Surgeon,
Rovigo, Italy

1. Mandola J, Castignoles F, Philipakki, E. Optical evaluation of new-design multifocal IOLs with extended depth of focus, VPO Conference, Athens, Greece, August 29-31 2018.
2. Zapata-Díaz JF, Lajara-Blesa J, López-Gil N. Optical performances of 4 advances IOLs. ESCRS Congress, Paris, France, September 2019. 3. Lajara-Blesa J, Rodríguez-Izquierdo MA, Vallés-San-Leandro L, et al. Standard clinical outcomes, light distortion, stereopsis, and a quality-of-life assessment of a new binocular system of complementary IOLs. J Refract Surg 2023;39(10):654-6614. Escandón-García S, Ribeiro FJ, McAlinden, C, et al. Through-focus visual performance and light disturbances of 3 new intraocular lenses for presbyopia correction. J Ophthalmol 2018;61654935. Guarro M, Sararols L, Londono GJ, et al. Visual disturbances produced after the implantation of 3 EDOF intraocular lenses vs. 1 monofocal intraocular lens. J Cataract Refract Surg. 2022;48(12):1354-1359.



www.cristalens-international.com



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 **CRISTALENS**

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