

The new TECNIS® 1-Piece IOL

IT'S THE ONE

1

TECNIS®
ASPHERIC IOL **1**

Abbott
A Promise for Life

• ***THE NEW TECNIS® 1-PIECE IOL PROVIDES
THE UNMATCHED BENEFITS OF TECNIS® TECHNOLOGY IN
A NEXT-GENERATION ONE-PIECE DESIGN***

OPTICS

The first and only FDA-approved wavefront-designed optic that rejuvenates vision by correcting spherical aberration to essentially zero.


MATERIAL

The proprietary hydrophobic acrylic material with the lowest chromatic aberration and highest optical throughput transmits healthy blue light and reduces the incidence of glistenings.

DESIGN

The only one-piece lens with the performance of a ProTEC 360° barrier edge, the stability of Tri-Fix 3-point design, and a frosted edge treatment.





“After 20 years in practice, my expectations for IOL performance are very high. The **TECNIS® 1-Piece IOL** has surpassed these expectations, especially for visual outcomes and optic clarity.

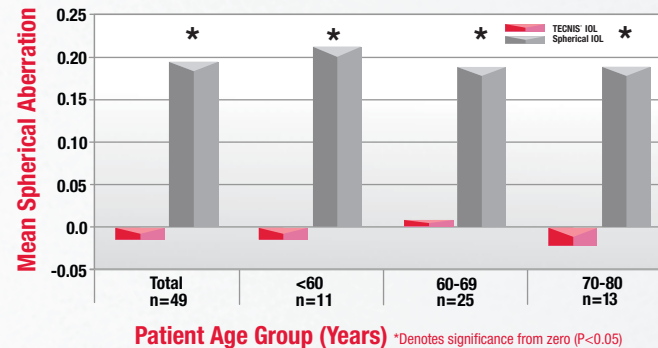
In addition, this new-generation one-piece design has responded to the issues associated with existing one-piece IOLs.”

— **DONALD R. NIXON, MD, FRCSC**
ONTARIO, CANADA

IT'S THE ONE TO CORRECT SPHERICAL ABERRATION TO ZERO

THE TECNIS® 1-PIECE IOL REJUVENATES VISION BY CORRECTING SPHERICAL ABERRATION TO ESSENTIALLY ZERO.

Total ocular spherical aberration of TECNIS® IOL eyes is not significantly different from zero^{5*}



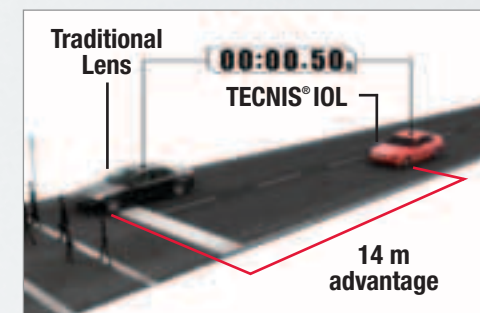
Mean spherical aberration measurements, 90 ± 15 days postoperatively.
Lens Z9000: N = 25. Lens with spherical optic: N = 24.⁵

- Multiple studies confirm that peak visual performance occurs at age 19, when spherical aberration is zero.^{1,2}
- The human cornea has on average +0.27 microns of spherical aberration throughout life, but spherical aberration of the natural lens increases with age.³
- Clinical data show that correcting residual spherical aberration to zero results in better visual outcomes and the best depth of field.⁴

THE FIRST AND ONLY WAVEFRONT-DESIGNED IOL WITH CLAIMS APPROVED BY THE FDA FOR:

- Reduced spherical aberration⁵
- Improved functional vision⁵
- Improved night-driving simulator performance⁵
 - Meaningful safety benefit for drivers and pedestrians with whom they share the road
 - Improved functional vision for other life situations under low-light conditions

Identification distance at 89 kph



In a simulated night-driving study, the TECNIS® IOL provided an additional 14 m of identification distance and a ½ second of reaction time over a spherical IOL.⁵

*The data as it appears here follows the OSA standard and has been changed from the original data to reflect a difference in sign (+ or -) that exists between the WASCA measurement and the OSA standard.

ZERO SPHERICAL ABERRATION = PEAK VISUAL PERFORMANCE.

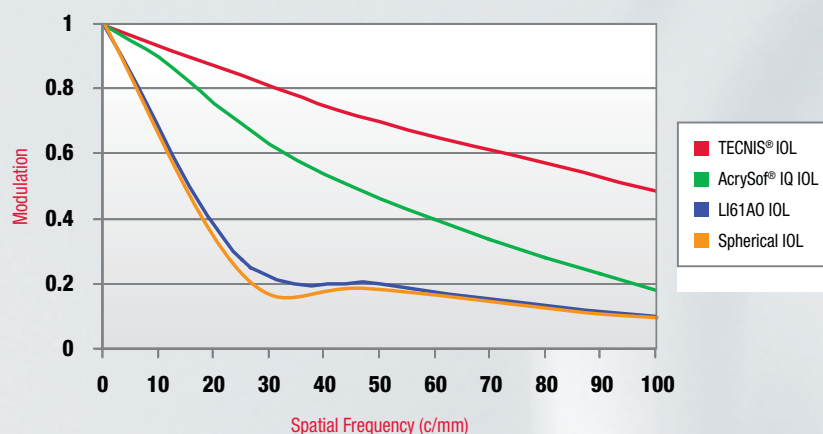
Residual Spherical Aberration of Monofocal Lenses (4 mm pupil)³

Lens	TECNIS® IOL	AcrySof® IQ IOL	B&L LI61AO IOL	Spherical IOL
Point Spread Function*				
20/20*				
Average Corneal SA	+0.27	+0.27	+0.27	+0.27
Lens SA Correction	-0.27	-0.17	0.0	+0.15
Total Residual SA	0.0	+0.10	+0.27	+0.42

*Images simulated using ZernikeTool, created by George Dai, PhD.

SIGNIFICANT IMPROVEMENT IN MTF OVER OTHER ASPHERIC LENSES.

MTF Comparison of Lens Models (5 mm pupil)^{3*}



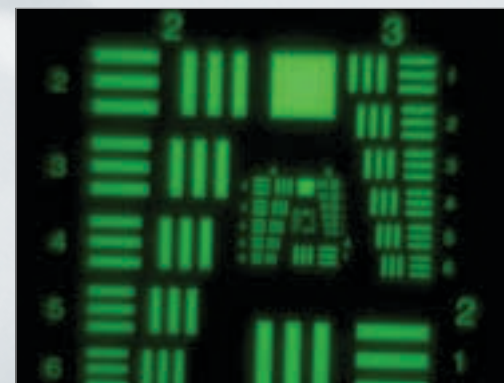
At 100 c/mm, the TECNIS® IOL shows improvement in modulation transfer function (MTF) over twice that of the AcrySof® IQ (SN60WF) and over three times that of the SofPort® AO (LI61AO).

*Average cornea eye model

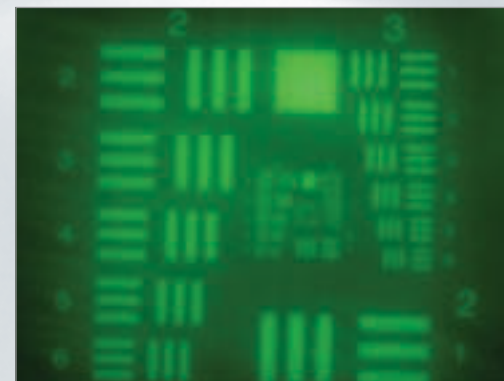
HIGH-QUALITY VISION IN LOW-LIGHT CONDITIONS.

In aviation-type visual performance testing, vision in low-light conditions (5 mm pupil) was superior with the complete spherical aberration correction provided by the TECNIS® IOL.³

TECNIS® IOL



IOL With Residual Spherical Aberration

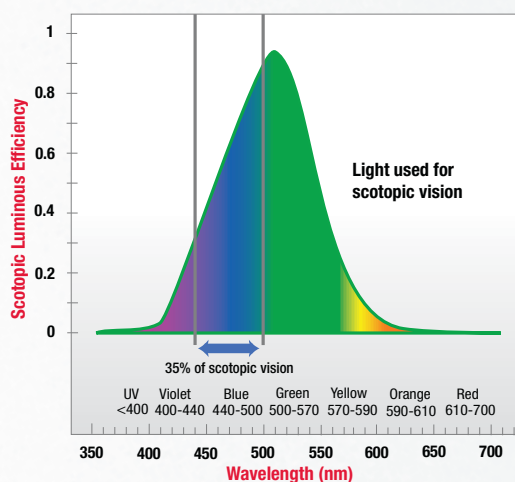


Actual images as seen in an eye model through the TECNIS® IOL and an IOL with residual spherical aberration.³

IT'S THE ONE WITH PROVEN HYDROPHOBIC ACRYLIC MATERIAL

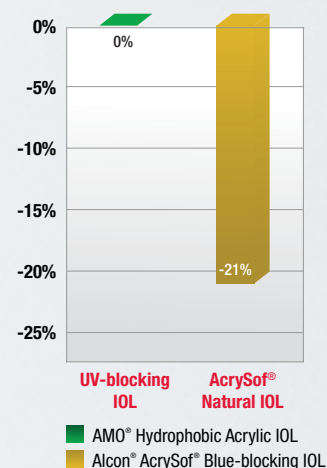
HEALTHY BLUE LIGHT TRANSMISSION IS NECESSARY FOR OPTIMAL SCOTOPIC VISION.⁶

Blue light provides 35% of scotopic sensitivity⁶



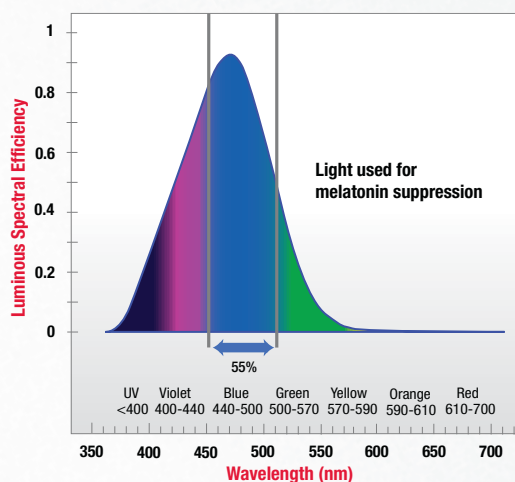
- Scotopic vision declines with age, even in healthy eyes without cataract or retinal disease.⁶
- Driving, mobility and peripheral vision problems have all been associated with reduced scotopic vision.⁷

Blue-blocking IOLs reduce scotopic sensitivity up to 21%⁶



BLUE LIGHT IS ESSENTIAL FOR HEALTHY CIRCADIAN RHYTHMS.⁶

Blue light is responsible for 55% of melatonin suppression⁶



- Circadian rhythms are normal 24-hour cyclic activities in the body that influence sleep patterns, mood, alertness, and body temperature.
- Blue light helps regulate melatonin levels which influence circadian rhythms.⁶
- Blue light has been shown to enhance alertness even in blind persons.⁸

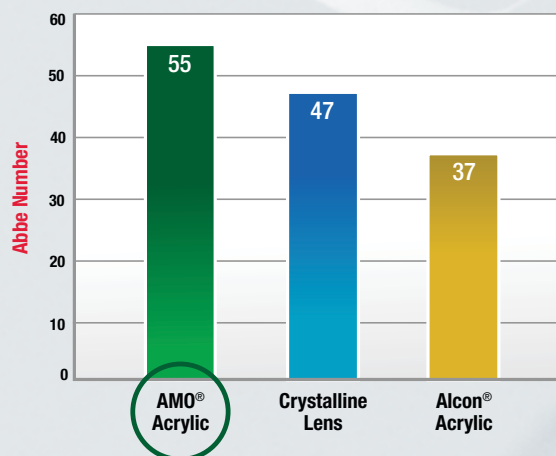
THERE IS NO REASON TO BLOCK BLUE LIGHT

- Blocking blue light does not provide any proven benefit and increases the risk of compromising scotopic vision and normal circadian rhythms.⁶
- Furthermore, multiple peer-reviewed studies have failed to find a link between age-related macular degeneration (AMD) and blue light exposure.⁶

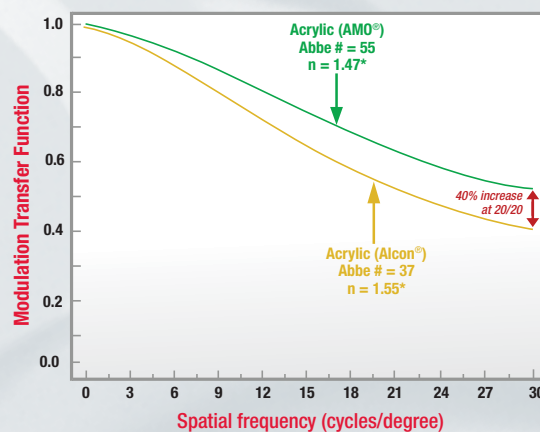
BETTER MATERIAL REDUCES CHROMATIC ABERRATION.

- Chromatic aberration is the uneven focusing of an optical system that causes different wavelengths of light to have different focal points.⁹
- Chromatic aberration of optical materials can be expressed by their Abbe number. A higher Abbe number is associated with less chromatic aberration and better optical performance.^{10,11}
- Materials with low Abbe numbers and high chromatic aberration negatively impact contrast sensitivity.¹⁰

TECNIS® IOLs demonstrate lower chromatic aberration than AcrySof® IOLs.¹⁰



A higher Abbe number means less chromatic aberration and better photopic performance.



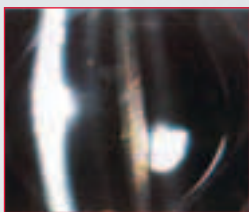
At 30 cycles/degree (equivalent to 20/20), TECNIS® IOLs demonstrate 40% better contrast sensitivity than AcrySof® IOLs.

*n = refractive index

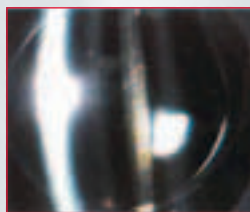
BETTER MATERIAL NOT ASSOCIATED WITH GLISTENINGS AND CALCIFICATION.

- Glistenings in IOLs may decrease visual acuity¹² and contrast sensitivity.¹³
- Temperature fluctuations of other IOLs have been shown to cause glistening formation.¹⁴
- TECNIS® IOLs are made with a proprietary cryo-lathing method that limits microvoid formation and high temperature fluctuations for reduced glistenings.¹⁴
- The TECNIS® 1-Piece hydrophobic acrylic material is not associated with calcification and opacification found in hydrophilic acrylic IOLs.^{15,16}

Material issues associated with competitive IOLs



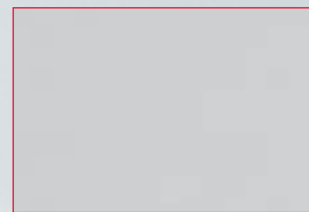
AcrySof® IOL implant
after 1 year³



AcrySof® IOL implant
after 2 years³



Hydrophilic Acrylic Material¹⁶



TECNIS® 1-Piece Hydrophobic Acrylic Material¹⁶

IT'S THE ONE WITH THE NEXT-GENERATION DESIGN

PROTEC 360° EDGE DESIGN INCREASES **PROTECTION**.

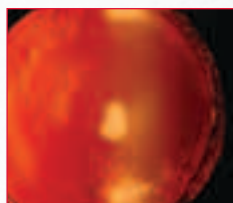
360° square edge for uninterrupted contact at the haptic-optic junction



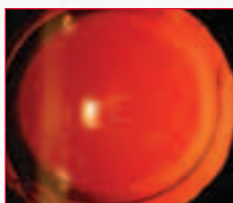
Frosted edge designed to minimize unwanted edge glare



Limits LEC migration at the haptic-optic junction¹⁷

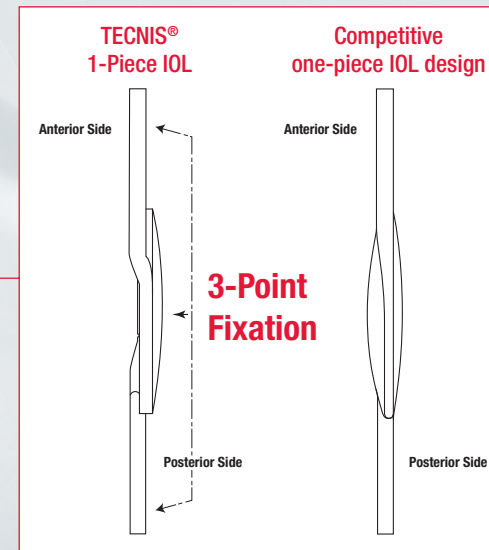


AcrySof® one-piece IOL



TECNIS® 1-Piece IOL

TRI-FIX 3-POINT FIXATION DESIGNED TO INCREASE STABILITY.



- Haptics offset to allow three points of capsular bag contact
- Designed to provide refractive predictability, long-term stability, and centration

TECNIS® 1-PIECE IOL INCREASES EASE OF IMPLANTATION.

- Bag-friendly, coplanar delivery
- Proprietary surface treatment for ease of unfolding
- Polished haptic loops enable controlled, gentle unfolding in capsular bag



Reduced center thickness for slim lens profile facilitates implantation

TECNIS®
ASPHERIC IOL **1**

IT'S THE ONE TO REJUVENATE VISION

OPTIMAL VISUAL OUTCOMES ARE 1-PIECE AWAY.

Measure	TECNIS® 1-Piece IOL	AcrySof® IQ IOL
OPTICS: – Corrects spherical aberration to essentially zero ⁵	✓	✗
MATERIAL: – Transmits healthy blue light ⁵ – Not associated with glistenings ¹⁷	✓	✗
DESIGN: – ProTEC 360° barrier edge – Tri-Fix 3-point fixation	✓	✗

“TECNIS® 1-Piece IOL’s innovative ProTEC 360° edge design and Tri-Fix stability combine with the proven TECNIS® optic and material to deliver the next generation in one-piece lens performance.”

— Y. RALPH CHU, MD
EDINA, MINNESOTA

TECNIS® 1-Piece IOL Specifications

Refractive Index	1.47
Lens Model Number	ZCB00
A-Constant	118.8*

*Standard biometry

TECNIS® IOLs Are Approved for NTIOL Designation.

1. Artal P, Alcon E, Villegas E. Spherical aberration in young subjects with high visual acuity. Presented at ESCRS 2006, Paper 558. 2. Holzer MP. Data presented at the 19th Congress of German Ophthalmic Surgeons (DOC), Nuremberg, Germany, 2006. 3. Data on file. Advanced Medical Optics, Inc. 4. Piers PA, Manzanera S, Prieto PM, et al. Use of adaptive optics to determine the optimal ocular spherical aberration. *J Cataract Refract Surg*. 2007;33:1721-1726. 5. Package Insert. TECNIS® Foldable Posterior Chamber Intraocular Lens. Advanced Medical Optics, Inc. 6. Mainster MA. Violet and blue light blocking intraocular lenses: Photoprotection vs. photoreception. *Br J Ophthalmol*. 2006;90:784-792. 7. Owsley C, McGwin G, Scilley K, et al. Perceived barriers to care and attitudes about vision and eye care: Focus groups with older African Americans and eye care providers. *Invest Ophth Vis Sci*. 2006;47(4):2797-2802. 8. Zaidl FH, Hull JT, Peirson SN, et al. Short-wavelength light sensitivity of circadian, papillary, and visual awareness in humans lacking an outer retina. *Current Biology*. 2007;17:2122-2128. 9. Schwiegerling J. Theoretical limits to visual performance. *Surv Ophthalmology*. 2000;45(2):139-146. 10. Zhao H, Mainster MA. The effect of chromatic dispersion on pseudophakic optical performance. *Br J Ophthalmol*. 2007;91(9):1225-1229. 11. Negishi K, Ohnuma K, Hirayama N, Noda T. Effect of chromatic aberration on contrast sensitivity in pseudophakic eyes. *Arch Ophthalmol*. 2001;119:1154-1158. 12. Gunenc U, Oner FH, Tongal S, Feriel M. Effects on visual function of glistenings and folding marks in AcrySof intraocular lenses. *J Cataract Refract Surg*. 2001;27:1611-1614. 13. Christiansen G, Durcan FJ, Olson RJ, Christiansen K. Glistenings in the AcrySof intraocular lens: Pilot study. *J Cataract Refract Surg*. 2001;27:728-733. 14. Miyata A, Yaguchi S. Equilibrium water content and glistenings in acrylic intraocular lenses. *J Cataract Refract Surg*. 2004;30:1768-1772. 15. Tognetto D, Toto L, Sanguinetti G, Ravalico G. Glistenings in foldable intraocular lenses. *J Cataract Refract Surg*. 2002;28:1211-1216. 16. Steinert RF. In vivo assessment of intraocular lens calcification in a rabbit model. Presented at ASCRS 2006. 17. Nixon DR. New technologies for premium outcomes: Next generation phaco and TECNIS® 1-Piece IOL. Presented at ESCRS, 2007.

TECNIS® foldable intraocular lenses are indicated for primary implantation for the visual correction of aphakia in adults in whom a cataractous lens has been removed by phacoemulsification. The lenses are intended to be placed in the capsular bag. Rx only. For a complete listing of precautions, warnings and adverse events, refer to the package insert.



DISCOVER THE NEW TECNIS® 1-PIECE IOL

Optics. Material. Design. *Optimized.*

- TECNIS® IOL corrects spherical aberration to essentially zero⁵
- ProTEC 360° barrier edge for superior protection
- Tri-Fix 3-point fixation designed to increase stability
- Transmission of healthy blue light⁵
- Lowest chromatic aberration of IOLs tested¹⁰
- Reduced incidence of glistenings¹⁵

For more information, contact your AMO representative or visit www.TECNIS1OL.com



Part of the **AMO® Complete Refractive Solution**

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