EXPERIENCE THE BEAUTY WITH NEW VISION...





Perfect preloaded system "Push version" or "Screw version"



Which one would you like ? We made both models for you!

PreciSAL[™] Preloaded

Highest Precision in Soft Acrylic Lens

Millennium Biomedical Inc. (MBI), a USA based corporation, is FDA registered and is an ISO 13485 certified company. MBI launched PreciSAL[™] hydrophobic acrylic IOL's in 2008. Since the launch of this product line no glistening has been reported.

MBI cares about the eyesight and patient's quality of life and is always striving to exceed our customers' expectations. All experience of surgeons around the world have shown that PreciSAL[™] is a reliable product with the highest quality. We believe that perfect eyesight can be restored with PreciSAL[™].

MBI focuses on making a difference to people's lives and offers the PreciSAL[™] IOLs with its unique properties to get the best vision acuity.

The PreciSAL[™] family of IOLs is designed to provide:

- No glistening, no micro-vacuoles , no mie-scatter
- Easy implantation through 2.2mm incision with Preloaded Injector (Medicel AG) in Push or Screw style
- Over 360° IOL and haptic with 90° sharp square edge on both sides to minimize PCO
- Excellent centration
- Controllable unfolding
- High stability and gentle in the bag placement
- Superior optical quality (MTF)
- Outstanding contrast sensitivity and visual acuity

MBI has been engaged in the development and manufacturing of innovative ophthalmic products and processes since 1997 in Southern California, USA. MBI has developed a proprietary soft hydrophobic acrylic material that incorporates the most desirable UV blocking properties in their yellow and clear PreciSAL[™] Intraocular lenses. Utilizing this base material a unique family of intraocular lenses has been developed and CE mark approved. The name of PreciSAL[™] is coming from highest precision in soft acrylic lens.



The PreciSAL[™] IOLs **family**

Model PreciSAL	Three piece	One piece	Aspheric	Mono focal	Toric	Multi focal	Yellow	Incision mm	Preloaded
300A	X		X	X			X	2.8	-
300AC	Х		Х	Х				2.8	-
302A		X	X	X			X	2.2	-
302AC		Х	Х	Х				2.2	-
P302A		Х	X	X			X	2.2	X
P302AC		Х	Х	X				2.2	X
T302A		X	X		X		X	2.2	-
PT302A		X	X		X		X	2.2	X



Low water content

The unique PreciSAL[™] material has less than half the water content of other hydrophobic materials, yet it remains soft and pliable for ease of implantation.

• 90° Square edge

The lathe cutting forms a genuine 90° square edge over 360° of IOL and haptic (Figure 1) – a result not possible with injection molding.

The results are compelling: in nearly >500,000 implants , no glistening cases has been reported to MBI.



Figure 1: PreciSAL[™] edge electron microscope

Glass transition temperature

Engineered with a low glass transition temperature, PreciSAL[™] is also designed for the operating room (Figure 2). From 11°C, the material becomes soft and easy to inject. No waiting, no pressure – just simple smooth unfolding.



Figure 2: Typical range of Tg in hydrophobic acrylic lens material

• High Abbe number

In optics, the Abbe number indicates material quality and the capacity of an IOL to focus all colours to the same point. A high Abbe number not only means less chromatic aberration, it means better contrast and optical performance.

Abbe numbers are not often quoted by manufacturers of IOLs, but MBI is proud of its PreciSAL[™] lens to have an Abbe number of 50 (Figure 3).



Figure 3 : Source of Abbe numbers except PreciSAL[™] : Zhao H. Mainster M. J Cataract Refract Surg. 2007, Zhao H, et al. Presented at ESCRS 2009.



IOL material with high low Abbe number



IOL material with high high Abbe number

• Excellent MTF value

Modulation Transfer Function (MTF) is the most superior tool for objectively measuring visual acuity and contrast sensitivity.

PreciSAL[™] from MBI has excellent MTF value of 0.65 and this is because of its high precision in manufacturing and excellent material from MBI.

The MTF 0.65 at 100lp/mm is 95% of the Diffraction limit (Figure 4). This is the proof of PreciSAL[™] s high quality.



Figure 4: MTF of PreciSAL^m = 0.65 , Diffraction Limited MTF= 0.68 , Measurements made in Accordance with ISO 11979-2.

• Enhanced vision through PreciSAL[™]

MBI offers aspheric intraocular lenses with negative spherical aberration (-SA) in clear and yellow. In general, Intraocular lenses can be manufactured with negative spherical aberration (-SA) or free of any spherical aberration (SA=0) or positive spherical aberration (+SA).

Spherical aberration has an impact on loss of contrast sensitivity and vision acuity.

Contrast sensitivity is important:

- In low-contrast environments where safety may be at risk (e.g. night driving)
- For seeing clearly in dim light (e.g. low room light, rain, fog, dusk)

• Depth of focus

In young eyes, the natural lens typically has negative SA and offsets the positive spherical aberration (+SA) of cornea. An old patient can still have 20/20 vision but could have difficulties in lower contrast conditions (foggy).

The aspheric PreciSAL[™] IOLs are designed so that the residual spherical aberration in the eye is adjusted for the best vision acuity with good contrast sensitivity as well as to have good depth of focus (Figure 5,6).





Figure 5: Depth of focus

Figure 6: Depth of focus

MBI manufactures all aspheric IOL with negative spherical aberration to offset the partial of SA of the cornea in order to get the best vision acuity and contrast sensitivity with good depth of focus.

The residual spherical aberration SA is $+0.21\mu m$ at 6mm cornea diameter size. This is very important to have a good depth of focus.

MBI offers with PreciSAL[™] both advantages of enhanced vision acuity and good depth of focus at the same time.

PreciSAL[™] is a unique product for your patient.

PreciSAL[™] Yellow

PreciSAL Yellow is not the yellow lens you think it is.

It looks different because it is different. The proprietary chromophore of the violet filter is paler, the technology is breakthrough and the results are life-changing.

PreciSAL Yellow gives your patients the sight of a 4½ year old. They will see in all kinds of light – clearer, crisper and more colourfully. Your patients will sleep better.

The high-energy filter protects the macula from cytotoxic violet light. However, it doesn't block all the benign blue wavelengths (440nm-500nm) that contribute significantly to the body's sense of diurnal rhythm, effective dim-light vision, colour perception and circadian photoreception.1

With PreciSAL Yellow, MBI achieve this with a transmission value of 78%-94% (440nm-500nm) compared to the industry standard of 32%-81%. Therefore, PreciSAL Yellow more accurately replicates the spectral transmission of a normal, healthy eye.



Your patients will see better and sleep better – their lives will be transformed.

The unique material of MBI's IOLs was developed in MBI's laboratories. MBI PreciSAL[™] hydrophobic yellow IOLs are to provide a violet ray filtering similar to young natural crystalline lens in human. In the chart you can find the visible transmission spectrum of a PreciSAL[™] 20 Dioptre clear and UV filtering IOL. The MBI PreciSAL[™] yellow also provide in addition to UV filtering, a high energy filtering for short wavelength. This additional feature could provide a better protection for the macula.

PreciSAL[™] Toric , Easy to use, with precise and reliable results

PreciSAL[™] Toric lenses correct the astigmatism and bring your patients back to a world of colour, contrast and clarity. The lathe-cut technology used to create PreciSAL[™] lenses (Figure 7)provides a precision and keenness that is unmatched in the world of ophthalmology.

It's a precision you can see.

Less Rotation

The lens is easy to position and remains stable once in position because of its milled edge. This milling provides a much higher coefficient of friction which, in turn, facilitates a much better attachment of the capsular bag to the lens post op to hold it in place(Figure 8).

• AccuPlace

The precise quadrant lathing means the lens power is spread over a greater area (up to 94% of the cylinder) and, therefore, is far more forgiving of rotational misplacement. In conjunction with improved attachment of the capsular bag, PreciSAL[™] Toric lenses promote surgery that is virtually fail-safe. It's what we call AccuPlace.



The 90° edge around the entire optic diameter(360°), along with a higher coefficient of friction, virtually eliminates the risk of cell migration and, therefore, PCO.

• Greater Accuracy / More Capacity

IOL power (spherical equivalent) and cylinders are available in 0.5D increments, providing unparalleled accuracy in treatment.Cylinders start at a low 1.0D, so you'll be able to treat the majority of people more effectively.

The way of manufacturing with highest quality will take you and your patients to a new level of satisfaction.

The Figure 9 shows the quadrants of a PreciSAL[™]Toric IOL. The two quadrants "red" have increased curvature (added power) for the cylinder, while the two other quadrants "blue" have less power, which are marked with 3 dots on each side.

Because the cylinder quadrants have a straight and minimal transition zone to the sphere, the cylinder correction covers up to 85° of the available 90° surface (Figure 15).

Because the quadrants also extend to within 0.5mm of the optic edge, the power is more precise across a significantly greater area than from competing toric IOLs.

PreciSAL[™] Toric :

- More forgiving of both rotation and off-axis implantation
- Providing a crisp, clear astigmatic correction



Figure 7: PreciSAL™Toric IOL



Figure 8: The 90° edge with high coefficient of friction



Figure 9: The optimized two quadrants

Comparison of topography and cylinder power histogram

The topographic images show a comparison of quadrant definition between PreciSAL[™] Toric(Figure 10) and the industry standard (Figure 11).

The superior PreciSAL[™] technology is highlighted by the charts.

The precise transition edge between cylinder and sphere with minimal blends can be seen on the optical bench, showing the maximum available area topographically, with the desired smooth and straight 'M-shaped' histogram peaks (Figure 10)



Figure 10: Topography and angular view of Cylinder power PreciSAL[™] Toric IOL



Figure 11: Topography and angular view of Cylinder power Standard Toric IOL

The picture of Topography PreciSAL[™] Toric lens (17.5D Spher, 5 D Cylinder) explains itself. It shows how beautiful and smooth is the surface of PreciSAL[™] Toric lens (Figure 12).

The Figure 13 and 14 are clearly evident of the presence of negative asphericity. The picture in Figure 13 shows the wavefront when the astigmatism removed.



Figure 12: Displays the 3D wavefront of of PreciSAL[™] Toric



Figure 13: Displys 3D wavefront of the model PreciSAL[™] Toric at best focus



Figure 14: Display of the cross-sectional plots of the wavefront

Which Toric IOL will you choose for your patient now ?



Figure 15: Small transition zone cylinder to the sphere

PreciSAL[™] Model 300AC, Model 300A





Specifications			
IOL Design	Aspheric three piece for posterior capsular bag		
Material	Hydrophobic Acrylic with UV absorbers. Aspheric: Model 300AC, 300A (with blue blocker filter)		
Optic Diameter	6mm		
Overall Length	13mm		
Haptic Angle	8°		
Optic Design	Biconvex, 90° square edged optic and haptic 360°		
Diopter Range	1D to 30D 1D to 9D in 1D increments 10D to 30D in 0.5D increments		
Refractive Index	1.5		
Material Water Content	<0.5%		
A Constant*	118.3 (for Contact and Immersion biometry)		
A Constant*	•SRK II: 118.2 •SRK-T: 118.12 •sf: 1.18 •HAIGIS: [a ₀ : 0.726, a ₁ : 0.40, a ₂ : 0.10]		
ACD*	4.96		
Method of Sterilization	Ethylene Oxide (ETO)		
UV Cut of at 10% T	> 385 nm (Model 300AC), > 390 nm (Model 300A)		
Recommended Insertion Instrument	MDJ: Single use Injector MEPLAT, Model MEPLAT with 00264 cartridge, Incision <3mm. Medicel AG: Naviject Injector Model LP604405, Incision <3mm		

*These values are shown as guidelines only for use with optical biometry for calculation of implant power. MBI recommend that surgeons develop their own values based on individual technique, measuring equipment and desired post-operative results. In no way are these values meant to be definitive.

PreciSAL[™] Model P302AC, Model P302A



Monofocal Specifications	
IOL Design	Aspheric three piece for posterior capsular bag
Material	Aspheric Hydrophobic Acrylic with UV absorber. Preloaded: Model P302AC , Model P302A (with blueblock filter) Non Preloaded: Model 302AC, Model 302A (with blue blocker filter)
Optic Diameter	6mm
Overall Length	13mm
Haptic Angle	0°
Optic Design	Biconvex, 90° square edged optic and haptic 360°
Diopter Range	1D to 30D 1D to 9D in 1D increments 10D to 30D in 0.5D increments
Refractive Index	1.5
Material Water Content	<0.5%
A Constant*	118.7 (for Contact and Immersion biometry)
A Constant*	•SRK II: 119.2 •SRK-T: 118.9 •sf: 1.75 •HAIGIS: [a ₀ : 1.32, a ₁ : 0.40, a ₂ : 0.10]
ACD*	5.51
Method of Sterilization	Ethylene Oxide (ETO)
UV Cut of at 10% T	> 385 nm (Model P302AC, 302AC), > 390 nm (Model P302A, 302A)
Recommended Insertion Instrument	Preloaded Injector (Medicel AG), 2.2mm Incision size for P302A Non Preloaded(MDJ): 2.2mm Incision size, Mini Glider ,Cartridge Mini B

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PreciSAL[™] Toric Model T302A, Model PT302A

Hydrophobic		
	Proloaded Injector	Ø13.0 mm
T302A	Treloducu injector	

Specifications	
IOL Design	Aspheric one piece for posterior capsular bag
Material	Aspheric Hydrophobic Acrylic with UV absorbers Preloaded: Model PT302A (with blue blocker filter) Non Preloaded: Model T302A (with blue blocker filter)
Optic Diameter	6mm
Overall Length	13mm
Haptic Angle	0°
Optic Design	Biconvex, 90° square edged optic and haptic 360°
Diopter Range	1D to 30D 1D to 9D in 1D increments 10D to 30D in 0.5D increments
Cylinder	1D to 6D in 0.5D increments
Refractive Index	1.5
Material Water Content	<0.5%
A Constant*	118.7 (for Contact and Immersion biometry)
A Constant*	•SRK II: 119.2 •SRK-T: 118.9 •sf: 1.75 •HAIGIS: [a ₀ : 1.32, a ₁ : 0.40, a ₂ : 0.10]
ACD*	5.51
Method of Sterilization	Ethylene Oxide (ETO)
UV Cut of at 10% T	> 390 nm (Model PT302A and Model T302A
Recommended Insertion Instrument	Preloaded Injector (Medicel AG), 2.2mm Incision size Non Preloaded(MDJ): 2.2mm Incision size, Mini Glider ,Cartridge Mini B
Toric calculator	Online Toric calculator available at : www.mbius.com

*These values are shown as guidelines only for use with optical biometry for calculation of implant power. MBI recommend that surgeons develop their own values based on individual technique, measuring equipment and desired post-operative results. In no way are these values meant to be definitive.

Note:



Headquarters USA Office

360 E. Bonita Ave. Pomona CA 91767 USA Tel. : +1 (909) 621-7646 Fax: +1 (909) 621-7556 Email : mbi@mbius.com www.mbius.com www.facebook.com/MBIIOL



International Sales Germany Office Please contact : Reza Gholami Email: rg@mbius.com

Representative and Distributor

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