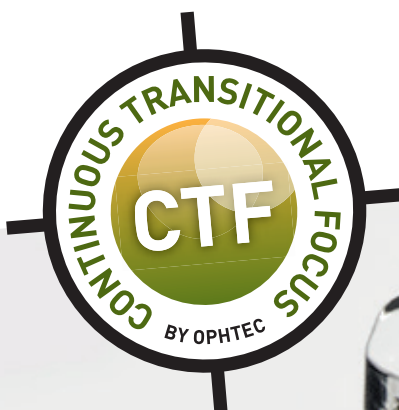




# PRECIZON™

## Aspheric Presbyopic IOLs



**Toric  
version  
available**

PRESBYOPIA  
CORRECTION  
**REINVENTED**

### Optic designed to:

- ✓ HAVE NATURAL VISION AT ALL DISTANCES
- ✓ REDUCE GLARE & HALOS
- ✓ TOLERATE THE KAPPA ANGLE
- ✓ TOLERATE DECENTRATION



Presbyopia  
correction

# Reinvented

The **PRECIZON™**  
**Aspheric Presbyopic IOL**  
is another milestone  
in presbyopia correction



with this proprietary **Continuous Transitional Focus** optic,  
Precizon Presbyopic offers patients  
a more **natural vision**.



## What makes this lens unique?

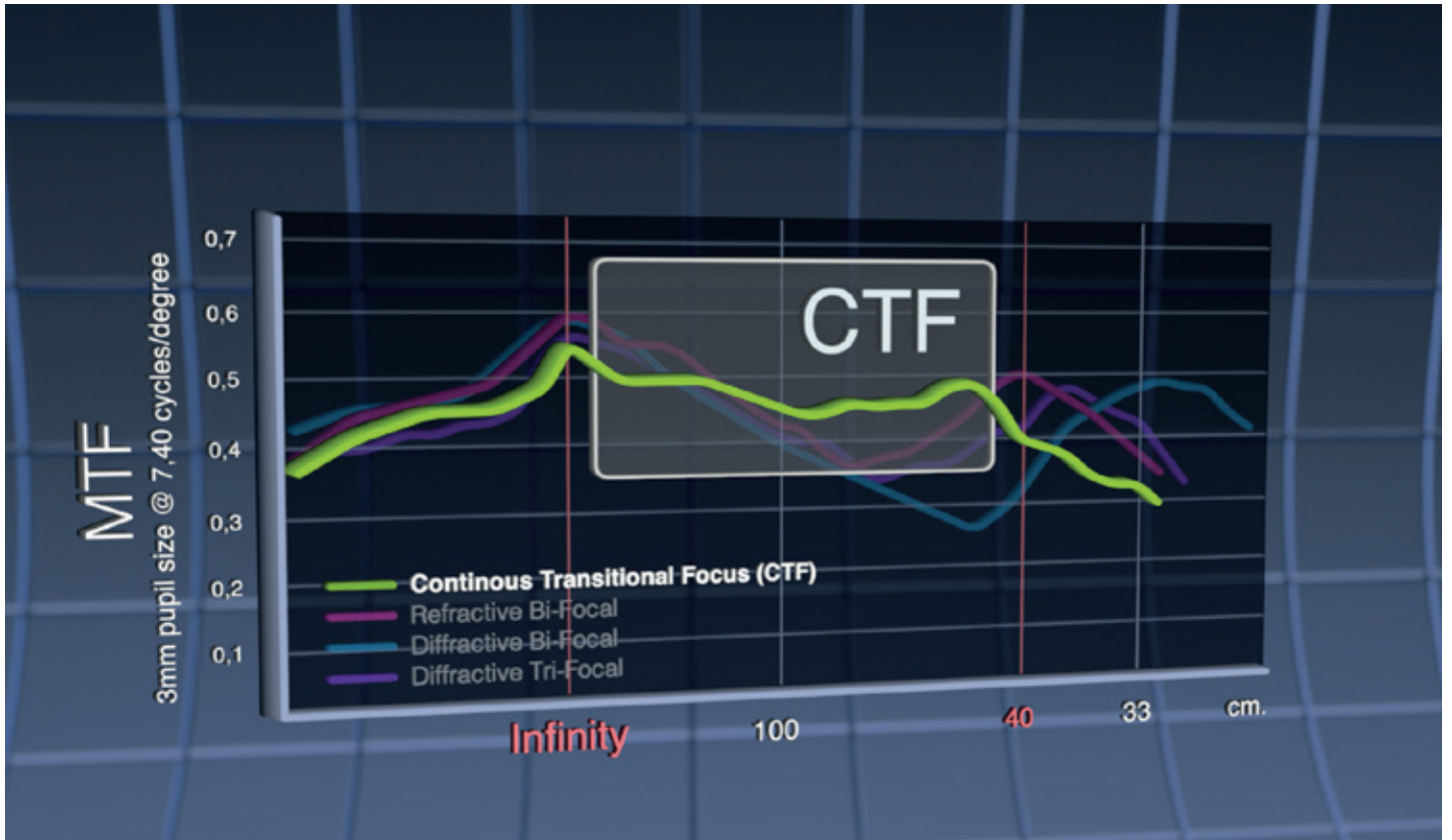
- **CTF (Continuous Transitional Focus) optic**

**A CTF optic is an optic with an anterior surface with multiple segments for far and near. A smooth transition from far to near is achieved between the segments. This transition offers an elongated focus between the two sharp focus points, delivering excellent intermediate vision.**

The entire anterior and posterior lens surfaces are shaped by computer-guided patented Continuous Transitional Focus technology. This technology has the capability of producing an aspherical negative aberration lens of  $-0.11 \mu\text{m}$  with a plus power of 2.75 diopters.

Regular Multifocal IOLs will cause positive dysphotopsia, due to concentric rings<sup>1)</sup> but CTF uses segments that avoid such a problem, as they are designed to provide a more tolerant lens to halos and glare.

Saving chair time can be advantageous, as CTF lenses provide a more natural experience for patients while minimizing unwanted optical side effects<sup>2)</sup>. With good quality vision from 40 cm to infinity and a balanced contrast sensitivity, patients are likely to be satisfied with the CTF optics.



Through-focus modulation transfer function of four presbyopia-correcting intraocular lenses with 3.0 mm pupil size. Modulation transfer function was calculated at 7.40 cycles/degree. Data on file - courtesy of Dr. Joo, South Korea.

## Optic designed to

- **Have natural vision at all distances**

The transitional zones of the CTF optic offer a full range of vision from near to infinity with smooth continuous transition.

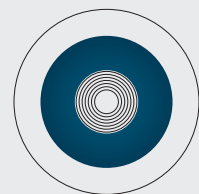
The CTF aspheric surface forms a broad beam of light, a zone with an enhanced depth of focus with uninterrupted high quality images for the brain to translate into clear vision at all distances.

- **Reduce glare and halos**

The misalignment tolerance and the use of segments instead of concentric rings reduces photic phenomena, helping patients to adapt more naturally to their new vision.

### Centred IOLs

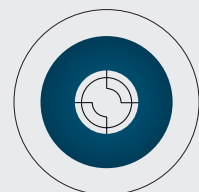
Approx. 4 mm pupil size



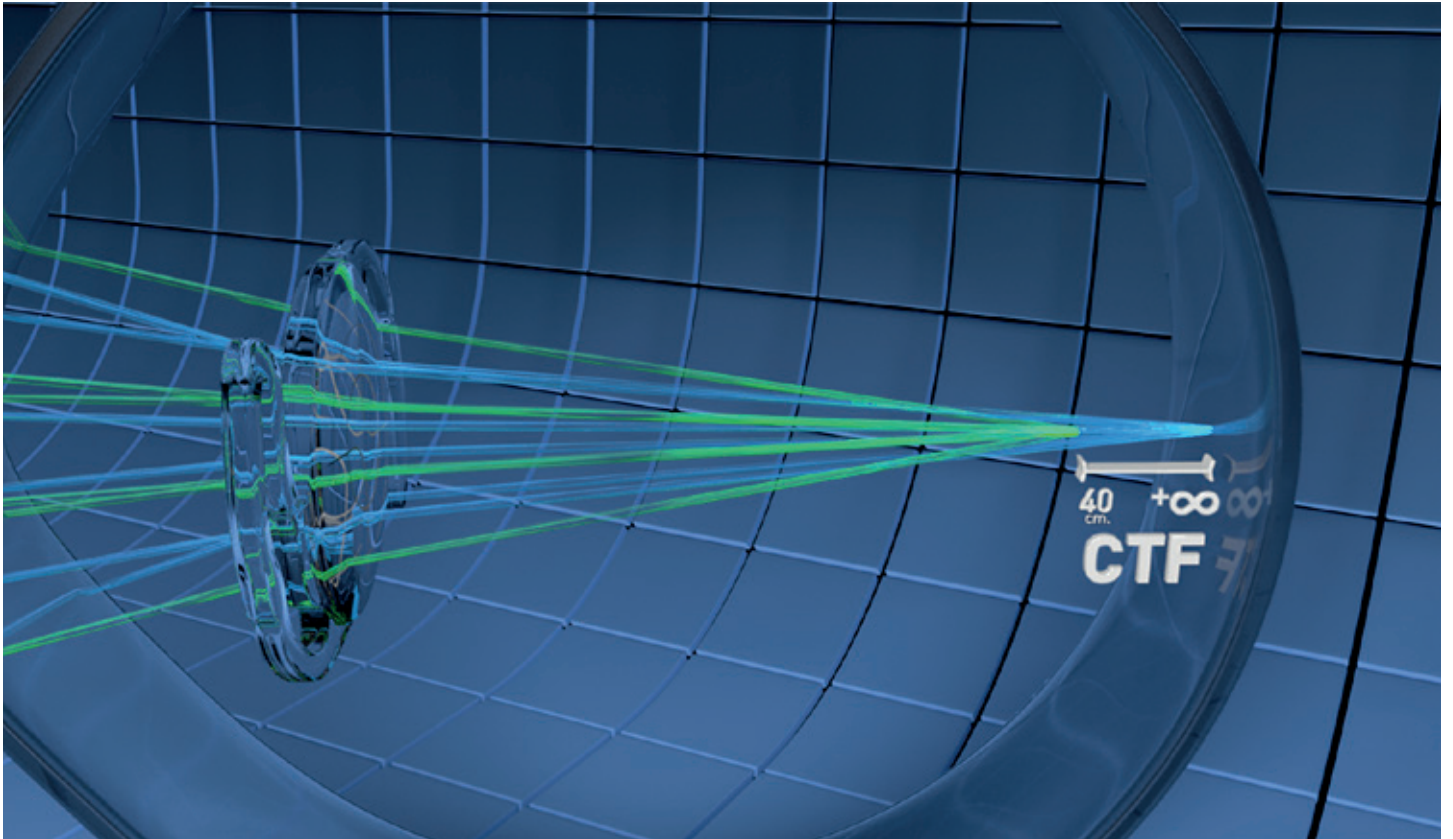
MIOL with concentric rings



Segmented Bifocal IOL



Precizon Presbyopic



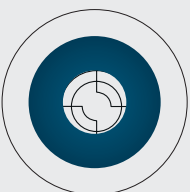
**Decentred IOLs**  
Approx. 4 mm pupil size



MIOL with concentric rings



Segmented Bifocal IOL



Precizon Presbyopic

## • Tolerate the Kappa Angle

Precizon Presbyopic NVA has a central zone of 1.4 mm in diameter in one direction, and 2.6 mm in diameter in perpendicular direction (“butterfly shaped”) and can be oriented so that the visual axis passes through the wider central segment avoiding visual disturbances.

## • Tolerate Decentration

In cases of tilt or misalignment, the patient can still benefit from good near and far vision, as the segmented zones allow a balanced far/near light distribution in a steady optical platform.



# Lens design

- **Best solution modified c-loops**
- **Low PCO rate and long-term lens stability**

Precizon Presbyopic optics are biconvex and have a posterior continuous sharp edge blocking the progression of Elschnig pearls to lower the PCO rate. The offset-shaped haptics help to achieve a significant decrease in PCO formation<sup>4,5,6</sup>.

This shape enables the lens to adhere to the posterior capsule, preventing early postoperative rotation. With a large angle of contact of 137 degrees<sup>7</sup> together with an anterior capsule overlap of 360 degrees (CCC diameter of 5 mm recommended) the Precizon Presbyopic design provides immediate initial lens centration.

The openings between the modified C-loop accommodate contraction of the anterior capsule up to 9 mm in diameter, and allow capsular filaments to grow through ("fibrosis anchor") to provide long-term lens stability.

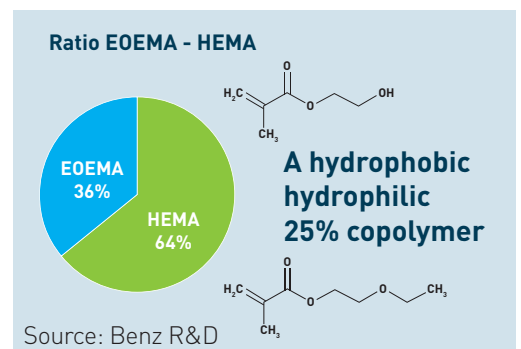
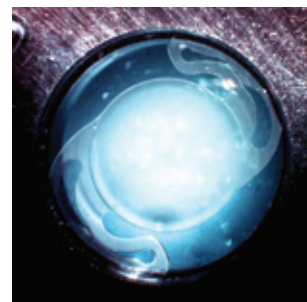
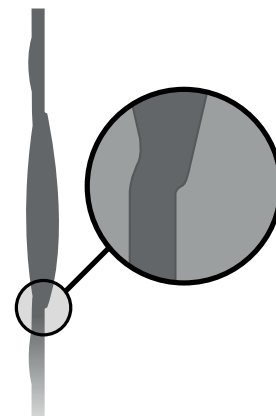
- **Hybrid lens material**
- **Gentle unfolding**
- **No glistening**

**The Precizon Presbyopic IOL is made of a hybrid, hydrophilic/hydrophobic acrylic material with ultraviolet filtering HEMA/EOEMA copolymer.**

Due to this material, the lens has a proprietary high refractive index (1.46). The absence of silicon in the lens manufacturing process and the packing material of the finished product lowers the risk of lens opacification.

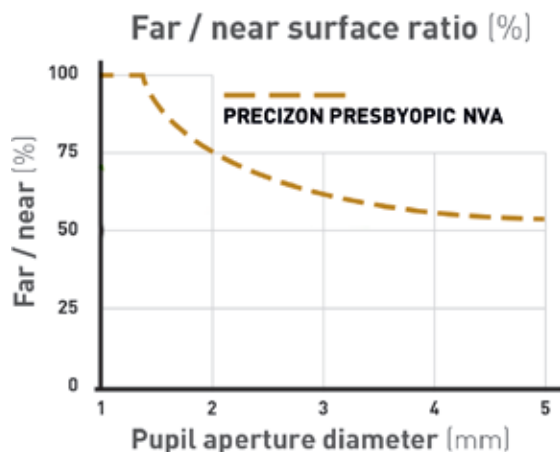
This soft hybrid acrylic material can be folded and loaded into a proprietary lens cartridge and can be drastically deformed during injection through an opening of 1.8 mm and still return to its original shape<sup>8-9</sup>.

The material is glistening free.





# Specifications



PHYSICAL CHARACTERISTICS	PRECIZON PRESBYOPIC NVA
<b>Model</b>	570 Precizon Presbyopic NVA One piece IOL
<b>Optic type</b>	<b>Aberration Negative (- 0.11 µm)</b> Continuous Transitional Focus (CTF) optic
<b>Central far zone size Y/X</b>	1.4 / 2.6 mm
<b>Rotated segments width</b>	0.60 mm
<b>Number of segment rings</b>	3 n
<b>Refractive index</b>	1.46
<b>Abbe number</b>	47
<b>Optic powers</b>	+1.0 D to + 35.0 D (0.5 D increments) Power add +2.75 D.
<b>Haptic configuration</b>	Open modified C-loops with offset shaped haptics
<b>Lens material</b>	<b>Hybrid</b> hydrophobic & hydrophilic monomers. Ultraviolet filtering HEMA/EOEMA Copolymer
<b>Lens colour</b>	Clear
<b>Body Ø</b>	6.0 mm
<b>Overall Ø</b>	12.5 mm
<b>Haptic angle</b>	0°
<b>Centre thickness range</b>	0.8 to 1.3 mm
<b>Body edge thickness</b>	0.4 mm
<b>A-constant* Ultrasound</b>	118.0
<b>A-constant* Optical</b>	118.8 (SRK T)   118.8 (SRK II)   0.126 (Haigis a0) 0.355 (Haigis a1)   0.157 (Haigis a2) 5.51 (Hoffer-Q pACD)   1.72 (Holladay 1 sf) 1.78 (Barrett suite LF)   0.0 (Barrett suite DF)

\* Check [www.ophtec.com](http://www.ophtec.com) for up to date A-constants



## Presbyopic NVA

The average human cornea has positive aberrations and you may want to compensate for these with a negative aberration lens like the Natural Visual Acuity (NVA) model. Prior myopic LASIK patients will also benefit from aspherical negative aberration optics<sup>3</sup>.

Furthermore, patients without prior corneal refractive surgery who value image quality may also be better off with a negative aberration lens.

Finally, the Precizon Presbyopic NVA is designed to give cataract patients excellent far vision. They benefit from the 60/40 far/near light distribution as the central zone of the lens is enlarged and can go up to a 2.6 mm zone for far vision.

### Precizon Presbyopic NVA • Key benefits

Natural vision at all distances

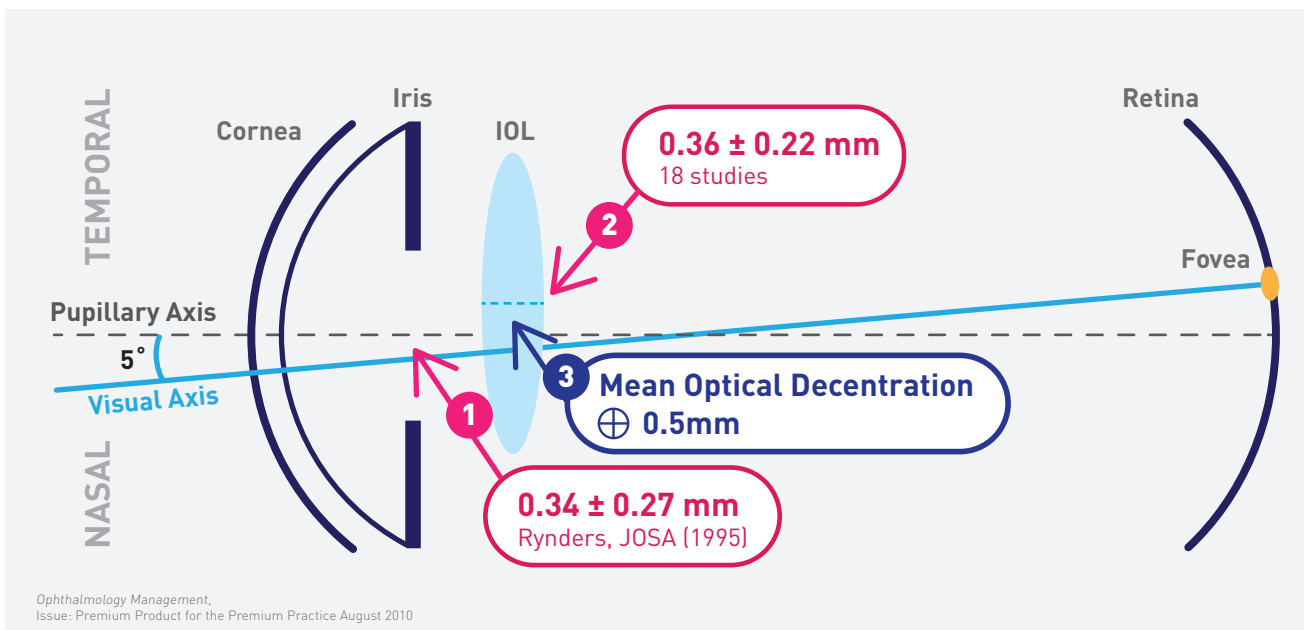
Reduces glare & halos

Tolerates the Kappa Angle

Tolerates decentration

# Importance of the Kappa Angle

Kappa Angle is the difference between the pupillary and visual axis. This measurement is of paramount consideration in refractive surgery, as proper centration is required for optimal results. Kappa Angle may contribute to MFIOL decentration and its resultant photic phenomena.<sup>10</sup>



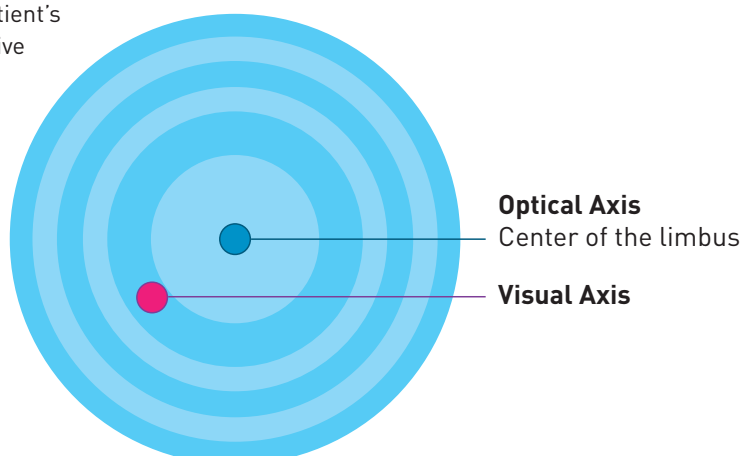
## > Decentration Negatively Effects Vision

Kappa Angle and IOL decentration can have accumulative negative impact on vision.

1. Decentration between the visual axis and the pupil is about 1/3 of a millimeter;
2. Decentration between the center of the IOL and the center of the pupil is also about 1/3 of a millimeter;
3. Taken together, the mean optical decentration between the visual axis and the center of the IOL is about half a millimeter.

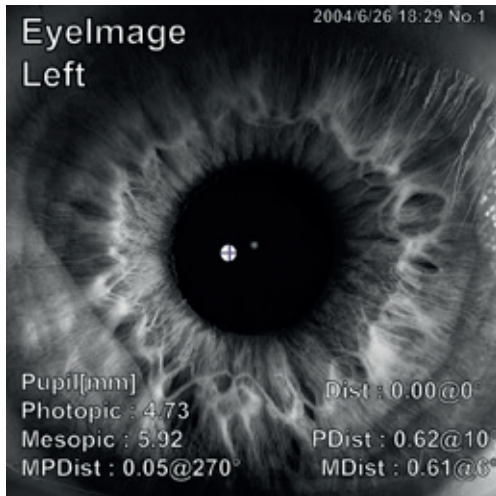
## > Angle Alpha - Potential Unpleasant Surprise

When there is a large (> 0.5 mm) angle alpha, the optical axis/center of the capsular bag may not match the patient's visual axis, leading to a potentially unpleasant refractive surprise if a multifocal IOL is implanted.<sup>11</sup>

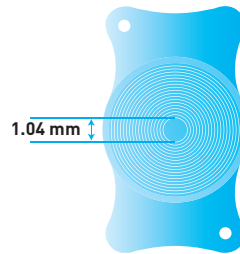




# Clinical case

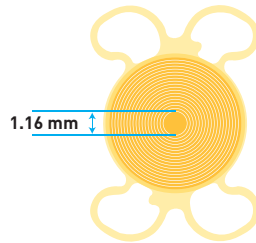


The image above shows the angle of kappa on a specific patient where the pupillary axis and the visual axis are measured. The difference between the two is represented in a photopic (Pdist) and mesopic (Mdist) condition. It is important that both axis are aligned within the IOL central zone to avoid visual disturbances.



## > Typical plate multifocal IOL

The Pdist & Mdist for this patient are too large as the plate lens can only accommodate 0.52 mm



## > Typical closed loop trifocal IOL

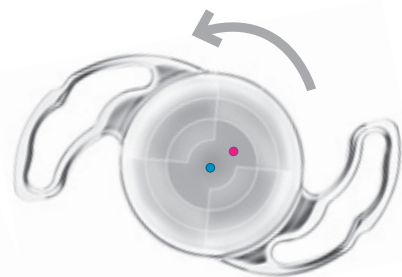
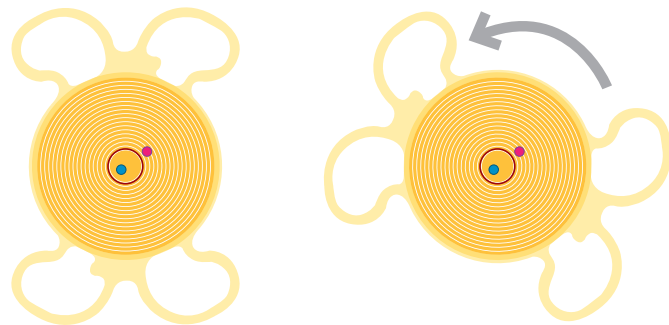
The Pdist & Mdist for this patient are too large as the closed loop lens can only accommodate 0.58 mm

## > What can we learn?

For this clinical case and in a typical multifocal IOL as shown above, the patient's visual axis would be overlapping the multifocal centering rings.

This means that the patient can expect visual disturbances and may not be considered a good candidate for traditional multifocal IOLs.

However, Precizon Presbyopic NVA has a central zone of 1.4 mm in diameter in one direction, and 2.6 mm in diameter in perpendicular direction ("butterfly shaped") and can be oriented so that the visual axis passes through the wider central segment (simulation to the right).



**PRECIZON** NVA  
Aspheric Presbyopic IOL

## > Tolerates the Kappa Angle

# Patient selection

**It is well established that the main criterion for selecting a suitable cataract multifocal patient is his/her willingness to be free from glasses. When patients do not request independence from glasses and do not mind wearing them, one should not consider them for this type of IOL implant.**

Positive, easy-going patients who understand that a surgical procedure has risks and are willing to accept compromises in exchange for freedom from glasses are the ideal candidates. Also, It is important to remember that refractive patients are more likely to notice the photic side effects of mIOLs than regular cataract patients.

Achieving accurate pre-operative diagnostics of the anatomy and physiology of the eye is key to success. For example, consider astigmatism magnitude, pupil sizes, angle of kappa, dry eye and eye diseases.

The table below includes some of the critical assessments and checklists for a suitable candidate:

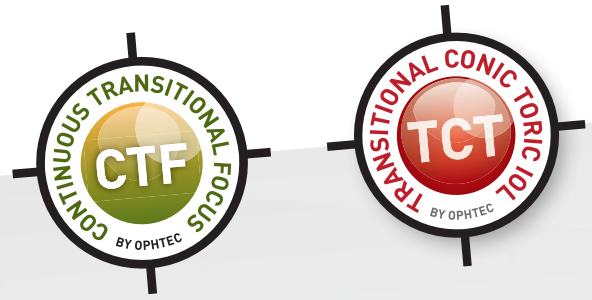
Success check list	Positive advice	Negative advice
Keen on independence from glasses	x	
Does not mind wearing glasses		x
Active lifestyle (e.g. Golfer)	x	
Night workers		x
Accepts & understands MIOL drawbacks	x	
Extremely critical patients		x
Near Tasks (tablet, phone, reading)	x	

Patient selection - critical assessments
Asymmetric astigmatism
Keratoconus
3rd and 4th order aberrations
Macula functionality (OCT)
Biometry & K readings exams
4 <sup>th</sup> generation calculation formulas
Kappa Angle & Pupil size
Ocular disease that may predispose future complications (e.g. anterior segment pathology, glaucoma, corneal dystrophy, ocular inflammation, pseudoexfoliation syndrome, retinal disorders)

Precizon Presbyopic NVA • Key benefits • Patients
Natural vision at all distances
Reduces glare & halos
Tolerates the Kappa Angle
Tolerates decentration

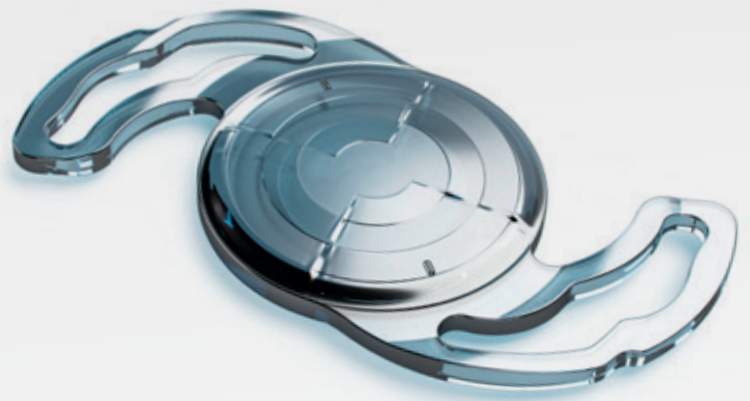
# PRECIZON™

## Aspheric Presbyopic Toric IOL



### SPECIFICATIONS

PHYSICAL CHARACTERISTICS	PRECIZON PRESBYOPIC TORIC
Model	575 Precizon Presbyopic Toric One piece IOL
Optic type	<b>Aberration Negative (- 0.11 µm)</b> Continuous Transitional Focus (CTF) optic
Central far zone size Y/X	1.4 / 2.6 mm
Rotated segments width	0.60 mm
Number of segment rings	3 n
Refractive index	1.46
Abbe number	47
Optic powers	Sphere: +5.0 D to + 34.0 D (0.5 D increments) * / ** Cylinder: +1.0 D to + 6.0 D (0.5 D increments) Power add +2.75 D.
Haptic configuration	Open modified C-loops with offset shaped haptics
Lens material	<b>Hybrid</b> hydrophobic & hydrophilic monomers. Ultraviolet filtering HEMA/EOEMA Copolymer
Lens colour	Clear
Body Ø	6.0 mm
Overall Ø	12.5 mm
Haptic angle	0°
Centre thickness range	0.8 to 1.3 mm
Body edge thickness	0.4 mm
A-constant*** Ultrasound	118.0
A-constant*** Optical	118.8 (SRK T)   118.8 (SRK II)   0.126 (Haigis a0) 0.355 (Haigis a1)   0.157 (Haigis a2) 5.51 (Hoffer-Q pACD)   1.72 (Holladay 1 sf) 1.78 (Barrett suite LF)   0.0 (Barrett suite DF)
Light distribution	40/60 near/far



## PRESBYOPIA & ASTIGMATISM CORRECTION REINVENTED

### Optic designed to:

- ✓ REDUCE GLARE & HALOS<sup>a</sup>
- ✓ TOLERATE THE KAPPA ANGLE<sup>b</sup>
- ✓ TOLERATE DECENTRATION<sup>c</sup>
- ✓ TOLERATE MISALIGNMENT<sup>d</sup>

Nature is not an optical bench  
- Treat presbyopia & astigmatism  
with confidence -

\* The minimum Sphere power is 1.5 + C e.g. 575A107TY10 = S5.0 & C3.5 (1.5+3.5=5.0)  
\*\* The maximum Sphere power is 35 - C e.g. 575A111TY59 = S29.5 & C5.5 (35-5.5=29.5)  
\*\*\* Check [www.ophtec.com](http://www.ophtec.com) for up to date A-constants

a) The misalignment tolerance and the use of segments instead of concentric rings reduces photic phenomena, helping patients to adapt more naturally to their new vision.  
b) The central zone of 1.4 mm in diameter is larger than most available mIOLs and allows a wider tolerance so that the visual axis passes through the wider central segment avoiding visual disturbances.  
c) In cases of tilt or misalignment, the patient can still benefit from good near and far vision, as the segmented zones allow a balanced far/near light distribution in a steady optical platform.  
d) Broader Toric meridian designed to be more tolerant of misalignment. White paper: Evaluation of a new toric IOL optic by means of intraoperative wavefront aberrometry (ORA system): the effect of IOL misalignment on cylinder reduction. By Erik L. Mertens, MD Medipolis Eye Center, Antwerp, Belgium

# Who is your ideal patient for Precizon Presbyopic?\*



**Dr. Mariano Royo**, Madrid

*"A woman between 50 and 75 years old, moderate myopia with a healthy fundus, or hyperopia from +1.0 up to +5.0D. No emmetropes with presbyopia."*



**Dr. Ramón Ruiz Mesa**, Jerez de la Frontera

*"Doubtful Kappa and Alpha Angle. Patients with high mesopic pupils."*



**Dra. Mercedes Otero**, Madrid

*"My first three patients were women - one had myopic LASIK performed 20 years ago. All of them were cataract patients, between 50 and 60 years old. They are really happy with their vision, because both far and near vision are really good."*

\* The opinions expressed are solely those of the surgeons and do not necessarily represent or reflect the views or opinions of OPHTEC BV.

**PRECIZON™**  
Family Aspherical IOLs



## OPHTEC BV

P.O. Box 398  
9700 AJ Groningen  
Schweitzerlaan 15  
9728 NR Groningen  
The Netherlands

T: +31 50 525 1944  
F: +31 50 525 4386  
E: info@ophtec.com

For more information on our products and our worldwide offices please visit:

## References:

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OPHTEC BV P.O. Box 398 | 9700 AJ Groningen | Schweitzerlaan 15 | 9728 NR Groningen | The Netherlands | T: +31 50 5251944 | F: +31 50 5254386  
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