

MATERIAL & DESIGN
MAKE THE DIFFERENCE

3! FLEX
HI.

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EYE SURGERY ESSENTIALS.

MEDICENTUR



Material & Design Make the Difference

01

Easy and reproducible
injection

02

Long-term axial,
radial and rotational
stability

03

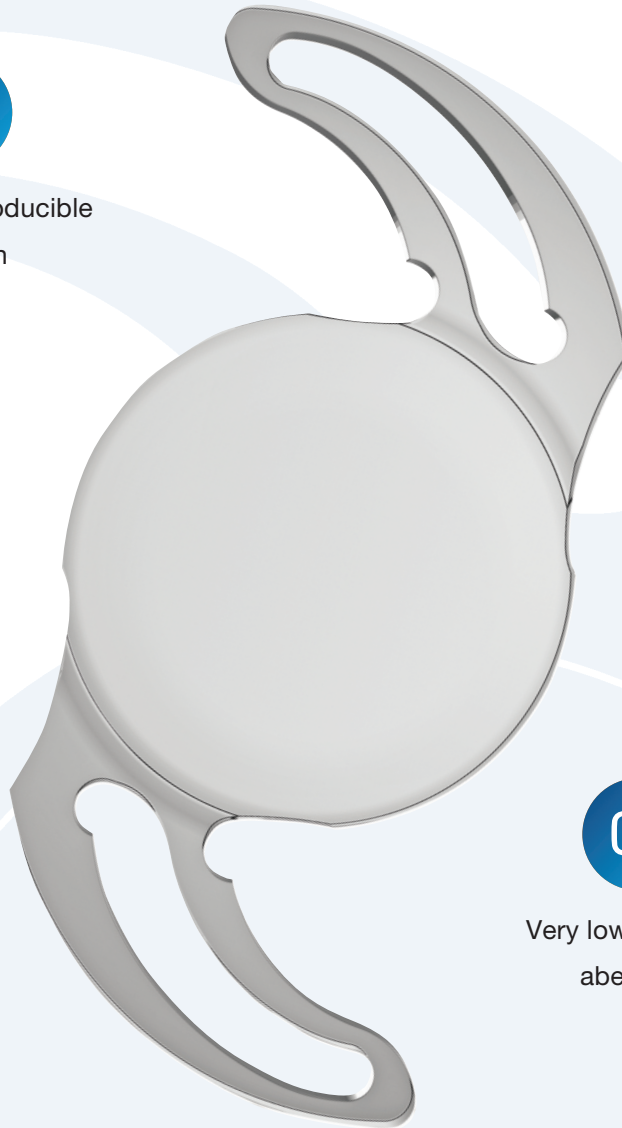
Precise and stable
refractive results

04

Improved PCO
prevention

05

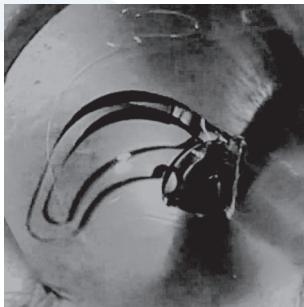
Very low chromatic
aberration





Bi-Flex Platform · Material Makes the Difference

Only a material with specific rheological properties is suitable for optimal micro-incision surgery (MICS).



Bi-Flex HL is manufactured from a long-time proven copolymer material with 25% water content

- optimally combining hydrophilic and hydrophobic monomers
- offering rheological properties required for MICS:

ELASTICITY · SOFTNESS · SHAPE MEMORY

- creating optimal conditions for MICS.

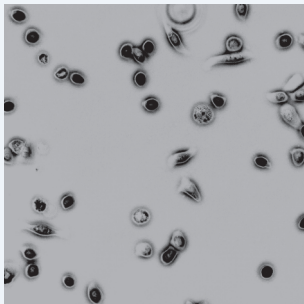
- Smooth continuous gliding of the IOL inside the cartridge, low injection force.
- Immediate, symmetric and atraumatic unfolding inside the capsular bag.

Permanent optical quality & improved safety

Bi-Flex HL is a first class material that offers permanent optical quality as a result of

- unequaled transparency
- very low chromatic aberration thanks to its high Abbe number.

In vitro experiment of cell adhesion



26% Hydrogel · MMA



Bi-Flex HL · 25% copolymer

Bi-Flex HL material offers improved safety with

- optimized biocompatibility
- low ionicity surface for minimized rate of cell adhesion.



Real 360° Square Edge

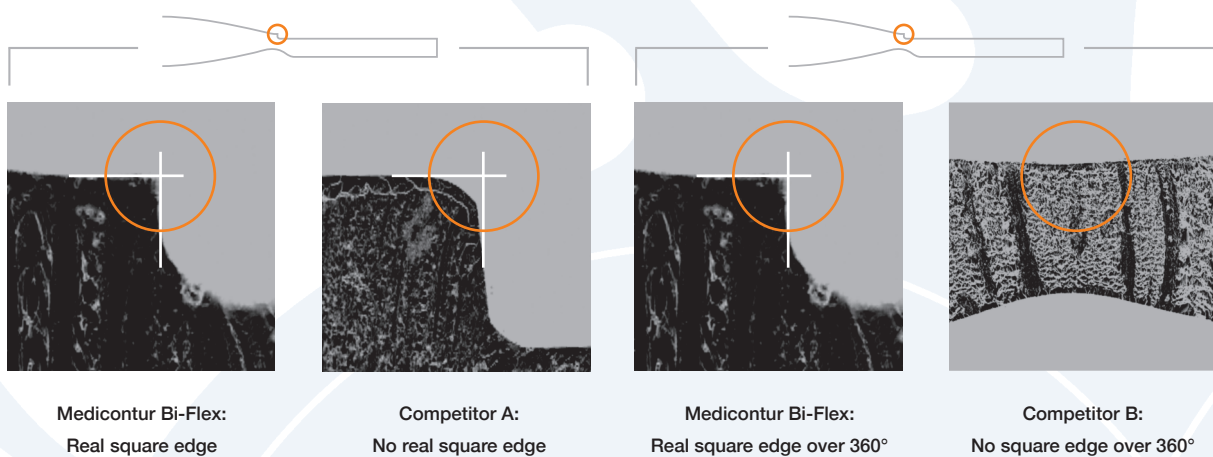
Only a real square edge can stop cell migration.

Studies^{[1][2]} have highlighted the essential role of the optic's profile design – especially the existence of a square edge all around the optic – to control cell migration.

Patented design characterize all Bi-Flex IOLs with a **sharp square edge all over 360° including the optic-haptic junction zone.**

A highly protective “edge effect” against crystalline lens epithelial cell migration.

Comparative scanned images of IOLs marketed as having a “sharp edge” at the optic-haptic junction



Medicontur Bi-Flex HL is the only lens which has a real square edge over 360° even at the optic-haptic junction.

[1] Werner L, Mamalis N, Pandey SK, et al. Posterior capsule opacification in rabbit eyes implanted with hydrophilic acrylic IOLs with enhanced square edge. · J Cataract Refract Surg 2004; 30:2403-2409 · [2] Tetz M., Wildeck A. Evaluating and defining the sharpness of intraocular lenses. Part 1: Influence of optic design on the growth of the lens epithelial cells in vitro. · J Cataract Refract Surg 2005; 31:2172-2179



Bi-Flex Platform · Design Makes the Difference

A unique & patented design for ultimate centration & long-term stability

Only a specific design offering a large contact angle and adequate haptics resistance can provide long-term centration and stability.

Bi-Flex HL benefits from all assets of the Bi-Flex platform design characteristics

- for reproducible centration of the IOL
- for axial, radial and rotational stability.

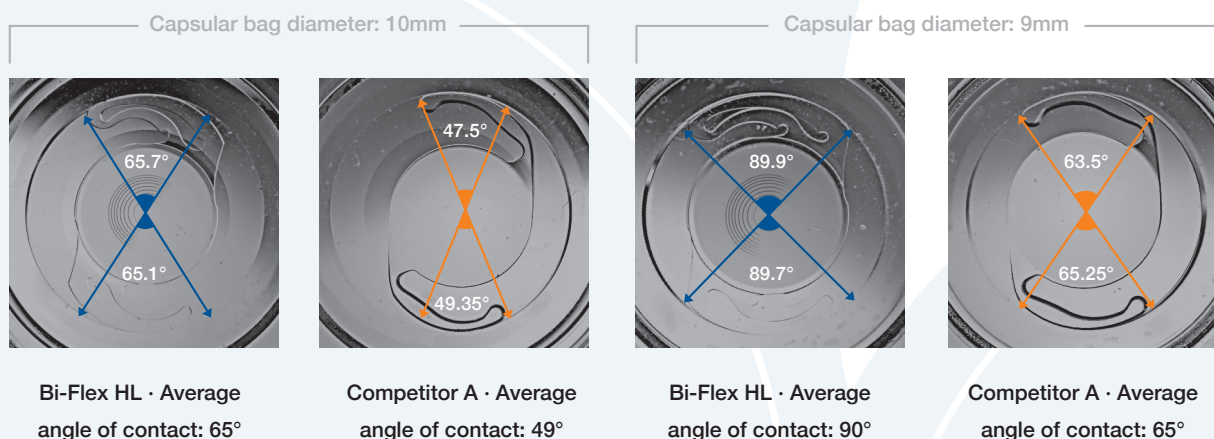
These unique characteristics are

- the largest contact angle between haptics and capsular bag equator among all IOLs

2 x 90° = Total 180° contact angle

- the Dolphin zone & the specific double haptics design
 - for immediate and symmetric unfolding
 - for optimized compressibility & resistance against capsular bag compression force.

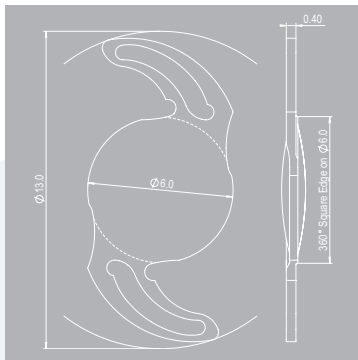
Experimental simulation of different capsular bag diameters



In both cases, Bi-Flex HL arc of contact with capsular bag equator is larger.



Material & Design Make the Difference



- **0° angulation**
to easily remove all viscoelastic gel from behind the IOL after the surgery to improve refraction stability.
- **Aspheric optical design**
to limit optical aberrations, to improve patients' visual comfort.
- **Full 6 mm optic**

Why accept materials with a low Abbe number?

Bi-Flex HL material & the Abbe number

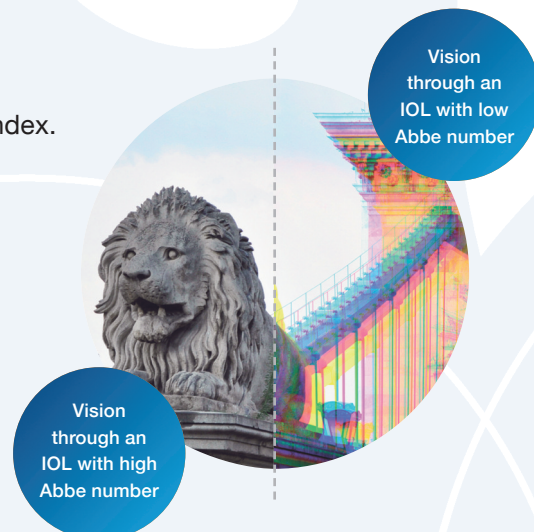
The Abbe number characterizes a transparent material's light dispersion in relation to the refractive index.

**The higher the Abbe number
the lower the chromatic aberration.**

A major difficulty with diffractive optics is chromatic aberration, which is generally worse than that of refractive optics. Chromatic aberration reduces image quality in normal white light because light rays with different wavelengths refract differently.

Excellent optical performance

Bi-Flex HL benefits from a very high Abbe number value: 58.



Vision through an IOL with high Abbe number

Vision through an IOL with low Abbe number



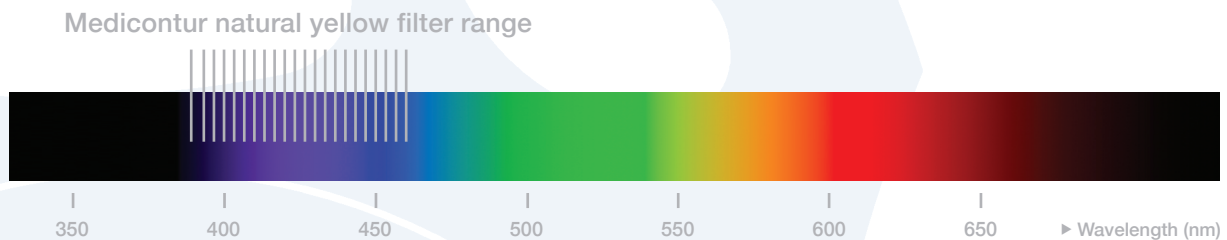
Medicontur Natural Yellow Filter

Only a natural yellow filter can offer the required protection while preserving quality vision.

Violet and blue light correspond to visible light wavelengths between 390 and 495 nanometers (nm). It is known that short wavelengths are potentially harmful to the macula. On the other hand we know that blue light is important for scotopic (night) vision.

Medicontur natural yellow filter cuts from 390 nm to approx. 470 nm

- cutting the most critical “high energy” portion of visible light
- preserving the low energy portion of blue light to maintain scotopic vision capacity, color and contrast sensitivity.



Bi-Flex natural yellow filter



No yellow filter at all



Bi-Flex HL natural yellow filter



Non-natural yellow filter

Bi-Flex natural yellow filter:
Filtering as much as necessary, preserving as much as possible.



MC-BIFLEXIB-DBR-EN-001

Vision of expertise

Medicontur is an independent European company founded in 1989, with a reputation for innovation and constant growing.

Our consistently high quality products have been implanted in over 4 million eyes and thus have helped millions of patients to restore their vision.

We have a diverse product portfolio that includes monofocal, multifocal and toric solutions in a broad diopter range. Our products are available in several designs, in hydrophilic or hydrophobic, and preloaded versions as well.

The company has international offices in Geneva (Switzerland), near Lyon (France), and in Brno (Czech Republic). The head office and production plant is located near Budapest (Hungary).

Medicontur products are distributed in more than 60 countries, with a growing share worldwide.