

 **Keraring**

INTRACORNEAL RING SEGMENTS

PROVEN TECHNOLOGY FOR
KERATOCONUS AND MORE



MEDIPHACOS

Together to see further



INTRACORNEAL RING SEGMENTS

TIME-TESTED, SAFE AND EFFECTIVE TREATMENT FOR ECTATIC AND IRREGULAR CORNEAS

Keraring intracorneal ring segments are surgically implantable devices used to reduce corneal topographic irregularities, correct low and high-order optical aberrations and improve visual acuity in patients with keratoconus and other ectatic disorders.

Keraring was specifically designed to treat irregular corneas and has been the treatment choice for hundreds of thousands of patients globally for over 20 years with excellent safety, efficacy and low complication rates.

Keraring's clinical performance has been tested in multiple peer-reviewed, independent scientific studies. A list of publications and a summary of Keraring's safety and clinical performance is available and can be downloaded using the QR code below.

INDICATIONS

- **Keratoconus with reduced BSCVA and contact lens intolerance**
- **Pellucid marginal degeneration**
- **Post Lasik ectasia**
- **High or irregular astigmatism following corneal transplantation**



**Scientific publications
and summary of safety
and clinical performance**

FEATURES AND BENEFITS

EXCELLENT PATIENT SATISFACTION

Keraring patients consistently report highly positive improvements in their quality of life.

QUICK VISUAL REHABILITATION

Minimally invasive surgical technique allows patients to rapidly resume normal activities. Topographic and visual changes are noticeable immediately after the procedure and stabilize after 3 months on average.

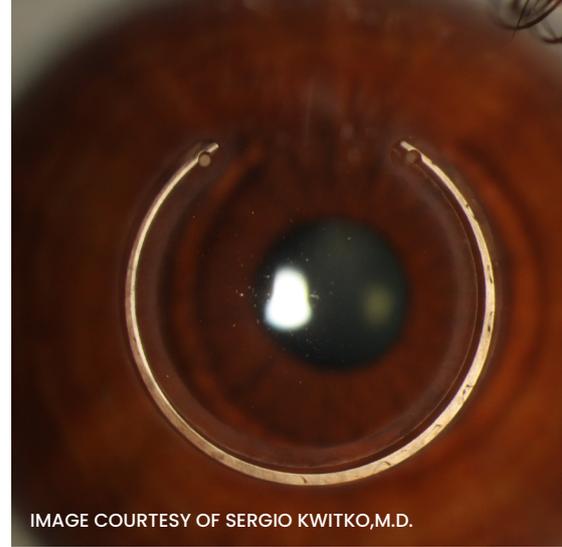


IMAGE COURTESY OF SERGIO KWITKO, M.D.



COMPATIBLE WITH COMPLEMENTARY TECHNIQUES

Keraring implantation can be synergistically combined with other procedures such as corneal collagen crosslinking, photorefractive keratectomy (PRK) and phakic intraocular lens implantation.

ADJUSTABILITY

When needed, Keraring can be repositioned or exchanged to refine the topographic and visual results.

REVERSIBILITY

Keraring explantation can be performed at any time. The procedure is reversible while maintaining corneal integrity.

DOES NOT COMPROMISE CORNEAL TRANSPLANTATION

Keraring implantation does not interfere with the normal execution of a corneal transplantation, if and when it is needed.

MECHANISM OF ACTION

- Corneal topographic regularization.
- Reduction in keratometry, refractive error and high-order aberrations.
- Improvement of UDVA and CDVA.
- Improvement in spectacle and contact lens tolerance.

SURGICAL TECHNIQUE

KERARING[®] implantation is a quick outpatient procedure usually carried out under topical anesthesia. Corneal tunnel dissection can be performed by mechanic (manual) or femtosecond laser assisted surgical techniques.

NOMOGRAMS

KERARING[®] implantation outcomes greatly depend on the selection of implant size and position for each individual case. Mediphacos provides a surgical plan nomogram as general orientation to surgeons. The manufacturer nomogram is available on the following link: <https://keraring.online>



CLINICAL SUPPORT

Mediphacos offers permanent technical support to Keraring surgeons. Please contact us at keraring@mediphacos.com



WHAT DO YOUR PEERS HAVE TO SAY?

"As an early adopter of intracorneal rings for keratoconus, I have gone through the many phases of the technology. Today, Keraring implantation is a time-tested, mature surgical procedure that is essential to any modern corneal practice."

Roberto Albertazzi, MD. (Buenos Aires – Argentina)



"The management of keratoconus and corneal ectatic diseases evolved tremendously, being a major part of Therapeutic Refractive Surgery. Intracorneal ring segments have significant relevance in this new specialty and are an important part of my practice. Patient selection and education, individualized planning based on multimodal imaging, and proper surgical technique using femtosecond lasers are the mainstays for delivering great Keraring results and having happy patients."

Renato Ambrosio Jr. MD PhD. (Rio de Janeiro – Brazil)

"In Israel and throughout the Middle East there is a high incidence of keratoconus. I have successfully implanted Kerarings for many years, either as a standalone procedure or in combination with other techniques such as corneal collagen crosslinking. The addition of new Keraring progressive thickness models has expanded indications, improved my outcomes and patient satisfaction."

Adel Barbara MD. (Haifa – Israel)



"Keraring is my implant of choice for corneal ectatic disorders due to the constant innovation in designs, improved nomograms and excellent clinical support. The wide product range allows me to tailor the treatment plan for each individual patient."

Delso Bonfante MD. (Chapecó – Brazil)

"Keraring implantation has been an essential tool in my keratoconus practice for 20 years. My clinical experience exceeds 5000 eyes implanted with highly positive results and low complication rates."

Efekan Coskunseven MD. (Istanbul – Turkey)



"My long-term personal experience implanting intracorneal rings for keratoconus agrees with the published scientific evidence. With correct indication, execution and follow up, it is a highly safe and effective procedure for keratoconus patients."

Olivier Prisant MD. (Paris – France)



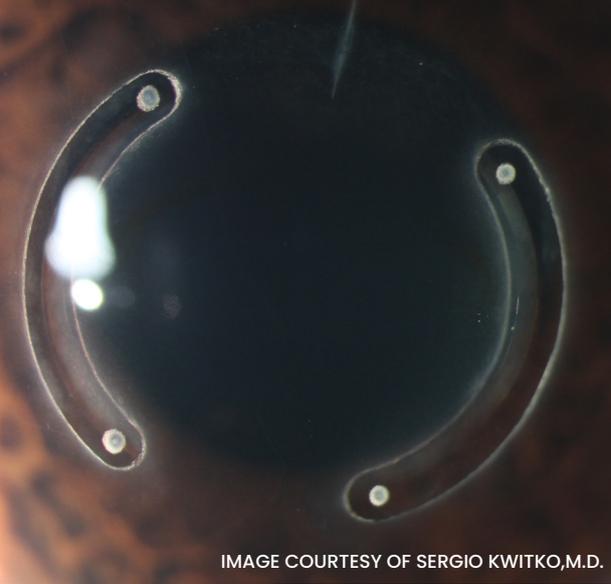


IMAGE COURTESY OF SERGIO KWITKO, M.D.

WIDE CHOICE OF IMPLANT SIZES

KERARING® is available in a wide selection of models with variable optical zones, arc lengths, thicknesses and thickness progression profiles, providing surgeons with additional options to address the different corneal remodeling needs of individual patients.

SI5

(5mm)



90 120 140 160 210 325

SI6

(6mm)



90 120 150 210 325

AS5

(5mm)
Asymmetric



160W 160C 180MT 330MT 320

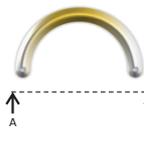
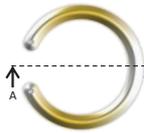
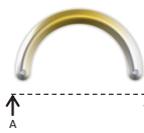
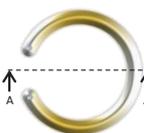
AS6

(6mm)
Asymmetric



160W 160C 150MT 180MT 330MT 320



Model	Arc length (degrees)	Thickness (µm)	Thickness Progression	Design example	Profile view	
S15	90, 120, 140, 160, 210, 325	150, 200, 250 300, 350	Constant thickness			
	S16					90, 120, 150, 210, 325
S16	320	200, 300, 400	Constant thickness			
	AS5	160 ⁽¹⁾	150/250 200/300	Thickness Increase Clockwise (W) and Counterclockwise (C)		
AS5	180 ⁽²⁾	150/300 150/250 200/300	Greatest thickness on the center of the arc (MT)			
	330 ⁽²⁾	150/250 200/300				
	AS5	320 ⁽²⁾	150/250/150 200/300/200	Sinusoidal progression		
AS6	160 ⁽¹⁾	150/250 200/300	Thickness Increase Clockwise (W) and Counterclockwise (C)			
	150 ⁽³⁾	200/300 250/350	Greatest thickness on the center of the arc (MT)			
	180 ⁽²⁾	200/300 250/350				
	AS6	320 ⁽²⁾	150/250/150 200/300/200	Sinusoidal progression		
	AS6	330 ⁽²⁾	200/300 250/350	Greatest thickness on the center of the arc (MT)		

- (1) Model developed in collaboration with Efehan Coskunseven MD. (Istanbul – Turkey)
(2) Model developed in collaboration with Delso Bonfante MD. (Chapecó – Brazil)
(3) Model developed in collaboration with Adel Barbara MD. (Haifa – Israel)

Not all models are available in every country. Check with your local Keraring distributor.
Keraring is presented with one intracorneal ring segment per box

Mediphacos is a world-class company with over 50 years of experience in ophthalmology and international presence in more than 60 countries in 5 continents. Our mission is to restore, preserve and improve human vision in collaboration with ophthalmologists through innovative, safe and effective products and services.

Mediphacos has earned global presence and recognition through strong R&D investments, state-of-the-art manufacturing technology and sharp focus on the evolving needs of eye care professionals. In our modern manufacturing plant we employ exclusively the best materials and technologies available worldwide, yielding innovative products of the highest quality, safety and efficacy.

All Mediphacos products are designed and manufactured under a comprehensive quality assurance system implemented in all areas of the enterprise and certified in conformity to stringent international quality standards.