

# HOYA TECHNOLOGY REFERENCE GUIDE

Over 50 years of optical engineering



# HOYA

[www.thehoyafreeformcompany.com](http://www.thehoyafreeformcompany.com)

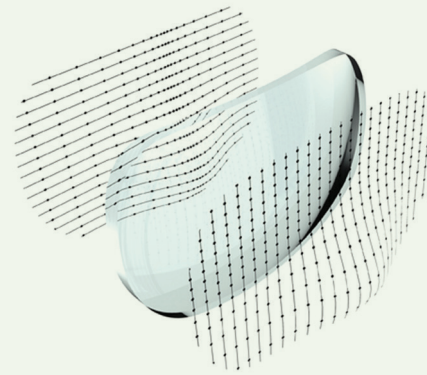
**REDEFINING EVERY ASPECT OF VISION CORRECTION**

# iD LENS SERIES

Progressive lenses were first patented in 1907 and later refined in 1959 into the basic progressive lens design still widely used today. This conventional approach places the progressive lens on only the front surface of a semi-finished blank, thus allowing for better optical results through only a narrow “window of opportunity.”

The iD category utilizes the full potential of HOYA Free-Form technology where the finished product allows users to gain increased optical performance via our patented Integrated Double Surface (iDs) Technology™ for a revolutionary progressive design. On the front, we have integrated the vertical component, which affects magnification and distance. On the back, we have integrated the horizontal component, which impacts power changes from side to side.

The result is a progressive lens solution that puts the best vision correction capabilities in your hands.

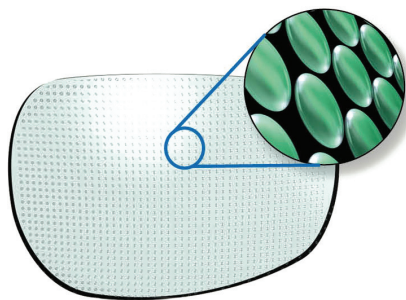


## iD MYSTYLE®

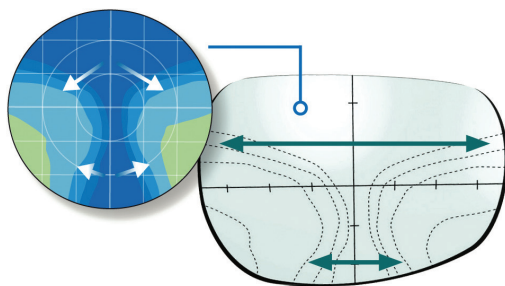
The HOYALUX iD MyStyle represents the pinnacle of design personalization among all HOYA Free-Form progressive lenses. Utilizing objective and subjective data collected through a detailed patient consultation, the end result provides the perfect blend of the patients’ personal visual needs and wants.

### DESIGN FEATURES:

- Natural, effortless vision at all distances and all directions
- Stable image perception in all circumstances
- Wide, deformation-free field of vision
- Smooth and natural interaction



*A better correction of lens aberrations over the whole lens surface*



*HOYALUX iD LifeStyle 2 Significantly wider fields of vision*

## iD LIFESTYLE 2<sup>SM</sup>

HOYA integrated the latest calculation technologies and insights in the HOYALUX iD LifeStyle 2 design. A better correction of lens aberrations over the whole lens surface has led to better contrast and image definition. The progressive power distribution and the way the progression builds up have been adjusted to offer wider fields of vision and optimized distance area.

### DESIGN FEATURES:

- New free-form aspherization process
- Uniform addition on the front surface, counterbalanced on the back to achieve the total addition power
- Clear, natural vision in all directions and at all distances
- Dramatically reduces swimming sensations
- No special fitting parameters needed

### AVAILABLE IN FOUR DESIGNS:

- iD LifeStyle 2 Clarity™: 18mm minimum fitting height
- iD LifeStyle 2 Clarity™ cd: 14mm minimum fitting height
- iD LifeStyle 2 Harmony™: 18mm minimum fitting height
- iD LifeStyle 2 Harmony™ cd: 14mm minimum fitting height

# BKS TECHNOLOGY<sup>SM</sup>

BKS are HOYA Free-Form™ Backside surfaced lenses. Leveraging HOYA's best-in-class technology and quality at a more affordable price, BKS Technology is better for your patients' eyes – and their wallets. BKS applies HOYA Free-Form backside surfacing technology to any semi-finished single vision lens, in any material, allowing your practice to offer the greatest selection of lens options and easy duplication across multiple pairs of clear or sun glasses.

HOYA Free-Form surfacing technology applies both aspheric and atoric curves to the backside of the BKS lens, optimizing ALL prescriptions within each base curve.

# iQ LENS SERIES

iQ relies on the creation of aspheric and atoric optical geometrics designed by intelligent software and applied with the diamond point HOYA Free-Form surfacing process onto a variety of lens designs. This technique heightens the optical performance of even the most simplistic lens styles such as single vision and segmented multifocals. The iQ progressive lens utilizes the trusted, award winning Summit design.

## SUMMIT iQ

Using aspheric and atoric curves on the back side enhances the optical performance and maintains the fidelity of the Summit progressive design across the entire prescription range and improves the overall optical performance of a proven, conventional progressive lens.

### DESIGN FEATURES:

- Optimization and customization for individual prescriptions for peak performance of lens design
- Wider viewing area for both myopic and hyperopic patients
- Sharper, clearer, distortion-free viewing
- Superior vision at all distances
- Large cut outs make clear and sun options easy to order

### AVAILABLE DESIGNS:

- HOYALUX Array 11, 13, 15, 17, VL
- HOYALUX Array Wrap 11, 13, 15, 17, VL
- Sync 5 BKS and Sync 8 BKS
- Sync 5 Wrap BKS and Sync 8 Wrap BKS
- Tact 40 BKS and Tact 60 BKS

<< BKS TECHNOLOGY >>



iQ represents the foundation of HOYA's Free-Form science.

### DESIGN FEATURES:

- Provides the wearer with enhanced vision
- Enhanced visual acuity
- Reduced distortion
- Wider fields of vision
- Improved distance vision

### AVAILABLE IN TWO DESIGNS:

- Summit ecp iQ: 18mm minimum fitting height
- Summit cd iQ: 14mm minimum fitting height

<< iQ LENS SERIES >>

# SINGLE VISION & BIFOCAL LENSES

HOYA has driven single vision lens design innovation with a passion for finding the best vision solutions that deliver clear results for our eye care partners and patients alike. HOYA offers premium single vision lens designs that exceed the needs of your patients.

## iD SINGLE VISION<sup>SM</sup>

iD SingleVision is a bi-aspheric single vision lens design made possible through HOYA Free-Form Design Technology that provides Expanded Periphery (EP) viewing, especially in higher prescriptions.

### DESIGN FEATURES:

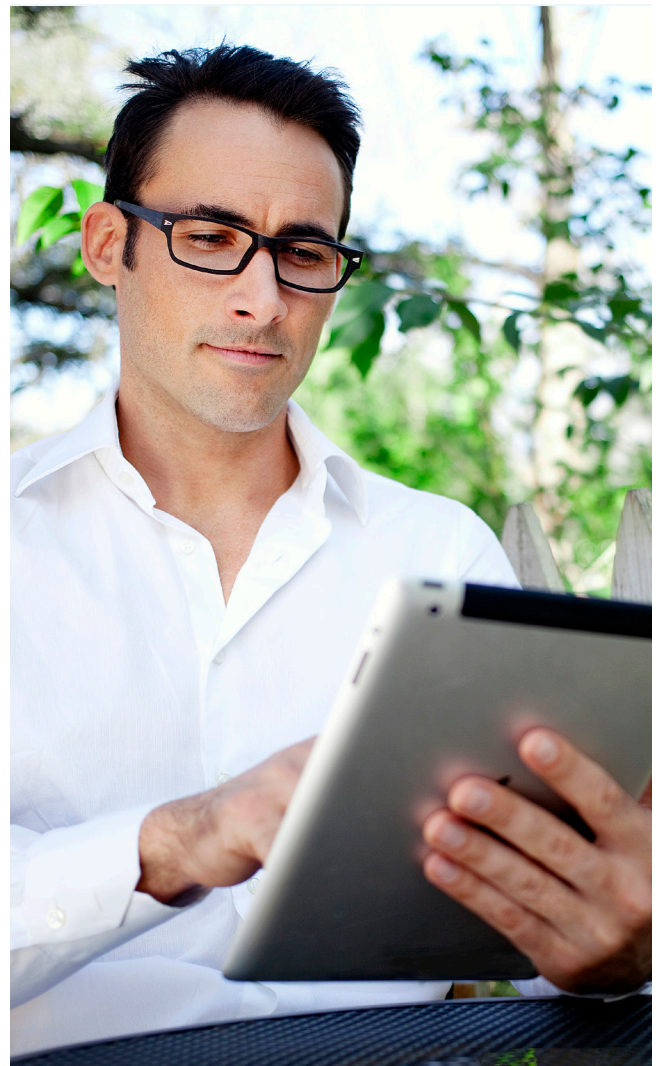
- Bi-aspheric design technology provides clear vision from edge to edge
- Visual optimization for all powers
- Visual acuity at every point on the lens
- Wider, clearer visual field in all directions of sight
- The ideal combination of cosmetics and performance

## SINGLE VISION iQ

SingleVision iQ combines a spherical front surface single vision lens with HOYA Free-Form custom back surface for enhanced optical performance and superior, expanded periphery viewing. SingleVision iQ lenses provide a better single vision solution, especially for wearers with higher prescriptions and/or astigmatisms.

### DESIGN FEATURES:

- Lens optimized for all prescription powers to enhance visual acuity
- Provides clear vision from edge to edge and a wider, clearer visual field in all directions of sight
- Noticeably reduced distortion, especially in peripheral viewing areas



## STRAIGHTTOP 28 iQ

For the discerning patient who is comfortable and familiar with the classic performance of a segmented multifocal, the StraightTop 28 iQ from HOYA delivers superior optical performance for both distance and near viewing.

### DESIGN FEATURES:

- A StraightTop enhanced by the patented HOYA Free-Form technology
- Lens optimized for all prescription powers to enhance visual acuity
- Superior distance and near vision performance

# CONVENTIONAL PROGRESSIVE LENSES

## HOYALUX SUMMIT®

Extended Corrective Performance (ecp) brings exceptional freedom and unparalleled vision to all zones. Complemented by a Compressed Design (cd) for smaller frames.

### DESIGN FEATURES:

Utilizes Integrated Transmittance Control (itc) technology for optimal performance:

- In-Wear customization to optimize refraction parameters with wearing position
- 120 inset variations for perfect placement of reading area
- Design Symmetry for balanced viewing

### AVAILABLE IN TWO DESIGNS:

- Summit ecp: 18mm minimum fitting height
- Summit cd: 14mm minimum fitting height

## AMPLITUDE®

Amplitude by HOYA combines advanced design technology with wearer ergonomics to create a new wave in progressive vision technology.

### DESIGN FEATURES:

Amplitude progressive lenses are designed with Transmission Based Modeling (TBM) technology.

- Systematically reduces unwanted astigmatism in the periphery for each base curve and add power combination providing optimized clarity in all zones

### AVAILABLE IN TWO DESIGNS:

- Amplitude: 19mm minimum fitting height
- Amplitude Mini: 14mm minimum fitting height

# NEW MEDIA OPTICS

## SYNC

Introducing an advanced single vision lens design that optimizes performance for today's digitally demanding world. Sync lenses naturally support the focusing demands that digital usage exerts on your eyes (digital eye strain) to provide comfortable viewing at all distances.

### DESIGN FEATURES

- Relaxed focusing with minimal effort for the eye
- Clear image depth perception to view objects true to shape
- Thin, light and flat lens design
- Ability to fit any frame

### AVAILABLE IN TWO DESIGNS:

- Sync 5<sup>sm</sup> – An option for younger adults, including students
- Sync 8<sup>sm</sup> – An option for early presbyopes, not ready for progressive solutions

## HOYALUX TACT®

Designed for computer users and patients who engage in visually-intense work or hobbies.

### DESIGN FEATURES:

- Relieve eye strain and health problems related to Computer Vision Syndrome (CVS)
- Provides extended focus lens design for near and intermediate viewing zones
- Delivers exceptionally wide intermediate and near viewing zones with optimized periphery
- Offers flexible progressive design with a minimum distance field of view
- 18mm minimum fitting height

### AVAILABLE IN TWO FITTING POSITIONS:

- EP 40 – provides the patient with 40% of the near Rx at the fitting point
- EP 60 – provides the patient with 60% of the near Rx at the fitting point

# MATERIALS

Eyeglass wearers expect lighter, more comfortable lenses and HOYA's premium lens materials deliver just that.

## HOYA PHOENIX™

Phoenix offers the perfect combination of benefits for almost any patient with any lifestyle.

### LENS FEATURES:

- The lightest lens material available today
- Twice as scratch resistant as polycarbonate
- 60 times more impact resistant than standard plastic, exceeding FDA impact guidelines
- Abbe value of 43 versus 30 for poly
- UV Protection

## POLYCARBONATE

Polycarbonate lenses are thinner and lighter than regular plastic lenses.

### LENS FEATURES:

- Impact Resistant
- Light
- UV Protection



## EYRY® 1.70

An ultra high-index material with unprecedented optical performance.

### LENS FEATURES

- Extremely thin and lightweight
- 1.0 center thickness (minus lenses)
- 36 Abbe value for optical sharpness

## EYNOA® 1.67

Improved monomer structure provides an exceptionally thin and light design with unequaled strength and optical clarity.

### LENS FEATURES

- 15% thinner than 1.60 or polycarbonate
- 25% flatter than 1.60 or polycarbonate
- 35% stronger than polycarbonate

## EYAS® 1.60

Premium-performing high-index lens material.

### LENS FEATURES

- Very thin and lightweight
- Extremely strong and flexible
- 41 Abbe value for outstanding performance



## HOYA DF® DISTORTION-FREE OPTICS™

Distortion-Free Optics are complete eyewear offered from HOYA that introduces true distortion-free and obstruction-free vision to the world. Distortion-Free Optics combine the patented Avantek mounting and frame system with premium lightweight, durable HOYA Phoenix lenses featuring Super HiVision EX3® Anti-Reflective technology.



# ANTI-REFLECTIVE TECHNOLOGIES

HOYA offers a broad range of anti-reflective lenses to meet every performance need and budget.

## SUPER HiVISION EX3®

Using Super Premium Anti-Reflective (AR) technologies, HOYA has created the most extreme AR product available on the market.

### TREATMENT BENEFITS:

- Extreme scratch resistance, the only lens treatment that outperforms glass
- Extreme anti-reflection for maximum visual clarity
- Automatically includes HOYA ViewProtect super-slippery hydrophobic topcoat
- HOYA's Substrate Matching Properties (SMP) delivers superior optical performance

## RECHARGE<sup>SM</sup>

Recharge reduces blue light transmitted from the back-lit screens of digital devices. Perfect for patients who suffer from eye fatigue or Digital Eye Strain (DES).

### TREATMENT BENEFITS:

- Reduces blue light by 30% through a combination of absorption and reflection
- Reduces eye strain, fatigue, headaches, loss of focus and blurred vision (Digital Eye Strain)
- Keeps eyes comfortable and refreshed
- Re-energizes focus
- Useful for all age groups

## SUPER HiVISION®

Superior scratch resistant AR treatment.

### TREATMENT BENEFITS:

- HOYA's Substrate Matching Properties (SMP) delivers superior optical performance
- Automatically includes HOYA ViewProtect super-slippery hydrophobic topcoat

## HOYA THE COMPANY

HOYA is a global medical technology company that employs about 34,000 people in over 30 countries worldwide. Since 1941, HOYA has driven optical technology innovation with a passion for finding the best vision solutions. As we tirelessly pursue better ways to manipulate light, we know that the sharp

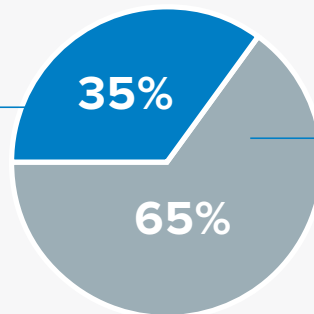
focus of our research and design of optic lenses will lead to higher quality lens solutions—that deliver clear results for our eye care partners and their patients alike. As a technology innovator, our custom surfacing is only the beginning for HOYA lenses, and the innovations

that lie ahead will surely continue to raise the bar and write history for unsurpassed visual achievements in optics. We challenge ourselves to strive for perfection. We are here to push limits and set standards. We are HOYA.

**HOYA is not only the technological leader of optical lens designs, materials and treatments - 100% of our global business relates to the manipulation of light.**

### EYE CARE:

- Eyeglass lenses
- Contact lenses
- IOL's (artificial intraocular lenses)



### INFORMATION TECHNOLOGIES, CAMERAS, AND MEDICAL EQUIPMENT:

- Digital cameras and lens units
- Glass disks for hard disk drives
- Industrial and medical lasers
- LCD photomasks
- Medical endoscopes
- Microlenses
- Semiconductor photomasks

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