



## DIGITAL LENS DESIGNS

# Technology

## Lens Design Software (LDS)

# IOT Lens Design Software

Free-Form Designer is a lens design software (LDS), a **flexible calculation platform** devised from the beginning to adapt to the needs of any Rx Lab. **Each version is customized for each Lab**, making each **system unique**.

IOT calculation platform implements **any type of lens design** (Progressive Addition Lenses (PAL), SV, Office, Wraps...) and **offers different levels of lens personalization**, no other LDS in the market offers so many customization options.

The calculation process is fast enough to follow the fastest production capacity of any machinery in the market, **just few seconds to calculate a pair of personalized progressive lenses.**  This advanced platform is **totally compatible with any free-form machinery** in the market; so it can be easily integrated in any free-form line. It is also compatible with the most common Lab Management Systems.

This software **will be installed in the** Lab facilities, calculations are made locally. The complete calculation platform will be at the same location as your machinery, guaranteeing an efficient production process.

### Advantages

- Flexibility
- Customizable
- Fast and precise calculation
- Compatible with any free-form machinery
- Integrated with most common LMSs
- Installed at the Lab facilities
- Local calculation

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## IOT LDS Communication Scheme

LDS receives all the necessary information from the Lab Management System (LMS). Prescription, Wrap, Tilt, and morphological parameters are taken into account to calculate the customized surface which adapts best to the data received, creating a lens that is always personalized for every wearer. After the calculation, that takes less than few seconds for a pair of lenses, the LDS sends the surface file back to the LMS, which will communicate with the free-form machinery that will produce the lens. IOT LDS is compliant with the specifications for LDS Input and Output from the latest versions of the Data Communication Standard, guaranteeing an optimum integration in the production process.





### SYNERGY OF FRONT AND BACK SURFACES

Camber<sup>™</sup> Technology combines complex surfaces on both sides of the lens to provide excellent vision correction. The unique variable base curve on the front surface of the specially designed lens blank allows expanded reading zones and improved peripheral vision. When combined with a back surface design using Digital Ray-Path<sup>®</sup>, both surfaces work together to accommodate an expanded Rx Range, offer better cosmetics for many prescriptions, and yield user-preferred near vision and performance.

Camber  ${}^{\rm TM}$  is an innovative new lens technology that combines complex curves on both sides of the lens to provide excellent vision correction.



## FREE-FORM PERSONALIZED PROGRESSIVE ADDITION LENS

Digital Ray-Path<sup>®</sup> is the most advanced technology available to make digital lenses. The important difference appears when calculating the back surface of the lens. Instead of using a pure geometrical method, Digital Ray-Path<sup>®</sup> technology is based on an advanced three-dimensional calculation model that takes into account the actual position of the lens and the natural movements of the human eye. The result of this innovative calculation method is a progressive lens that is personalized and provides better vision in all zones of the lens.

Digital Ray-Path® takes into account the progressive design model. Lenses are personalized according to individual demands of each wearer.





# technologies



### FREE-FORM BASIC PROGRESSIVE ADDITION LENS

Surface Power® is our entry-level digital surfacing technology. Progressive lenses made with this technology have the progressive surface on the back side of the lens, and a simple curve, typically a sphere, on the front side. The progressive surface is calculated using a pure geometrical method that produces lenses with similar optical performance as conventional progressive lenses, but with the advantages of the digital process, like flexible designs, variable corridor lengths and insets.

Surface Power® progressive designs transfer the progressive design to the back surface of the lens to allow free-form processing.



### NEW



### RELAX AND COMFORT IN FRONT OF DIGITAL DISPLAY

Smart Add is a technology specifically designed to improve comfort when viewing electronic devices (smartphones, tablets, computers, etc.).

The intermediate and near visual regions have been optimized for agile focus with less effort. The eyes are more relaxed, eyestrain disappears and the user's posture is more ergonomic.

Smart Add technology improves lens performance against screen devices, optimizing the surface for better dynamic vision..





# Better vision at every point on the lens

Lenses calculated with this technology method provide a better visual experience regardless of the prescription or frame selected.

Digital Ray-Path® is based on the realistic simulation of the optical behaviour of the lens when its placed in front of the wearer's eye. This simulation computes the oblique aberrations that have a negative impact on the lens visual performance. Oblique aberrations are reduced at every point on the lens, taking into account the rotation of the eye and the actual position of the lens.

Result of Digital Ray-Path<sup>®</sup>: A personalized digital lens completely optimized for each user.

### Benefits

- Improved vision in distance, intermediate and near zones
- Larger, clearer visual fields
- High Performance for high prescriptions & also for sport frames
- Oblique Aberrations Minimization
- Totally customized lens
- Material & Base flexibility
- Optimum Inset
- Frame flexibility



## This is how it works

Digital Ray-Path® computes the back surface of the lens through an optimization process that follows 3 different steps. The result is a fully personalized lens taking into account the wearer's prescription, physiological parameters and frame measurements.



Thousands of rays tracings are used to optimize the back surface of the lens point by point to minimize those undesired aberrations.

Result of Digital Ray-Path®



A unique digital lens completely optimized for each user.



## Benefits

### GETTING RID OF OBLIQUE ABERRATION



Oblique aberration appears when light is obliquely refracted by the lens. This happens when the wearer looks towards the periphery of the lens. In those cases the image is not focused on the fovea and the wearer perceives objects as being blurred. Digital Ray-Path® compensates for this effect, offering the wearer the best visual quality from the center to the edge of the lens.

### ACHIEVING LARGER VISUAL FIELDS



Getting rid of oblique aberrations is important both in single vision and progressive lenses. Thanks to Digital Ray-Path®, oblique aberrations are reduced everywhere on the lens, resulting in wider viewing areas with sharp and clear vision.

### VARIABLE INSET OPTIMIZATION



Every person needs different insets to maximize their binocular near visual fields. In Digital Ray-Path® lenses, the inset is exactly calculated for each wearer considering all the individual parameters.





The effect of oblique aberration becomes more pronounced in high prescriptions and high wrap sport frames, and therefore lens optimization is even more important. Digital Ray-Path® can easily correct these aberrations regardless of prescription or frame selection.

#### FLEXIBILIDAD DE MONTURAS



Digital Ray-Path® lenses, both progressive and single vision, provide excellent vision for any wearer regardless of the frame that is selected. In addition, Digital Ray Path® lenses can be calculated with automatic decentration to improve the final thickness of the lens. Wearers can now choose any frame they like without restrictions.

### Individual Personalization

Personalization parameters used for the calculation are specific for each individual wearer. Those parameters represent the identity of each wearer and make it possible to create unique lenses.



### Prescription & Addition

Digital Ray-Path<sup>®</sup> calculates the power that the user will truly perceive once the lenses are fitted on the frame.



### Nasopupilar Distance

Is defined as the distance from the axis of symmetry of the face to the center of the pupil.



### Pupilar Heights

Is the vertical distance between the pupil center and the deepest part of the lens shape.



### Frame Dimensions

Frame dimensions are used to calculate the final diameter, thickness of the lens and improve the efficiency of the optimization.



### Pantoscopic Angle

This is the angle in the vertical plane between the optical axis of a spectacle lens and the visual axis of the eye in primary position.



### Wrap Angle

Frame curvature



### Back Vertex Distance

Distance between the cornea and the back surface of the lens.



### Near Working Distance

This is the distance from the lens to the typical reading position for the wearer.

When some of the personalization parameters are not available, the final lens will be personalized using standard values for those parameters that are missing.

## Prescribed Power VS Compensated Power

### Prescribed Power



Prescribed Power is the prescription given by the doctor. Conventional lenses are calculated to yield this power when being measured on a lensometer. However, when the

wearer is looking through different points of the lens, oblique aberrations appear reducing the wearer 's visual acuity.

### **Compensated Power**



Digital Ray-Path<sup>®</sup> gets rid of the lateral oblique aberrations, modifying the power on each point of the lens. As a result, the user gets the power they need, and better vision, in each

gaze direction. But the lens will read a different power when measured on a lensometer. This different power is called Compensated Power.

Digital Ray-Path<sup>®</sup> lenses will display both the Prescribed Power and the Compensated Power. The Compensated Power is the one that has to be checked on the lensometer for quality inspection.







# Surface Power®

This is the basic level of lens calculation technology that only considers a fixed, non-tilted lens, tangential rays, infinitely small pupil and replaces the eye by a constant remote sphere.

This method is based on a pure geometrical conception of the lens. It will provide the wearer with the prescribed power they need in the far, near and intermediate regions. But, unlike Digital Ray-Path®, no additional aberration

compensation will be performed. The wearer will get a digital lens, but equivalent in terms of power computation to a conventional progressive. The Power and Addition are what we call Nominal, the Prescribed Power.

This technology is used only in our Basic designs, and according to this, we recommend our customers to position the lenses produced with this technology in the basic segment of their product portfolio.

## Benefits

- · Easy to be understood by opticians
- Easy to measure the power and compare to prescription with conventional means
- Variable Inset: Automatic and manual
- Freedom in base curve selection
- Nice entry-level digital lens







## Calculation Technologies

IOT is proud to offer the most flexible solution in the market, with access to all types of lens designs and product levels: from the basic to the latest state-of-the-art compensated individual lenses. In order to have presence in every segment of the market, IOT offers two different patented calculation technologies: Digital Ray-Path® and Surface Power®.

	DIGITAL RAY-PATH®	SURFACE POWER
POWER CALCULATION	COMPENSATED	NOMINAL
Lens Personalization	• • • •	• 0 0 0 0
Oblique aberration minimization	• • • •	••000
Base Curve Freedom	• • • •	• • • • •
Sport frame performance	• • • •	• • • • • • • • • • • • • • • • • • • •
High Prescription Performance	• • • •	$\bullet \bullet \bullet \circ \circ$
Manual Inset Selection	<ul> <li>✓</li> </ul>	V
Automatic Variable Inset	<ul> <li>✓</li> </ul>	v
Decentration	<ul> <li>✓</li> </ul>	v
PARAMETERS		
Prescription Data	<ul> <li>✓</li> </ul>	v
Pantoscopic Angle	<ul> <li>✓</li> </ul>	*
Wrapping Angle	<ul> <li>✓</li> </ul>	*
Vertex Distance	<ul> <li>✓</li> </ul>	*
Inter-pupilar distance	<ul> <li>✓</li> </ul>	V
Frame Parameters	<ul> <li>✓</li> </ul>	v
Working Distance	<ul> <li>✓</li> </ul>	*
Rotation axis of the eye	<ul> <li>✓</li> </ul>	*

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We spend on average

+8h

of digital display

We use on average

+3 different electron devices per day

SMART ADD

The **new technologies** are more present in our lives and have generated **new visual needs**. When reading on electronic devices, we need to focus on small details more accurately, we change the focus at different distances most frequently, and even our position has been affected. Nowadays we have **different electronic devices** (smartphone, tablet, laptop, e-reader...) that we often use at the same time. Therefore, it is increasingly more common to experience symptoms of fatigue such as red, dry, streaming eyes, headaches or cervical pain.

To offer users superior comfort, IOT has launched **Smart Add**, a technology for single vision and progressive lens wearers that **improves the visual experience when using electronic devices**. Lens designs that incorporate Smart Add technology are softer and offer the user **extra comfort** in the **near and intermediate zones** with **more natural transitions** and improved lateral vision.



Thanks to Smart Add, **reading from screen displays** becomes more **comfortable and easy**. The user benefits from more accurate focusing and improved dynamic vision, facilitating agile change between devices with more natural and relaxed movements.

## Benefit

- Lens optimization helps users more easily find the near region of the lens.
- Improved vision in near and intermediate zones.
- Better dynamic vision.

- Improved reading from digital devices.
  - Minimized head movements.
  - Supports correct ergonomic posture.

# Lens Design Portfolio

## IOT Lens Design Portfolio

At IOT we have created a complete portfolio of designs that have been conceived to cover all the different needs of the ophthalmic sector. With the goal to provide our customers with a **complete solution**, our range of products covers distinct calculation technologies and offers several progression lengths for each design. Beyond the list of designs shown in this document, IOT offers a unique custom lens design developing service. This service puts at the Rx Labs' disposal the possibility to have their own exclusive designs engineered by the IOT R&D department. Please see the service section at the end of this document for more information on custom lens designs.

Series	Design	Туре	Technology*	Personalization	Main feature	MFH Available
	Camber Steady	Dual-Side	Camber / DRP	~	Image stability	14, 15, 16, 17, 18, 19, 20 mm
	Camber Mobile	Dual-Side	Camber / DRP / Smart Add	✓	Electronic devices	14, 15, 16, 17, 18, 19, 20 mm
SERIES	Camber H25	Dual-Side	Camber / DRP	~	Near enhanced	14, 15, 16, 17, 18, 19, 20 mm
	Camber H65	Dual-Side	Camber / DRP	√	Distance enhanced	14, 15, 16, 17, 18, 19, 20 mm
	Camber S35	Dual-Side	Camber / DRP	√	Soft	14, 15, 16, 17, 18, 19, 20 mm
ULTIMATE F	REESTYLE	Full Back Side	DRP	~	Lifestyle	14, 15, 16, 17, 18, 19, 20mm
	Alpha Mobile	Full Back Side	DRP / Smart Add	~	Electronic devices	14, 15, 16, 17, 18, 19, 20 mm
	Alpha H25	Full Back Side	DRP	~	Near enhanced	14, 15, 16, 17, 18, 19, 20 mm
ALPHA	Alpha H45	Full Back Side	DRP	$\checkmark$	Balanced	14, 15, 16, 17, 18, 19, 20 mm
SERIES	Alpha H65	Full Back Side	DRP	√	Distance enhanced	14, 15, 16, 17, 18, 19, 20 mm
	Alpha S35	Full Back Side	DRP	~	Soft	14, 15, 16, 17, 18, 19, 20 mm
	Ultra Short	Full Back Side	DRP	$\checkmark$	Ultra Short corridor	10, 11, 12, 13 mm
	Basic H20	Full Back Side	SP	×	Near enhanced	14, 16, 18, 20 mm
BASIC	Basic H40	Full Back Side	SP	×	Balanced	14, 16, 18, 20 mm
JENIES	Basic H60	Full Back Side	SP	×	Distance enhanced	14, 16, 18, 20 mm
	Basic S35	Full Back Side	SP	×	Soft	14, 16, 18, 20 mm

## Progressive designs

\* DRP : Digital Ray-Path® / SP: Surface Power®

This graph shows the **progressive lenses** series positioning and their main features.



## Special designs

Series	Design	Туре	Technology*	Personalization	Main feature	MFH Available
Digital Round-Seg		Full Back Side	DRP	~	Soft transition	l4 mm
BIFOCAL B-I	B-Free Bifocal	Full Back Side	DRP	$\checkmark$	Without image jump	15 mm
	Camber Office	Dual-Side	Camber / DRP / Smart Add	~	Specific intermediate & near	14, 18 mm
INDOOR SERIES	Office Reader II	Full Back Side	DRP or SP / Smart Add	Available	Specific intermediate & near	14, 18 mm
	Acomoda II	Full Back Side	DRP/ Smart Add	~	Anti-fatigue	l4 mm
	Sport Progressive	Full Back Side	DRP	~	Sport frames	16, 18 mm
OUTDOOR SERIES	Sporthin PAL	Full Back Side	DRP	~	Lenticular	16, 18 mm
New	InMotion	Full Back Side	DRP	~	Driving day and night	18 mm
	Personalized SV	Full Back Side	DRP	~	Wider visual field	-
SINGLE VISION SERIES	I-Venture	Full Back Side	DRP	~	Sport frame	-
	Sporthin SV	Full Back Side	DRP	~	Lenticular	-
	SV Toric	Full Back Side	SP	×	Digital	-

\* DRP : Digital Ray-Path® / SP: Surface Power®

## Building your unique lens portfolio

The IOT Lens Design Portfolio can be completely adapted for each Rx Lab. IOT gives each specific lab the opportunity to create a portfolio of perfect solutions for its unique needs. The complete IOT Lens Design Portfolio offers a broad collection of different design possibilities. How to position them in the market is totally up to the lab. Each lab can combine the different designs and options to create different levels of complexity, ranging from a simple catalog that is ideal for labs that are starting in the free form business to an expansive design list for maximum market penetration. IOT experts have extensive experience in helping labs worldwide develop their own, unique product portfolios.The table below shows an example of the recommended portfolio for a lab that desires to cover a wide product range with a limited level of complexity.

### EXAMPLE OF PRODUCT PORTFOLIO ADAPTED FOR A GIVEN RX LABRATORY

IOT Design	Technology	Positioning	Target	Use
Alpha H45 Camber	Camber™ & Digital Ray-Path®	Top range Progressive	Demanding Customers	General use
Alpha H45	Digital Ray-Path®	Premium Progressive	Demanding Customers	General use
Alpha S35	Digital Ray-Path®	First progressive	Novice wearer	General use
Basic H40	Surface Power®	Entry Level Progressive	Wearers with economic price demands	General use
Office Reader II	Digital Ray-Path® / Surface Power/Smart Add®	Occupational lens	For office workers	Work on the computers
Single Vision	Digital Ray-Path®	Premium Single Vision	Young people	General use
InMotion	Digital Ray-Path®	Special for Driving	Drivers	Driving



Y

Ultimate FreeStyle



# Ultimate FreeStyle

The most current progressive lenses in the industry offers the same visual solution to everyone. However each wearer has a unique lifestyle with different visual requirements.

Ultimate FreeStyle is a personalized progressive lens that produces for each wearer individually, taking into account the different tasks, which defines our unique lifestyle.

By gathering and studying the information given previously by the patient, Ultimate FreeStyle lens changes its optical performance to offer a completely adapted visual solution.



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## Gathering LifeStyle Patient Information

Ultimate FreeStyle uses an **advance application**, which includes a **Lifestyle questionnaire** in order to help patients define their unique lifestyles.

This survey includes questions such as, the main activities the patient does during work hours and spare time; the wearers previous experience using progressive lenses; patients reading habits, and what sort of computer the patient normally uses. All these questions are thoughtfully studied in order to achieve an accurate description of the patients' visual demand.

Ultimate FreeStyle App. includes an advanced algorithm (LifeStyle Analysis Engine) to estimate the different aspects related to each wearer lifestyle. This engine has been developed using thousands of completed surveys, all of them carefully studied by a group of eye care professionals.

Further more, this engine uses the information from all completed surveys in order to improve the algorithm and there for, **keep on learning.** 

### Reaching brand new personalization level

By combining both physiological parameters and lifestyle information, Ultimate FreeStyle offers a whole new approach in lens personalization.





The latest generation of progressive Lenses

### Design Details

Ultimate FreeStyle is individually produced for each wearer, adapting its power distribution depending on the patient needs.

All power distributions available secure a great performance in all cases with a lower level of undesired astigmatism. This makes Ultimate FreeStyle the best optical solution for users who are searching for the most sophisticated lens flexible to all kind of lifestyles.

#### Benefits in the new version:

- Innovative and interactive Selling Tool
- LifeStyle Analysis Engine
- User Friendly App
- Enriched Selling Process

## Target & Positioning

• Ideal for all progressive wearers who are looking for the maximum personalization level.

Vertex distance4Near working distance4Pantoscopic angle4Wrapping angle4IPD4SEGHT4HBOX4VBOX4		
Near working distance4Pantoscopic angle4Wrapping angle4IPD4SEGHT4HBOX4VBOX4	4	Vertex distance
Pantoscopic angle4Wrapping angle4IPD4SEGHT4HBOX4VBOX4	4	Near working distance
Wrapping angle4IPD4SEGHT4HBOX4VBOX4	4	Pantoscopic angle
IPD         4           SEGHT         4           HBOX         4           VBOX         4	4	Wrapping angle
SEGHT         4           HBOX         4           VBOX         4	4	IPD
HBOX 4 VBOX 4	4	SEGHT
VBOX 4	4	HBOX
	4	VBOX

Parameters

### Advantages

- Adaptable Lens Performance
- LifeStyle Personalization
- Fast Adaptation
- High precision and high personalization due to Digital Ray-Path<sup>®</sup> technology
- · Clear vision in every gaze direction
- · Oblique astigmatism minimized
- Variable Inset: Automatic and manual
- Frame shape optimization available
- Automatic Corridor Selection

### Automatic Corridor Selection

From 14 mm	
(In steps of 1 mm)	



Collecting The Widest Range of Options to define accurately our LifeStyle



### **Experience & Expectations**

Ultimate FreeStyle takes into consideration the patients experience to determinate the progression profile of the final lens. The smoothness of the progressive lens is a crucial factor in order to ensure the patients adaptation.



## Reading & Computer Habits

Reading a magazine is not the same as reading from electronic devices, such as tablets. Ultimate FreeStyle adapts the reading visual fields taking into account each patient's reading habits.

## Daily Habits

More than 25 different activities could be selected to obtain the necessary information about patient's LifeStyle. Icons symbolize these activities. These are intuitive for the user, as they are easy to identify. With these icons, wearers can define their unique habits.





### Data Base

Ultimate Freestyle incorporates an innovative database for sales tracking very easy to use. Eye care professionals have the possibility to introduce patients' feedback and their level of satisfaction towards this app.

K Back			CLIENT DATA BASE	E			
NAME	TELEPHONE	E-MAIL	LENS	COMMENTS	DATA	OPTOMETRIST	
TODAY (3)							
Dunstan, Karen	00 000 00 00	karen_d@yahoo	Ultimate FreeStyle D	•	21 Jan 2015	J.Anderson	>
Simmons, Trevor	00 000 00 00	tsimmons@gmail	Ultimate FreeStyle F	•	21 Jan 2015	J.Anderson	>
Peterson, Jenifer	00 000 00 00	jenniferpg6@gm	Ultimate FreeStyle D	٠	21 Jan 2015	J.Anderson	>
YESTERDAY (0)							
LAST WEEK (3)							
Stuart, Henry	00 000 00 00	hstu@gmail.com	Ultimate FreeStyle D	•			FEED
Taylor, Jane	00 000 00 00	jtaylor@yahoo.com	Ultimate FreeStyle F	•	< Cancel		
Miguel Serrano, P	00 000 00 00	mserrano@iot.es	Ultimate FreeStyle D	•	CUSTOMER SATISFACTIO	N LEVEL	
					Comments Immediately adaptation. Th	e patient feel great comfort at :	any distance
					CLIENT DATA		No dat
				=			Excelle
							Bad







# SERIES

The arrival of free-form Technology has launched a revolution in lens personalization. The accuracy of the new generators allows lens labs to cut a nearly infinite number of surfaces with never-before-seen-precision.

At present, when combining Digital Ray-Path® technology with a free-form generator, it is possible to create a lens that is perfectly suited

to each wearer. Prescription, morphological parameters and frame data are taken into account by the IOT lens design software (LDS) to generate a customized lens surface that is specific for each wearer and frame. **Each point on the lens surface is also compensated to provide the best possible visual quality and performance.**  The Alpha Series represents a group of engineered designs that incorporates the latest Digital Ray-Path® technology; each design under the name Alpha guarantees the most sophisticated **possibilities of personalization and optical performance**. The Alpha Series is more than a lens design - it is a highly personalized lens that accommodates wearers with extreme precision.

Series	Design	Туре	Technology*	Personalization	Main feature	MFH Available
	Alpha Mobile	Full Back Side	DRP / Smart Add	$\checkmark$	Electronic devices	14, 15, 16, 17, 18, 19, 20 mm
	Alpha H25	Full Back Side	DRP	$\checkmark$	Near enhanced	14, 15, 16, 17, 18, 19, 20 mm
ALPHA	Alpha H45	Full Back Side	DRP	$\checkmark$	Balanced	14, 15, 16, 17, 18, 19, 20 mm
SERIES	Alpha H65	Full Back Side	DRP	$\checkmark$	Distance enhanced	14, 15, 16, 17, 18, 19, 20 mm
	Alpha S35	Full Back Side	DRP	$\checkmark$	Soft	14, 15, 16, 17, 18, 19, 20 mm
	Ultra Short	Full Back Side	DRP	$\checkmark$	Ultra Short corridor	10, 11, 12, 13 mm

\* DRP : Digital Ray-Path® / SP: Surface Power®



ALPHA MOBILE



ALPHA H25



ALPHA H45



ALPHA H65



ULTRA SHORT



### 

Designed exclusively for smartphone and tablet users

## Design Details

The introduction of electronic devices such as smartphones and tablets in our lives has led to an increase in the frequency with which we find the need to switch between near and distance vision. This means we look at things in a new way, using a visual strategy that requires lenses to allow for switching between near and distance vision quickly and comfortably.

Developed specifically for users of electronic devices, this design provides wide visual fields for both near and distance vision combined with a smooth transition which facilitates switching between them. The design also includes a shorter progression profile in order to make the transition from distance to near vision even easier.

### Performance

Far	1		
Near	1	1	
Comfort			

### Advantages

- Developed specifically for users of electronic devices
- Wide visual fields for both near and distance vision
- Comfort and high definition thanks to Digital Ray-Path<sup>®</sup> technology
- Dynamic vision thanks to Smart Add
- Available in seven progression lengths
- High quality vision in all viewing directions
- Reduced oblique astigmatism
- Variable inset: Automatic and manual
- Frame shape optimization available

## Target & Positioning

- High-end personalized progressive lens for users of electronic devices.
- Ideal for progressive lens wearers ages 40 and over, both experts and novices.

### Parameters

4	Vertex distance
4	Near working distance
4	Pantoscopic angle
4	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH Minimum Fitting Height
14 mm
15 mm
16 mm
17 mm
18 mm
19 mm
20 mm







Specially designed for the near vision

### Design Details

In our search for continuous improvement, IOT launches the Alpha H25. While maintaining the lens philosophy from the previous version (Alpha H20), Alpha H25 provides an enhanced reading area with an optimized and clear far vision.

More stable and wider visual fields mixed with a lower level of unwanted astigmatisms makes this design the best for users who are looking for a high quality lens specifically designed for near activities.

### Performance

Far	1		1
Near			)
Comfort	1	1	

### Advantages

- Wider Near Visual field
- Balance between far and near
- Reduction of head inclination for near tasks
- Available in seven progression lengths
- High precision and high personalization due to Digital Ray-Path<sup>®</sup> technology
- Clear vision in every gaze direction
- Oblique astigmatism minimized
- Variable Inset: Automatic and manual
- Frame shape optimization available

## Target & Positioning

- Ideal for experienced progressive wearers with an intensive use of near vision like frequent reading.
- A personalized progressive lens with high performance at near vision.

### Parameters

4	Vertex distance
4	Near working distance
4	Pantoscopic angle
4	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH (Minimum Fitting Height)
I4 mm
15 mm
16 mm
17 mm
18 mm
19 mm
20 mm



# Alpha H45-0-0-8-8-9



Perfect balance between distance and near visual fields

## Design Details

IOT engineers have developed a new calculation method that generates better and more sophisticated progressive lenses. As a result, IOT has now even better control of the progression profile and create wider visual areas.

Alpha H45 is the update version of IOT Alpha H40 design. This design represents the most sophisticated designs with a great level of success. It maintains the same philosophy as the previous version but improves softness and usable areas. Alpha H45 is the perfect balance between far, intermediate a near vision.

### Performance

Far		
Near		
Comfort		

### Advantages

- Wide near and far visual zones
- Perfect balance between near and distance
- Comfort and high precision together in the same lens
- Available in seven progression lengths
- High precision and high personalization due to Digital Ray-Path® technology
- Clear vision in every gaze direction
- Oblique astigmatism minimized
- Variable Inset: Automatic and manual
- Frame shape personalization available

### Target & Positioning

- Ideal for demanding customers.
- High-end personalized progressive lens for general use .

Parame	ters
	N ( ) .

4	Vertex distance
4	Near working distance
4	Pantoscopic angle
4	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH (Minimum Fitting Height)
14 mm
15 mm
16 mm
I7 mm
18 mm
19 mm
20 mm

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# Alpha H65 - 🔊 🕆 🗢

DIGITAL RAY-PATH®

Extremely wide distance visual area maintaining a comfortable near visual field

## Design Details

Enjoying landscapes, great buildings, movies in the cinema, etc. requires a wide, clear far field. Alpha H65 appears as great solution for people who spend long times outdoors, people that need a very good distance vision.

Alpha H65 is the updated version of Alpha H60, one of the most popular IOT designs. Alpha H65 is a design for general purposes but it has been developed focused on distance vision. It offers a panoramic far visual field with freedom for lateral movements of the eyes.

### Performance

Far		
Near ,		
Comfort	 	

### Advantages

- Extra wide distance visual zone
- Available in seven progression lengths
- High precision and high personalization due to Digital Ray-Path® technology
- Clear vision in every gaze direction
- Oblique astigmatism minimized
- Variable Inset: Automatic and manual
- Frame shape personalization available

### Target & Positioning

- Ideal for expert wearers who enjoy in outdoor environments or need superior distance vision.
- Personalized progressive lens with panoramic clarity in the distance zone.

### Parameters

4	Vertex distance
4	Near working distance
4	Pantoscopic angle
4	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH Minimum Fitting Height
14 mm
15 mm
l6 mm
17 mm
18 mm
19 mm
20 mm


# Alpha S35 -

Extra soft, fast adaptation and visual comfort

### Design Details

The Alpha S35 is an extra soft general purpose new and improved progressive desing that replaces the Alpha S45.

The improved optimization has reduced the lateral astigmatism by 22% compared to the previous version.

This design offers more natural vision, while at the same time preserving the distance, intermediate and near visual fields.

The Alpha S35 is specifically designed for first time progressive wearers and facilitates an immediate adaptation. It's also an ideal lens for those who have had difficulty adapting to other progressive lenses.

#### Performance

Far	1		
Near	1	1	
Comfort	 L		

#### Advantages

- Extra soft, personalized design
- Greater freedom in lateral gaze directions
- Wide near field with a generous distance field
- 22% reduction of lateral astigmatism compared to the previous version
- More natural vision in every gaze direction
- Available in seven progression lengths
- High precision and high personalization due to Digital Ray-Path<sup>®</sup> technology
- Clear vision in every gaze direction
- Oblique astigmatism minimized
- Variable Inset: Automatic and manual
- Frame shape personalization available

### Target & Positioning

- Ideal for beginners and non-adapted patients.
- Personalized progressive design with minimum lateral astigmatism and good balance between fields in every gaze direction.

#### Parameters

Vertex distance	4
Near working distance	4
Pantoscopic angle	4
Wrapping angle	4
IPD	4
SEGHT	4
HBOX	4
VBOX	4

MFH Minimum Fitting Height
14 mm
15 mm
16 mm
17 mm
18 mm
19 mm
20 mm

www.digitalray-path.com



Ultra Short -



Ultra short progression for small and fashion frames

### Design Details

Sometimes fashion frames are too small for regular progressive lenses and the wearer is forced to select a bigger frame. Ultra Short, specially developed for small frames, offers more options and flexibility to select the ideal progression length perfectly adapted to each frame. Thanks to IOT's new mathematical methods to control the progression length, new concept of short progressive design has been engineered. Ultra short design has the perfect balance between far and near vision, for a lens that fits in the shortest fitting heights.

#### Performance

Far	 	
Near	 	
Comfort		
	·	
<u> </u>		

#### Advantages

- Developed for patients who want to wear small frames
- Fast transition between far and near vision
- Small progression length to adaptable to the smallest frames
- Available in four progression lengths
- High precision and high personalization due to Digital Ray-Path® Technology
- Clear vision in every gaze direction
- Oblique astigmatism minimized
- Variable inset: Automatic and manual
- Frame shape personalization available.

### Target & Positioning

- Ideal for wearers who want to wear very small frames.
- 5 personalized progressive Lens ideal for small frames.

IOT recommends to use this design only for small frames. If a longer progression fits the frame, then it is better to choose a different design.

4	Vertex distance
4	Near working distance
4	Pantoscopic angle
4	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH Minimum Fitting Height MFH
10 mm
ll mm
l2 mm
13 mm





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Minimum Fitting Height (MFH) Minimum distance from the pupil centre to the lower border of the frame recommended for the assembly.

# Icons Description & Definition





Personalized considering the individual parameters of each wearer

Balanced

Balanced power

near and distance vision

Short Available

Available short

Enhanced Far



Especially improved distance vision area





Powered by Digital Ray-Path® technology

#### Enhanced Near



Especially improved for near vision area

Not For Driving



Not Suitable For Driving



Optimized with Smart Add technology

Enhanced for Beginners



Especially improved for beginners

#### Wrap Available



Lens available for sport frames, required real wrap angle or ZTILT as input

#### Enhanced for Computers



Special for computer and office activities

# SERIES



# SURFACE POWER

# SERIES

One of the most successful marketing strategies is to offer a complete portfolio of products that will cover any demands from the final user. As you have seen in the previous section, with the Alpha Series your company will be able to cover the highest top segment with high-performance customizable lenses. Now, with the **Basic Series** you will also have the chance to offer a **basic product** with an **intermediate position** in your portfolio, a product that could be offered to a less demanding clientele, so finally, you will have potential to satisfy different market segments with good quality products. Basic Series is a group of **progressive designs** in several progression lengths that have been calculated using the **Surface Power® technology**, this means no personalization. This calculation method provides the final lens with the power prescribed to the wearer without considering the different personalization parameters.

Serie	Diseño	Тіро	Tecnología*	Personalización	Característica principal	MFH Disponibles
	Basic H20	Full Back Side	SP	×	Near enhanced	14, 16, 18, 20 mm
BASIC	Basic H40	Full Back Side	SP	×	Balanced	14, 16, 18, 20 mm
JERIES	Basic H60	Full Back Side	SP	×	Distance enhanced	14, 16, 18, 20 mm
	Basic S35	Full Back Side	SP	×	Soft	14, 16, 18, 20 mm

\* DRP : Digital Ray-Path® / SP: Surface Power®





BASIC H20



BASIC H40



BASIC H60



BASIC S35

# 

A non-compensated design improving near vision

#### Design Details

With the new Basic H20, IOT completes the Basic series including a non-compensated lens where the power distribution has been studied to provide the users with a wider reading area.

With an expanded near visual field and a good performance for intermediate and far areas, this lens is perfect for users who look for an economic option and have a preference for near-vision activities.

#### Performance

Far		
Near ,	1	-
Comfort	1	

#### Advantages

- Enhanced near visual field
- Good performance in far and
  intermediate areas
- Available in four progression lengths
- Surface Power® calculation makes an easyto-understand lens for practitioner

SURFACE POWER

- Variable Inset: automatic and manual
- Frame shape optimization available

## Target & Positioning

- Ideal as economic solution for expert users who needs a generous reading visual field.
- Non-compensated design for reading vision activities.

	T al al licitoris
6	Vertex distance
6	Near working distance
6	Pantoscopic angle
6	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH Minimum Fitting Height	
14 mm	
16 mm	
18 mm	
20 mm	



# BASIC H40 -

SURFACE POWER

A non-compensated lens with good balance between distance and near visual fields

#### Design Details

Basic design well balanced between far and near fields. The technology used for calculating the surface of this basic progressive is Surface Power<sup>®</sup>. This technology guarantees that measured power will be the same as the prescription, and this makes this lens easy to be understood and sold by all kinds of practitioners.

Basic H40 power distribution has been designed to make a standard lens which will provide users with a balanced design with good performance in any scenario, wide near and also wide far mixed with a good corridor.

#### Performance

Far			
Near			
Comfort	I	1	

#### Advantages

- Well balanced basic lens
- Wide near and far
- Good performance for standard use
- Available in four progression lengths
- Surface Power® calculation makes an easy-to-understand lens for the practitioner
- Variable Inset: Automatic and manual
- Frame shape personalization available

## Target & Positioning

- Ideal for expert users who are looking for an economic solution.
- Non-compensated design for a general use with generous visual areas for near and distance.

	r ar ar rocor s
6	Vertex distance
6	Near working distance
6	Pantoscopic angle
6	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH Minimum Fitting Height	
l4 mm	
16 mm	
18 mm	
20 mm	



# BASIC H60 🔷 😂

A non-compensated design focused on the distance vision

### Design Details

This basic design represents the hardest version of the Basic Series. It has been engineered as a basic hard design with the widest far visual field.

The power distribution and hard transition make the Basic H60 a good lens for wearers with a preference for far-vision activities.

# Performance

Far			
Near	I	1	
Comfort		1	

#### Advantages

- Hardest basic design
- Good visual fields
- Enhanced far field
- Available in four progression lengths
- Surface Power® calculation makes an easyto-understand lens for the practitioner

SURFACE POWER

- Variable Inset: Automatic and manual
- Frame shape personalization available

### Target & Positioning

- Ideal for expert users who needs a generous far visual field.
- Non-compensated design for far vision activities ( walking, cinema, travels...).

6	Vertex distance		
6	Near working distance		
6	Pantoscopic angle		
6	Wrapping angle		
4	IPD		
4	SEGHT		
4	HBOX		
4	VBOX		

MFH Minimum Fitting Height	
l4 mm	
16 mm	
18 mm	
20 mm	



# BASIC S35



A non-compensated extra soft design

### Design Details

The Basic S35 is a very soft design that maintains a good balance between distance and near vision. This new and improved design will replace the Basic S40.

IOT engineers have developed new optimization algorithms creating a 15% increase in the softness in the lateral zones.

The Basic S35 is perfect for the visual needs of young presbyopes, offering visual necessities, offering an economical, balanced, and a great visual comfortable lens.

#### Performance

Far		
Near		
Comfort	 	

#### Advantages

- Basic extra soft design
- Greater freedom in lateral gaze
  directions
- Good balance between distance and near areas
- 15% reduction of lateral astigmatism compared to the previous version
- More natural vision in every gaze direction
- Available in four progression lengths
- Surface Power<sup>®</sup> calculation technology guarantees delivery of precise nominal R×'s.
- Clear vision in every gaze direction
- Oblique astigmatism minimized
- Variable Inset: Automatic and manual
- Frame shape personalization available

## Target & Positioning

- Ideal for novice and non-adapted wearers who need a progressive design for general purpose use.
- Non-personalized progressive design with minimum lateral astigmatism and good balance in all visual fields.

Vertex distance	6
Near working distance	6
Pantoscopic angle	6
Wrapping angle	6
IPD	4
SEGHT	4
HBOX	4
VBOX	4

MFH Minimum Fitting Height	
14 mm	
16 mm	
18 mm	
20 mm	



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Minimum Fitting Height (MFH) Minimum distance from the pupil centre to the lower border of the frame recommended for the assembly.

# Icons Description & Definition





Personalized considering the individual parameters of each wearer

Balanced

Balanced power

near and distance vision

Short Available

Available short

Enhanced Far



Especially improved distance vision area

#### DigitalRay-Path®



Powered by Digital Ray-Path® technology

#### Enhanced Near



Especially improved for near vision area

#### Not For Driving



Not Suitable For Driving



Optimized with Smart Add technology

Enhanced for Beginners



Especially improved for beginners

#### Wrap Available



Lens available for sport frames, required real wrap angle or ZTILT as input

#### Enhanced for Computers



Special for computer and office activities

# **Bifocal** Series





# 

Revolutionary full back side free-form round-seg bifocal

### Design Details

The new Digital Round-Seg is a compensated design, made to focus with two different viewing areas. The top of the lens is for distance vision and the curved segment at the bottom is for reading.

It offers wide fields of clear vision for both distances. Because there is no power progression a sudden 'jump' between the two optical zones will be noticed. There are no lateral lobes of unwanted astigmatism because of not having a power progression; this provides wearers with comfortable vision and no distortion or swim effect.

The diameter of the add segment is available in 28 mm and 40 mm with a transition area of 2.5 mm. The distance between the pupil and the segment is 3 mm.

#### Advantages

- High quality for distance and near vision
- Wide distance and near visual fields
- Clear vision in every gaze direction, no oblique astigmatism
- Frame shape personalization available

### Target & Positioning

- Ideal for wearers who are looking for a digital free-form bifocal.
- Personalized free-form bifocal lens with optical clarity in the distance and near zone.

	Parameters
4	Vertex distance
4	Near working distance
4	Pantoscopic angle
4	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH Minimum Fitting Height 14 mm

Segment Diameters 28 mm

40 mm







#### Note

For bifocal lens orders: either send provide segment height as measured for a conventional bifocal lens, or provide pupil height as measured for a conventional for a progressive lens.

Indicate the configuration option that has been selected.



The newest generation of digital Bifocal lenses

#### Design Details

B-Free Bifocal is a new **digital bifocal lens which displays no "image jump"** between distance and near visual zones.

B-Free Bifocal is a new generation of personalized free-form bifocal lenses optimized by Digital Ray-Path® technology. Engineered using the latest technology considering the binocular eye-lens system and movement across the lens, **this design represents the most accurate combination of quality and comfort for bifocal wearers.** 

It is a fully compensated design offering comfortable vision free from distortion along the natural eye path by eliminating "image jump" when looking from the distance to the near zone. It is a new bifocal concept that not only improves vision, but is also more cosmetically pleasing. Now the lab can provide an upgraded fully personalized and compensated version of bifocal lenses.

Since the B-Free design is essentially a mix between a bifocal and multifocal lens, **it can be used to help convert bifocal wearers into progressive wearers**.

#### Advantages

- Better looking eliminating the visible dividing line
- No "image jump" from distance to near zone
- Better visional quality in the distance and near zones
- Fully compensated, enhanced vision
- Fully customizable
- No stocking
- Availability
- Ideal solution for non-adapted
  progressive wearers
- Frame shape personalization available
- Easy to produce in the laboratory

#### Target & Positioning

- Ideal for bifocal wearers or for nonadapted progressive lens wearers.
- B-free is a personalized and more cosmetically appealing solution that eliminates "image jump".

	Parameters
4	Vertex distance
4	Near working distance
4	Pantoscopic angle
4	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH Minimum Fitting Height	
15 mm	



CONVENCIONAL BIFOCAL LENS



**B-FREE BIFOCAL** LENS

#### Note

For bifocal lens orders: either send provide segment height as measured for a conventional bifocal lens, or provide pupil height as measured for a conventional for a progressive lens.

Indicate the configuration option that has been selected.



Minimum Fitting Height (MFH) Minimum distance from the pupil centre to the lower border of the frame recommended for the assembly.

# Icons Description & Definition





Personalized considering the individual parameters of each wearer

Balanced

Balanced power

near and distance vision

Short Available

Available short

Enhanced Far



Especially improved distance vision area





Powered by Digital Ray-Path® technology

#### Enhanced Near



Especially improved for near vision area

#### Not For Driving



Not Suitable For Driving



Optimized with Smart Add technology

Enhanced for Beginners



Especially improved for beginners

#### Wrap Available



Lens available for sport frames, required real wrap angle or ZTILT as input

#### Enhanced for Computers



Special for computer and office activities

# Indoor Series

Powered By SURFACE POWER DIGITAL RAY-PATH®

# Indoor Series

# Introduction

Occupational lenses are designed for intermediate and near environment (computer and reading). Undoubtedly, these lenses are the best choice to work at near-intermediate distance where reading glasses are inadequate and progressive lenses have limitations in the lateral visual field.

An occupational lens is the perfect complement to your current progressive or bifocal lenses, as they provide the freedom to work on your computer, at your desk, read a book or cook. Indoor environments are the adequate place for wearing this kind of lenses.

Occupational lenses allow users to work in a **natural posture** due to their power distribution, especially conceived for indoor environments. Thanks to the expanded near-intermediate visual fields of occupational designs wearers will reduce their necessary **back and head movements**.

# Instant Adaptation

Occupational lens designs are also **soft** and offer a **comfortable transition between working distances**. Focusing points are really easy to find, reducing the adaptation time. Mixing soft transitions between expanded near-intermediate fields produces a **highly comfortable** lens with **nearly instant adaptation**.



Series	Design	Туре	Technology*	Personalization	Main feature	MFH Available
INDOOR SERIES	Office Reader II	Full Back Side	Camber / DRP / SP / Smart Add	Available	Specific intermediate & near	14, 18 mm
	Acomoda II	Full Back Side	DRP/ Smart Add	$\checkmark$	Anti-fatigue	14 mm

\* DRP : Digital Ray-Path® / SP: Surface Power®





# 

An office lens with the widest near and intermediate visual fields

#### Design Details

Office Reader II is the updated version of Office Reader, an occupational lens with a softer design. Useful for works how need faster change from near to intermediate distance.

Office Reader II incorporates Smart Add technology that offer Visual fields easier to find, more comfort and dynamic vision in electronic devices' use.

Office Reader II offers several working distance options:

- Office Reader 1.3 m (Allows clear vision from near to 1.3 m)
- Office Reader 2 m (Allows clear vision from near to 2 m)
- Office Reader 4 m (Allows clear vision from near to 4 m)
- Office Reader 6 m (Allows clear vision from near to 6 m)

#### Performance

Near		
Comfort		

#### Advantages

- Extremely wide near vision region
- Very soft design that eliminates swim effect and perceived lateral distortion
- No adaptation issues
- Clear vision from reading distance up to 4 meters
- Many available degressions for adapting to each user's needs
- Frame shape personalization available
- It allows to create a family of lens according to the distance.

### Target & Positioning

- Ideal for presbyopes who spend a lot of time working at near and intermediate working distances such as office workers, chefs, painters, musicians, etc.
- The most adapted lens for office work for intermediate and near vision.

6	Vertex distance
6	Near working distance
6	Pantoscopic angle
6	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH Minimum Fitting Height						
14 mm						
18 mm						





#### Two ways to offer your Office Reader

#### I. Automatic degression selection

Depending on the addition and the Office Reader II working distance option selected, IOT software automatically selects the exact degression based on the far working distance and prescribed power.

2. Manual degression selection

Office Reader II can also be configured in your system for different degressions allowing them to be selected manually. This way of offering the Office Reader II design is useful for those opticians who are accustomed to the direct selection of the desired degression.

#### Relationship between

vision performance and distance to the object

U OI CIEAI VISIOII		
Up to 2 meters (6.5 ft) of clear vision		
t) of clear vision		
ft) of clear vision		







#### Degression Reader 1,3 m Reader 4 m Reader 6 m 0,75 0,25 0,50 0,75 \_ 1,00 0,25 0,50 0,75 1,00 1.25 0,50 0,75 1,00 1.25 1,50 0,75 1,00 1,25 1,50 1.75 1.25 1.75 1.00 1.50 2,00 1,25 1,50 2,00 1,75 2,25 1,50 1,75 2,00 2,25 1,75 2,00 2,25 2,50 2.50 2,75 2,00 2,25 2,75 2,50 3,00 2,25 2,50 2,75 3,00 3,25 2,50 2,75 3,00 -3,50 2,75 3,00

#### Equivalences between distances and degressions

The table values can be change in Office Reader II with Digital Ray- Path<sup>®</sup> technology due to the compensation.

#### Note

Office Reader II lenses should be checked only at the near reference point (NRP), never on the far reference point (DRP), since there is never a DRP on an Office lens.

# Acomoda II – 💽 – 🕞 – 🌚



An innovative design that reduces visual fatigue

### Design Details

Acomoda II is the updated version of Acomoda with a softer design. -it is a personalized anti-fatigue lens thanks to Digital Ray-Path®Technology.

It is specifically developed for non-presbyope users who experience eye strain from constant viewing of objects at near distances like books and computer screens.

Additionally, Acomoda II includes Smart Add technology, which enhances the visual experience when using electronic devices. The lens offers the user a higher visual quality and facilitates faster focus and reading of small details on digital screens.

#### Types

#### ACOMODA II 0.50

Useful for people who spend a lot of time working at a computer.

#### ACOMODA II 0.75

Useful for people who spend a lot of time reading.

#### ACOMODA II 1.00 D

Useful for pre-presbyopes who need a little visual help for reading.

#### Advantages

- Reduce visual fatigue
- IOT offers this design in three different additions: 0,5 D, 0,75 D & 1,00D
- High quality features in the near zone
- High precision and high personalization due to Digital Ray-Path® technology
- Clear vision in every gaze direction
- Oblique astigmatism reduced
- Variable Inset: Automatic and manual
- Frame shape personalization available

### Target & Positioning

- Ideal for wearers aged 18 to 45 who spend a lot of time at working in the near visual distance and have visual fatigue symptoms.
- An exclusive anti-fatigue designs.

Vertex distance	4
Near working distance	4
Pantoscopic angle	4
Wrapping angle	4
IPD	4
SEGHT	4
HBOX	4
VBOX	4

MFH Minimum Fitting Height	
14 mm	



Acomoda II 0,75 D



Minimum Fitting Height (MFH) Minimum distance from the pupil centre to the lower border of the frame recommended for the assembly.

# Icons Description & Definition





Personalized considering the individual parameters of each wearer

Balanced

Balanced power

near and distance vision

Short Available

Available short

Enhanced Far



Especially improved distance vision area





Powered by Digital Ray-Path® technology

#### Enhanced Near



Especially improved for near vision area

#### Not For Driving



Not Suitable For Driving



Optimized with Smart Add technology

Enhanced for Beginners



Especially improved for beginners

#### Wrap Available



Lens available for sport frames, required real wrap angle or ZTILT as input

#### Enhanced for Computers



Special for computer and office activities

# Outdoor Series



# **Outdoor** Series

# Introduction

Nowadays people past their fifties or sixties have very active lifestyles. Practicing sports or driving for hours are common tasks for progressive lens wearers. This kind of activities could be classified as outdoor activities, and the visual demands for these environments are notably different from the standard demands of PAL users. Due to the growth of sporty consumers of progressive lenses the **Sport and inMotion** lenses are opening an interesting niche market.

Visual requirements for practicing sports and for driving are not exactly the same but both have a common factor, **far vision** is crucial. Also **dynamic vision** is very important when things around you are in constant movement, so these two variables have to be underlined.

For a Lab, IOT Outdoor series brings the possibility to offer high performance solutions for those progressive wearers with an active lifestyle that enjoy practicing sports.

The most advanced calculation technology is used to create the customized lens that is optimum for each wearer's outdoor activities. Digital Ray-Path® takes into account personalization parameters that **will improve wearer experience**.

www.digitalray-path.com



Series	Design	Туре	Technology*	Personalization	Main feature	MFH Available
	Sport Progressive	Full Back Side	DRP	$\checkmark$	Sport frames	16, 18 mm
OUTDOOR SERIES	Sporthin PAL	Full Back Side	DRP	$\checkmark$	Lenticular	16, 18 mm
New	InMotion	Full Back Side	DRP	$\checkmark$	Driving day and night	18 mm

\* DRP : Digital Ray-Path® / SP: Surface Power®



SPORT PROGRESSIVE



INMOTION™
#### 

Improving dynamic and distance vision

#### Design Details

Nowadays PAL users practice more and more sports, so it just makes sense to develop a progressive that will provide them with the best optical quality in distance and intermediate vision. Dynamic vision is the key of success in this type of lenses. Sport Progressive, the ophthalmic lens design by IOT, has been engineered for the particular visual needs that arise in the practice of sports.

The area of near vision is in line with a sport design, conceived for focusing on objects slightly away from the user.

This will make it effective and comfortable for the perception of objects such as a clock, a sportmeters, the speedometer of a bike, a compass...

Typical frames for sports have a large size and steep base curves. Sport Progressive lenses from IOT are compensating these effects thanks to Digital Ray-Path® method, and are compatible with any sport frame.

#### Performance



#### Advantages

- Wide clear area of binocular vision in far distance
- Wide corridor provides a comfortable intermediate vision
- Low values of lateral unwanted cylinder
- Adjusted near vision for a clear view of the sports equipment (maps, compass, watch...)
- Ergonomic position of the head and body during sports activity
- Minimize swim effects
- High precision and high personalization due to Digital Ray-Path<sup>®</sup> technology
- Clear vision in every gaze direction
- Oblique astigmatism reduced
- Variable Inset: Automatic and manual
- Frame shape personalization available

#### Target & Positioning

- Ideal for user who needs a progressive lens special for outdoor activities.
- A compensated progressive lens ideal for sports (sports or outdoor activities).

#### Parameters

4	Vertex distance
4	Near working distance
4	Pantoscopic angle
4	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH Minimum Fitting Height
16 mm
18 mm



# Sporthin PAL



Thinner lenses for outdoor activities

#### Design Details

Depending on the prescription and required thickness of the lens, there is sometimes a limitation when selecting frames for outdoor activities. Sport frames require large lenses and have high wrapping angles – both of which result in a thicker lens than with regular frames, which is not aesthetically pleasing. Sporthin PAL is IOT's answer to this limitation.

As a progressive design especially engineered for outdoor activities, Sporthin PAL offers a wide distance visual field, a long corridor that reduces the swim effect, and an acceptable near visual field for checking cell phones or reading a map while walking, playing golf, biking, etc.

In addition to the optical features, this design reduces lens thickness up to 34% by using a unique lenticular effect that maximizes the angle of clear vision without significantly increasing lens thickness. Another benefit of this unique configuration is the enlargement of the power range for sport frames, allowing labs to offer high minus or plus prescriptions with curved sport frames.

#### Performance

Far			
	I		
Near	1		
Comfort			
I	I	1	

#### Advantages

- Up to a 34% reduction in lens thickness
- Wide corridor provides a comfortable intermediate vision
- Low values of lateral unwanted cylinder
- Adjusted near vision for a clear view of the sports equipment (maps, compass, watch...)
- Ergonomic position of the head and body during sports activity
- Minimize swim effects
- High precision and high personalization due to Digital Ray-Path<sup>®</sup> technology
- Clear vision in every gaze direction
- Oblique astigmatism reduced
- Variable Inset: Automatic and manual
- Frame shape personalization available

### Target & Positioning

- Ideal for those who want to wear curved sport frames but are limited due to high prescriptions.
- Ideal for golfing, running, biking, etc.

#### Parameters

4	Vertex distance
4	Near working distance
4	Pantoscopic angle
4	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH Minimum Fitting Height	
16 mm	
18 mm	

#### Pre-configuration

Vertex distance	l4 mm
Pantoscopic angle	8°
Wrapping angle	15°





## InMotion

Progressive lens optimized for relax and pleasant driving day and night

#### Design Details

inMotion is a new progressive lens designed for driving with a night vision zone that increases the driver's visual comfort during the day and at night.

inMotion reduces night myopia, which affects I out of 3 patients by reducing their capacity to focus at long distances in low light. Due to its unique progression profile, inMotion reduces the refractive error difference between day and night (up to 0.25D), improving the driver's vision, and therefore reducing stress and visual fatigue at night.

Having good peripheral and intermediate vision is critical during the driving task to fully capture information as well as effortlessly focus on the dashboard. For that reason, inMotion offers drivers extended intermediate vision -45% of increase in comparison with the Alpha H45 design- allowing the driver to focus more comfortably and quickly anticipate condition changes .

#### Target & Positioning

- Ideal for frequent drivers .
- Premium personalized lens ideal for driving.

#### Performance

F	ar		 1	_
1	Vear	1		
	Comfor	·+		

#### Advantages

 Intermediate visual field expanded up to 45%

DIGITAL RAY-PATH®

- Special progression profile developed to increase comfort while driving
- Night myopia reduction
- High precision and fully personalized due to Digital Ray-Path® technology
- Clear vision in every gaze direction
- Oblique astigmatism reduced
- Variable Inset: Automatic and manual
- Frame shape personalization available

#### Parameters

4	Vertex distance
4	Near working distance
4	Pantoscopic angle
4	Wrapping angle
4	IPD
4	SEGHT
4	HBOX
4	VBOX

MFH Minimum Fitting Height	
18 mm	







## Icons Description & Definition





Personalized considering the individual parameters of each wearer

Balanced

Balanced power

near and distance vision

Short Available

Available short

Enhanced Far



Especially improved distance vision area





Powered by Digital Ray-Path® technology

#### Enhanced Near



Especially improved for near vision area

#### Not For Driving



Not Suitable For Driving



Optimized with Smart Add technology

Enhanced for Beginners



Especially improved for beginners

#### Wrap Available



Lens available for sport frames, required real wrap angle or ZTILT as input

#### Enhanced for Computers



Special for computer and office activities

# Single Vision Series



Find out the most versatile OESIGN for Single Vision Lenses

# Single Vision -



Visual performance incomparable with any other Single Vision lens

### Design Details

IOT's Advanced Single Vision takes advantage of our in-depth knowledge in personalized ophthalmic lens design to reach the highest performance also for Single Vision lenses. The IOT designers have engineered a Single Vision design with capacity to produce any type of Single Vision free-form lens, no matter the frame, material, base curve or prescription.

Not only standard prescriptions to be fitted in common frames can be produced with this design, IOT Single Vision is also a high performance design for complicated jobs such as high prescriptions or lenses for wrap frames. Thanks to Digital Ray-Path® each pair of Single Vision lenses are able to be calculated entering the real personalization parameters or, when this data is not provided, to be calculated using default values for these parameters.

Maximum performance can be only reached if having all the real personalization parameters, but for frames without pronounced wrap angles the quality reached using default values will be close to the maximum one.

#### Advantages

- Total personalization
- Maximum optical quality for any prescription
- Compatible with any material and base curve
- Thinner and lighter lenses
- High precision and high personalization due to Digital Ray-Path<sup>®</sup> technology
- Clear vision in every gaze direction
- Oblique astigmatism reduced
- Possibility to input the frame shape for accurate calculation
- Frame shape personalization available

#### Target & Positioning

- Ideal for everyone who need single vision correction. Specially beneficial for high minus and plus prescriptions or large astigmatic correction.
- The best single vision totally compensated for each specific user.

For sport frames and frames with pronounced wrap angles use I-Venture Design.

#### Parameters

Vertex distance	4
Near working distance	4
Pantoscopic angle	4
Wrapping angle	4
IPD	4
SEGHT	4
HBOX	4
VBOX	4

### Better vision in all gaze directions

Conventional Single Vision lenses for high prescriptions have the weakness of losing visual clarity when looking in lateral directions. This inconvenience is caused by oblique astigmatism, and its correction is essential for providing clarity and comfort. With IOT Single Vision design people with high prescription will notice a notably improvement.





The graph on the left shows the importance of oblique errors for a single vision lens of -4.00 diopters, for a higher prescription the oblique errors are even higher. The horizontal axis represents the distance from pupil cross to the part of the lens which is being used when looking in gaze directions. The IOT single vision lens for high prescription is 76% more stable than for a conventional lens.

## I-Venture



Single Vision design providing superb acuity in sport frames

### Design Details

I-Venture is a Single Vision design calculated through Digital Ray-Path® technology that has been specially designed for curved sport frames.

When a lens is tilted the visual quality experienced by the eye becomes diffuse, not clear for all directions of sights.

The only way to avoid this problem is to calculate its surface considering from the

beginning that the lens will be positioned not perpendicular to the principal gaze direction.

Thanks to Digital Ray-Path® technology and the possibility to configure each product with unique parameters I-Venture reaches an impeccable visual quality in the entire lens surface, providing clarity and high definition in all gaze directions.

#### Advantages

- High Visual Definition in all gaze directions
- Pre-configured parameters
- Compatible with any base curve
  and material
- High precision and high personalization due to Digital Ray-Path® technology
  - Frame shape personalization available



### Target & Positioning

- Ideal for active single vision lens wearers who demand excellent visual acuity at all angles in their sport or wrap frames.
- The best single vision totally compensated for wrap or sport frames.

#### Pre-configuration

Vertex distance	l4 mm
Pantoscopic angle	8°
Wrapping angle	15°

#### I-Venture demonstration

Optical performance decreases from centre to edges of the lens. Peripheral vision is not accurate as it should be.

#### STANDARD SV LENS



Excellent optical performance not only in the centre of the lens but all across whole lens surface.

#### I-VENTURE LENS (COMPENSATED)



## Sporthin SV -



Thinner lenses for sport frame lenses

#### Design Details

These days, outdoor activities are part of our everyday lifestyles. Many of us enjoy running, biking or golfing, and for all of these activities, sunglasses or sport frames are needed. Depending on the required lens thicknesses for high plus or high minus prescriptions, wearers may be limited in their sport frame choice, as the vast majority of Rx Labs do not offer sport frames for certain prescription ranges.

Sporthin SV solves this problem by reducing the final thickness of the lens by up to 34%. This design is the ideal solution for any single vision lens wearer who wants to have a curved frame but could not because of their prescription. Sporthin SV is a fully personalized single vision design that is preconfigured for sport frames by minimizing oblique aberrations and improving quality of vision.

The thickness reduction is achieved by using a unique lenticular effect that maximizes the angle of clear vision without significantly increasing lens thickness.

#### Advantages

- Up to 34% thinner lenses
- Pre-configured parameters
- Compatible with any base curve
  and material
- High precision and high personalization due to Digital Ray-Path® technology
  - Frame shape personalization available

#### Target & Positioning

- Sunglass wearers with high plus or high minus prescriptions.
- Ideal for high curved sport frames.

#### Pre-configuration

Vertex distance	l4 mm
Pantoscopic angle	8°
Wrapping angle	15°



## SV Toric



#### Digital entry-level Single Vision

#### Design Details

Digital single vision non-compensated that corrects standard prescriptions like myopia, hypermetropia and astigmatism.

There is no need to take any personalization parameters. For ordering the lens, the ECP will only indicate the distance prescription. It is a simple and easy lens to be ordered.

Frames dimensions are considered to reduce the final thickness of the lens.

#### Advantages

- Good visual performance
- Possibility to input the frame shape for a better thickness calculation
- Surface Power<sup>®</sup> calculation makes an easy-to-understand lens for practitioner
- Easy to be checked on the lensometer
- Compatible with any material and base curve

### Target & Positioning

- Ideal for everyone who needs single vision correction and look for a economic solution.
- A basic digital single vision design.

For high minus/plus prescriptions, large astigmatic correction and sport frames, it is highly recommend to use single vision fully compensated design.

#### Parameters

Vertex distance	6
Near working distance	6
Pantoscopic angle	6
Wrapping angle	6
IPD	4
SEGHT	4
HBOX	4
VBOX	4

# Options

# Lenticular Option

Power distribution, personalization and lifestyle are essential factors to be weighed up, and also final thickness (center and edge) is a very important aspect to be considered. IOT offers a unique additional option available for any design included in this catalog, the Lenticularization.

#### What is Lenticularization?

Lenticularization is a process developed to minimize the thickness and weight of lenses. The user defines an optimal region around the fitting cross (Optical area); outside this region the Lenticularization reduces the thickness with a gradual change in curvature, giving as a result a thinner lens in the edge for minus lenses and thinner in the center for plus lenses.



#### Advantages

- Reduction of edge thickness for minus lenses
- Reduction of central thickness for plus lenses
- Always thinner lenses
- Available for any design
- Compatible with any material and base curve

#### Diameters of lenticularization

To define the size of the Optical Area, there are several diameters available by default: 35, 40, 45 and 50 mm. The IOT LDS, can also select any diameter required by the laboratory. Besides the circular shape, the optical area can be elliptical or adjusted to the frame shape.



The smaller the diameter of the Optical Area, the thinner the lens.

#### Optical area



Optical area is a zone where the optical quality is optimum. Lenticular effect saves this area for optical vision and modifies the curvature of the lens outside the saved zone to reduce thickness. The relationship between the diameter selected and obtained result is simple: The smaller the optical area is, the more the thickness can be improved.

## Lenticular Types

#### Lenticular

This type of lenticular is the strongest one; it makes a jump in power in the boundary from the optical to the lenticular area obtaining a thickness reduction. The lenticular zone is seen as a portion of the lens with different power and the boundary can be seen clearly.





PLUS LENS

#### Lenticular Parallel to the External Surface (PES)

This type of lenticular links the backside in the optical area with a surface of the same curve as the front side. This enables a more efficient polishing process and, at the same time, achieves a high thickness reduction.

The lenticular zone is seen as a section of the lens with different power, the boundary is wide and can be seen clearly.

#### MINUS LENS

PLUS LENS



## Lenticular Frame Shape

#### How it works

It is possible to input the frame shape data in the IOT LDS. For calculating a frame shape lenticular lens, the system applies the lenticularization in a region around the frame edge. This eliminates the need to select an optical bowl diameter for lenticularization, providing thickness reduction adapted for every frame.

#### Advantages

- Freedom to choose fashion frames
- Reduction of edge thickness for minus lenses
- Reduction of central thickness for plus lenses
- Always thinner lenses
- Available for any lenticular type
- Compatible with any material and base curve

### Halo width

- The halo width comes predefined by the software in 5mm.
- Nevertheless the lab can modify it.
- Halo width and final edge thickness of the lens are directly related.



The wider the halo, the thinner the lens will be, but it will reduce the optimum visual region.



### Regular Upgrades

IOT is constantly improving its software, improving the designs, improving methods for thickness control, calculation speed and security. IOT regularly launches new upgrades at least once a year. This service guarantees that your lab is always up-to-date producing digital lenses with state-of-the-art technology.

### Blank Measurements

IOT has specialized equipment for measuring the refractive index and base curve of blanks used in the free-form process. The correct measurement of blanks is important to ensure good free-form quality. This is especially important when the lab is planning to switch to a new lens material or a new blank provider. IOT offers free service to measure your blanks with high precision to guarantee the finest quality of your products. 

### Quality Control

Free-form machinery has reached an astonishing level of performance, but it requires constant maintenance and control to keep production quality consistent.

IOT offers a Quality Control Service to evaluate lenses produced at your lab. For each service performed, we will ask to provide specific lens samples. We will make a full power measurement evaluation of the samples, comparing them with the expected results. IOT will send you a complete report with these results.

These full map measurements will show lens quality throughout the whole lens, something that cannot be measured at the lab with standard lens meters.

### Production Support

When lenses are produced off power or the quality is not as expected, the lab needs to understand what is going wrong. IOT has the required tools, technicians and experience to track the problems and recommend a solution.

This service also includes questions related to stamps and engravings.

## Prescription Support

The goal of this service is to help the lab understand each design and solve issues related to lens power or lens measurement. Typically lab staff, doctors and opticians all have questions about the properties of specific lenses. IOT's support team, with extensive knowledge about advanced lens properties can answer all these questions, and help the lab provide better service to its customers.

## Training

IOT offers customized training programs for the lab's sales force and production team. The goal of this service is twofold. The production staff will learn how to produce advanced lenses, and the sales force will learn how to best sell and communicate the advantages of the new products.

### Marketing & Communications Consultancy

IOT can provide you with all the necessary technical information to properly position your products in the market place. We can develop custom promotional materials and advanced lens properties for the lab to use in their marketing collateral (brochures, Point of Sale material, etc.). The IOT team has extensive experience helping labs sell Free Form products and can advise you on how to position your products with the advantages of different free-form lens wearers.

### Apps Customization & Creation

Drawing on industry best practices and deep software expertise, IOT consultants help you assess your business needs, create your enterprise apps and deploy new technology to maximize the value of your brand. As IOT has always done, these apps will be customizable using each

laboratory logo. IOT's marketing experts clearly understand how important the brand, with this service IOT reaches a new leadership position becoming the first Lens Design Company that offers customizable apps to independent Rx\_Labs.



# Centration Charts

#### **Progressive Design**

#### Minimum Fitting Height 10 mm



www.digitalray-path.com

#### Minimum Fitting Height 12 mm

#### Progressive Design



#### **Progressive Design**

#### Minimum Fitting Height 14 mm



#### Minimum Fitting Height 16 mm

#### **Progressive Design**



#### **Progressive Design**

#### Minimum Fitting Height 18 mm



### Minimum Fitting Height 20 mm

#### Progressive Design



#### **Bifocal Design**

#### Minimum Fitting Height 14 mm



### Minimum Fitting Height 15 mm

#### **Bifocal Design**





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#### Outdoor Design


### Minimum Fitting Height 18 mm



# System requirements



## System requirements

### Integration with Lab Management Software (LMS)

Currently integrated with the most common LMS solutions in the market

If your LMS is not already integrated or custom, please ask the possibility of integration.

### Hardware and Operating System requirements

- IOT Lens Design Software runs on a standard PC running Windows XP, Windows Vista, Windows 7, Windows 8 and 8.1, 32 and 64 bit, Windows 10, 32 y 64 bit, or Windows Server 2003, 2008 & 2012
- Minimum processor Intel Core 2 Duo or higher
- Minimum RAM I GB
- Recommended processor Intel Core i5
- Recommended RAM 2 GB



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