OptoCalc 4.0

Next Generation Lens Designs

INTRODUCTION

Your partner for ophthalmic premium lenses

OptoTech is an industry leading company that develops and manufactures optical machinery and processes worldwide. Unlike other lens design providers, OptoTech's optical expertise is based on extensive experience in optical manufacturing and software development.

Founded in 1985, OptoTech's worldwide knowledge in engineering and process technology as well as **our strive for innovation** make us a prestigious expert for optical manufacturing. **Our art to manufacture ophthalmic premium lenses** has been refined throughout the years by experiences and cooperation with our customers that has led to industry leading technologies. Every step of creating our new lens designs and software solutions has benefited from that profound knowledge and practical expertise of our strategic partners. Through our wide range of software solutions, we share our know-how and technology with our customers to achieve the best possible vision in ophthalmic lens manufacturing.

OptoTech offers a wide range of software solutions. We have **provided guidance and support to hundreds of active software users** and our LDS system has been proven in unique and customized projects.

OptoTech Lens Design Philosophy

OptoTech Lens Design Software was introduced in the year 2000. It is our aspiration to offer our customers **technologically advanced lens designs for the best vision care**. All wearers of OptoTech's lens designs receive a completely customized product that has been tailored for their ophthalmic prescription and visual needs. We hold a unique position in the lens design industry of being not only a software pioneer with our technologies but also a machine manufacturer. This allows us to know what can be done within the current evolution of today's freeform digital processes and machines. This also impowers us so that we can push the boundaries for future improvements of lens designs. Unlike other LDS systems we can test our ophthalmic and precision theories almost immediately for real world applications within rapid time.

For the **OptoCalc 4.0** we developed a completely new and game-changing technology: **OptoTech Minimal Distortion (OMD Technology)**. With this innovative calculation approach, we are able to reduce astigmatism to the lowest possible level with optimized gradients to provide immediate wearer adaptation. The result: the **world's best relation between addition and distortion**.

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TECHNOLOGY

OptoDesign Pro (ODP)

OptoDesign Pro (ODP) is a powerful lens design calculation and optimization technology developed by OptoTech. The ODP Technology enables our customers to achieve the best mathematical solution for their individual needs and offers best-in-class lens designs. We created a world-wide unique and intelligent algorithm that is base for our customers' optimized lenses. All our progressive lens designs are developed and **optimized with this software tool**.

Extremely harmonic and well-balanced designs with an extraordinary optical quality and extraordinarily low unwanted astigmatism are the results.

ODP Benefits:

+ *Powerful lens design calculation and optimization*
+ *Unique and intelligent algorithm*
+ *Harmonic and well-balanced designs*
+ *Extraordinary optical quality*

TECHNOLOGY

OptoTech 4K

The 4K Technology is based on the OptoDesign Pro (ODP) Technology and an **advanced design optimization method** in high-resolution.

By increasing the numbers of iteration inside the design optimization algorithm, the 4K Technology guarantees extremely smooth power gradients in **high optical resolution**. Brilliant, sharp, and clear vision in a wide optical field is the result that benefit for the wearer.

4K Benefits:

+ *Advanced design optimization method*
+ *More iteration steps for smooth power gradients and very high optical resolution*
+ *Brilliant sharp and clear vision*
+ *Wide optical fields*

TECHNOLOGY

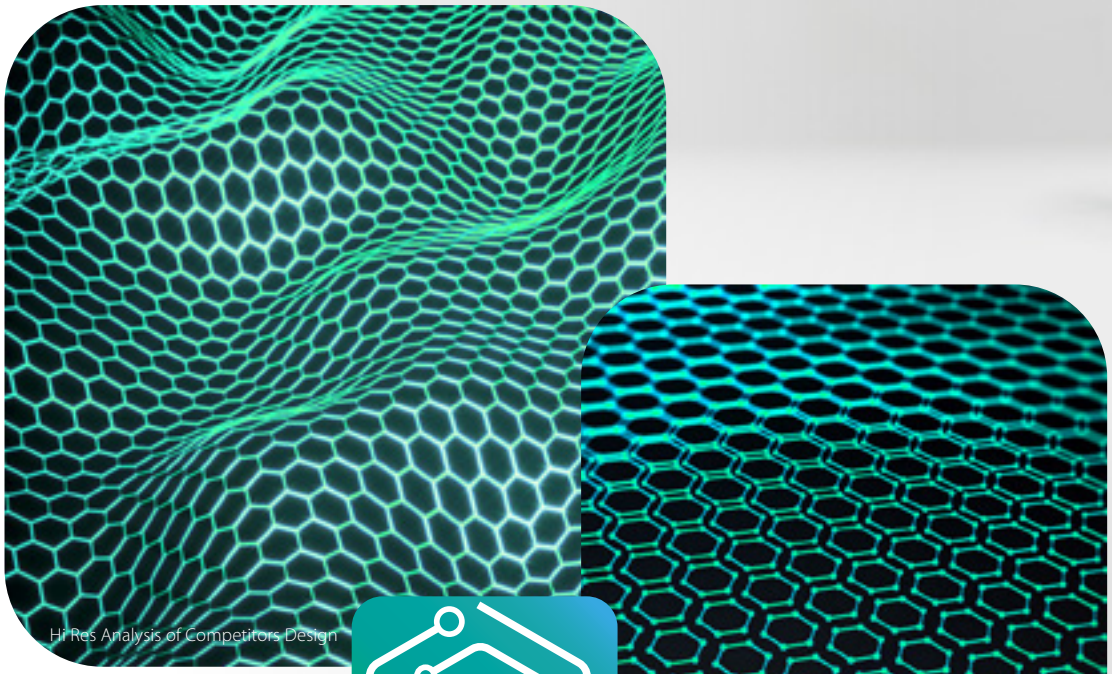
OptoTech Minimal Distortion

The new OptoTech Minimal Distortion (OMD) Technology offers **the worlds' best relation between addition and distortion.** All OMD lenses are completely balanced lenses with quick and increased wearer adaption rates.

OMD Technology can be combined with existing OptoTech Designs. This offers **maximum degrees of freedom to create your own unique design family** that is both profitable and customizable.

The OMD Technology **reduces the lens design unwanted astigmatism between 30-40%** for highest visual comfort.

OptoTech already created several OMD-Designs, for example our lifestyle designs: Office Active, Office Flex, Office Relax, EasyLife, Digital Smart Boost, Dynamic Drive or Dynamic Sports.



Hi Res Analysis of Competitors Design

Hi Res Analysis of OptoTech Design with OMD Technology

OMD Benefits:

+ *Minimal distortion, maximal precision*
+ *Immediate wearer adaption*
+ *Thinnest lenses*
+ *Widest optical fields*

DESIGN FAMILIES

Suitable for:	Reading	Electronic Devices	Office Work	Sports	Driving	Optimized Far	Optimized Intermediate	Optimized Near	Balanced	Beginners	
Far ECO				●	●	●				●	PROGRESSIVE
Near ECO	●							●		●	
Balanced ECO			●						●	●	
Far Comfort				●●	●●	●●				●●	
Near Comfort	●●		●					●●		●●	
Balanced Comfort	●		●		●	●	●	●	●●	●●	
Far Comfort Pro				●●	●●	●●●			●	●●●	
Near Comfort Pro	●●●	●	●	●	●	●	●	●●●	●●	●●●	
Balanced Comfort Pro+	●●	●	●	●	●●	●	●●	●●	●●●	●●●	
Office Active	●●●	●●●	●●●				●●	●●●	●●	●●	LIFESTYLE
Office Relax	●●	●●	●●●				●●●	●●	●●	●●	
Office Flex	●●●	●●	●●				●	●●	●●	●●●	
Digital Smart Boost	●●●	●●●	●●	●●	●	●	●	●●●	●●	●●●	
EasyLife	●●●	●●●	●●	●●	●●	●●	●	●●	●●	●●●	
Dynamic Drive				●●	●●●	●●●	●		●	●	
Dynamic Sports				●●●	●●	●●●				●	
Trifocal	●●	●	●●	●●	●●	●●	●●●	●●		●	SPECIAL
Invisible Bifocal	●●●	●		●	●	●●●		●●●			
Pilot	Special Lens Design for Pilots										

SINGLE VISION

Single Vision

Individualized lenses for everyone

Single vision lenses are often called "standard" or even "mass produced" lenses. But this description is no longer relevant. **Every single vision lens** can now be produced as **individualized premium products**. Using OptoTech's multiple optimization algorithms, single vision lenses can be calculated in a way to have a **thin and optimized lens in any prescription**. For example, the design can be combined **with lenticular blending or Advanced Ray Tracing Technology (ARTT)** to get an individualized high-performance lens.

In many cases, single vision lenses are the perfect choice for near sighted or far sighted patients. If the patient needs a pair of glasses whether it be for a child's first pair, near activities or distance sight only, OptoTech's Single Vision lenses are usually the best choice.

Ideal for

Near or far sighted patients. First time wearers, children, reading or distance lenses as well as sport lenses.

Application

Great for reading books or small font sizes on today's digital devices. Looking at objects that are far away and for sport activities.

Wearer's Benefits:

+ *Highest visual performance*
+ *Clear vision in all gaze directions*
+ *Ideal for sport frames*
+ *Good sight even in the peripheral zone*
+ *Thin and light lenses*

PROGRESSIVE

Standard Lens Designs with ODP Technology

Standard

Far ECO

Near ●○○○○ **Far** ●●●○○

Intermediate ●○○○○ **Adaptive** ●●●○○

Outdoor progressive lens design with optimized far distance area

Based on OptoTech 's OptoDesign Pro Technology, our Far ECO design offers a clear and comfortable view with well-balanced transition areas and visual fields. The focus of the Far Eco design is the **wide and very comfortable distance area**, defined by steep curves separating the unwanted peripheral cylinder powers. Hence this design can be referred to as a **hard design**. Therefore, this design is an excellent choice for all outdoor activities. The ODP key technology enables an optimized lens structure so that **unwanted astigmatic power is reduced significantly** and relocated into the outer parts of the lens.

Design Characteristics	
Available corridor length	7, 9, 11, 13 mm
Fitting cross position	4 mm
Recommended fitting height	16 – 22 mm
Min. fitting height	15 mm
Inset	2.5 mm
Centering chart (page 55)	A

Ideal for

All kind of outdoor activities like sport, driving, running, cycling, etc.

Application

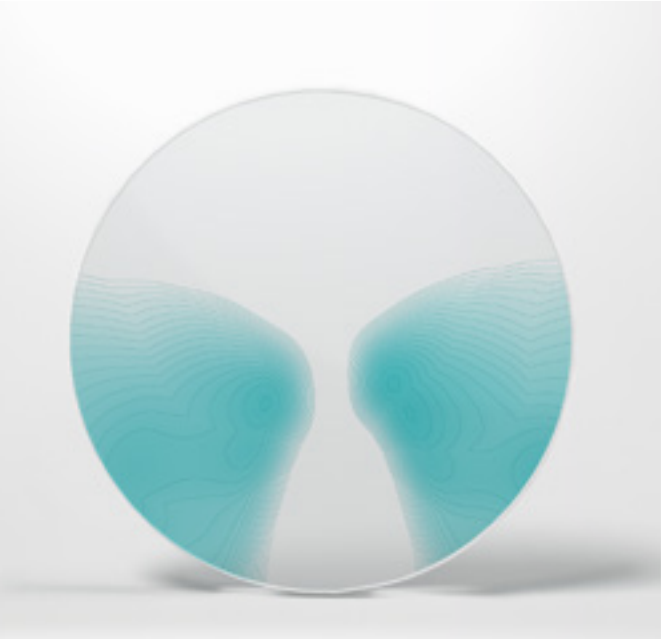
Optimized and comfortable distance view for all kind of outdoor activities

Wearer's Benefits:

+ *Improved far distance area*
+ *Greater comfort for outdoor activities*
+ *Fully customized lens*
+ *Easy adaptation between zones*

Standard

Near ECO



Near ●●●○○ **Far** ●○○○○

Intermediate ●○○○○ **Adaptive** ●●●○○

Indoor progressive lens design with optimized near distance area

OptoDesign Pro Technology focuses the Near ECO design to offer a clear and comfortable view in the far distance, with a **greater focus on near vision**. These softer progressive lenses have lower gradually increasing levels of astigmatism (widely spaced contours). Therefore, these designs are an excellent choice for indoor activities. OptoTech's ODP Technology calculates the optimized lens structure and **displaces the unwanted astigmatism into the peripheral parts of the design**, especially in the near zone.

Wearer's Benefits:

+ *Improved near area*
+ *Greater comfort for indoor activities*
+ *Fully customized lens*
+ *Easy adaptation between zones*

Design Characteristics	
Available corridor length	7, 9, 11, 13 mm
Fitting cross position	4 mm
Recommended fitting height	16 – 22 mm
Min. fitting height	15 mm
Inset	2.5 mm
Centering chart (page 55)	A

Ideal for

All kind of indoor activities. Especially suited for reading

Application

Optimized and comfortable near view for all kind of indoor activities

Standard

Balanced ECO

Near ●●○○○ **Far** ●●○○○

Intermediate ●●○○○ **Adaptive** ●●●○○

Balanced progressive lens design with optimized visual fields

OptoTech's OptoDesign Pro Technology focuses the Balanced ECO designs to offer **a clear and comfortable view with well-balanced visual fields**. All visual fields are weighted equally in this design, providing a **harmonic transition** to the astigmatism areas in the near and the far areas. The ODP Technology guarantees the balance of the visual areas and minimizes the distortion of the Balanced ECO design.

Design Characteristics	
Available corridor length	7, 9, 11, 13 mm
Fitting cross position	4 mm
Recommended fitting height	16 – 22 mm
Min. fitting height	15 mm
Inset	2.5 mm
Centering chart (page 55)	A

Ideal for

All kind of office work that requires a balanced progressive lens

Application

Optimized and comfortable balanced view for office work

Wearer's Benefits:

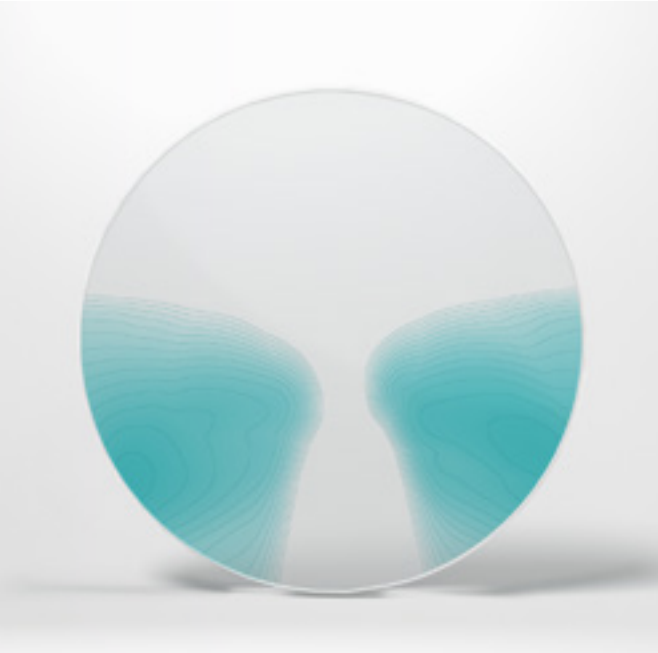
+ *Balanced in all fields of view*
+ *Greater comfort for office activities*
+ *Fully customized lens*
+ *Easy adaptation between zones*

PROGRESSIVE

Premium Lens Designs with 4K Technology

Premium

Far Comfort



Near ●◐○○○ **Far** ●●●●○

Intermediate ●◐○○○ **Adaptive** ●●●◐○

High-performance progressive for enhanced distance vision

Our premium lens designs offer an advanced visual field in all areas of sight with enhanced individual parameters. A larger amount of possible corridor lengths combined with customizable insets leads to an even more personalized lens and thus higher comfort for the wearer. The Far Comfort design provides an **outstanding far view with clearly defined visual areas, reducing unwanted astigmatism to a minimal**. Using OptoTech's ODP and 4K high-resolution technology, the wearer benefits from an overall improved image quality as well as unmatched visual performance.

Design Characteristics	
Available corridor length	5, 7, 9, 11, 13 mm
Fitting cross position	4 mm
Recommended fitting height	14 – 22 mm
Min. fitting height	13 mm
Inset	0 – 4 mm
Centering chart (page 55)	B

Ideal for

Experienced wearers looking for an outstanding lens with larger distance visual field

Application

Outdoor activities such as hiking, sightseeing and enjoying landscapes or any other activities requiring clear and comfortable far vision

Wearer's Benefits:

+ *Improved far distance focus*
+ *Reduced eyestrain*
+ *Greater comfort*
+ *Fully customized lens*
+ *Easy adaptation between zones*

Premium

Near Comfort

Near ●●●●○ **Far** ●◐○○○

Intermediate ●◐○○○ **Adaptive** ●●●◐○

High-performance progressive for enhanced near vision

Near Comfort is a soft and adaptive progressive lens, designed especially to provide an open and clear view for close-up activities. OptoTech's ODP Technology determines the perfect lens layout, so that distortion is placed into the outer parts of the lens and that the **overall visual performance is improved**. In combination with the 4K Technology the wearer will experience **high-resolution vision as well as a generous near visual zone**.

Wearer's Benefits:

+ *Improved near distance focus*
+ *Reduced eyestrain*
+ *Greater comfort*
+ *Fully customized lens*
+ *Easy adaptation between zones*

Design Characteristics	
Available corridor length	5, 7, 9, 11, 13 mm
Fitting cross position	4 mm
Recommended fitting height	14 – 22 mm
Min. fitting height	13 mm
Inset	0 – 4 mm
Centering chart (page 55)	B

Ideal for

Experienced wearers looking for a high-quality lens with improved near vision

Application

Near distance and indoor activities that requires an open and clear vision (e.g. reading)

Premium

Balanced Comfort

Near ●●●○○ **Far** ●●●○○

Intermediate ●●●◐○ **Adaptive** ●●●◐○

High-performance with generous visual fields and great image quality

Balanced Comfort is a soft design with improved transitions between near and far zones. Its **wide visual zones and stable image quality** makes Balanced Comfort a perfect solution for day to day activities. The ideal lens layout was created by 4K Technology resulting in clear and **comfortable vision with easy adaptation**.

Design Characteristics	
Available corridor length	5, 7, 9, 11, 13 mm
Fitting cross position	4 mm
Recommended fitting height	14 – 22 mm
Min. fitting height	13 mm
Inset	0 – 4 mm
Centering chart (page 55)	B

Ideal for

Experienced wearers who are looking for an all-purpose lens of high-quality

Application

Clear and comfortable view for every day

Wearer's Benefits:

+ *Well balanced in all zones*
+ *Reduced eyestrain*
+ *Greater comfort*
+ *Fully customized lens*
+ *Easy adaptation between zones*

PROGRESSIVE

High-End Lens Designs with OMD Technology

High End

Far Comfort Pro

Near ●●●○○ **Far** ●●●●●

Intermediate ●●●◐○ **Adaptive** ●●●●●

Premium progressive with superior distance vision quality

OptoTech's High-End Lens Designs are based on the innovative ODP, 4K and the game changing OMD Technology (OptoTech Minimal Distortion Technology). Far Comfort Pro is part of our High-End Lens Design family. It reduces distortions to an incredibly low level and creates the ideal lens layout from the wearer's individual parameters.

The result: A premium lens with **exceptional distance vision performance with low levels of blur,** practically **immediate adaptation** as well as **high-definition and stable image quality**.

Design Characteristics	
Available corridor length	5 – 13 / 1 mm step
Fitting cross position	4 mm
Recommended fitting height	14 – 22 mm
Min. fitting height	13 mm
Inset	0 – 4 mm
Centering chart (page 55)	B

Ideal for

Experienced wearers looking for a premium lens with exceptional distance vision and unparalleled image stability

Application

Suitable for any distance visual activities such as watching movies, walking/jogging, travelling and enjoying landscapes

Wearer's Benefits:

+ *Superior focus & reduced eyestrain*
+ *Excellent far distance view*
+ *Highest comfort*
+ *Fully customized lens*
+ *Easy adaptation between zones*

High End

Near Comfort Pro

Near ●●●●● **Far** ●●●○○
Intermediate ●●●◐○ **Adaptive** ●●●●●

Premium progressive with superior and stable image quality for near vision

Powered by the OMD Technology, the Near Comfort Pro designs offers **superior performance for near distances and unparalleled image stability**. The smooth layout **enhances comfort and visual quality** which provides the wearer with profound wide near vision at minimal distortion levels. Enabled by OptoTech's innovative ODP, 4K and the game changing OMD Technology.

Wearer's Benefits:

+ *Superior focus & reduced eyestrain*
+ *Excellent near distance view*
+ *Highest comfort*
+ *Fully customized lens*
+ *Easy adaptation between zones*

Design Characteristics	
Available corridor length	5 – 13 / 1 mm step
Fitting cross position	4 mm
Recommended fitting height	14 – 22 mm
Min. fitting height	13 mm
Inset	0 – 4 mm
Centering chart (page 55)	B

Ideal for

Experienced wearers looking for a premium lens with generous near visual area and great image stability for comfortable vision

Application

Suitable for any close-up activities such as reading, studying or any other activities with prolonged use of near vision

High End

Balanced Comfort Pro+

Near ●●●◐○ **Far** ●●●◐○
Intermediate ●●●●○ **Adaptive** ●●●●●

Upgraded premium all-purpose lens with remarkable image stability for excellent vision

The new Balanced Comfort Pro+ was designed to meet the high demanding visual needs of an active lifestyle, giving the wearer wide excellent vision and the **utmost comfort for day-to-day activities.** The upgrade offers **significant improvements** in the distance section and provides an **optimized visual experience** with even **sharper clarity and precision for all distances.** OMD Technology reduces **unwanted astigmatism is reduced up to 40%,** and achieves outstanding visual performance combined with **smooth power transition between distances and easy adaptation.**

Design Characteristics	
Available corridor length	5 – 13 / 1 mm step
Fitting cross position	4 mm
Recommended fitting height	14 – 22 mm
Min. fitting height	13 mm
Inset	0 – 4 mm
Centering chart (page 55)	B

Ideal for

Wearers looking for a premium quality and enhanced vision at minimal distortion for everyday

Application

Enhanced clear and comfortable vision for day to day and for using electronic devices

Wearer's Benefits:

+ *Superior focus & reduced eyestrain*
+ *Excellent balanced view*
+ *Highest comfort*
+ *Fully customized lens*
+ *Easy adaptation between zones*

LIFESTYLE

Office

Office Active

Near ●●●◐○ **Far** ●◐○○○
Intermediate ●●●●● **Adaptive** ●●●●●

Adaptive Office design with slight power boost

Office designs are the perfect visual supplement for all kinds of work in the office world. Office Active is characterized by **enhanced fields of vision in the near and intermediate zones**, resulting in a lens that offers great comfort for reading, computer work or indoor meetings with colleagues and customers. The soft layout enables smooth power transition for an **easier adapting vision between zones** (focal distances). As a new feature, this design comes with a variable corridor length enabling **tailor made solutions for the individual customer needs**.

The designs offer all features of the OptoTech OptoDesign Pro Technology and also includes our OMD and 4K Technology for a brilliant, sharp, and clear vision.

Prescribed	Dynamic Power Office Lens			
Add. Power	**-0.75**	**-1.25**	**-1.75**	**-2.25**
0.75	Infinity			
1.00	4.00			
1.25	2.00	Infinity		
1.50	1.35	4.00		
1.75	1.00	2.00	Infinity	
2.00	0.80	1.35	4.00	
2.25		1.00	2.00	Infinity
2.50		0.80	1.35	4.00
2.75			1.00	2.00
3.00			0.80	1.35
3.25				1.00
3.50				0.80

Finer add. power gradations possible

Design Characteristics	
Available corridor length	14, 16, 18 mm
Fitting cross position	4 mm
Recommended fitting height	16 – 22 mm
Min. fitting height	15 mm
Inset	1.5 mm
Centering chart (page 55)	C

Ideal for

Experienced progressive wearers who are looking for superior clear vision while working

Application

Large near and intermediate visual fields for working with computers & digital displays or other activities (e.g. reading, cooking, painting)

Wearer's Benefits:

+ *Natural vision and improved ergonomic posture*
+ *Enhanced near and intermediate visual fields*
+ *Easier adapting vision between zones*
+ *Fully customized lens*

SINGLE

PROGRESSIVE

LIFESTYLE

SPECIAL

Office Relax

Near ●●●◐○ Far ●●◐○○

Intermediate ●●●●● Adaptive ●●●●●

Advanced design with extra-wide visual area for near distances and high-resolution image quality

Office Relax is an advanced office design with optimized layout to **expand near visual fields and enhance horizontal peripheral vision**. It was designed to provide a broader near vision area to ensure **precise focus** when working on near objects for a longer period of time. The soft layout enables the wearer to experience **improved visual comfort** when shifting focus between near objects such as using different electronic devices or monitors at the workplace.

The design incorporates all the features of the OptoDesign Pro Technology and also includes our 4K Technology to further increase visual performance and the OptoTech Minimal Distortion Technology (OMD).

Prescribed	Dynamic Power Office Lens			
Add. Power	**-0.75**	**-1.25**	**-1.75**	**-2.25**
0.75	Infinity			
1.00	4.00			
1.25	2.00	Infinity		
1.50	1.35	4.00		
1.75	1.00	2.00	Infinity	
2.00	0.80	1.35	4.00	
2.25		1.00	2.00	Infinity
2.50		0.80	1.35	4.00
2.75			1.00	2.00
3.00			0.80	1.35
3.25				1.00
3.50				0.80

Finer add. power gradations possible

Wearer's Benefits:

+ *Natural vision and improved ergonomic posture*
+ *Generous near visual fields*
+ *Precise focus and clear wide vision*
+ *Easy adaptation*

Design Characteristics	
Available corridor length	14, 16 mm
Fitting cross position	4 mm
Recommended fitting height	18 mm
Min. fitting height	17 mm
Inset	1.5 mm
Centering chart (page 55)	C

Ideal for

Experienced progressive wearers looking for a superior office lens with generous near vision

Application

Wide and clear vision for close-up indoor activities with shifting focus

Office Flex

Near ●●●○○ **Far** ●●●◐○
Intermediate ●●●●● **Adaptive** ●●●●●

Enhanced intermediate zones for different purposes

Our Office Flex design comes with an **extended corridor width** giving the wearer **impeccable vision** in the **intermediate and distance visual fields**. With an ideal layout of optical zones, the office design provides smooth transitions between distances and wide excellent vision especially for intermediate distance view.

This makes Office Flex the perfect solution for professionals demanding **superior panoramic vision with great comfort and image clarity** also for a **focused distance vision** in e.g. meetings or seminars.

The Office Flex design keeps the distortion extraordinarily low and smooth throughout the whole lens. It offers all the features of the OptoTech OptoDesign Pro Technology and also includes our 4K Technology for a brilliant sharp and clear vision as well as the OMD Technology for minimal distortion.

Prescribed	Dynamic Power Office Lens			
Add. Power	**-0.75**	**-1.25**	**-1.75**	**-2.25**
0.75	Infinity			
1.00	4.00			
1.25	2.00	Infinity		
1.50	1.35	4.00		
1.75	1.00	2.00	Infinity	
2.00	0.80	1.35	4.00	
2.25		1.00	2.00	Infinity
2.50		0.80	1.35	4.00
2.75			1.00	2.00
3.00			0.80	1.35
3.25				1.00
3.50				0.80

Finer add. power gradations possible

Design Characteristics	
Available corridor length	28 mm
Fitting cross position	0 mm
Recommended fitting height	>18 mm
Min. fitting height	17 mm
Inset	2.5 mm
Centering chart (page 55)	D

Ideal for

Experienced progressive wearers looking premium office lens with enhanced distance vision

Application

For precise focus at intermediate and far distance e.g. attending meetings or seminars

Wearer's Benefits:

+ *Natural vision and improved ergonomic posture*
+ *Generous distance visual fields*
+ *Precise focus and clear wide vision*
+ *Easy adaptation*
+ *Fully customized lens*

LIFESTYLE

Digital Smart Boost

Digital Smart Boost

Near ●●●◐○ Far ●●●○○
Intermediate ●●●◐○ Adaptive ●●●●●

Young style progressives with slight power boost

Different eyeglasses accomplish different tasks and no lens is best suited for all activities. If you spend an extended period of time reading, working at the desk or on the computer, you may need some task specific glasses. Digital Smart Boost lenses are intended as a primary pair replacement for patients wearing single vision lenses. These lenses are recommended for 18- to 40-year-old people experiencing symptoms of tired eyes. A **slight power boost in the lower portion** of the lens significantly relieves the eyes. Combined with the OptoTech Technologies ODP, 4K and OMD, this lens offers **lowest and smoothest astigmatisms as well as a high-resolution clear view**.

Design Characteristics	
Available corridor length	11 mm
Fitting cross position	4 mm
Recommended fitting height	18 mm
Min. fitting height	16 mm
Inset	2.5 mm
Centering chart (page 55)	A

Ideal for

Beginners or non-adapts who are looking for a premium anti-fatigue lens to avoid tired eyes and to improve focus

Application

Comfortable view, especially when using electronic devices like smartphones, tablets, laptops etc.

Wearer's Benefits:

+ *A slight power boost of a low addition in the lower portion of the lens to reduce eyestrain during close up activities*
+ *Greater comfort than single vision correction lenses due to the accommodative relief in the near vision*

LIFESTYLE

EasyLife

EasyLife

Near ●●●◐○ Far ●●●○○
Intermediate ●●●◐○ Adaptive ●●●●●

Anti-fatigue design with enhanced clear vision

EasyLife is an **adaptive anti-fatigue design** which has a slight power boost in the near visual area to relive the symptoms of eyestrain and increase focus as well as visual comfort.

With a harmonized lens layout, **distortion** is pushed into smaller areas of the surface and **reduced to a minimal level** that is **almost unnoticeable for the wearer.**

The wearer experiences **smooth transition and easy adaptation** between visual zones for everyday and for using electronic devices.

The OMD Technology optimizes astigmatism to a minimum and the 4K Technology ensures further brilliant view.

Design Characteristics	
Available corridor length	9, 11, 13 mm
Fitting cross position	4 mm
Recommended fitting height	16 - 22 mm
Min. fitting height	15 mm
Inset	2.5 mm
Centering chart (page 55)	A

Ideal for

Beginners or non-adapts who are looking for a premium anti-fatigue lens to avoid eyestrain or tired eyes

Application

Comfortable view for daily use, especially when using electronic devices

Wearer's Benefits:

+ *Improved focus & reduced eyestrain*
+ *Greater comfort*
+ *Fully customized lens*
+ *Easy adaptation between zones*

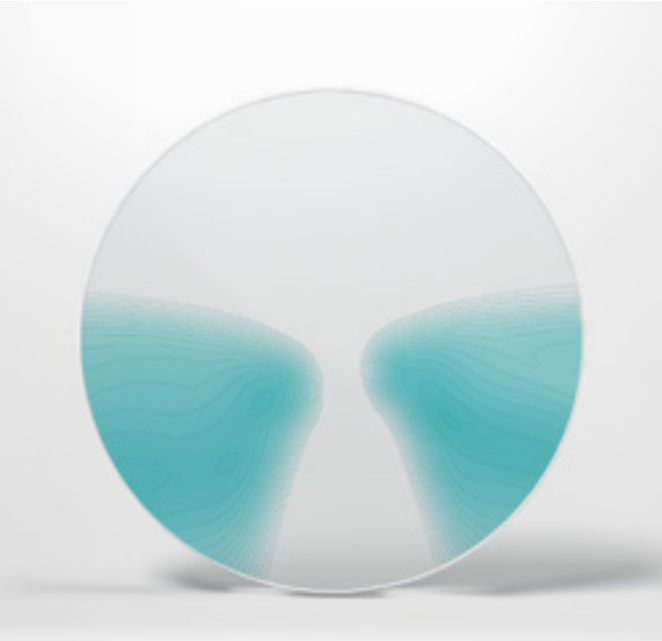
LIFESTYLE

Dynamic Drive

Dynamic Drive

Perfect progressive lens for drivers

OptoTech's Dynamic Drive Design is a new grade of lenses **for frequent drivers**. Dynamic Drive offers the **largest possible fields of view in the distance for a sharp and high-contrast view** of the road and an excellent clear view of the entire cockpit. In combination with 4K Technology, OptoTech ODP Technology calculates **extremely comfortable transitions between near and far zone**. The positive characteristics of the Dynamic Drive design can be further enhanced by using one of OptoTech's coating technologies. OMD Technology reduces unwanted distortions.



Near ●●●○○ Far ●●●●●
Intermediate ●●●◐○ Adaptive ●●●●●

Design Characteristics	
Available corridor length	7 mm
Fitting cross position	4 mm
Recommended fitting height	16 mm
Min. fitting height	15 mm
Inset	2.5 mm
Centering chart (page 55)	A

Ideal for

Frequent drivers who are in the car or truck at night and daytime

Application

Driving a car, truck, bus, train or any other vehicle

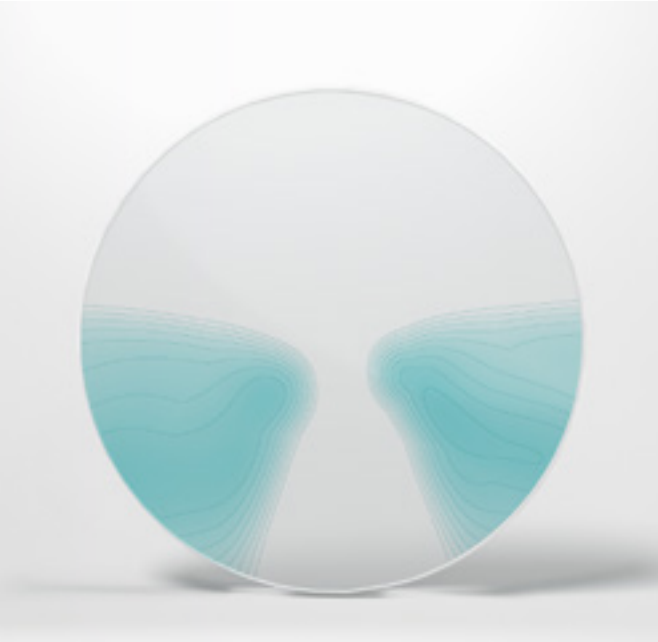
Wearer's Benefits:

+ *Minimizes reflections*
+ *Improved eye comfort during times of bad visibility*
+ *Great for day and night use*
+ *One pair does it all, no need to change pairs*
+ *Superior distance vision*

LIFESTYLE

Dynamic Sports

Dynamic Sports



Near ●●○○○ Far ●●●●●
Intermediate ●●●◐○ Adaptive ●●●●●

Enjoy outdoor sport at a new level

Sports are a very important part in modern society. Especially outdoor sports like cycling, running and golfing. Society is progressively attempting to become healthier. OptoTech enthusiastically supports these activities and knows when people have better access to **active eyewear** with good designs, they will excel in their active lifestyles.

Sports frames are being constantly evolved for each sport and with these advances the lenses need to be adapted accordingly. High curves, steep wrap angles, in combination with high prescriptions make the art of sports glasses a complicated and masterful skill in the optical field. As the difficulties of Hi-Wrap frames are known throughout the years, OptoTech developed a new calculation method to **expand the field of clear vision**. This allows our customers to become specialist in handling the demanding need for clarity within these complex frames and lens combinations.

It is possible to use all the technologies of our designs mentioned before for **highly individualized sport optics**. Moreover, all features of **lenticular blending** can be realized.

Design Characteristics	
Available corridor length	11 mm
Fitting cross position	4 mm
Recommended fitting height	18 mm
Min. fitting height	16 mm
Inset	2.5 mm
Centering chart (page 55)	A

Ideal for

People who need individualized, aesthetic sport lens for better performance

Application

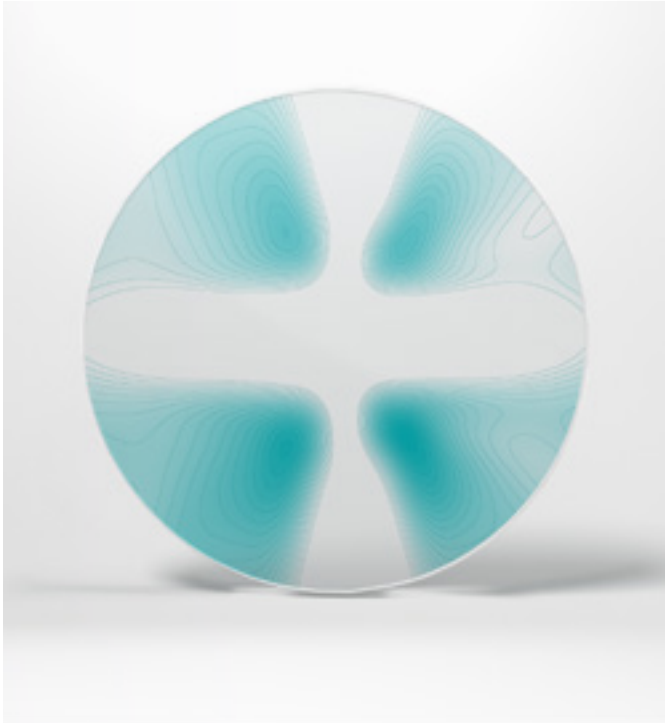
Any kinds of sports activities such as cycling, tennis, skiing and much more

Wearer's Benefits:

+ *Optimized for dynamic activities*
+ *Improved focus & reduced eyestrain*
+ *Greater comfort*
+ *Fully customized lens*
+ *Easy adaptation between zones*

SPECIAL

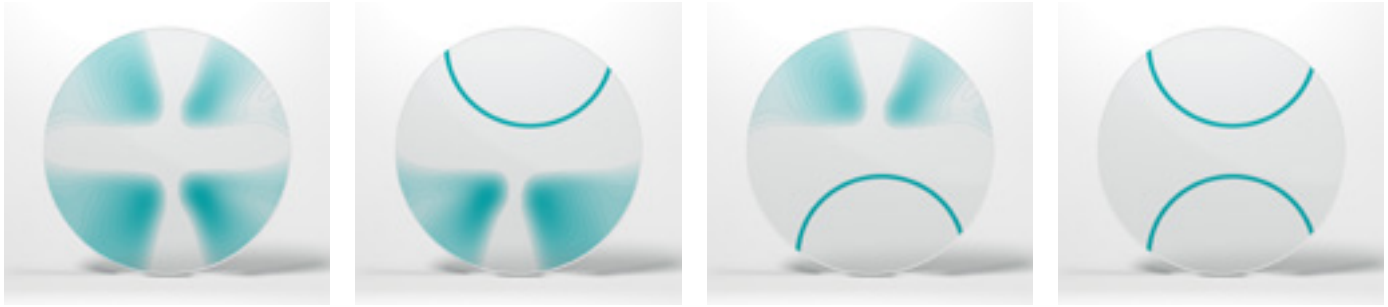
Pilot



Special design with two power zones

Flying a plane is one of the most challenging jobs, because of staying extremely focused and work with highest precision while being responsible for the lives of many passengers. This kind of work also means a high level of stress for the pilots' eyes, since there is a need to have a **very good near view in the upper as well as the lower lens area** to read the instruments and a good far view in the middle area. That is why OptoTech developed a completely different progressive lens to perfectly meet these special requirements. A **special near zone at the top of the lens** enables the pilot to have a good view at his instruments above him. Although this design was once developed for pilots it is also a **great lens for other specialists** in different kind of jobs like plumbers, mechanics and even pharmacists.

4 available designs:



ODP 4K OMD

Design Characteristics	
Available corridor length	>13 mm
Fitting cross position	0 mm
Recommended fitting height	16 mm
Min. fitting height	15 mm
Inset	2.5 mm
Centering chart (page 55)	E

Ideal for

Wearers who require a special and enhanced view in the upper part of the lens

Application

Focusing on near objects at eye level or above

- Pilots
- Car mechanics
- Painting/Renovation

Wearer's Benefits:

+ *Switched optical zones*
+ *Very good upper reading comfort*
+ *Natural and economic viewing position*
+ *Greater comfort*
+ *Fully customized lens*
+ *Easy adaptation between zones*

Invisible Bifocal

Near ●●●●● **Far** ●●●●●
Intermediate ○○○○○ **Adaptive** ●●◐○○

Advanced bifocal with improved aesthetics and stable image quality

Bifocals are a great choice for wearers who are looking for an alternative to progressive lenses. This type of lenses has a special lens segment integrated into the lower part of the lens that contains additional power for near vision correction. The power difference between the lens and the segment such as in the traditional bifocals have a visible dividing line. Furthermore, the drastic power shift is usually associated with the characteristic "image jump" that the wearer experiences whenever the gaze shifts between distances. In digital generated round segment bifocals these elements are considerable reduced.

OptoTech created an **advanced bifocal with improved aesthetics and greater visual comfort**. We have designed Invisible Bifocal. The lens layout has been optimized to a level that the **power segment is precisely blended into the lens, making the dividing line between the optical zone nearly invisible**. At the same time, Invisible Bifocal's ideal surface smoothens out the differences between the visual fields for an improved power transition, providing the wearer with a **more comfortable and natural vision**. This lens design can be combined with all OptoTech Design features.

Wearer's Benefits:

+ *Superior focus & reduced eyestrain*
+ *Optimized for 2 distances*
+ *Fully customized lens*
+ *Easy adaptation between zones*
+ *Improved aesthetics*

Design Characteristics	
Available corridor length	-
Fitting cross position	4 mm
Recommended fitting height	12 mm
Min. fitting height	10 mm
Inset	0 - 6 mm
Centering chart (page 55)	-

Ideal for

Bifocal wearers who are looking for an aesthetic lens with minimal image jump

Application

Enhanced near vision while reading, studying or using electronic devices

Trifocal

Near ●●●◐○ Far ●●●○○
Intermediate ●●●●◐ Adaptive ●●●●●

Optimized vision in 3 different distances

Trifocal is an industry **unique specialist design with an extended intermediate zone**. The range of clear sight in the progression channel is set to a fix distance, resulting in a **very comfortable intermediate field of view** compared to a standard progressive. The **distance of the intermediate zone can be set up to 0.8 m, 1.2 m or 1.80 m**. This design is very powerful, if the customers are in need of good far vision and if there is also a high importance of an exceptional good intermediate view. For example, when playing golf: You need a far zone for the drive, an intermediate zone for hitting the ball in about 1.80 m distance and a near zone for recording your results. **All 3 zones can be defined individually** with regards to the specific requirements of the wearer. The **near, intermediate and far visual areas are brilliantly clear**. This is a result of the combination of OptoTech's 4K and OMD technologies, based on the intelligent ODP Technology.

Design Characteristics	
Available corridor length	13 mm
Fitting cross position	4 mm
Recommended fitting height	20 mm
Min. fitting height	18 mm
Inset	2.5 mm
Centering chart (page 55)	A

Ideal for

Tasks with the need to have an optimized lens for 3 different zones

Application

Sports with 3 different zones of clear vision like Golf or Tennis as well as watching TV

Wearer's Benefits:

+ *Improved focus & reduced eyestrain*
+ *Optimized for intermediate distances*
+ *Fully customized lens*
+ *Easy adaptation between zones*

FEATURES

Lens Calculation Features

Lens innovation and customization requires the ability to adapt to our customers' needs. Therefore, OptoTech offers a list of **calculation features for every individual lens**. These features include the option of individual lens blendings, parabolic lens designs or ray tracing.

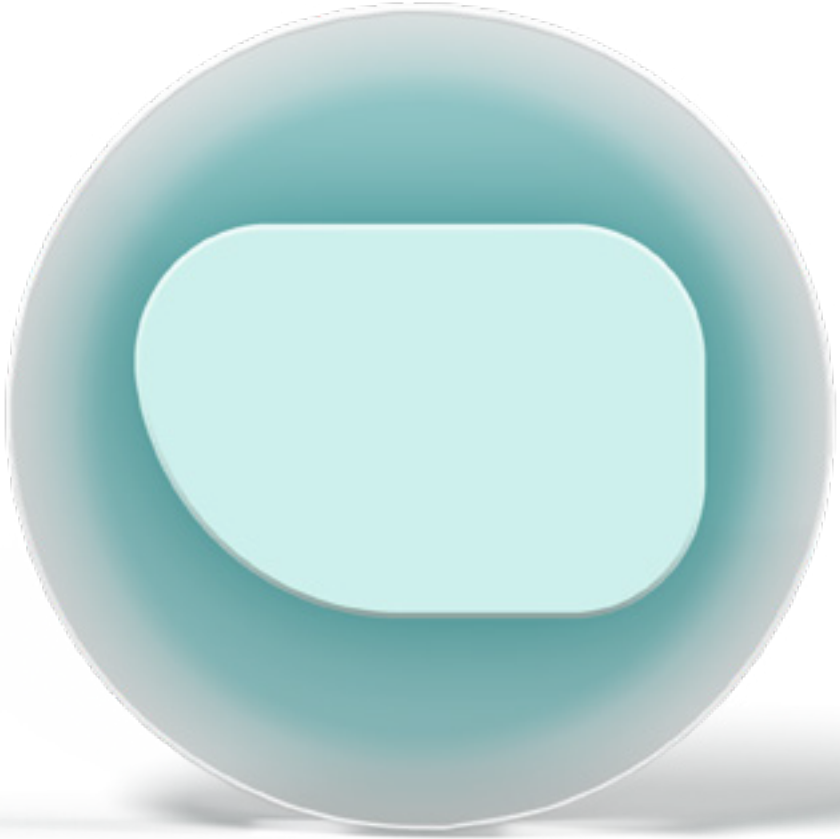
All features are calculated by our proprietary and innovative OptoCalc 4.0 lens design software.

FEATURES

FEATURES

FRAMEblending

The FRAMEblending® technology enables the **optimization of high plus and high minus powered lenses**. Adding the frame shape to the calculation in the surfaced lens blank, with a plus RX, the **center thickness can be reduced up to 30 %**. Minus lenses can be blended at the frame edge, so that you can define the edge thickness very precisely. This also **eliminates any need for rolling and or polishing the edges** of such lens for frame fit and cosmetics. A further advantage of this feature is that there is no need for special protection in the coating domes. Frame data can be sent directly from any OMA compatible form tracer.

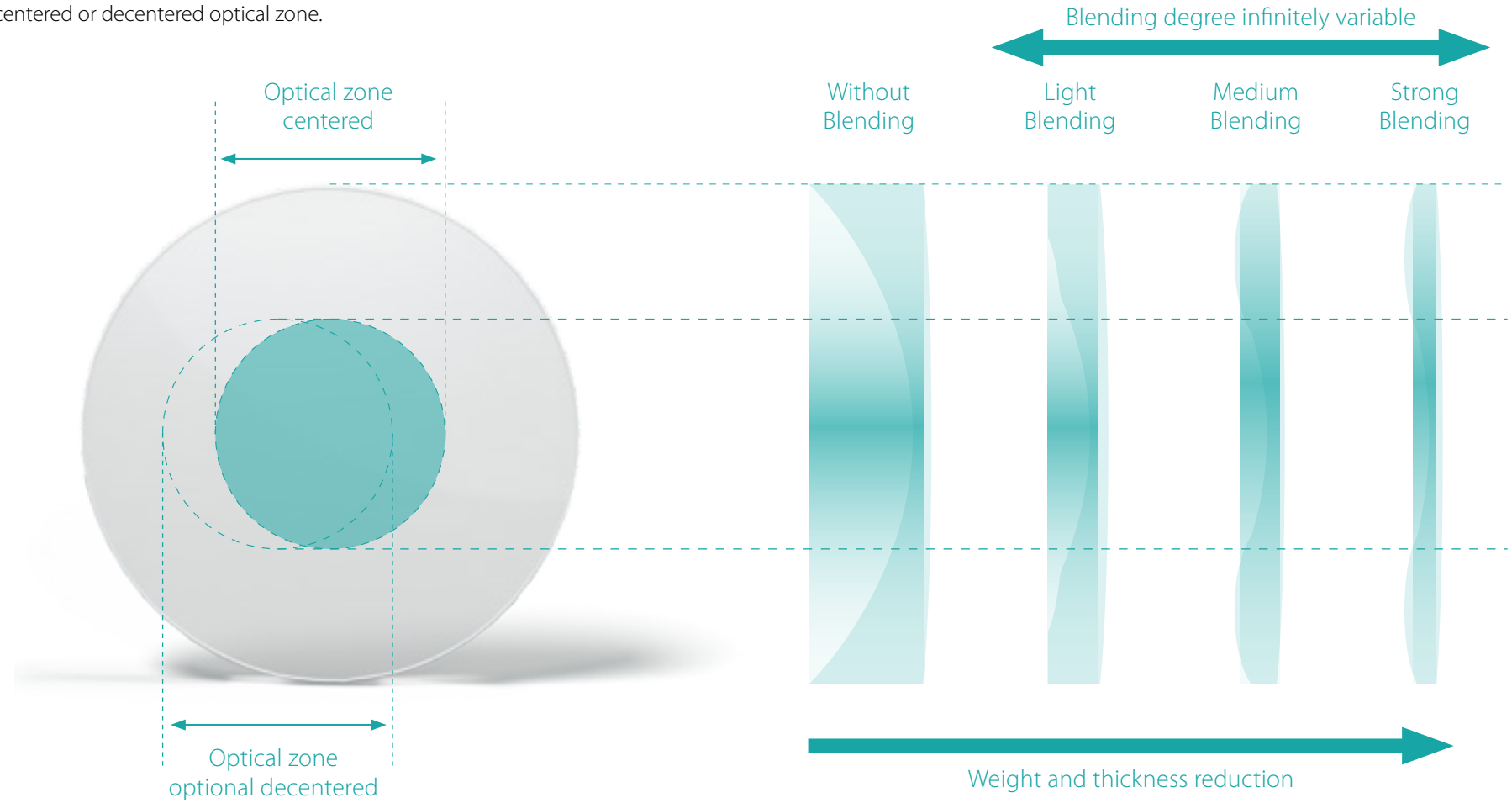


Lenticular Blending

This feature has been developed to **improve the edges of an ophthalmic lens**. An optical zone is defined around the fitting cross and then, away from this zone, the thickness is significantly reduced with customizable change of curvature in order to obtain a **thinner and also weight optimized lens**. The **blending degree** is **infinitely variable** and can be defined **from light to strong blending**. The stronger the blending the thinner and lighter the lens will be. This change in curvature is available in different versions depending on the power of the lens and the frame shape. So the Lenticular Blending can be realized with a centered or decentered optical zone.

ADVANTAGES

- Significant thickness reduction
- More aesthetic lenses
- Blending degree infinitely variable
- For plus and minus lenses
- Optical zone can be set centered or decentered
- For any lens design (progressive and single vision lenses)
- For any lens material
- For all kinds of frames



FEATURES

Smart Thin Calculation (STC)

Smart Thin Calculation is our new intelligent feature which **calculates the lenses thinner and lighter**. It combines the optimized optical lens surface with a double aspherical shape. As a result, the finished lens has **exceptional visual fields with highest optical performance in all gaze directions** and a **reduced thickness** for great fit and comfort.

You can select different levels of intensity for this feature and thus determine whether the finished lens thickness is slightly reduced by a tenth of millimeter or up to 20 percent.

Your Benefit: **optimized aesthetics and thinner lenses for any prescription parameters**.

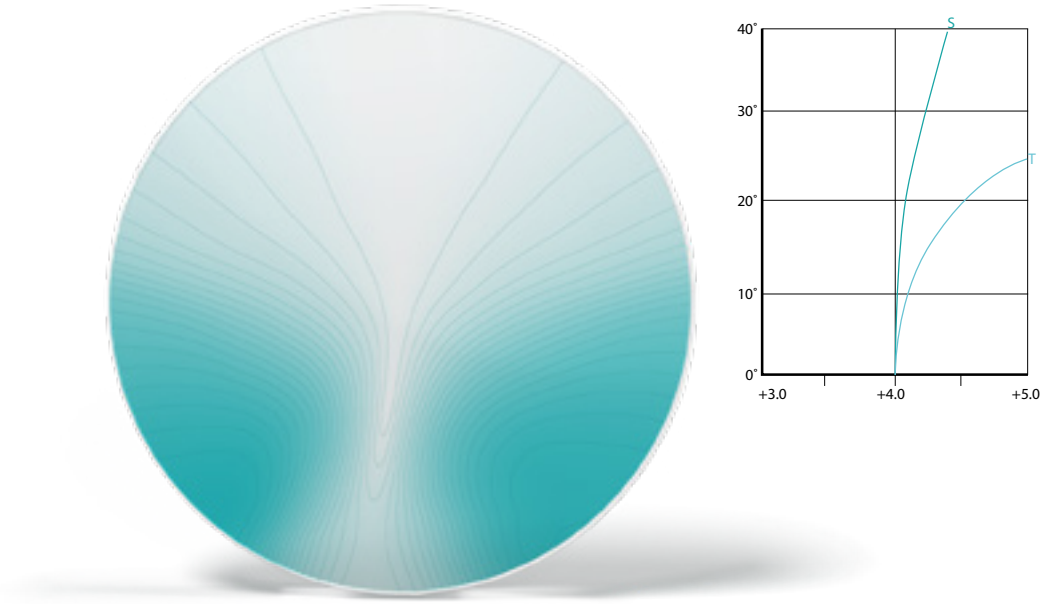
Advanced Ray Tracing Technology (ARTT)

With a complex ray tracing method, the optical paths through the lens and into the eye were analyzed from different angles and then optimized. For MD (multi-directional) optimized lenses, up to 6400 different visual angles were analyzed with modern computer technology and calculated for the human eye.

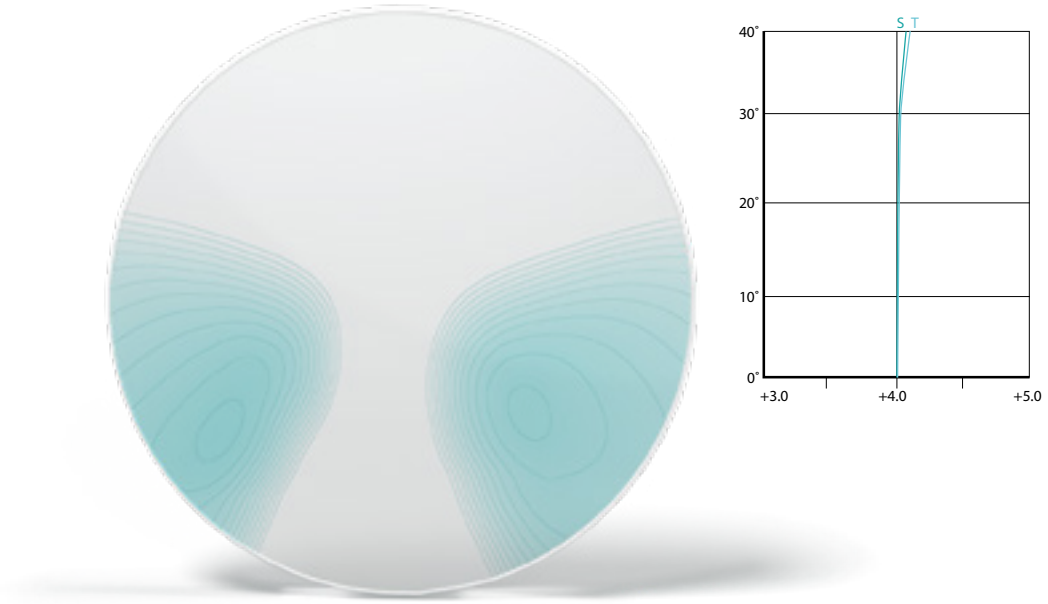
As a result, the **recognized visual performance of the eye will be significantly increased**. This addresses complaints such as tunnel view or unsharp lines of sight at the edge of other lens designs. With this technology **swim/sway effects can be nearly eliminated**.

Additionally to that, MD optimized lenses in certain cases can result in **10% thinner and lighter lenses** in comparison to conventional products made out of the same material.

Examining the graph below allows one to see that aspheric lens with optimized S and T (sagittal and tangential) allow the power to stabilize in all viewing directions. As an added benefit the oblique astigmatism is significantly reduced. The patient has a **much wider and clearer view with minimal distortion**.



Without ARTT



With ARTT

FEATURES

Smart Fit Support

The OptoCalc 4.0 calculation engine is designed to **choose the mathematically best CRIB shape** and decentration values depending on the fitting parameters with the optical labs individual specification included in the calculation. The integrated fit options guarantees **minimal lens center thickness** and **maintain lab specific edge thickness during lens production**. The following fit support options can either be configured in the calculation engine or send individually for each job data.

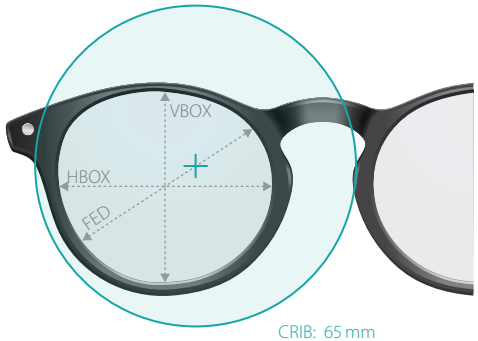
Basic Circular Fit: The calculation engine takes the individual fitting parameters and predefined decentration values (BCERIN, BCERUP) and calculates the best CRIB diameter accordingly.

Basic Elliptical Fit: The calculation engine takes the individual fitting parameters and predefined decentration values (BCERIN, BCERUP) and calculates the best oval shape CRIB and ELLH accordingly.

Optimized Fit: The calculation engine calculates the best CRIB diameter and decentration values (BCERIN / BCERUP) based on the BOX shape of the frame (HBOX / VBOX / FED).
Thickness reduction **up to 10-20%**

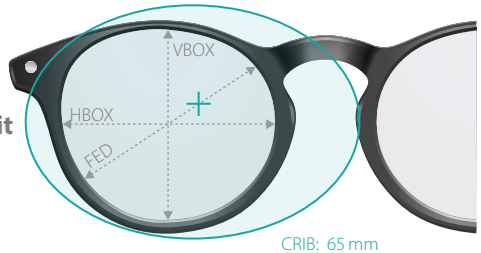
Smart Fit Support: The calculation engine calculates the best oval shape (CRIB / ELLH) and decentration values (BCERIN / BCERUP) based on the BOX shape of the frame trace data (TRCFMT).
Thickness reduction **up to 30%**

Basic Circular Fit



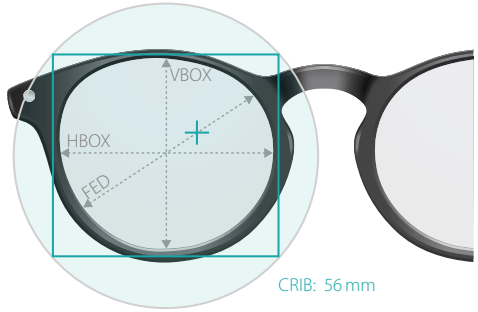
CRIB: 65 mm

Basic Elliptical Fit



CRIB: 65 mm
ELLH: 55 mm

Optimized Fit



CRIB: 56 mm

Smart Fit Support

CRIB: 52 mm
ELLH: 50 mm

Positions of Wear

Optical professionals who skillfully measure the positions of wear can offer their customers the full potential of today's free-form lens design technology. Due to freeform manufacturing and lens design optimization which take into account every aspect of how an individual's lenses are positioned in front of their eyes. The result is a **100% individualized product**.

IPD = Interpupillary distance

FH = Distance lower lens edge to pupil center (Fitting Height)

DBL = Distance between lenses

VBOX = Vertical boxed lens size

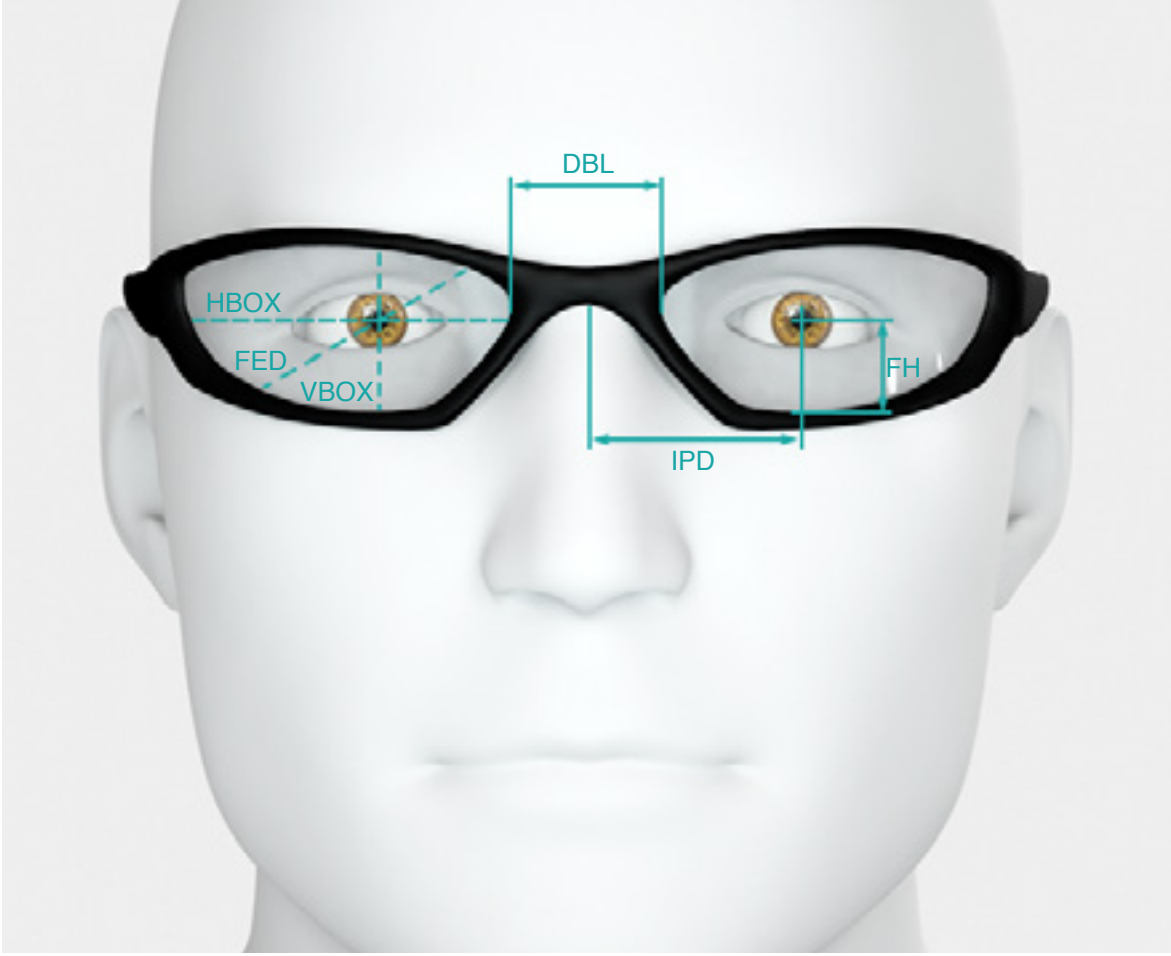
HBOX = Horizontal boxed lens size

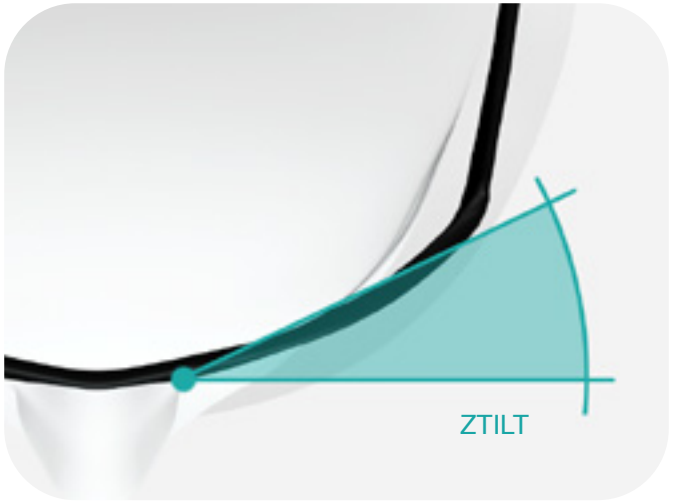
FED = Frame effective diameter

PANTO = Pantoscopic angle

ZTILT = Wrap angle

BVD = Back vertex distance





FEATURES

Vario-Flex

The Vario-Flex feature allows you to **combine different designs and their individual characteristics**. With this powerful function, you can for example fluidly control the width of far, intermedi-ate and near vision zones. This revolutionarily feature guarantees the **highest flexibility in design customization** and is an ultimate tool to create the customers' own lens designs. You can use this function to customize each individual lens design or to merge parameters to a completely new product.

Dual Side Calculation (Smart Parabolic)

Smart Parabolic products are a combination of convex (CX) and concave (CV) freeform surfaces, resulting in an **aesthetically superior progressive lens almost free from distortions**. Ideal **for plus lenses** which will become **thinner and lighter** with the image quality being significantly improved.

Smart Parabolic lenses are **100% individualized** products.

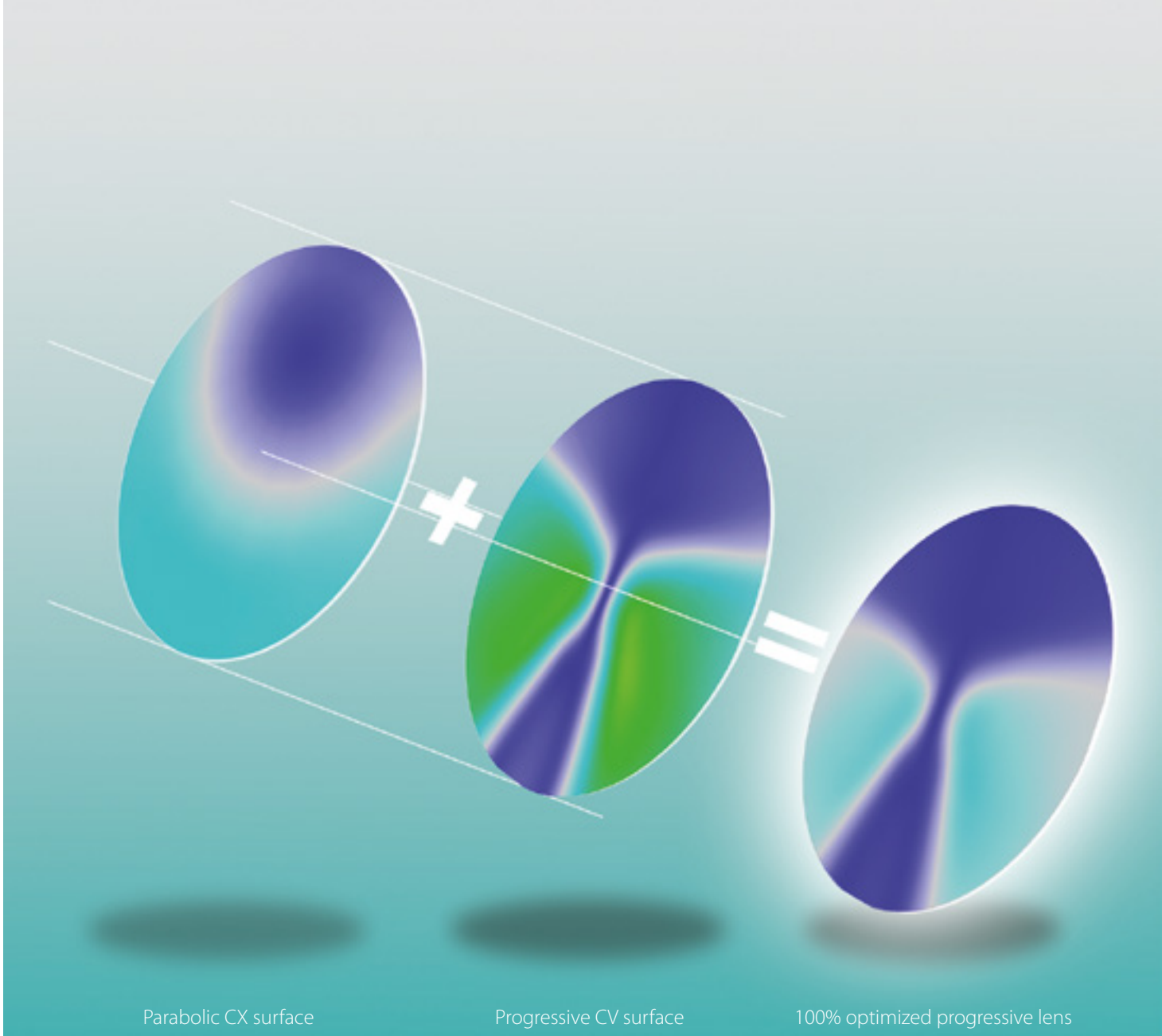
Special calculation algorithms ensure perfectly matched CX and CV surfaces.

The parabolic CX surface leads to a reduction of the base curve in the distance. The result is not only a much **more aesthetical** pleasing appearance, it also has the additional advantage of **less distortion in the far distance zone** as the front curve becomes flatter. Improvements of the channel width and the reading zone lead to a **better adaption**.

In general, the parabolic calculation leads to a **reduction of total astigmatism** and gives your customers a **three dimensional optimized thin and lightweight spectacle lens**.

The Dual Side Calculation feature **requires special Smart Parabolic semi-finished blanks**.

For more information, visit www.parabolic.opticproject.com



Parabolic CX surface | Progressive CV surface | 100% optimized progressive lens

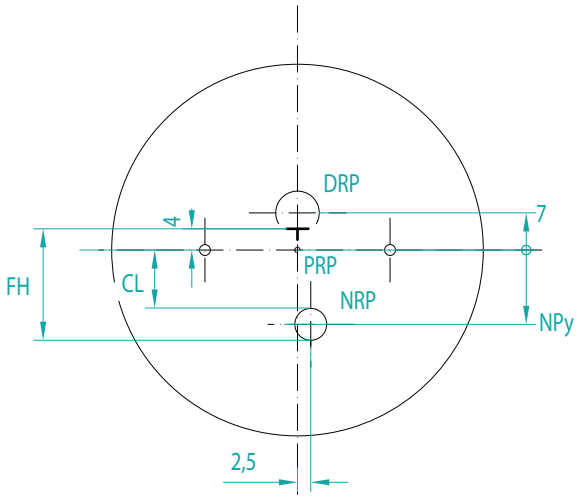
DOCUMENTATION

OptoCalc 4.0 LDS Calculation Technical Data

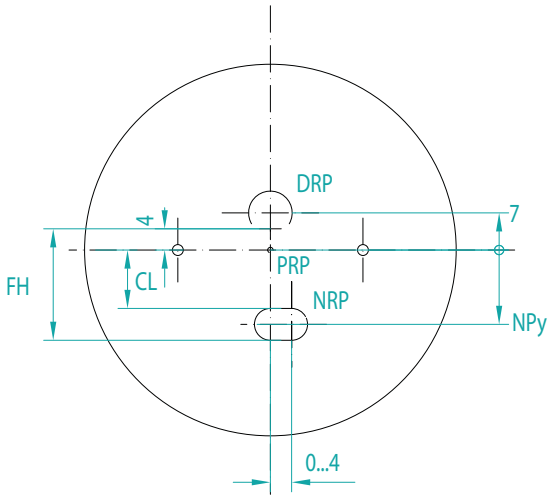
Power Range *	-35.0 – +25.0 dpt
Cylinder Range *	+/- 20 dpt
Add Power Range *	0 – 10 dpt
Prism Range *	0 – 20 dpt
Calculation accuracy for Asph, Cyl, Prism and ADD	+/- 0.01 dpt
Available Material Index	Any Index (1.5, 1.53, 1.56, 1.59, 1.60, 1.67, 1.74)
Material	Any kind of material
Max calculated Surface files	88 x 88 mm
Max Lens Diameter	86 mm
LDS Interface	VCA Standard
Supported Freeform File Formats	SDF, STF, HMF, XYZ
Advanced Ray Traycing Optimization	Yes
Max Design Layout Decentration (X- horizontal and Y -Vertical)	+/- 12mm

* the range is defined for a reference material index of 1.500. It can vary for different index accordingly

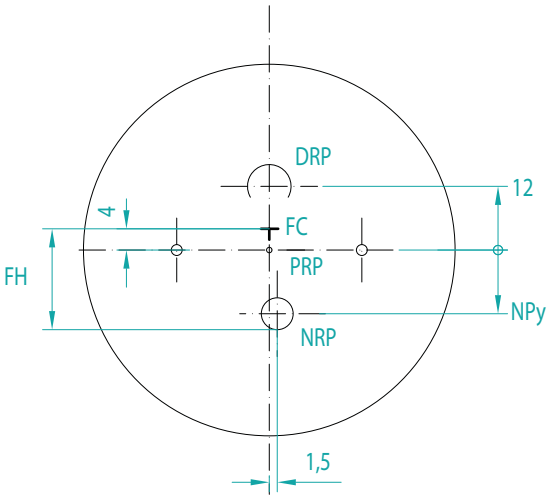
A


DRP
4
7
FH
CL
PRP
NRP
NPy
2,5

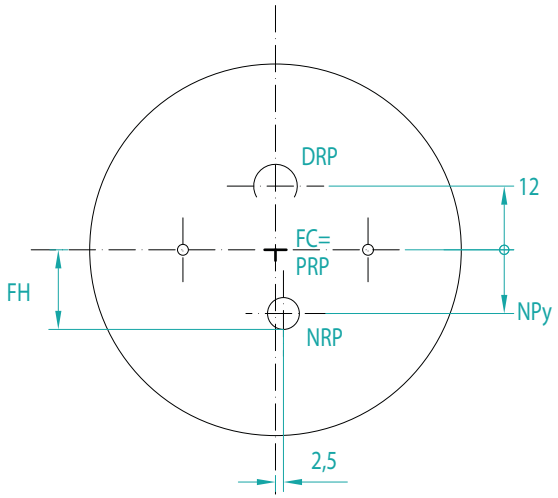
B


DRP
4
7
FH
CL
PRP
NRP
NPy
0...4

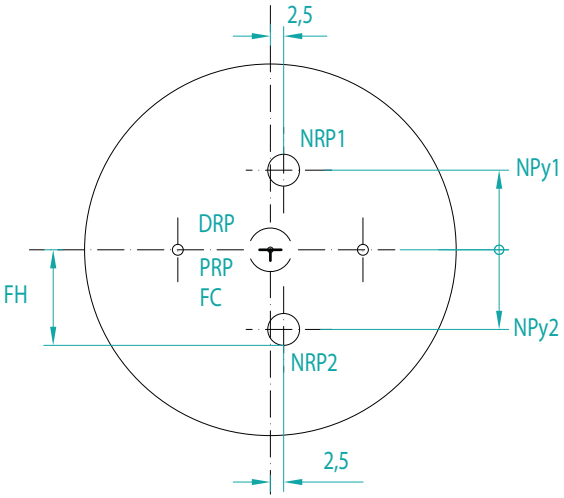
C


DRP
12
4
FC
FH
PRP
NRP
NPy
1,5

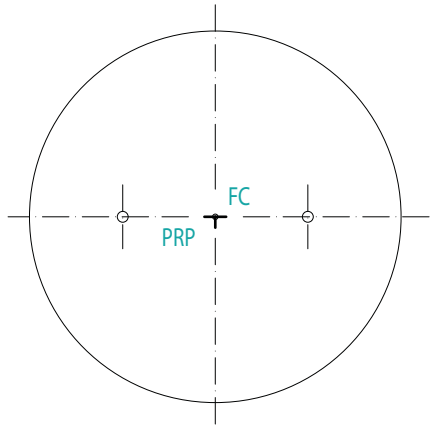
D


DRP
12
FC=
PRP
FH
NRP
NPy
2,5

E


2,5
NRP1
NPy1
DRP
PRP
FC
FH
NPy2
NRP2
2,5

F


FC
PRP

OptoCalc 4.0

Next Generation Lens Designs

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Date: 04-25-2025, subject to change