



ZENLENS™ mini-scleral contact lenses

**Use the Zenlens™
to measure
scleral contact
lenses to a higher
level.**

The Zenlens™ is a miniscleral contact lens developed in the USA under the auspices of Professor Jason Jedlicka.

UCO contact lenses produces and supplies these contact lenses in Europe and elsewhere.

Because the Zenlens™ can be ordered both 'prolate' and 'oblate', the Zenlens™ can be used for a wide range of different corneal forms.

The extensive trialset of 28 sophisticated contact lenses, the corresponding measurement philosophy and the SmartCurve™ technology together ensure that you can adjust the Zenlens™ in an efficient and trouble-free manner.



UCO
CONTACTLENZEN
HOLLANDS AMBACHT

Bausch & Lomb
Boston

Parameters

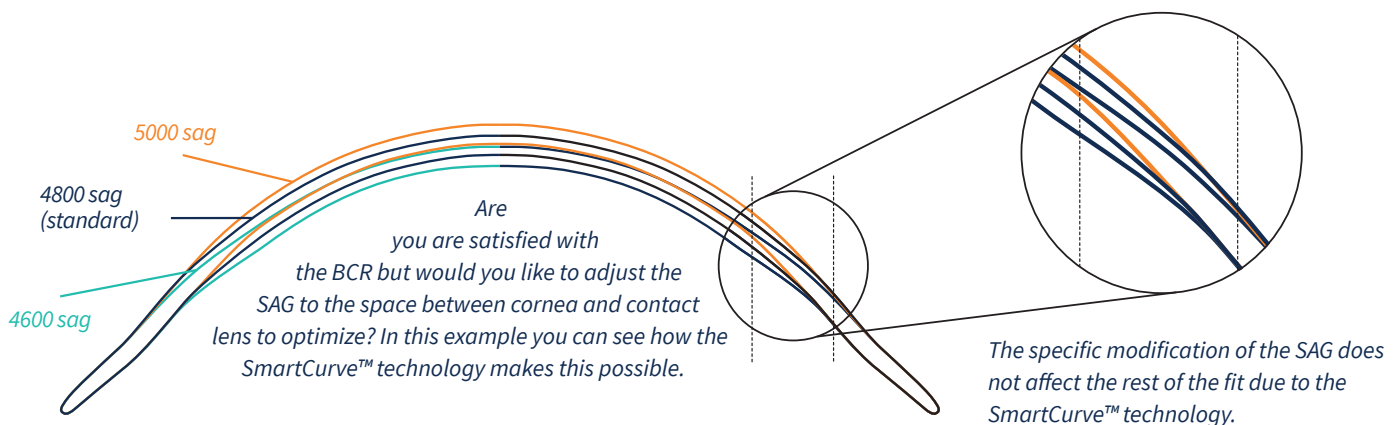
BCR	5.00 - 15.00 per 0.05 ascending
LIMBAL CUSTOMS (LCC)	-300/+300 in steps of 50 per quadrant
POWER	From -30.00 dpt. up to +30.00 dpt. in steps of 0.25 dpt. Front toroidal possible up to cylinder -10.00
LENSDIAMETER	16,0 mm en 17,0 mm. Through the dots on the lens. If you have the right lens diameter, you can see the dots. (Dots must be on the corneal/ scleral transition)
SAG RANGE	3.20 up to 7.00 mm in steps of 0,05 mm
EDGE PROFILE	Spherical APS -10/+20 Toric APS steep and flat -10/+20 Each step is is 30 microns.
FLEX CONTROL	From -1 up to +2 (steps of 0.10 in thickness)
MATERIAL	Boston XO of XO2
OPTIONS	Microvault Apply to Penguin Culum (see appendix)

ALWAYS THE IDEAL FIT

The measurement of a scleral contact lens involves the determination of the effective sagitta (SAG), the baseline curve (BCR), the limbal space (LCC), the peripheral curves (APS) and the overrefraction (P).

Zenlens™ SmartCurve™ technology allows you to vary these parameters independently. As a specialist, you can quickly and intuitively achieve the optimal fit, even if you have no experience of adjusting scleral lenses.

With the Zenlens™ you have a scleral contact lens in your home that allows you to make a perfect fitting in almost all cases.



TRAVEL FRACTION

The last step in the fitting of a scleral contact lens is the determination of the overrefraction. During that determination, it must also be checked whether the contact lens shows any deflection.

DEFLECTION, COMPRESSION OR LIFT

However, if you find a cylinder in the overrefraction, it is essential to check the keratometric or topographical deflection of the contact lens.

Also a significant compression or lift in the periphery requires further investigation. For a cylinder in the overrefraction or an irregularity in the periphery, always proceed as follows:

Cylinder in the overrefraction?	Compression or lift in the periphery?	Bending?	SOLUTION
YES	NO	YES	Switch to Flex Control Factor 1.
YES	NO	NO	Order a front toric Zenlens™ with dynamic stabilization.
NO	YES	Does not need to be measured	The contact lens must be fitted with a toric periphery. Measure the axis orientation of the flat meridian using the trialset and then order a Zenlens™ with toric periphery.
YES	YES	NO	The contact lens must be fitted with a toric periphery. The cylinder may then disappear into the overrefraction.
YES	YES	YES	The contact lens must be made with a toric periphery. Perhaps then the deflection will disappear, if not then a front-toric contact lens should be chosen.

ENGRAVINGS ON THE ZEN LENS™

The fitting-lenses are provided with an identifying engraving (Z1 ... S24) and have six dots around them for the purpose of mapping out the peripheral landing zones.

A final right Zenlens™ is always engraved with the letter R. Fronttorical contact lenses always have a mark at 0° and 180°. Zen lenses with only a toric periphery contain two markings on the flat meridian.

ZEN LENS TROUBLESHOOTING

PROBLEM	ZEN LENS TROUBLESHOOTING
Bubbles under the lens	<ul style="list-style-type: none"> The contact lens may not be used correctly. In that case, re-instruct the wearer. It is also possible that the bubbles appear because the contact lens has a considerable lift. Check edgelifit in multiple quadrants. In that case, adjust a contact lens with a steeper periphery. After all, the central space of the contact lens may be too large. In that case, adjust a contact lens with a smaller central space.
Flakes or cloudiness under the lens.	<ul style="list-style-type: none"> This problem usually occurs when the periphery of the lens in the upper quadrant has too much lift. Then adjust a lens with a steeper or perhaps even toric periphery. If the periphery is in order and this problem does occur, then reducing the central space and/or the mid-peripheral space can sometimes offer a solution.
Vessel constriction and/or redness	<ul style="list-style-type: none"> If the phenomenon around the lens occurs more or less equally, the periphery is probably too steep. In that case, adjust a lens with a flatter periphery. If the phenomenon occurs mainly over one meridian, adjust a lens with a toric periphery.
The mid peripheral space is too large	<ul style="list-style-type: none"> Adjust a lens with a steeper BCR.
The mid peripheral space is too small	<ul style="list-style-type: none"> Adjust a lens with a flatter BCR.
The contact lens is limb wearing	<ul style="list-style-type: none"> Adjust a contact lens with an elevated limbal space (LCC). If you have a 16mm contact lens and are carrying the limbal space through 360° is then switch to a 17mm contact lens.
Poor wetting	<ul style="list-style-type: none"> Clean the contact lens with Perclean (cleaning liquid for dimensionally stable contact lenses), rinse the contact lens thoroughly and then put the contact lens in with Saline. Once the problem has been solved, there is a good chance that the problem is caused by insufficient eyelid hygiene. In that case, inform the wearer of the importance of good eyelid hygiene. If the problem is not solved, check whether the edgelifit is not too flat, causing irritation.
Poor vision with contact lens	<ul style="list-style-type: none"> Check that the lens is undamaged, clean, and properly installed. If that is the case, the refraction should be reviewed.
Penguin Culum or Petrygium	<ul style="list-style-type: none"> Using Microvault

USUALLY STANDARD, SOMETIMES CUSTOM-MADE

In the vast majority of cases, the Zenlens™'s flexible fitting strategy ensures that with the standard parameters you can order the perfect Zenlens™. But do you need a different center thickness, a toric periphery or a front toric contact lens? In consultation with UCO contact lenses, you will always find the right custom-made Zenlens™

PROLATE	16 mm	Z-1 4200 SAG 8.20 BC	Z-2 4500 SAG 7.60 BC	Z-3 4800 SAG 7.10 BC	Z-4 5100 SAG 6.70 BC	Z-5 5400 SAG 6.40 BC	Z-6 5700 SAG 6.10 BC	ZT-5 5400 SAG 6.40 BC
	17 mm	Z-7 4300 SAG 9.20 BC	Z-8 4600 SAG 8.40 BC	Z-9 4900 SAG 7.80 BC	Z-10 5200 SAG 7.30 BC	Z-11 5500 SAG 6.90 BC	Z-12 5800 SAG 6.60 BC	ZT-11 5500 SAG 6.90 BC
OBLATE	16 mm	Z-13 4100 SAG 10.00 BC	Z-14 4400 SAG 9.50 BC	Z-15 4700 SAG 9.00 BC	Z-16 5000 SAG 8.50 BC	Z-17 5300 SAG 8.00 BC	Z-18 5600 SAG 7.50 BC	ZT-17 5300 SAG 8.00 BC
	17 mm	Z-19 4200 SAG 10.90 BC	Z-20 4500 SAG 10.30 BC	Z-21 4800 SAG 9.70 BC	Z-22 5100 SAG 9.10 BC	Z-23 5400 SAG 8.50 BC	Z-24 5700 SAG 7.90 BC	ZT-23 5400 SAG 8.50 BC



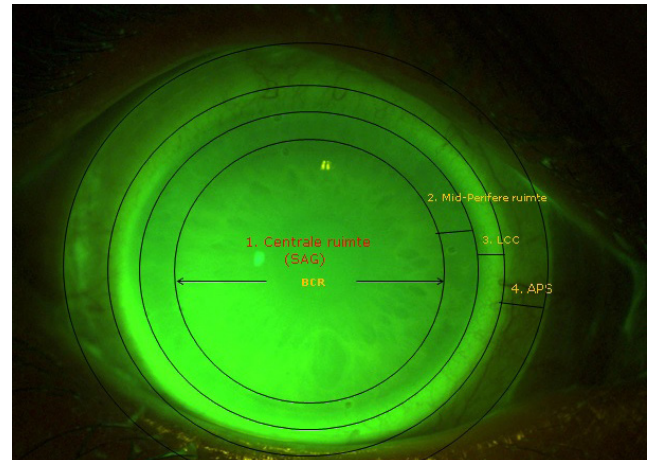
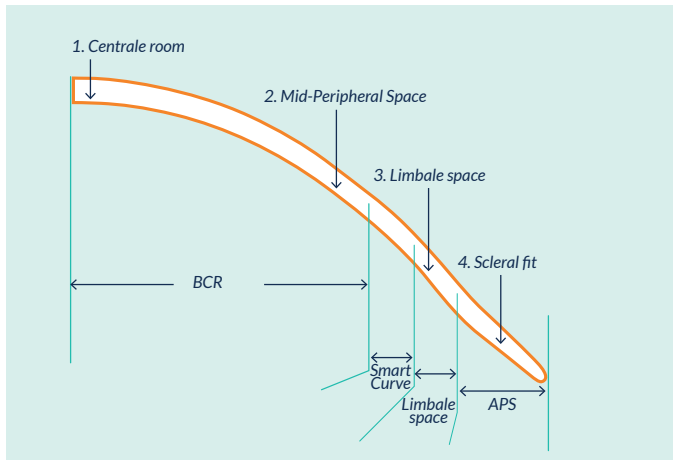
FITTING SELECTION

Cornea met keratoconus	Mild keratoconus	Corneal diameter 11,7 mm or smaller	Start with the Prolate 4500 SAG lens
		Corneal diameter greater than 11,7 mm	Start with the Prolate 4900 SAG lens
	Advanced keratoconus	Corneal diameter 11,7 mm of smaller	Start with the Prolate 4800 SAG lens
		Corneal diameter greater than 11,7 mm	Start with the Prolate 5500 SAG lens
Refraction surgery, keratoplasty, marginal corneal degeneration or trauma		Corneal diameter 11,7 mm or smaller	Start with the Oblate 4700 SAG lens
		Corneal diameter greater than 11,7 mm	Start with the Oblate 4800 SAG card lens

ADJUSTMENT OF THE ZEN LENS™

As with any scleral contact lens, the fitting of the Zenlens™ contains four components:

- 1) The central space must be adjusted by determining SAG.
- 2) The mid-peripheral space shall be adjusted by determining BCR.
- 3) The limbal space shall be adjusted by determining LCC.
- 4) The periphery must be modified, possibly torical, by defining Advanced Peripheral System (APS).



1) CENTRAL SPACE

A teardrop thickness of 300 to 400 micrometers must be achieved with the fitting lens. If the central space is insufficient and there is a central interface, use the next contact lens with a higher SAG.

The fitting lenses themselves are approximately 350 micrometers thick; this thickness can be used as a guide in determining the teardrop thickness.

First make sure that there is no longer a central point of contact and then use the slit lamp with optical loupe to determine the thickness of the tear film in the free space. This determination can be carried out using either white light or cobalt blue light. See the images on the right <<.

Based on these images, a SAG 4750 Zenlens™ could be ordered, for example.

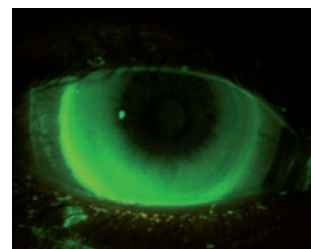


Fig. 1: Interface, there is no central space.

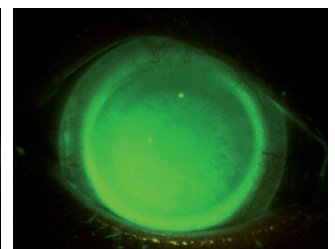


Fig. 2: There is a central space.

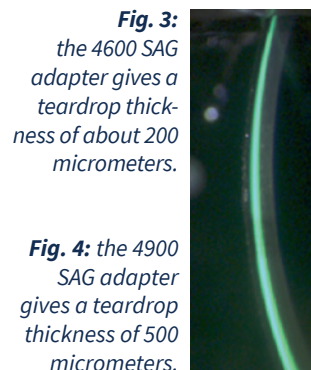


Fig. 3: the 4600 SAG adapter gives a teardrop thickness of about 200 micrometers.

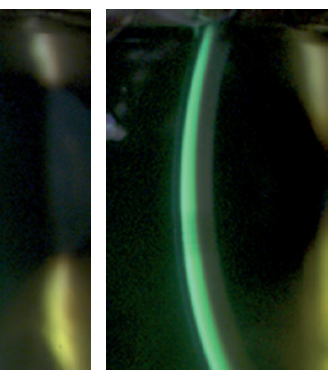


Fig. 4: the 4900 SAG adapter gives a teardrop thickness of 500 micrometers.

Fig. 3

Fig. 4

2) PERIPHERAL SPACE

If the mid peripheral space is too large, choose a steeper BCR and if the mid peripheral space is too small, a flatter BCR.

3) LIMBAL SPACE

The contact lens must bridge the entire limbal zone. If there is no full limbal space, take a larger diameter. If this is not possible, an elevated limbal area (LCC) can also be ordered when ordering the contact lens. Each quadrant represents 50 LCC, so 2 quadrants is 100 etc.

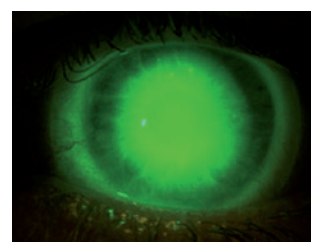


Fig. 5: The contact lens is wearing too much limb

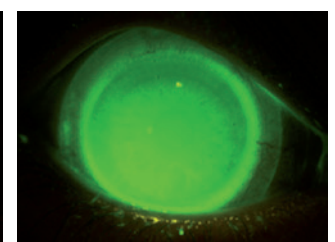


Fig. 6: The larger diameter provides space beyond the limbus.

4) PERIPHERY

The peripheral curve determines the quality of the connection of the contact lens to the sclera and therefore the comfort of the contact lens. It is therefore important to choose the right peripheral curve.

The fitting-lenses have a standard spherical peripheral curve. If there is too much lift, you can opt for 'APS steep' factor -1 up to -10. If the contact lens is too tight (blanching), start with APS flat 3.

If you notice a significant lift or compression in one meridian, assess the periphery with a toric fitting lens (standard +3/-3). Record the position of the markings on the lens. Rate APS flat and steep and adjust it in steps of 3 if necessary. Flat and steep can be changed individually to +/- in the desired meridian.

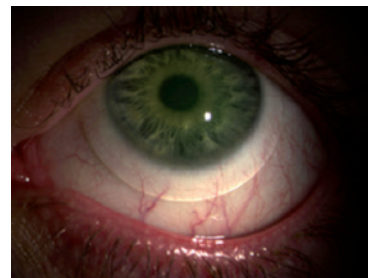
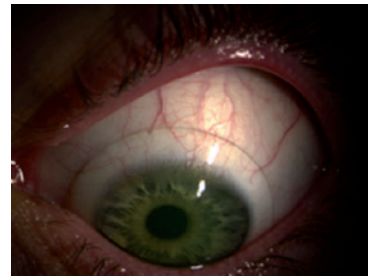
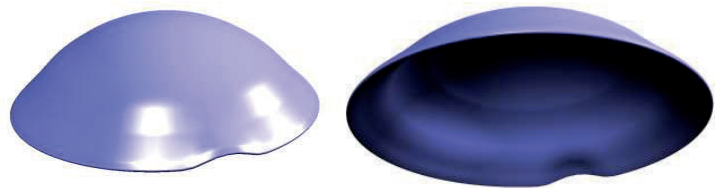


Fig. 7 and 8: A good scleral fit

ZENLENS MICROVAULT

The Zenlens MicroVault is the latest innovation to solve the problem that occurs with Pingueculum or other peripheral elevations on the sclera that otherwise cause a problem for a good fit at the edge of the contact lens. The MicroVault creates an exact

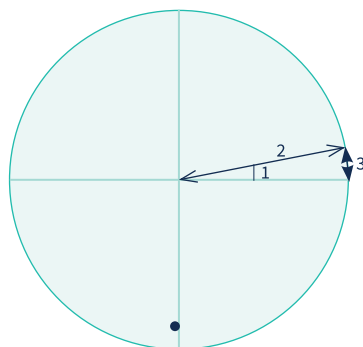


designed space or wrinkle on the edge of the Zenlens that slides exactly over the unevenness of the sclera.

Designed and manufactured using CAD/CAM technology, the MicroVault is much more accurate and reproducible than when applied by hand.

MicroVault can be applied to any Zen lens with a stabilization (the contact lens must be rotation stable).

- Zenlens with toric PCs
- Zenlens Front toroidal
- Zenlens with toric PCs and front torch
- To apply a MicroVault to an eye that doesn't need toric PCs and Front Toric contact lens, order a front toric contact lens with planocylinder.



1- Axis position The optical axis position location related from the center of the contact lens to the center of the MicroVault, probably close to 0° or 180° depending on which eye is fitted and whether it is nasal or temporal. Depends on the axis and orientation of the toric PCs.

2- Decentration The distance from the contact lens center to the MicroVault center. If you want the deepest point of the MicroVault to be exactly on the edge of the lens, then that is on half of the lens diameter, at a diameter 16.00 so 8.00 and at 17.00 so 8.50.

3- Size Equal to MicroVault size

4- Depth The sagittal height of the MicroVault. How much higher is the apex of the Vault above the surface of the eye? (up to 500 micron)

The example alongside: axis 10°, decentration 8 mm and size 3 mm. The 3 dashes (in the drawing the blue dots) help to determine the position of the MicroVault; 1 dot on the apex and 2 dots at 45° of the apex. 1 black dot on the 270° base, blackened to make it easier for the patient to see when inserting the contact lens and to easily determine the inclination.