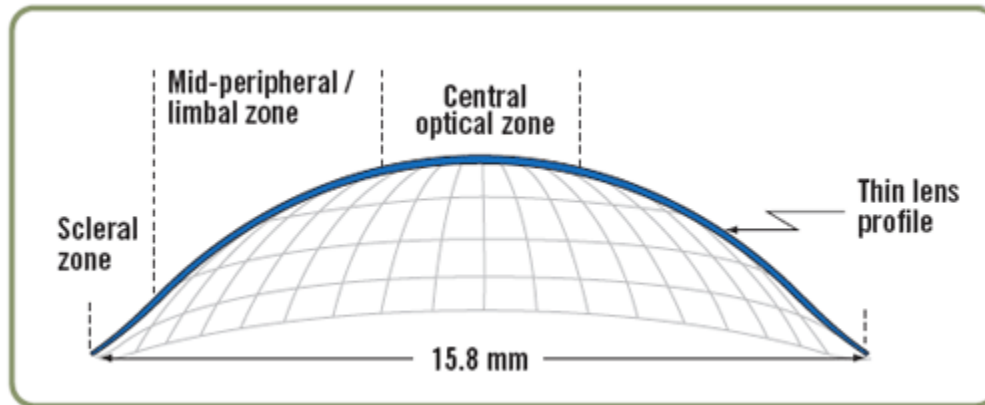


Introduction

The msd Mini-Scleral Design has a distinctive posterior lens surface incorporating reverse geometry with specially designed optical and posterior curves. The msd lens allows for creation of a smooth, spherical second refractive surface to replace the irregular corneal surface, thereby giving good stable vision and automatically correcting most astigmatism. The msd thin profile and design results in minimal lens edge/lid interaction, providing excellent patient comfort and oxygen transmission to the cornea during wear. The msd is easy to fit and is suitable for the majority of pathology cases ranging from advanced Keratoconus to LASIK and other irregular corneas on which fitting corneal contact lenses has not lead to optimal results.



Applications

Applications for the msd lens are numerous and include the majority of pathology cases such as:

- Keratoconus (Oval, Nipple)
- Pellucid Marginal Degeneration
- Keratoglobus
- Post Graft
- RK, PRK and LASIK induced ectasia
- Any compromised and/or irregular cornea

Characteristics

1. The msd lens always centers well.
2. With reverse geometry, the sagittal depth of the lens can be changed independently of central optic zone profile and/or mid-periphera/limbal zone clearance values.
3. Sagittal depth value, mid-peripheral/limbal zone clearance and lens power are the only parameters to specify when ordering an msd lens.
4. A fenestration is incorporated in the design which acts as a controlled release valve for tear exchange and the flow of metabolic debris. The fenestration inhibits the msd lens from adhering to the eye and eases the removal process. msd lenses can be ordered with or without a fenestration (see section: Fenestration or not?)
5. The thin profile and design results in minimal lens edge/lid interaction, providing excellent comfort.

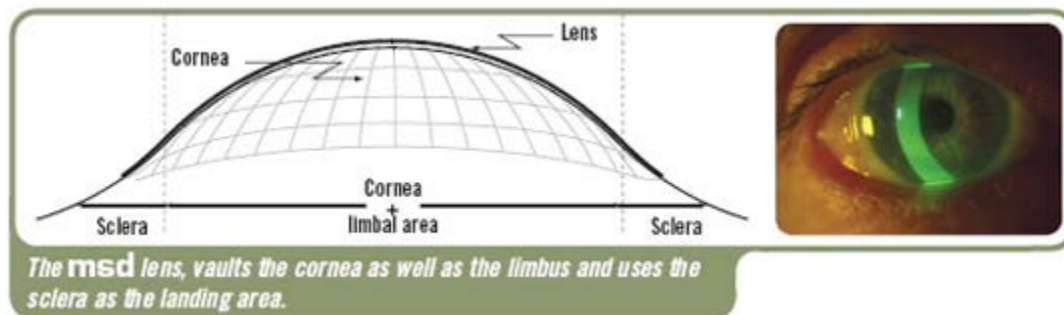
Ideal Fit

Ideally, the msd should fit with apical clearance or, in the case of Keratoconus, central feather touch at the corneal apex, with the mid-peripheral/limbal zone completely vaulting the limbus and aligning on the sclera. Lens movement with the msd is often very limited and may be difficult for the practitioner to discern.



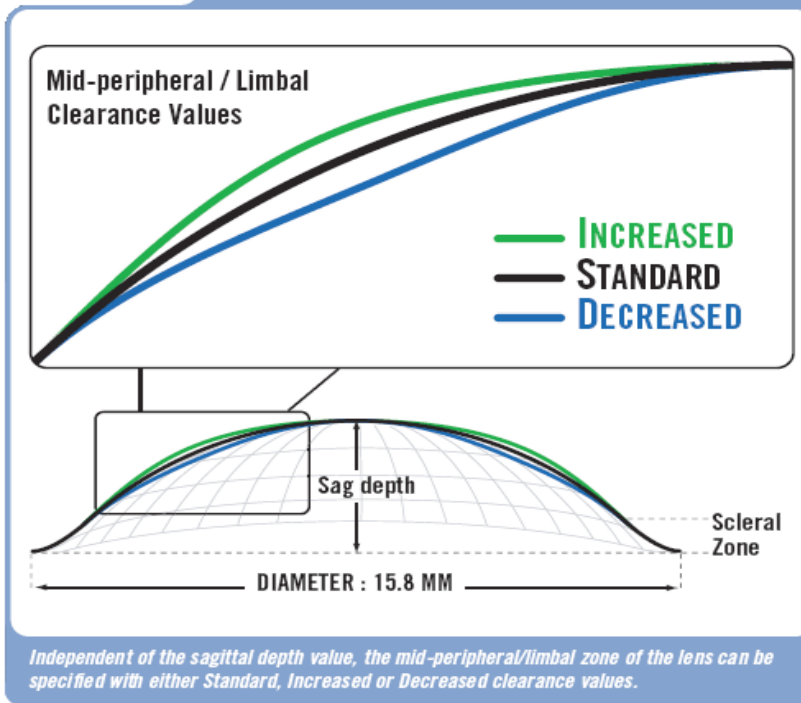
Fitting Philosophy

A fundamental principle of GP contact lens fitting is to achieve a particular relationship between the posterior lens surface and the anterior cornea, thus creating a tear layer with specific characteristics. This is also true in fitting the **msd** lens with some differences as compared to corneal lens designs. Corneal lenses are fitted by manipulating base curve and diameter in order to create the optimal lens/cornea relationship. When the cornea becomes highly irregular with steep and flat areas arbitrarily placed, the fit becomes very complicated and often impossible. The underlying principle of the **msd** lens is *not to rely or use the highly irregular cornea but rather vault the later as well as the limbus, and use the sclera as the landing area* to properly position the posterior surface of the lens over the highly irregular cornea and recreate a smooth spherical second refractive surface. With this in mind, sagittal depth (see section on sagittal depth), as opposed to base curve and diameter, becomes the most comprehensive and easiest measurement in managing and optimizing the vaulting characteristics of **msd** lenses (see illustration below).



Mid-Peripheral / Limbal Zone

With the ideal sagittal depth value, comes an option of ordering 3 different mid-peripheral/limbal zone clearance values (Standard, Increased, Decreased), to further align the lens in that area.



Parameters available

| PARAMETERS AVAILABLE (Diameter 15.8mm) | | |
|--|--|---------------|
| SAGITTAL DEPTH VALUE | MID-PERIPHERAL/ LIMBAL ZONE CLEARANCE | LENS POWER |
| 3.70mm to 4.80mm (0.10mm inc.) <i>See section on sagittal depth</i> | Standard Increased Decreased | Any |

Diagnostics lenses

DIAGNOSTICS LENSES

A diagnostic set is composed of 36 lenses as follows:

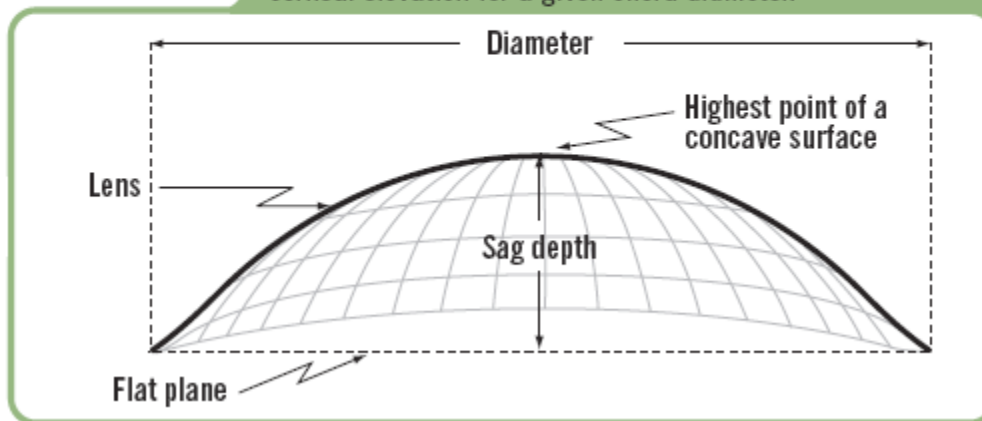
12 sagittal depth values, with each having 3 mid-peripheral/limbal zone clearance values (Standard, Increased and Decreased).

The diameter is 15.8 mm. and plano powers.

Each diagnostic lens is clearly marked with the sagittal depth value as well as the mid-peripheral/limbal zone clearance value.

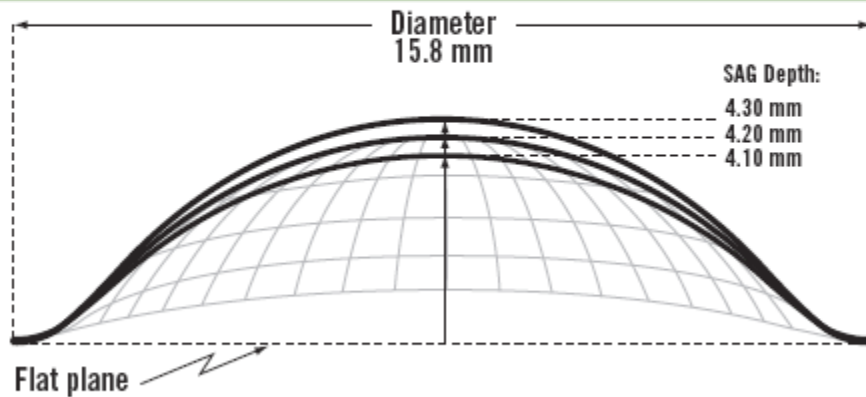
What is sagittal depth (sag depth)

Sagittal depth (sag depth) is the measurement from the flat plane at a given diameter to the highest point of a concave surface of the contact lens - also described as the degree of corneal elevation for a given chord diameter.



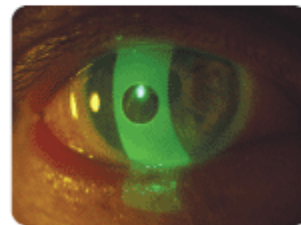
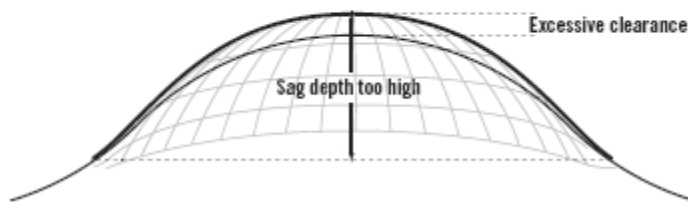
How does sagittal depth affect the fit?

Sag depth value is critical in achieving the desired fit as it serves as a control mechanism for either completely vaulting the cornea or to determine the amount of corneal touch or positive pressure to be applied.

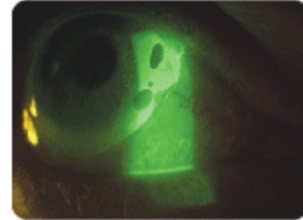
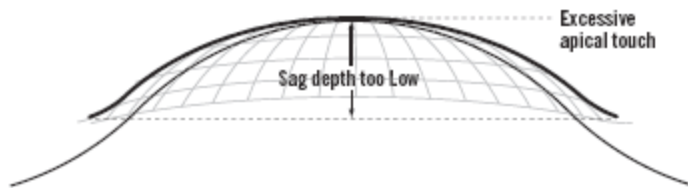


HIGHER sag depth values allow more vaulting, conversely, LOWER sag depth values will increase positive pressure.

If the sag depth value is too high, it will result in central pooling (excessive clearance) with bubbles occurring upon or within a short time after lens insertion.



If the sag depth value is too low, it will result in excessive central touch with bubbles occurring in the scleral area. The lens will exhibit excessive movement, as it is not aligning properly on the sclera but rocking on the cornea. The wearer may experience edge awareness.



The ideal sag depth value will have the **msd** lens vault the cornea as well as the limbus and rest aligned on the sclera.

