Introducing the New DigiForm 16.6 Scleral Lens

Justine L Siergey OD, FSLSD
Medical City Eye Center, Orlando FL
Scleral Lens Indications

Irregular corneas:
- Keratoconus, pellucid marginal degeneration, keratoglobus, post-surgical (corneal transplant, post-lasik, post-RK), ectasias, corneal scars...

Ocular surface disease and dry eye patients:
- Steven’s Johnson Syndrome, Sjogrens, Graft vs Host, Exposure, Keratoconjunctivits Sicca...

Normal cornea:
- High ametropias, high astigmatism, GP intolerant...
Scleral Lens Advantages

Comfort
  • Edges tuck under lids, no touch on cornea

Large Diameter
  • Stability (won’t pop out), no FB entrapment
  • Large optical zone

Fluid Reservoir
  • Vision doesn’t fluctuate, comfortable wearing time
  • Moisture held over eye
One scleral design for all corneal conditions
16.6 DigiForm Design

Advantages

One diameter/one set for all corneal conditions

Simple to fit and easy to communicate with lab and consultants

Ultimate control over fit and optics
One Diameter
16.6mm is a mini-scleral lens:

Easier handling for patients
- Smaller opening required for application

Less trouble shooting issues compared to full scleral designs
- Less lens de-centration
- Less likely to require toric haptics
- Less fogging/debri due to lower clearance needed

Mini-scleral lens: up to 6.00mm larger than HVID

One Diameter: 16.6mm

Improved limbal coverage especially helpful for successful fits in:

- Pellucid Marginal Degeneration (PMD)
- Corneal Transplants:
  - Proud grafts, high graft junctions
- INTACs
- Large Corneas
- ect...
One set for all corneal conditions

15 trial lens set:

- Extensive range:
  - BC 6.00mm - 9.50mm
  - Sag depth 4.31mm - 5.62mm

- Both prolate and oblate shapes depending on base curve
  - Oblate shapes have reverse curves to optimize clearance

- Ability to find best fit within trial set
The DigiForm 16.6 Trial Lens Set

<table>
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Oblate shapes help to address flat zones on the cornea
- example post-Lasik, post-RK, corneal transplant
Simple to fit & Easy to Communicate with Lab

Design:

- Central base curve and 8.0mm optic zone
- 5 additional curves to optimize fit
  - 8-10mm, 10-12mm, 12-14mm, 14-15.8mm, 15.8-16.6mm
- Lenses are laser engraved and easy to read
Simple to fit & Easy to Communicate with Lab

Markings:

- Measure HVID using markings
  - Smaller than 3rd hash = <12.0mm
  - Larger than 3rd hash = >12.0mm
  - Each hash mark = 1mm

Built-In fitting scales

Laser Marked Base Curve & Sag
Simple to fit &
Easy to Communicate with Lab

Why is HVID important?

- HVID defines which curves are limbal curves
  - $<12.0\text{mm}$ $2^{\text{nd}}$ curve is the limbal curve
  - $>12.0\text{mm}$ $3^{\text{rd}}$ curve is the limbal curve
- Allows lab to make best adjustment to address limbal issues vs edge issues
Ultimate control over fit

Design:

- Central base curve (8mm OZ)
  - 5 additional curves to optimize fit
    - Each zone is clearly marked
- Can modify any part of the lens to achieve best fit
  - Make bi-toric or quad specific changes
  - Prolate or Oblate
  - Notching available
Ultimate control over fit

Lens Modifications

• Made in micron units
  • Minimum change: 25-50μm
  • Moderate change: 75-150μm
  • Aggressive change: >200μm
Optimized Optics

All options use the same fit set:

• Spherical
• Front-Toric
  • Markers of one dot or two dots at 12 o’clock
• Multifocal optics:
  • Similar to fitting soft multifocal lenses
    • Center near design
    • Control zone size and add power
### Base Curves
- **4.25mm-10.00mm**

### Sagittal Depth
- **7940μm-4208μm**

### Power
- **-30.00 - +30.00 diopters**

### Options
- • **Fit:** bi-toric changes, quadrant specific changes, notching
- • **Optics:** Spherical, front-toric power, center-near multifocal

### Materials
- Optimum Extra (*available with tangible hydroPeg*), Tyro 97, Boston XO, Boston XO2, Menicon Z, HDS 100
• 30-40nm coating of Polyethylene Glycol (PEG) polymer
• Improves surface wettability and reduces lens deposits
  • Increases tear break up time and helps with dryness issues
• Warranted 1 year against non-wetting

*Clean with non-abrasive/ alcohol free cleaners such as peroxide bases systems or Unique PH
  • Avoid Boston, Lobob or Progent cleaners
Step By Step Fitting

1. Select initial trial lens
2. Evaluate central clearance
3. Evaluate limbal clearance
4. Check edge landing 360°
5. Over-refract and order
1. Select Initial Trial Lens

<table>
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<tr>
<td>Keratoconus</td>
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<td>1.0 D flatter than average K</td>
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<td>Normal Corneas</td>
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<td>On Flattest K</td>
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<td>Post Lasik</td>
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<td>4.0 D steeper than Flat K</td>
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Insert lens with NaFl and check for bubbles
2. Evaluate Central Clearance

- Thinnest slit beam of white light at 45°
- Compare clearance with known lens thickness
  - Corneal thickness varies significantly

Measure clearance over highest elevation
2. Evaluate Central Clearance

Lens settling:

Central clearance will decrease slightly as lens settles:
• Aim for **300μm upon initial insertion**

Recheck lens after **30 minutes**
• **200-250μm is ideal after settling**
2. Evaluate Central Clearance

Ferris State Scleral Lens Grading Scale
2. Evaluate Central Clearance

Adjust base curve until desired vault achieved:

- Steeper base curve → INCREASES vault
- Flatter base curve → DECREASES vault

Fit set lists lenses in base curve but also sagittal depth

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Lens 7 → Lens 5 = 200μm more clearance
2. Evaluate Central Clearance

Cobalt blue light can be used to double check for touch
3. Evaluate Limbal Clearance

- Evaluate with **white light**, and want to see green within 1 mm of limbus
- Can double check with **cobalt blue**
- Need to completely vault the limbus without bubbles
3. Evaluate Limbal Clearance

Ferris State Scleral Lens Grading Scale
4. Evaluate Edge Landing

- Look for compression of blood vessels or edge standoff

- Evaluate edges 360
  - Glaze induced blanching
    - recheck area of blanching in primary gaze

IDEAL aligned fit without compression
4. Evaluate Edge Landing

Evaluate 360°
• Are bi-toric or quad specific changes needed?
4. Evaluate Edge Landing

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Ferris State Scleral Lens Grading Scale
OCT Images of Edges

Ideal

Tight

Flat
Extra Check: Look for resistance

- Have the patient look up and try to spin the lens
- Should be little to no resistance (can see the engravings move)
- If resistance look again for touch (central or limbal)

Is the patient comfortable?
5. Over-refract and Order

• Spherical refraction first
  • Cylinder only if best VA not achieved with spherical
  • Retinoscopy or auto-refraction helps

• If cylinder correction needed check for lens flexure
  • Increased thickness can resolve flexure
  • Residual astigmatism: order front toric design
Case Study: Christy

41 year old female, medical assistant

- Complains of constant burning due to dryness, fluctuating vision that is never crisp
  - Previously fit in scleral lenses:
    - feels relief from dryness
    - unable to wear due to discomfort after several hours

Manifest:
OD: -1.00-1.00x105 to 20/25+
OS: -0.75-0.50x005 to 20/25+
Fitting visit

First trial:
OD: Lens 8:
• ~125μm central clearance
  (5 minutes after insertion)

OS: Lens 7:
• ~200μm central clearance
  (5 minutes after insertion)

Best trial lens for both eyes is Lens 6
Trial Fitting

Second trial:
OD: **Lens 6**: Pwr: -6.75DS
•~300μm central clearance
  (5 minutes after insertion)
•~220μm central clearance after settling, clears over the limbus, **moderately flat edges 360°**

OS: **Lens 7**: Pwr: -5.25DS
•~150μm central clearance after settling, clears over limbus, **moderately flat edges 360°**
Trial Fitting

Second trial:
OD: **Lens 6**: Pwr: -6.75DS
•~300μm central clearance
  (5 minutes after insertion)
•~220μm central clearance after settling, clears over
the limbus, *moderately flat edges 360°*

OS: **Lens 7**: Pwr: -5.25DS
•~150μm central clearance after settling, clears over
limbus, *moderately flat edges 360°*

Over-refraction
OD: +5.25-1.50x100 to 20/20 “crisp”
OS: +5.25-1.50x075 to 20/20 “crisp”
Over-refraction
OD: +5.25-1.50x100 to 20/20 “crisp”
OS: +5.25-1.50x075 to 20/20 “crisp”

Manifest:
OD: -1.00-1.00x105 to 20/25+
OS: -0.75-0.50x005 to 20/25+

→ No flexure over lenses

Internal astigmatism
(likely lenticular)
First Order

DigiForm 16.6 Scleral Lenses- Front Toric

OD: BC 7.25 Sag 4.99 Pwr -1.50-1.50x100
→ 100μm steeper edge 360°

OS: BC 7.25 Sag 4.99 Pwr -1.25-1.50x075
→ 100μm steeper edge 360°

Lens Modifications
Minimum change: 25-50μm
Moderate change: 75-150μm
Aggressive change: >200μm
Dispense visit
“Amazing vision and comfort!
Better than all my previous lenses”

**Vision:**
OD: **20/20** OR: +0.75-0.75x100 to crisper 20/20
OS: **20/20** Plano to 20/20
OU: **20/15**

**Evaluation (after 10min):**
OD: ~300μm central clearance, clears over limbus, good edges
OS: ~250μm central clearance, clears over limbus, good edges

Lenses dispensed, return 2 weeks for recheck (in the afternoon)
2 week follow up

“Eyes get red after 4-6 hours, feel sore but vision is so great”

Vision:
OD: 20/20  OR: +0.75-0.75x100 to crisper 20/20
OS: 20/20  Plano to 20/20
OU: 20/15

Evaluation (4 hours wear)
OD: ~250μm central clearance, touch over limbus nasal, flaring of edges 360
OS: ~200μm central clearance, touch over limbus nasal, flaring of edges 360
2 week follow up
“Eyes get red after 4-6 hours, feel sore but vision is so great”

Evaluation (4 hours wear)
OD: ~250μm central clearance, touch over limbus nasal, flaring of edges 360
OS: ~200μm central clearance, touch over limbus nasal, flaring of edges 360

Lenses re-ordered:
OD: BC 7.25 Sag 4.99 Pwr -0.75-2.25x100
→ 75μm flatter in curve 3
(limbal curve for 12.5mm HVID)
OS: BC 7.25 Sag 4.99 Pwr -1.25-1.50x075
→ 75μm flatter in curve 3
(limbal curve for 12.5mm HVID)
Final Lenses

“Wearing lenses all day with no problems. Vision finally feels equal and balanced”

Vision:
OD: 20/20+2  OR: Plano to 20/20
OS: 20/20   Plano to 20/20
OU: 20/15

Evaluation (6 hours wear)
OD: ~250μm central clearance, clears over limbus, good edges
OS: ~225μm central clearance, clears over limbus, good edges
Tips for success

• Measure HVID
  • Helps define limbal vs edge curves

• Find best lens out of trial set before ordering
  • Helps minimize re-makes

• Allow lens to settle 30 minutes or more

• Check edges 360° to see if toric or quad specific curves needed
Tips for success

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Truform Optics Lab

Family business that was established in 1976

- Long time member of the Contact Lens Manufacturers Association (CLMA)
- 24-48 hour turnaround service

Dedicated to providing superior customer service:
knowledgeable consultants and state-of-the-art lab equipment
16.6 DigiForm Design

Advantages

One diameter/one set for all corneal conditions

Simple to fit and easy to communicate with lab and consultants

Ultimate control over fit and optics
Thank You for Your Time

digiform

covering your eye with comfort

TruForm OPTICS
quality service vision