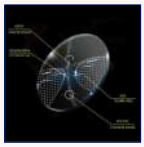
Deconstructing Advanced Progressive Lens Designs: A Stepwise Approach



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- University of California Berkeley | Associate Professor of Health Sciences
- Mindful Eyes Foundation | Founder and Executive Director
- SightLine Ophthalmic Consulting | Co-founder and CEO
- Doctor of Optometry (OD)
- Master in Ophthalmic Optics (ABOM)
- Registered Spectacle Lens Dispenser (CA-SLD)
- Licensed Optometrist (CA-DCA)

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Learning Objectives

Progressive Lens DNA

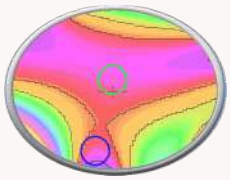
-Surfacing
- Traditional vs Digital Design Features:
- Enhanced

-Design
- Dual
- All Back Surface

-Aberration
- Hard vs Soft

-The Drop

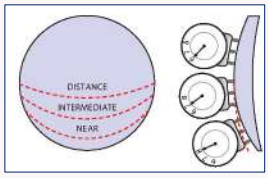
-Vertical Power Change



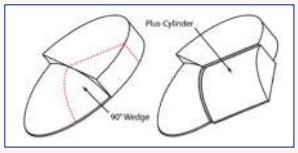
Review of manufacturers latest technology and product portfolios
Patient Case Review

3

Basic Progressive Lens Design



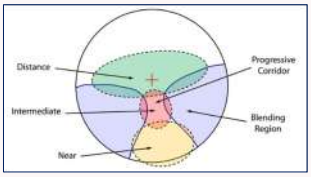
Increased curvature = increased Plus power



Oblique Plus cyl is blended in the periphery for a seamless transition from distance to near

4

Four Structural Features to Manipulate



- Distance = stable area for distance Rx
- Near = stable area for near Rx
- Corridor = zone of increasing + power, provides mid-range vision
- Blending Region = contains varying amounts of Surface Astigmatism

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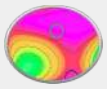
PAL DNA: 5 Concepts

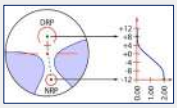
1. Surfacing: Traditional vs Freeform
How is the lens made?

2. Design: Front, Dual, All Back
Where is the prescription?



3. Aberration Pattern
How is the unwanted cylinder distributed?

4. The Drop: FRP to PRP
What does it mean?



5. Vertical Power Change:
How can we control it?

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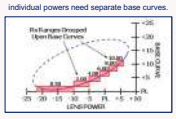
DNA #1 Surfacing

TRADITIONAL PAL SURFACING

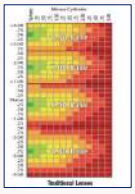
Tscherning's Ellipse

individual powers need separate base curves.



Optical compromise:
- group small Rx range into one base curve
- reduces the number and cost of many molds

I need a 7.5
Store only stocks 7 or 8



Green = best vision
Yellow, orange, red = increasingly poor peripheral vision

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Surfacing

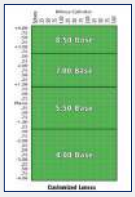
FREEFORM PAL SURFACING

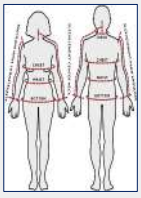
NO MORE FORMS

Software Program

Digital Surfacer
moves in 3D, like a record player

Point by point surface profile
- RX
- Aberrations
- Position of wear





ALL prescriptions can be Optimized
Like a custom made dress or suit

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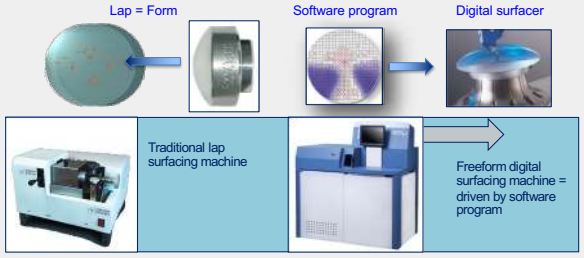
Surfacing Equipment: Traditional surfacing vs Freeform digital surfacing



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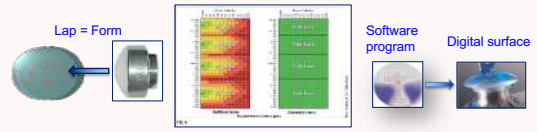
Surfacing: Traditional surfacing vs Freeform digital surfacing



Traditional lap surfacing	Freeform digital surfacing
• Sphere/Cyl only • Accuracy to 1/16 D (0.06 D) • PAL design on front • Back surface Rx only	• Free-form surface • Accuracy to 1/100 D (0.01 D) • PAL design on Front &/or Back • Back surface Rx and aberration control • Limitation - prism amount

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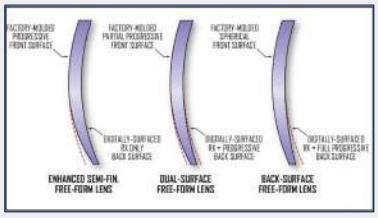
DNA #2 Design: Free Form Progressives

Enhanced Semi-finished/Front Surface - FS



The Optics of Free-Form Progressive Lenses by Darryl Meister, October 2008

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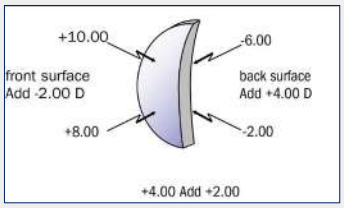
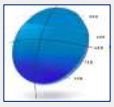
DUAL SURFACE DESIGN- DS





- Aspheric front surface
- Increased magnification at near
- Soft lens design
- Better cosmesis in high plus RX
- Preferred by hyperopes

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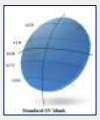
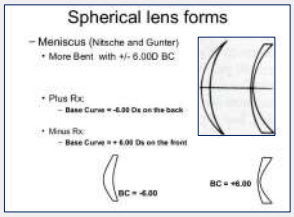
ALL BACK SURFACE DESIGN - ABS





- Spherical front surface
- Rx on back of lens
- More types of lens options
- Not ideal cosmetics in high plus lenses
- Hard design
- Preferred by myopes

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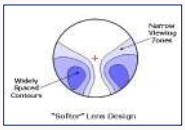
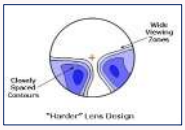
DNA #3 Off Axis Aberrations

All variable power lenses have off axis aberrations

2 Categories

- Contour lines = 0.50-0.75 DC
- Closer together = faster change
- Darker the blue = higher amount





SOFT Distribution
- Spread out more
- Dual surfacing
- Hyperopes (generally)

HARD Distribution
- Concentrated below 180
- All back surfacing
- Myopes (generally)

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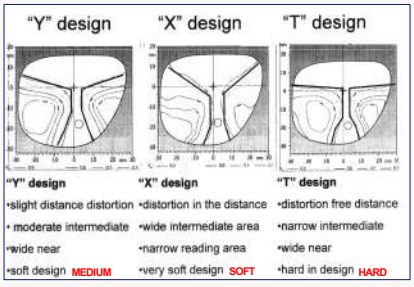
Off Axis Aberrations



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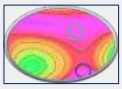
Lens Geek at Work

Manual method

My home office



Wavefront analysis

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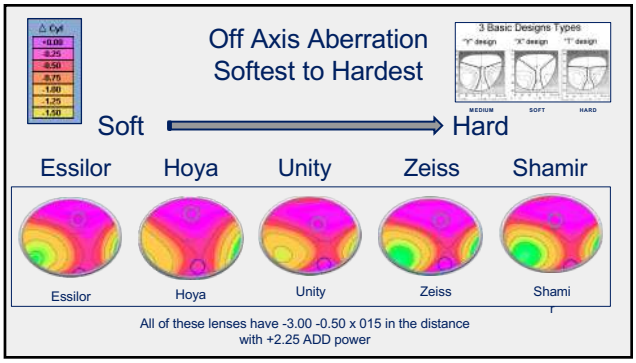
Off Axis Aberration
Softest to Hardest
3 Basic Designs Types
Soft
Hard
Essilor
Hoya
Unity
Zeiss
Shamir
Essilor
Hoya
Unity
Zeiss
Shami
All of these lenses have -3.00 -0.50 x 015 in the distance
with +2.25 ADD power

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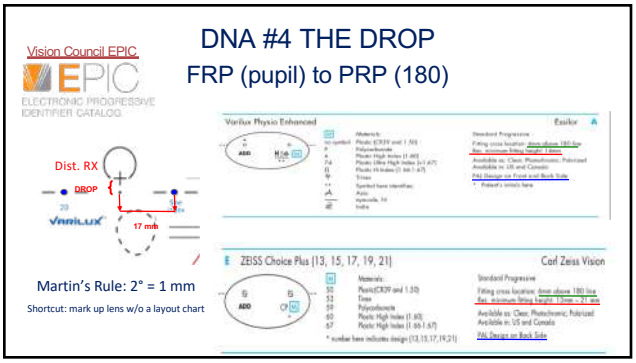
Vision Council EPIC
EPIC
ELECTRONIC PROGRESSIVE IDENTIFIER CATALOG
DNA #4 THE DROP
FRP (pupil) to PRP (180)
Dist. RX
DROP
17 mm
Martin's Rule: 2° = 1 mm
Shortcut: mark up lens w/o a layout chart
ZEISS Choice Plus (13, 15, 17, 19, 21)
Carl Zeiss Vision

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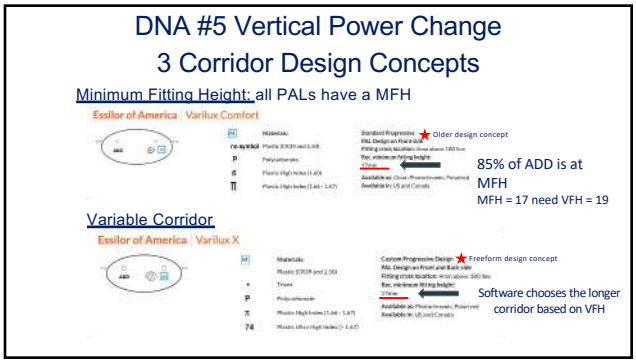
DNA #5 Vertical Power Change
3 Corridor Design Concepts
Minimum Fitting Height: all PALs have a MFH
Essilor of America | Varilux Comfort
Older design concept
85% of ADD is at MFH
MFH = 17 need VFH = 19
Variable Corridor
Essilor of America | Varilux X
Freeform design concept
Software chooses the longer corridor based on VFH

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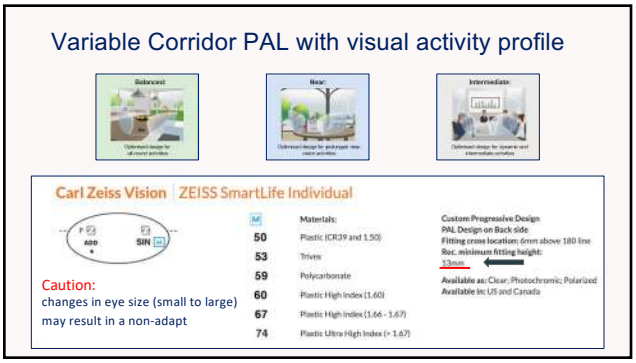
Variable Corridor PAL with visual activity profile
Carl Zeiss Vision | ZEISS SmartLife Individual
Caution:
changes in eye size (small to large)
may result in a non-adapt
Materials:
50 Plastic ICR39 and 1.50
53 Trivex
59 Polycarbonate
60 Plastic High Index (1.60)
67 Plastic High Index (1.66 - 1.67)
74 Plastic Ultra High Index (> 1.67)
Custom Progressive Design
PAL Design on Back side
Fitting cross location: 6mm above 180 line
Rec. minimum fitting height:
13mm
Available as: Clear; Photochromic; Polarized
Available in: US and Canada

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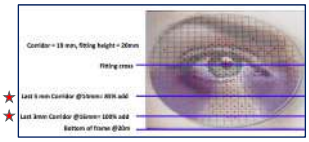
Vertical Power Change

Fixed Corridor

General rule:



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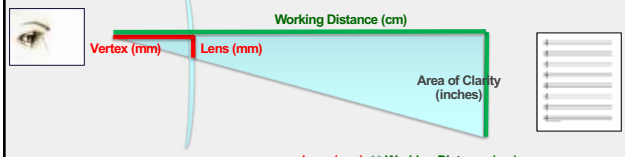
Clinical Math: How much is your patient seeing?



$$\text{Area of Clarity (inches)} = \frac{\text{Lens (mm)} \times \text{Working Distance (cm)}}{\text{Vertex (mm)} \times 2.54\ \text{cm/inch}}$$

@ 40 cm: 1 mm = 1.2 inches
@ 67 cm: 1 mm = 2.0 inches

Calculations are simplified and do not take into consideration the center of rotation or the power of the lens.

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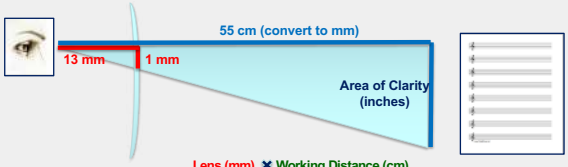
Sample Problem



$$\text{Area of Clarity (inches)} = \frac{\text{Lens (mm)} \times \text{Working Distance (cm)}}{\text{Vertex (mm)} \times 2.54\ \text{cm/inch}}$$

$$\text{Area of Clarity (inches)} = \frac{1 \times 550}{13} = 1.65\ \text{inches}$$

Calculations are simplified and do not take into consideration the center of rotation or the power of the lens.

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Vertical Power Change

Fixed Corridor PAL Concept			
Example: 20mm fitting height, last 3 mm of corridor = 100% add			
19mm corridor 4mm near	17mm corridor 6mm near	15mm corridor 8mm near	13mm corridor 10mm near
4mm = 4.8 inches	6mm = 7.2inches	8mm = 9.6 inches	10mm = 12 inches

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PRODUCT INNOVATION AND EVOLUTION

Rapid developing technology

Best exercise equipment

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Standard vs Free Form: What's the Difference?

- Advanced technology, computerization, and manufacturing equipment
- More natural visual experience
- Decrease HOAs = wider sharper fields of view for all lighting conditions
- Optimize BV to equalize image shape, magnification, and prism imbalance
- Compcompensate Rx for POW, refractive error, age, ADD power, pupil size
- Decrease off axis aberrations to widen the intermediate and near zones

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Manufacturer Lens Product Portfolios

Different software profiles go into the generator to produce each unique lens design

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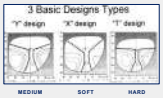
Essilor Portfolio

Free Form PAL 2 Cat. N	Free From PAL 1 Cat. O	Premium PAL 2 Cat. F	Premium PAL 1 Cat. J
Varilux XR Design Technology 14/4(DS) Varilux X Design Technology Fit 14/4(DS)	Comfort Max Fit 14/4/DS Varilux X Design Technology 14/4(DS)	Comfort Max 14/4/DS Comfort 2 Drx/Short 17/14/4(ABS)	Comfort 2 17/4(FS) Comfort 2 Short 14/4(FS)

Aberration
Soft, X = DS
Medium Soft, Y = ABS



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Essilor Technology Comparison

VARILUX® LENS TECHNOLOGIES

TECHNOLOGY	WEARER BENEFIT
All Varilux® lens designs	Comfortable reading area
Digital Surfacing	Better positions near zone for large reading area
Harmful Blue Light* Protection (Essential Blue Series™)	Up to 3x more protection from Harmful Blue Light than a standard clear lens**
W.A.V.E. Technology™	Sharp vision at all distances
W.A.V.E. Technology 2™	Sharp vision at all distances even in dim lighting
Binocular Booster (Varilux® Physio® W3+) SynchronEyes™ (Varilux® X Series™)	Allows wearer to easily transition between near & far
Nanoptix™ Technology	Helps eliminate "off-balance" feeling
Xtend™ Technology	Reduces head movement within arm's reach
Personalized Measurements***	Provide maximum lens performance despite differences in frame size & shape

▲ = Optional

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Essilor Technology Comparison

PERSONALIZED MEASUREMENTS

Required: ● Optional, Default Measurements Accepted: ■

	PD and Fitting Height	Pantoscopic Tilt	Wrap Angle	Vertex Distance	Near Vision Behavior	Eye Rotation Center Distance	Natural Head Position	Leveling Dominant Eye	Vd Y Axis	Stability Coefficient
Varilux® XR Track	●	●	●	●						
Varilux® XR Design	●	■	■	■						
Varilux® X 4D with H/Et	●	●	●		●	●	●	●	●	
Varilux® X 4Dt	●	●	●		●	●	●			
Varilux® X Fit	●	■	■	■						
Varilux® Physio® W3+ Eyecode™†	●	●	●		●	●				
Varilux® Physio® W3+ Fit	●	■	■	■						
Varilux® Comfort Max Fit	●	■	■	■						

† Varilux X 4D lenses, Varilux Physio W3+ Eyecode lenses are exclusive to the Visioffice® System.

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Varilux XR Essilor Technology Review

Xtend™

Lengthens & smooths corridor

XR-motion™

Improves binocularity, Replaced Synchroneyes

How our eyes make rapid movements to different areas of interest

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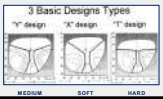
Hoya Portfolio

Free Form PAL 2 Cat. N CM (optional)	Free From PAL 1 Cat. O	Premium PAL2 Cat. F	Prem PAL 1 Cat. J
iD MyStyle2 14/4(DS) Modern, Adventure, Detail, Stable	Array 2/ Wrap 11,13,15,17,VL/4(ABS)CM	Array 11,13,15,17,V/4(ABS)	Hoyalux GP Wide 18/4(FS)
iD LifeStyle3 11,12,13,14,VL(DS) Urban, Indoor, Outdoor		Summit ecp iQ 18/4/(FS) Summit cd iQ 14/4(FS)	

Aberration
Soft X = DS
Medium Soft Y = ABS



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Hoya Technology Comparison

HOYA

HOYA Upgrade	Min Fit	BHT	POW	Design Options	Description
iD MyStyle 2	14	YES	YES	Custom	Advanced Technology for patients that demand the best - Integrated Dual Surface Design Personilized for every patient - unlimited variations
iD MyStyle 2 (4 Convenience Options) Variable corridor	14	YES	YES	Modern Adventure Detail Stable	Prefers one pair for convenience - balanced Outdoor sports, activities - more distance Close work focus - more intermediate & near Experienced wearer (former YT) - distance & near
iD LifeStyle 3 11,12,13,14 corridors or V5 (4 – Lab chooses)	14	YES	YES	Urban Indoor Outdoor	Dual side design & binocularly balanced providing wider fields of view On the go and enjoy reading books and using digital devices Spend most of time indoors using digital devices & reading New privileges, active, spends majority of time outside, driving

Balanced design
Intermediate/ Near design
Distance prioritized

iD LifeStyle 3 iD = Integrated Dual Surface **iD MyStyle 2**

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Hoya Technology Review

HOYA

Binocular Harmonization (BHT)

HOYA Database

73% of the population have a difference in refractive error between the eyes of 0.25D or more. [1]

- Unequal images sizes
- Vertical prism imbalance

[1]Hoya data in file. European progressive lens orders 2007-2013

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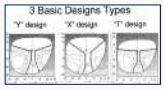
Shamir Portfolio

100% owned by Essilor in 12/22
Operates independently

shamir

Free Form PAL 2 Cat. N (CM optional)	Free From PAL 1 Cat. O	Premium PAL2 Cat. F
Autograph Intelligence 11,13,15,18,V/4(ABS)	Autograph II 11,13,15,18,V/4(ABS)CM	Spectrum+ 14,16,18/4(ABS)
Autograph III 11,13,15,18,V/4(ABS)	Autograph II Attitude 18,15/4(ABS)CM	
Attitude III Fashion 18,15/4(ABS) Attitude III Sport 18/4(ABS)		

Aberration
Hard T = ABS



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Progressive Lens Technology Comparison

shamir

Design	Autograph Intelligence	Autograph III	Autograph II+	InTouch	Spectrum+
Technology	$$$+	$$$	$$	$$	$
Eyepoint Technology AI	☑				
Continuous Design	☑				
AI Engine	☑				
Eyepoint Technology III		☑			
Natural Posture	☑	☑	☑		☑
IntelliCorridor	☑	☑		☑	
As-Worn Quadro	☑	☑			
Eyepoint Technology				☑	☑
Eyepoint Technology As-Worn			☑		
Close-Up	☑		☑		

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Shamir Technology Review

Good for:

- Unequal near convergence
- Working dist. ≠ 40 cm

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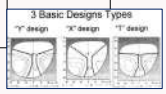
Zeiss Portfolio

2006 Zeiss, Sola, American Optical merged into Carl Zeiss Vision

Free Form PAL 2 Cat. N (CM optional)	Free Form PAL 1 Cat. O	Premium PAL 2 Cat. F	Premium PAL 1 Cat. J
SmartLife Individual B/I/N 13/6(ABS) SmartLife Individual B/I/N (S,M,L)14,16,18/6(ABS)	SmartLife Pure (S,M,L) 14,16,18/6(ABS)	Choice 13-15-17-19/6(ABS)	Gradal RD 21/6(FS)
	SmartLife Plus 13/6(ABS)	GT2/Short 17/13 /4(FS)	
	SmartLife Superb 13/6(ABS)CM		

3 Basic Designs Types



(S,M,L) = Short, Medium, Long Corridor

Aberration
Hard T = ABS

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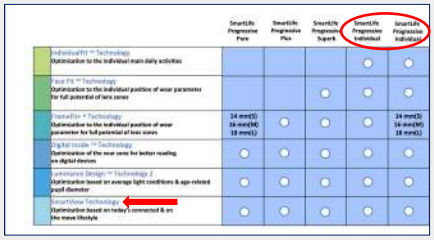
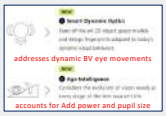
Zeiss Technology Comparison



SmartView Technology



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Zeiss SmartLife Individual Technology Review

IndividualFit technology
Different design options for different lifestyles

Balanced
all distances

Intermediate
25% > Int, smaller Near

Near
30%> Near zone

Available in Short (14 mm), Medium (16mm), or Long (18) Corridors

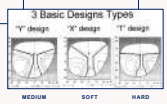
40

Unity Portfolio

Unity Via lenses introduced in 2017

Free Form PAL 2 Cat. N (CM optional)	Free From PAL 1 Cat. O	Premium PAL 2 Cat. F	Premium PAL 1 Cat. J
Via Elite II 12/4(ABS)	Via Plus II 12/4(ABS)CM	Via II 12/4(ABS)	Ethos Plus 18/14/4/ABS
	Via Wrap II 12/4(ABS)CM		

Aberration
Medium Soft Y = ABS



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Unity Technology Comparison

Wider FOV

Like BHT

Like Extend

Technology	Patient Benefit	Unity Via Elite II	Unity Via Plus II, Mobile II, Wrap II	Unity Via II
Advanced Fit	Allows patient to easily find intermediate, near and preferred reading distance. Allows more natural posture and unsurpassed visual ergonomics.	•		
InnoVue (NEW)	Provides less unwanted astigmatism, improves adaptation and visual comfort	•	•	
Digital Viewpoint	Optimized prescription at every point of the lens. Minimized peripheral distortion.	•	•	
EquiBalance (NEW)	Provides sharper peripheral vision, corrects inherent imbalance of astigmatism between nasal, temporal areas	•	•	•
OptiScreen (NEW)	Optimized lens design for digital device use, provides wider, clearer intermediate	•	•	•
Automatic Reading Height Optimization	Each lens is customized for the individual patient ensuring that the full add power is fit inside the frame.	•	•	•
Variable Inset	Larger usable reading area.	•	•	•

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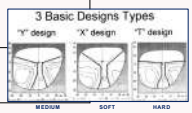
IOT Portfolio

Indizen Optical Technologies
Lens design company formed in 2005
400 partner labs, 69 countries

Free Form PAL 3	Free Form PAL 2	Free Form PAL1	Specialty FF PAL
Camber Steady Plus Balanced 14-18/4(DS) Medium	Endless Steady Balanced 14-18/4(ABS) Medium	Essential Steady Balanced 14-18/4(ABS) Medium	Endless Pilot 14,16,18/4(ABS) Medium
Camber Steady Plus Distance 14-18/4(DS) Medium	Endless Steady Distance 14-18/4(ABS) Medium	Essential Steady Distance 14-18/4(ABS) Medium	
Camber Steady Plus Intermediate 14-18/4(DS) Soft	Endless Steady Intermediate 14-18/4(ABS) Soft	Essential Steady Intermediate 14-18/4(ABS) Soft	
Camber Steady Plus Near 14-18/4(DS) Medium	Endless Steady Near 14-18/4(ABS) Medium	Essential Steady Near 14-18/4(ABS) Medium	



Minimum Fitting Heights can be fit manually or automatic

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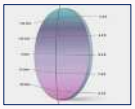
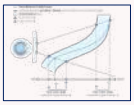
IOT Technology



Camber lens blank
increasing front curve

Steady Methodology
addresses periph. swim

Steady Plus Methodology
accounts for unwanted Spherical component



Digital Ray-Path 2
minimizes obl. abber. over accom. object space

Personalized Parameters
Position of wear measurements

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IOT Technology Comparison

Technology	Essential Steady	Endless Steady	Camber Steady Plus
Camber			●
Steady Plus Methodology			●
Steady Methodology	●	●	
IOT Digital Ray-Path 2		●	●

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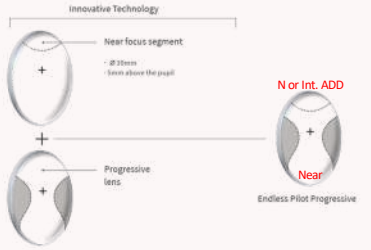
IOT Endless Pilot Progressive



Specialty Occupational Design
- Free Form Design
- All Back Surface
- 14,16,18mm MFH
- 4mm Drop
- Medium Aberration Pattern

46

Patient Communication

How do we communicate all this technical knowledge?

Research and development of new technologies have improved lenses that are sharper with less swim and wider fields of view in all lighting conditions.

47

What does the number 128 million represent?

48

What are you going to prescribe for Ted?

Ted is a 53 y.o M. LEE: 2 yrs.
CC: decreased Dist & Int vision
Pt wears 2 pair of glasses (SVD and SVN)
Interested in all purpose glasses

Lensometry
Dist. Rx
OD -2.75 -1.25 x 085 20/25
OS -3.00 -1.50 x 085 20/25
Near Rx (Effective ADD = +1.50)
OD -1.25 -1.25 x 085 .6M
OS -1.50 -1.50 x 085 .6M

Manifest Refraction
OD -3.25 -1.25 x 085 20/15
OD -3.50 -1.50 x 085 20/15
Add +2.25

Ted would like a frame that is similar to the one he wears.
Fitting Height = 22 mm

Spectacle Recommendations
- near task specific lenses = computer use
- general wear progressive = indoor
- GW PAL sunglasses.
- task specific musician glasses

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Lens Portfolio

Freeform PAL 2 (N)	Freeform PAL 1 (O)	Premium PAL 1 (F)
ESSILOR Varilux XR 14 ←	ESSILOR Varilux X Design 14 ←	ESSILOR Varilux Comfort Max 14 Varilux Physio DRx/Short 17/14
ZEISS SmartLife Individual, Individual I, Individual N 13 ← SmartLife Individual, Individual I, Individual N S 14, M 16, L 18		
HOYA ID Lifestyle3 Outdoor/Indoo/Urban 11,12,13,14,VL ← ID MyStyle2 Modern/Adventure/Detail/Stable 14 ←	HOYA Array 2 11, 13, 15, 17, VL	
SHAMIR Autograph Intelligence 11,13,15,18,V ← Attitude III Fashion 18,15 Attitude III Sport 18	SHAMIR Autograph II 11,13,15,18,V Autograph II Attitude 18,15	
UNITY Via Elite II 12 ←	UNITY Unity Via Plus/Wrap II 12	UNITY Unity Via II 12

OD -3.25 -1.25 x 085
OD -3.50 -1.50 x 085
Add +2.25
Fitting Ht. = 22mm

50

What are you going to prescribe for Debbie?

Debbie 48 y.o. F
First eye exam

CC: She doesn't like taking her glasses on and off and relies on them all day long.

Lensometry
+2.50 OTC for reading and computer
Work well for Int/Near, Takes off for Dist.

Unaided acuities
20/25- OD
20/25- OS

Manifest Refraction
OD +1.00 DS 20/20
OS +1.00 DS 20/20

BV, OH, SH: WNL/unremarkable.

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Lens Portfolio

Freeform PAL 2 (N)	Freeform PAL 1 (O)	Premium PAL 1 (F)
ESSILOR Varilux XR 14 ←	ESSILOR Varilux X Design 14 ←	ESSILOR Varilux Comfort Max 14 Varilux Physio DRx/Short 17/14
ZEISS SmartLife Individual, Individual I, Individual N 13 SmartLife Individual, Individual I, Individual N S 14, M 16, L 18		
HOYA ← ID Lifestyle3 Outdoor/Indoo/Urban 11,12,13,14,VL ID MyStyle2 Modern/Adventure/Detail/Stable 14	HOYA Array 2 11, 13, 15, 17, VL	
SHAMIR Autograph Intelligence 11,13,15,18,V Attitude III Fashion 18,15 Attitude III Sport 18	SHAMIR Autograph II 11,13,15,18,V Autograph II Attitude 18,15	
UNITY Via Elite II 12	UNITY Unity Via Plus/Wrap II 12	UNITY Unity Via II 12

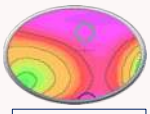
Rx
OD +1.00 DS
OD +1.00 DS
Add +1.50
Fitting Ht. = 28

52

Troubleshooting: Rx check for Debbie

CC
"My distance vision is great, but I have to tilt my chin up to see my computer clearly and to read at near."

What are the steps do you take to troubleshoot this CC?



Varilux X
- Freeform
- Dual Surface
- Soft Pattern
- Variable Corridor

Custom Progressive Design
PAL Design on Front and Back side
Fitting cross location: 4mm above 180 line
Rec. minimum fitting height:
17mm
Available as: ; Photochromic; Polarized
Available in: US and Canada

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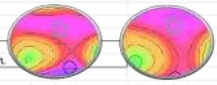
Lens Portfolio

Freeform PAL 2 (N)	Freeform PAL 1 (O)	Premium PAL 1 (F)
ESSILOR Varilux XR 14	ESSILOR Varilux X Design 14	ESSILOR Varilux Comfort Max 14 Varilux Physio DRx/Short 17/14
ZEISS SmartLife Individual, Individual I, Individual N 13 SmartLife Individual, Individual I, Individual N S 14, M 16, L 18		
HOYA ID Lifestyle3 Outdoor/Indoor/Urban 11,12,13,14,VL ID MyStyle2 Modern/Adventure/Detail/Stable 14	HOYA Array 2 11, 13, 15, 17, VL	
SHAMIR Autograph Intelligence 11,13,15,18,V Attitude III Fashion 18,15 Attitude III Sport 18	SHAMIR Autograph II 11,13,15,18,V Autograph II Attitude 18,15	
UNITY Via Elite II 12	UNITY Unity Via Plus/Wrap II 12	UNITY Unity Via II 12



OD +1.00 DS
OD +1.00 DS
Add +1.50
Fitting Ht. = 28

54

What are you going to prescribe for Walter?

Walter is a 50 y.o. M LEE: 2 yrs

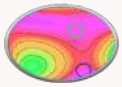
CC "I am here to update my prescription, I have no problems with distance vision using my glasses, but I am having trouble reading with them".

Lensometry
OD +1.00 DS
OS +1.00 DS
ADD +1.50

Manifest Refraction
OD +1.00DS 20/15
OS +1.00DS 20/15
ADD +2.00

BV, OH, SH: WNL/unremarkable

Varilux Comfort



Standard Progressive
PAL Design on Front side
Fitting cross location: 4mm above 180 line
Rec. minimum fitting height:
17mm
Available as: Clear; Photochromic; Polarized
Available in: US and Canada

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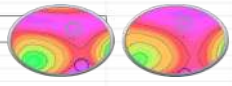
Lens Portfolio

Freeform PAL 2 (N)	Freeform PAL 1 (O)	Premium PAL 1 (F)
ESSILOR Varilux XR 14	ESSILOR Varilux X Design 14	ESSILOR Varilux Comfort Max 14 Varilux Physio DRx/Short 17/14
ZEISS SmartLife Individual, Individual I, Individual N 13 SmartLife Individual, Individual I, Individual N S 14, M 16, L 18		
HOYA ID Lifestyle3 Outdoor/Indoor/Urban 11,12,13,14,VL ID MyStyle2 Modern/Adventure/Detail/Stable 14	HOYA Array 2 11, 13, 15, 17, VL	
SHAMIR Autograph Intelligence 11,13,15,18,V Attitude III Fashion 18,15 Attitude III Sport 18	SHAMIR Autograph II 11,13,15,18,V Autograph II Attitude 18,15	
UNITY Via Elite II 12	UNITY Unity Via Plus/Wrap II 12	UNITY Unity Via II 12



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What are you going to prescribe for Danny?

59 y.o.
Full time glasses wear, takes his glasses off to read

CC "Ever since I started using PAL's, my distance is not as sharp as before I needed PAL's. Is there something new that I can try?"

-2.50 DS OU 20/20 OD/OS, add +2.50

BV, OH, SH: WNL/unremarkable

PAL history:
1st time PAL = Varilux Comfort
Followed by:
Varilux Comfort Enhanced
Varilux Physio Enhanced

Should we prescribe Varilux XR Design?

Varilux XR Design

Custom Progressive Design
PAL Design on Front and Back side
Fitting cross location: 4mm above 180 line
Rec. minimum fitting height:
17mm
Available as: ; Photochromic; Polarized
Available In: US and Canada

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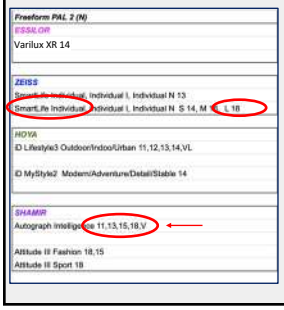
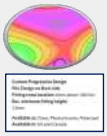
Lens Portfolio

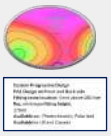


Zeiss SmartLife Individual



- Freeform
- ABS
- Hard Pattern
- Fixed or Variable

Varilux X Design



- Freeform
- Dual Surface
- Soft Pattern
- Variable Corridor

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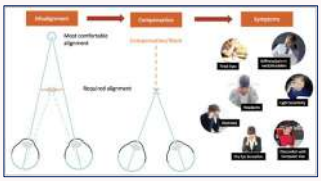
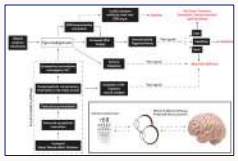
Contoured Prism Lens

Digital Eye Strain: a form of Trigeminal (CN5) Dysphoria





Hypothesized pathophysiological pathway

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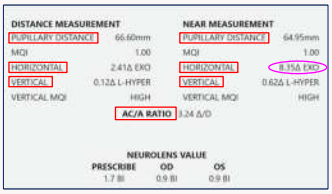
Diagnostic Tools



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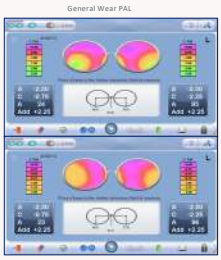
NeuroLens Portfolio



NeuroLens PAL	NeuroLens Office
Free Form 18/2(ABS) Medium	Free Form 18/2(ABS) Near Task Specific

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At the End of the Day

Sunset over Lake Combie, Auburn, CA

- Did I address the chief concern with appropriate recommendations?
- Is what I am prescribing an improvement over what the patient has or is used to?

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THANK YOU!

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mhoff@sightlineoc.com

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