

Demystifying Near Task Specific Lenses for Today's Work Environment

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Learning Objectives


- Technology Timeline
- Trends and Demographics
- Ergonomics
- Lens Analysis and Contour Plots
- Task Specific Lens Solutions
- Understanding Near Task Specific Lens Designs
 - Near Variable Focus (Computer, Occupational)
 - Full Range
 - Intermediate/Near
 - Powerboost
- Product Portfolios
- Case Presentations



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Technology Timeline

1920's + 1930's - Radio
 1940's + 1950's - Television
 1950's + 1960's - Color TV



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Technology Timeline

1970's Apple Computer, Atari 2600
 1980's Personal Computer (PC); IBM PC, Microsoft DOS, McIntosh,
 • Atari, Nintendo NES, Sega
 • Nintendo GameBoy,
 • calculator watch

1990's Laptops, Cell Phones, Sony PlayStation, Sega Dreamcast....then

INTERNET ACCESS!



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Technology Timeline

Early 2000's Nintendo, Wii
 2003 - 2005 eMail, Microsoft Xbox/360, Sony PlayStation 2/3, Texting
 2006 - 2007 eBooks, Smartphones, iPhone, Twitter
 2010 Tablets, iPad
 2013 - 2018 Wearable technology - Google Glass, smartwatch

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Why and what does it mean?

90% Nearly 90% of Americans use digital devices for one or more hours each day.

More than one out of 10 people with digital eye strain use devices for one or more hours each day.

Use of technology can have substantial consequences for our health.

60% Nearly 60% of Americans use digital devices for one or more hours each day, and the vast 50% of those who use them for one or more hours each day.

75% of the individuals who suffer from digital eye strain use one or more devices each day.

75% of individuals report experiencing symptoms of digital eye strain and are more likely than non-users to experience eye fatigue during the day.

25% of Americans report experiencing symptoms of digital eye strain.

90% of patients do not talk with their eye care provider about digital device usage.

The Vision Council 2016 Digital Eye Strain Report, ENR OVERSIGHT: THE DIGITAL DEVICE DILEMMA

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Who are our Patients?

Age Bracket	Percentage
Baby boomers (55-71)	30%
Gen X (39-54)	25%
Millennials (25-38)	17%
Generation Z (18-24)	16%
Gen Y (14-19)	13%

Source: Marketing, June 2022. Millennials are the New Emerging Professionals

- Baby Boomers + Gen X = largest segments of most practices
- Purchasing half of premium lenses
- Computer, anti-fatigue, PAL's sales are increasing

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Technology User Ergonomics

THE STRUGGLES OF MAN

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Digital Eye Strain – Symptoms

- Red, Dry, Irritated, Sore Eyes
- Blurred Vision at Distance and/or Near
- Eye Fatigue
- Neck and Back Pain
- Headaches
- Double Vision




Digital Eye Strain – Areas of Concern

- Refractive Errors
- Accommodative Disorders
- Binocular Vision Dysfunctions
- Presbyopia



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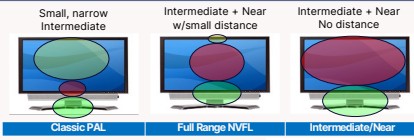
Are You Ready to Have This Discussion?



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Why Use A Computer Lens?

PAL	Computer Lens
• Narrow corridor	• Wide corridor
• Intermediate positioned low	• Intermediate positioned at straight gaze and/or below
• Small near zone	• Large near zone



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Presbyopic Personal Computer Work: A Comparison of Progressive Addition Lenses for General Purpose and Personal Computer Work

Koike, Oliver, MEng¹; Dudgeon, Stephen, MSc, PhD²

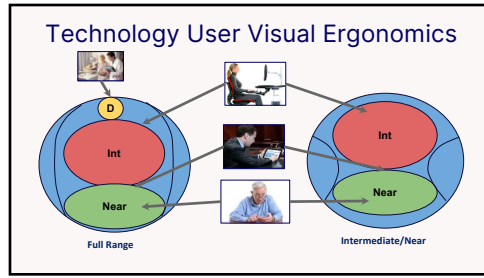
RESULTS Computer vision syndrome was perceived approximately seven times more often with GP-PALs compared with PC-PALs. Eighty-four percent of subjects preferred PC-PALs for their VDU work. Computer-specific progressive addition lenses ratings were statistically and clinically significantly better than GP-PALs.

Only 14.2% of subjects had received information about specific VDU eyewear from their optician or optometrist, whereas 79% expressed the wish to be informed about these products.

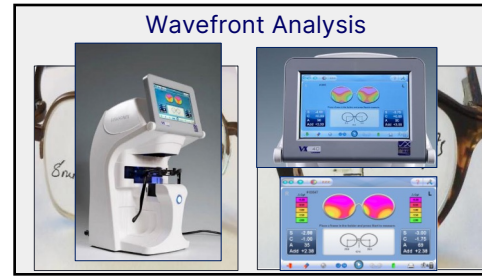
SIGNIFICANCE Computer-specific progressive addition lenses (PC-PALs) are shown to reduce computer vision syndrome (CVS) symptoms, increase visual comfort and tolerance, and improve body posture at the personal computer.



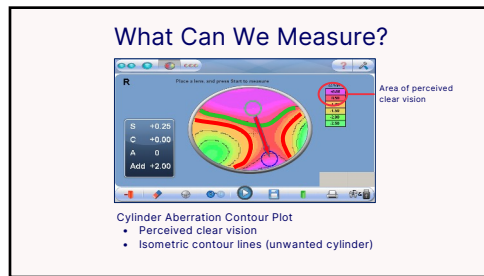
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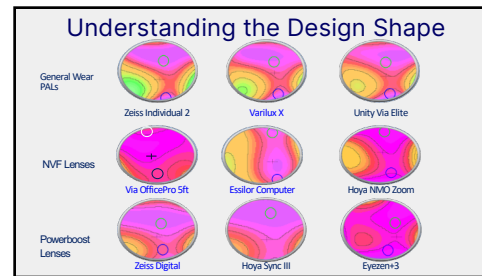
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Geometry 101: How much is your patient seeing?

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

@ 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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Understanding Computer Lenses

Near Variable Focus - Full Range

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Designs: Near Variable Focus - Full Range

- Intermediate Add power designed for 60cm – 90cm working distance is at the fitting cross (FC)/fitting reference point (FRP)
- FRP is set at pupil center
- Distance zone is 10-15mm above FRP
- Transition zone length is 20-30mm
- Full Near zone 10-15mm below FRP
- Large frame 'B' dimension (min. 30 mm)

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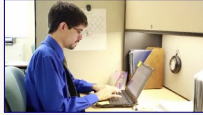
Designs: Near Variable Focus - Full Range

- Mobile presbyopes - multiple stations/rooms, require some distance vision
- Doctors, teachers, managers, consultants, receptionists, technicians
- Lens Design: Intermediate prioritized with some distance vision at the top

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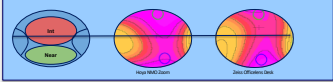
Understanding Computer Lenses

Near Variable Focus for Intermediate/Near




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Design: NVF Int/Near

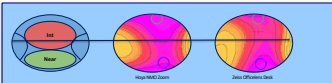




- Add Power for 60cm – 90cm (24-36 inch) working distance is *centered around fitting reference point!*
- +0.50 to +1.00 EA at "distance"
- Full Near zone 10-15mm below FRP
- FRP is set at pupil center
- Large frame 'B' dimension (min. 30 mm)



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Designs: NVF - Intermediate/Near

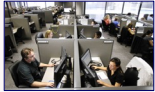




- Stationary Presbyopes – Intermediate to Near with wide FOV
- Multiple computer screens, cubicle workspace, multiple OTC readers

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Understanding Computer Lenses

Powerboost as Intermediate/Near



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Design: Powerboost as Intermediate/Near

- "Powerboost": designed and marketed to pre-presbyopes
- Can be designed for intermediate/near use for presbyopes
- Large, wide, stable "top" half of lens: Minimal peripheral aberration, edge-to-edge clarity at FRP
- Transition zone is 3-4 mm below FRP
- Corridor to full near 9-10 mm
- Can use smaller frame 'B' dimension (min. 20mm)

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Designs: Powerboost as Intermediate/Near

- Stationary occupation – Intermediate to Near with wide FOV (no distance)
- Multiple computer screens, cubicle workspace, multiple OTC readers

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Product Portfolio Summary NVF Lens Designs

	Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
OK 8113 8113	Room +0.50 Office/Lens, Room, Desk, Book +0.75 +1.25	Room +0.25 Desk +0.50 Book +1.00
COMPUTER LENS	50% of Back off	0.00 to +0.25 (max back off -2.50)
HOYA	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
Workspace/Computer	Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
Autograph II Office	50% of Backoff	Add minus Backoff (max -2.25)
INTX Via OfficePro: 10R, 5 ft.	range of vision for: 10R @110cm 5R @80cm	10R +0.33 5R +0.67

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Essilor COMPUTER LENS

ADD Power	Engraving	Back Off
+1.00 to +1.25	10	1.00
+1.50 to +1.75	15	1.50
+2.00 to +2.25	20	2.00
+2.50 to +3.50	25	2.50

- Traditional surfacing
- Poly only
- Full back off 10mm above FRP
- Near 14mm below FRP
- 50% of back off at FRP
- Lab selects back off, max 2.50

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Example: NVF - Full Range

Essilor Computer 2.00 w/50% backoff

- Rx: Plano Add +2.00
- Essilor recommends Computer 2.00 (2.00D Backoff)

NVF - Full Range	Transition Length	Distance (above FRP)	Near (below FRP)	Power at FRP
Computer Lens	24mm	10mm	14mm	50% of BO

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HOYA New Media Optics: iD Space, iD Screen, iD Zoom

- Far point/distance 11-14mm above FRP
- Near 15-18mm below FRP
- Intermediate EA is 50% of patient's full Add

Design	EA @ Far point/Distance	Intermediate EA placement
iD Space	plano	2.5mm below FRP
iD Screen	+0.50 D	2.5mm below FRP
iD Zoom	+1.00 D	at FRP

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Example: NVF - Int/Near

Hoya NMO Screen and Zoom

- Rx: Plano DS +2.50 Add
- Desktop Computer at 70 cm (+1.25D); near work at 40cm, no distance visual requirements

Hoya NMO	Corridor Length (mm)	"Distance" (above FRP)	Effective Add at "Distance"	Near (mm below FRP)	Power at FRP
Screen	18-24mm	7-10mm	+0.50D	11-14mm	50% ADD*
Zoom	18-24mm	7-10mm	+1.00D	11-14mm	50% ADD

Screen	Zoom
+0.50	+1.00
+1.25	+1.25
+2.50	+2.50

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SHAMIR Workspace, Computer

Power profile for SHAMIR Workspace, Computer and Autograph II Office for Plano Add 2.00

Dynamic reduction 8mm above FRP
Add 16mm below FRP

Workspace

- Dynamic Back off Power to +0.25 EA
- EA at FRP is 50% of add


Computer

- Dynamic Back off Power to +0.75 EA
- EA at FRP = 50% Add plus +0.25D


Autograph II Office

- dynamic power reduction 8mm above FRP, max -2.25
- Add 16mm below FRP

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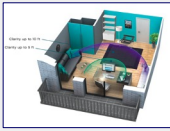


Via OfficePro 5ft & 10ft



Unity Via OfficePro 5ft
Power at FRP is designed to view 80cm

- EA +0.67D at top




Unity Via OfficePro 10ft -
Power at FRP designed to view 110cm

- EA +0.33D at top

Back off power 8-10mm above FRP
Add 9-14mm below FRP

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OfficeLens: ROOM, DESK, BOOK

Problem: Offer vision care ergonomically to all.

Working Lens: Address the needs of all users. Offer the right lens for the right task. Offer the right lens for the right user.

Special purpose: Address the needs of all users. Offer the right lens for the right task. Offer the right lens for the right user.





Include: Offer the right lens for the right task. Offer the right lens for the right user.



- Fixed intermediate add at FRP
- Book +1.25D add
- Desk +0.75D add
- Room +0.50D add
- 0.25 reduction 4mm above FRP
- Full add 10-15mm below FRP

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Product Portfolio Summary - Powerboost Lenses

Power Boost Lenses		Boost at the bottom
	Essilor Eyezen +1, 2, 3, 4	+0.40, +0.60, +0.85, +1.10
	Hoya Sync 5 Hoya Sync 9 Hoya Sync 13	+0.57, +0.95, +1.32
	Relieve 50 Relieve 70	+0.50, +0.70
	Zeiss Digital Lens Digital 500 Digital 750 Digital 1000 Digital 1250	+0.50, +0.75 +1.00, +1.25

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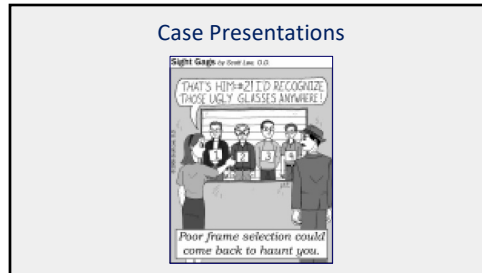
How to Design a Powerboost as Intermediate/Near

EXAMPLE RX

- Plano with +2.25, Intermediate effective ADD is +1.25
- Determine the EA at intermediate distance
- Select the appropriate Powerboost lens design

Powerboost Lens	Boost	Fit	EA Int/Near
Sync5/Sync9/Sync13	0.55 / 0.95	Pupil	+1.25 / +1.80 +1.25 / +2.20 +1.25 / +2.57
Zeiss Digital Lens	0.50 / 0.75 1.00 / 1.25	Pupil	+1.25 / +1.75 +1.25 / +2.00 +1.25 / +2.25 +1.25 / +2.50
Eyezen+ 1/2/3/4	0.40 / 0.60 / 0.85 / 1.10	Pupil	+1.25 / +1.85 +1.25 / +1.85 +1.25 / +2.10 +1.25 / +2.35
Unity Relieve 50, 70	0.50 / 0.70	Pupil	+1.25 / +1.75 +1.27 / +1.95

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Case #1

- 58 YO Female
- MR = -2.25 DS OU Add +2.50
- Int. EA = +1.25
- Administrator, lots of computer and paperwork
- CC: Not using any glasses for reading and computer

#1

#2

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Product Portfolio Summary NVF Lens Designs

		Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
ZEISS CARL ZEISS VISION	Office/Lens	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
	Office/Computer/Lens	50% of Back off	0.00 to +0.25 (max back off -2.50)
HOYA	New Media Optics Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
	Workspace/Computer	Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
UNIFY	Autograph II Office	50% of Backoff	Add minus Backoff (max -2.25)
	Via OfficePro: 5R, 10R	range of vision for: 5R @85cm 10R @110cm	5R +0.67 10R +0.33

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Product Portfolio Summary - Powerboost Lenses

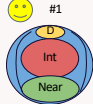
Power Boost Lenses		Boost at the bottom
Eyezen	Essilor Eyezen +1, 2, 3, 4	+0.40, +0.60, +0.85, +1.10
HOYA SYNC III	Hoya Sync 5	+0.57, +0.95, +1.32
	Hoya Sync 9 Hoya Sync 13	
UNIFY	Relieve 50	+0.50, +0.70
	Relieve 70	
ZEISS CARL ZEISS VISION	Zeiss Digital Lens	+0.50, +0.75 +1.00, +1.25
	Digital 500	
	Digital 750	
	Digital 1000	
	Digital 1250	

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Case #2

- 55 YO Male
- MR = +1.00 DS OU Add +2.00
- Intermediate add +1.00
- Receptionist; moderate computer work
- CC: GW PAL is not working
 - Upward head tilt creates neck pain
 - Small horizontal and vertical field of view





#1



#2

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Product Portfolio Summary NVF Lens Designs

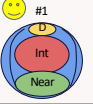
	Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
ZEISS CARL ZEISS VISION Office Lens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
HOYA HOYA OPTICS COMPUTER LENS	50% of Back off IN THIS CASE BACK OFF IS 2.00	0.00 to +0.25 (max back off -2.50)
HOYA New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
SHAMIR Workspace/Computer	Workspace: 50% of Add Computer: 50% of add plus +0.25D	Workspace +0.25 Computer +0.75
SHAMIR Autograph II Office	50% of Back off IN THIS CASE BACK OFF IS -2.00	Add minus Backoff (max -2.25)
UNITY Via OfficePro 10L 5lt	range of vision for: 10L @ 10cm 5lt @ Room	10L +0.33 5lt +0.67

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Case #2

- 55 YO Male
- MR = +1.00 DS OU Add +2.00
- Intermediate add +1.00
- Receptionist; moderate computer work
- CC: GW PAL is not working
 - Upward head tilt creates neck pain
 - Small horizontal and vertical field of view





#1




#2

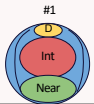
Essilor Computer	EA @Distance
Hoya NMO ID Space	0.00
Shamir Autograph II Office	0.00
Shamir Workspace	+0.25
Unity Via OfficePro 10ft	+0.33

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Case #3

- 48 YO Female
- Homemaker
- MR = Plano with +1.75ADD
- Uses +0.75 OTC at computer = intermediate add
- +1.00 OTC at near on top of computer readers
- CC: Wants to combine the two pairs of OTCs into a single pair of glasses





#1



#2

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Product Portfolio Summary NVF Lens Designs		
	Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
ZEISS CARL ZEISS VISION OfficeLens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
HOYA COMPURITE LENS	50% of Back off	0.00 to +0.25 (max back off -2.50)
HOYA New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space Screen +0.50 Zoom +1.00
SWAN Workspace/Computer	Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
SWAN Autograph II Office	50% of Backoff	Add minus Backoff (max -2.25)
UNITY Via OfficePro: 10R, 5R	range of vision for: 10R @110cm 5R @80cm	10R +0.33 5R +0.67

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Product Portfolio Summary - Powerboost Lenses		
	Power Boost Lenses	Boost at the bottom
Eyezen	Essilor Eyezen +1, 2, 3, 4	+0.40, +0.60, +0.85, +1.10
HOYA SYNC III	Hoya Sync 5 Hoya Sync 9 Hoya Sync 13	+0.57, +0.95, +1.32
UNITY Relieve 50, 70	Relieve 50 Relieve 70	+0.50, +0.70
ZEISS CARL ZEISS VISION	Zeiss Digital Lens Digital 500 Digital 750 Digital 1000 Digital 1250	+0.50, +0.75 +1.00, +1.25

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Case #4

- 52 YO Male
- Daytrader – 4 screens at 75cm
- MR = -6.25 DS OU Add +2.00
- Intermediate add +1.25 - using SVN (-5.00 DS)
- CC: Current -5.00DS OU SVN Rx is not clear for reading/paperwork

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Product Portfolio Summary NVF Lens Designs		
	Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
ZEISS CARL ZEISS VISION OfficeLens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
HOYA COMPURITE LENS	50% of Back off	0.00 to +0.25 (max back off -2.50)
HOYA New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space Screen +0.50 Zoom +1.00
SWAN Workspace/Computer	Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
SWAN Autograph II Office	50% of Backoff	Add minus Backoff (max -2.25)
UNITY Via OfficePro: 10R, 5R	Range of vision for: 10R @110cm 5R @80cm	10R +0.33 5R +0.67


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Product Portfolio Summary - Powerboost Lenses

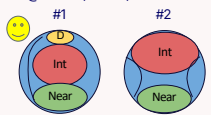
Power Boost Lenses		Boost at the bottom
	Essilor Eyezen +1, 2, 3, 4	+0.40, +0.60, +0.85 , +1.10
	Hoya Sync 5 Hoya Sync 9 Hoya Sync 13	+0.57, +0.95, +1.32
	Relieve 50, 70 Relieve 70	+0.50, +0.70
	Zeiss Digital Lens Digital 500 Digital 750 Digital 1000 Digital 1250	+0.50, +0.75 +1.00, +1.25

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Case #5



- 59 YO Female
- MR = -4.50 DS OU Add +2.50
- Violin player, first chair, SF Symphony
- CC: PAL not ideal to see music
- Needs to see music @ 80 cm (+1.25D) and the conductor




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Product Portfolio Summary NVF Lens Designs


	Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
	Room +0.50 Office/Lens: +0.75 Room, Desk, Book +1.25	Room +0.25 Desk +0.50 Book +1.00
	50% of Back off IN THIS CASE BACK OFF IS 2.50	0.00 to +0.25 (max back off -2.50)
	SpaceScreen: 50% add @2.5mm below FRP Zoom50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
	Workspace/Computer Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
	Autograph II Office 50% of Back off IN THIS CASE BACK OFF IS -2.25	Add minus Backoff (max -2.25)
	Via OfficePro: 10t, 5t range of vision for: 10t @150cm 5t @80cm	10t +0.33 5t +0.67

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Case #5



- 59 YO Female
- MR = -4.50 DS OU Add +2.50
- Violin player, first chair, SF Symphony
- CC: PAL not ideal to see music
- Needs to see music @ 80 cm (+1.25D) and the conductor



Essilor Computer	EA @Distance	0.00
Hoya NMO ID Space		0.00
Shamir Autograph II Office		0.00
Shamir Workspace		+0.25

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Final Written Rx Examples

Master Rx including Near Variable Focus Lens Design

University Of California
San Francisco
San Francisco, CA 94143-0805
(415) 476-2000

PATIENT NAME: COLLEEN S O'NEILL
Address: 28701 WOODBURN BLVD, SUITE 1000
Woodburn, CA 95076

Exam Date: 10/11/2023
Print Date: 10/18/2023

SPH	CYL	AXIS	ADD
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00

Prescription: 2023-10-11
Lenses: 2023-10-11

Master Rx with Int. ADD

University Of California
San Francisco
San Francisco, CA 94143-0805
(415) 476-2000

PATIENT NAME: COLLEEN S O'NEILL
Address: 28701 WOODBURN BLVD, SUITE 1000
Woodburn, CA 95076

Exam Date: 10/11/2023
Print Date: 10/18/2023

SPH	CYL	AXIS	ADD
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00

Prescription: 2023-10-11
Lenses: 2023-10-11

Powerboost Rx for Int. Near use

University Of California
San Francisco
San Francisco, CA 94143-0805
(415) 476-2000

PATIENT NAME: COLLEEN S O'NEILL
Address: 28701 WOODBURN BLVD, SUITE 1000
Woodburn, CA 95076


Exam Date: 10/11/2023
Print Date: 10/18/2023

SPH	CYL	AXIS	ADD
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00

Prescription: 2023-10-11
Lenses: 2023-10-11

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At the End of the Day



- 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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