







Ophthalmic Lenses



Mineral Glass & Resins

Technical Directory March 2018

www.norville.co.uk

30

Digital Design Free-form

The 21st Century Optical Revolution

Welcome to the seventh edition Norville Digital Free-form Directory

Digital curve calculation and free-form lens cutting and polishing represent a REVOLUTION in ophthalmic manufacturing. Digital is a giant step for ophthalmic lens design; forward-looking dispensers need to grasp these new opportunities to avail their clients of their BEST VISION EVER through High Definition (ID) ophthalmic lenses.

Digital free-form isn't only about progressive lenses, although how brilliant it is to produce a lens surface that incorporates cylinder and progressive surfaces blended together on the rear of the lens, let alone two progressive designs on the same lens surface (Auto-Pilotor). A fine example of the true mastery of free-form technology.

Digital free-form is any optical surface that might benefit from sophisticated computer wave-front modelling. Micro lens surface calculation potentially changing the curve positioning at 40,000 points across a 65mm lens; truly point-focal precision.

Norville is delighted to be a UK production leader in extending the frontiers of ophthalmic free-form applications. Since the previous edition we have added **free-form Mineral Glass** production capability here in Gloucester. The only line in all of England.

Successful (iii) dispensing.

Jask 9 Norville.

Frank Norville Gloucester

FREE-FORM PROGRESSIVES NV FITTING

After many years of fitting regular progressives with fixed insets, seemingly fitters have lost the habit of recording near PDs. Please re-engage with reading PDs as HD progressives can be designed with variable inset measurements.

The way forward -

Digital Free-form Technology

Truly bespoke spectacle lenses



Digital Design Free-form Index

	INNER SURFACE PROGRESSIVE OPTIONS PAGES	
Digitor® Plus 🐽	Dual Surface HD Atoric Multifocal	
ULTOR ®	Premium progressive - individualised	
SENTOR 🐵	Alternative design inner surface progressive	
SCREEN ®	Mobile users inner surface progressive	
VECTOR ₩	Value inner surface progressive	
RESOLVE @	Remedial progressive	
FREE WAY ID	Premium drivers' inner surface progressive - individualised 40 - 45	
Bureau 🐵	Occupational progressive	
SIMAGE ®	Front surface progressive - individualised inner surface 50 - 53	
SPORTPAL 🙃	Premium sports +8.00 base progressive - individualised 54 - 57	
HAWK 📵	Mineral inner surface progressive	
ProDrive III	Mineral premium drivers' inner surface progressive 61 - 63	
	INNER SURFACE SV	
NORTOR 🙃	High definition single vision	
SPORTOR-SV (III)	High definition +8.00 base sports wraparound 71 - 74	
(2	INNER SURFACE ENHANCED READING	
Booster 🐵	Enhanced reading single vision	
	INNER SURFACE DEGRESSIVE	
VERSATILE	Intermediate & near reading lenses	
Slim Edge Technology	Reduced substance blended edges	
Super-Lenti	High minus solutions	
IRS Blended Bifocals	'Solid' resin bifocals - Seamless round segments 90 - 94	
HSA Hybrid Bifocals	'Solid' resin bifocals - Partial blended round segments 95 - 98	
	BESPOKE FREE-FORM	
Bespoke HD XXL & Atoral	XXL - Larger effective diameter	
Bespoke IRS & COMBIPAL	Bespoke IRS, CombiPal	
Pilotor & Auto-Pilotor	Pilotor Up & Down / Pilotor Double PPLs / Auto-Pilotor	
	Free-form HD Bi-Prism	
	TECHNICAL	
	Free-form Bespoke Options	
	Free-form is Green, Free-form is Freedom	
	Lens Markings	
	Explanation of Lens Measurements	
	Calculation Parameters	
	Compensated Power	
	Quality Control	
	Quanty Control	



Version 17 design upgrade

Innovative Lens Design



The Norville Digitor®PLUS dual surface progressive lens design features a unique variable front surface base curve - a surface innovation that provides the optically ideal base curve across all viewing zones.

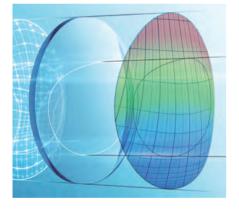
The lens blank, unlike most other free-form designs, is not spherical but has a unique variable front surface base curve that continually increases in dioptre from centre to edge.

This front surface innovation provides benefits to wearers in both the distance and near zones. Wearers enjoy noticeably increased acuity in the periphery of the distance zone, as well as a reading area that is wider and more comfortable.

The HD inner compensation calculation provides a more personalised outcome using average figures or the ones you supply.

VARIABLE BASE CURVE

The radius of the lens blank continually decreases from top to bottom



AN ADVANCED MULTIFOCAL LENS LIKE NO OTHER

Digitor**PLUS** lenses give wearers an outstanding visual experience, with spacious vision zones, improved peripheral vision, better looking lenses in many prescriptions and user-preferred near vision performance.

Key Points

- The very latest in multifocal ophthalmic lens technology & design.
- Wider vision in the reading area, typically a neglected part of a progressive lens.
- The best optics currently possible by blending two HD surfaces.
- Simple unfussy fitting Rx, PDs & Heights.
- · Option of full individualisation and customisation (Compensated Rx) when specified.
- 7 corridor length design Autoselected.

COMPENSATED DESIGN - CD

Designed with these Standard Values if alternative data not supplied:

- Pantascopic Tilt Angle 12°
- BVD 14mm
- 5° • Wrap Angle
- Standard Inset Variable as RX

FITTING DIGITOR PLUS

Simply follow your regular multifocal fitting procedures:

- 1. Measure mono PDs both distance and reading.
- 2. Measure fitting height to pupil centre.
- 3. Include any of the additional fitting data for enhanced outcomes.

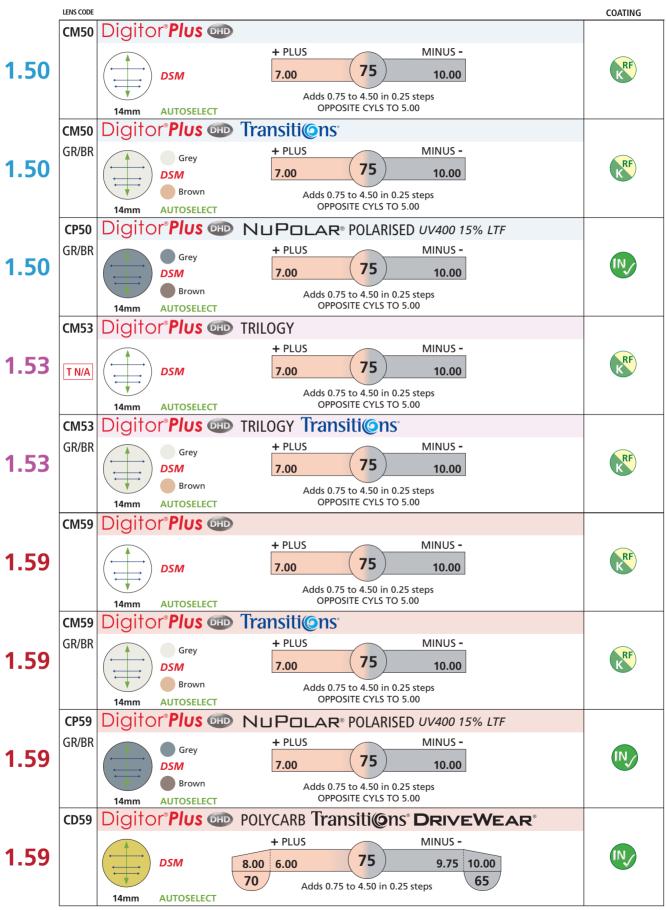
Digitor Plus is a truly elegant solution



Manufactured in our Gloucester UK Laboratories

Dual Surface HD Atoral Multifocal

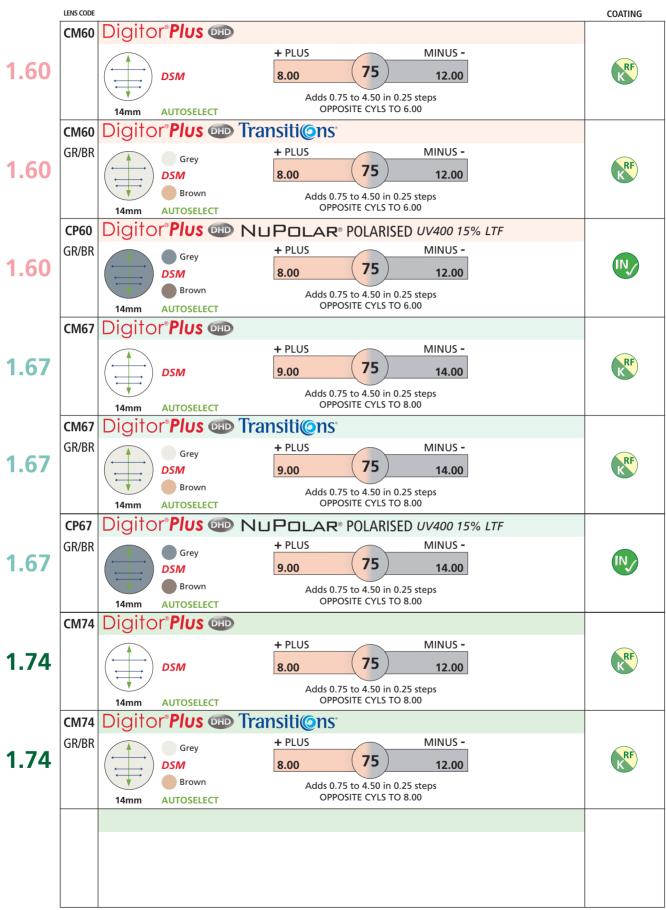
- Digitor®Plus @ RESIN AVAILABILITY -



AUTOSELECT - CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

Dual Surface HD Atoral Multifocal

- Digitor®Plus @ RESIN AVAILABILITY -



AUTOSELECT - CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED





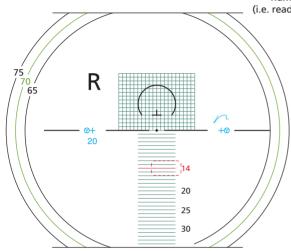
Right Eye

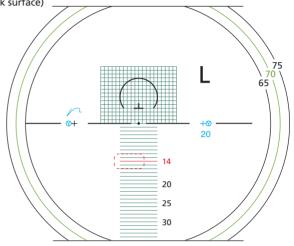
Effective Diameter Chart

Left Eye

Viewed from front

NB: In practice the engraved numbers shown are reversed (i.e. readable from the back surface)





Engraved Identification Markings

1.67

1.74

Add is sh	own as:	Index is shown	n as:	Designs:
+0.75	07	1.50 CR39	50	"A" = All purpose wear
+1.00	10	1.53 Trivex	53	
+1.25	12	1.59 Polycarb	59	

67

74

+1.75 **17** +2.00 20 22 +2.25 25 +2.50 +2.75 27 +3.00 +3.25 32 +3.50 35 37 +3.75

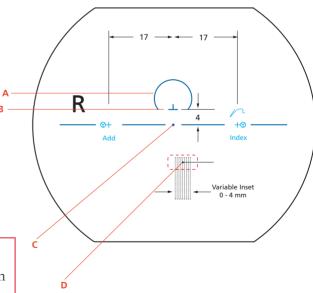
+1.50

+4.00

+4.50

Digitor**PLUS** carries an extra set of engraved markings \bigcirc on the front surface for lens blank orientation as well as + on the inner surface for glazing setting reference and identification.

Lens Marking Layout



PRESCRIBERS NOTE:

40

Digitor**PLUS** multifocal lenses are a significantly different design from previous progressive power lenses. Wearer experience has shown that for some in the middling and higher addition range changing over to a Digitor**PLUS** design may not be instantaneous, and perhaps requires a day or two for the wearer's visual system to acclimatise. Digitor**PLUS**'s changed optical architecture comes with wider fields of intermediate and near and we would reassure users any slight delay in acclimatisation is worth the wait.

- Permanent engraved marks
- •Removable ink markings

Right eye uncut viewed from front

- A: far vision power checking zone
- B: fitting cross 4 above PRP
- C: prism reference point (PRP)
- D: near vision zone



Delivering Effective Everyday Vision

JLTOI DIGITAL OPTIC

Out of this world comprehensive progressive range



- 3 user lifestyle options: General, Outdoor and Desk
- 7 Autoselect corridor lengths from 14mm minimum fitting height in 1mm increments
- INDIVIDUAL Right & Left Distance and Reading Monocular PDs
- 3 options of compensated powers: None = Basic, Reading only compensated = NC* Fully = Distance & Near fields compensated *Calculated to prescribed distance Rx - Compensated Near

or Optional Fully Compensated Rx Calculation

- Pantascopic Tilt Angle•
- Frame Wrap (face) Angle•
- BVD Spectacle Frame v BVD Trial Frame•
- Reading Distance



PRESCRIBER'S NOTE

Very wide Rx range ±15.00D

AUTOSELECT - when designing to eye shapes we will automatically select the most appropriate progression length. You do not need to specify unless you require a specific channel length.

· additional measurements submitted when ordering. When only partially presented data we will revert to average values for those remaining.

ULTOR available in Basic - No compensation calculations, distance or reading Unless otherwise specified all designs will be in NC (non-compensated) Distance Mode.

Orders for ULTOR with no specific mention of lifestyle will be supplied as GENERAL WEAR, except for POLARISED/DRIVEWEAR lenses which will be provided in OUTDOOR design.



Available in 3 Progressive Design Options







🔟 '**G**' General Wear

Characteristics

Balanced lens. Far and near vision zone are both optimised for ideal use.

User Key Points

Uses the far and near vision zone while working, reads occasionally, moves often, everyday life.

- INSET 0 to 5 in 0.5mm steps
- Specified or Autoselect corridor lengths x7
- Minimum fitting height 14mm

Optional Personalisation

If additional individualisation is required please provide us with:

- Pantoscopic tilt
- Frame wrap angle
- BVD Trial and actual distances

Rx design will default to "GW" when there is no order reference to a specific ULTOR design, except Polarised or Drivewear lenses which will default to "O" design.







🔟 '**O**' Outdoor

Wider far vision - limited reading

Characteristics

Large and wide distance vision zone for optimised far vision.

User Key Points

Uses mainly the far vision zone while working, moves quickly and often. Reads occasionally.

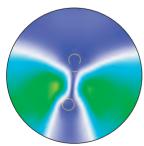
- INSET 0 to 4 in 0.5mm steps
- Specified or Autoselect corridor lengths x7
- Minimum fitting height 14mm

Optional Personalisation

If additional individualisation is required please provide us with:

- Pantoscopic tilt
- Frame wrap angle
- BVD Trial and actual distances







(D' Desk Top

High inter, large reading, limited distance

Characteristics

Wide intermediate and near vision zone for continuous work without any occurrence of visual tiredness.

User Key Points

Predominantly uses the near and intermediate vision zones, reads a lot.

Restrictions

Not suitable for driving.

- INSET 0 to 4 in 0.5mm steps
- Specified or Autoselect corridor lengths x7
- Minimum fitting height 14mm

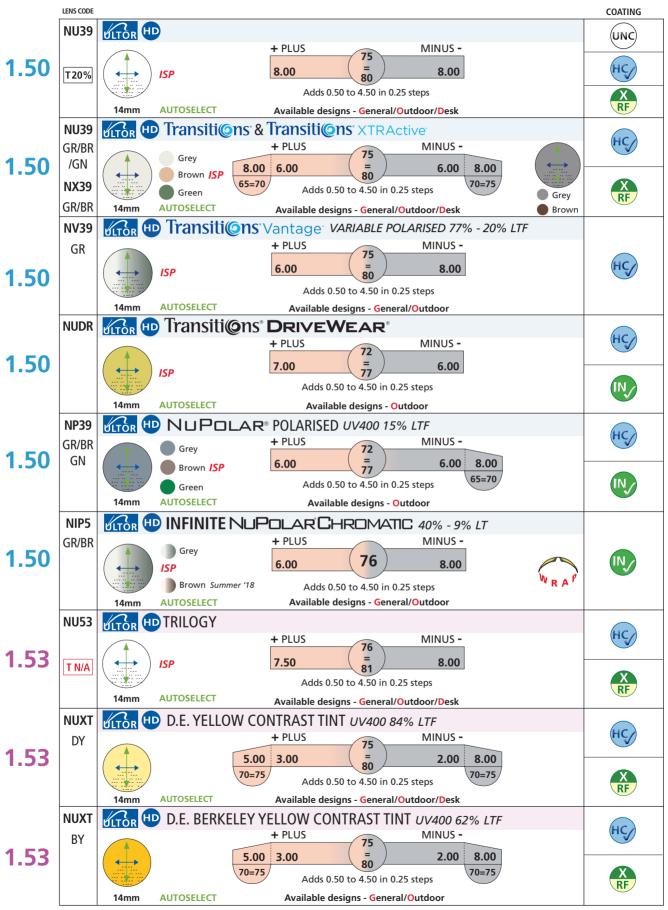
Optional Personalisation

If additional individualisation is required please provide us with:

- Pantoscopic tilt
- Frame wrap angle
- BVD Trial and actual distances
- Reading distance

See Page 17 for marking details

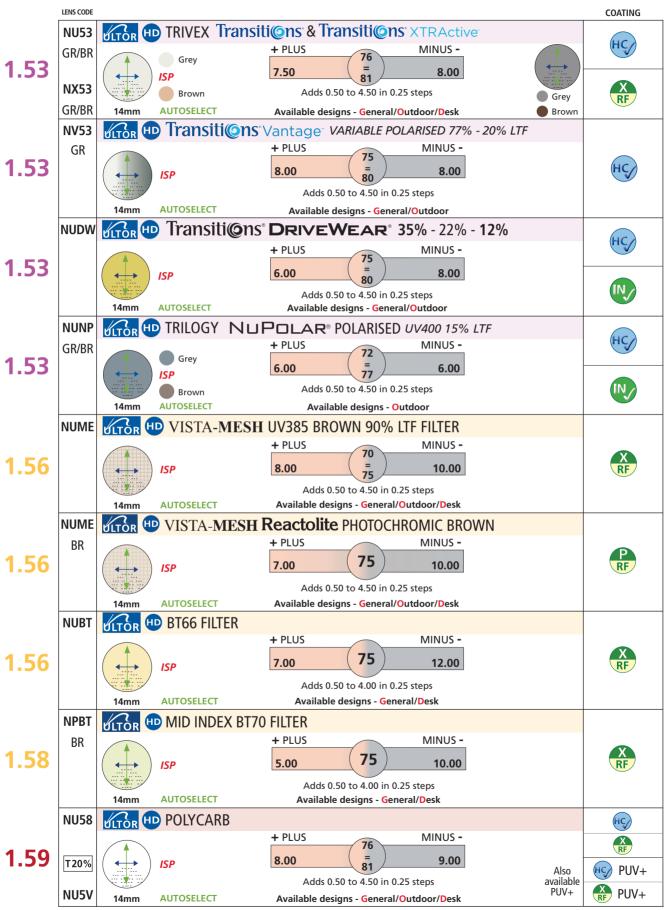
- ULTOR AVAILABILITY -



AUTOSELECT - CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

→ Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.

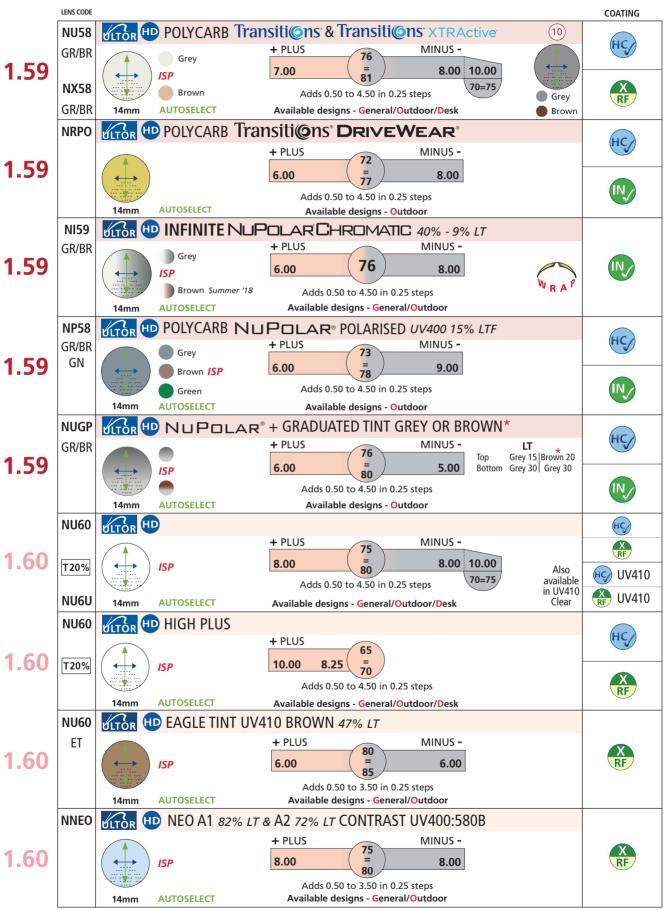
- ULTOR D AVAILABILITY -



AUTOSELECT - CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

◆ Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.

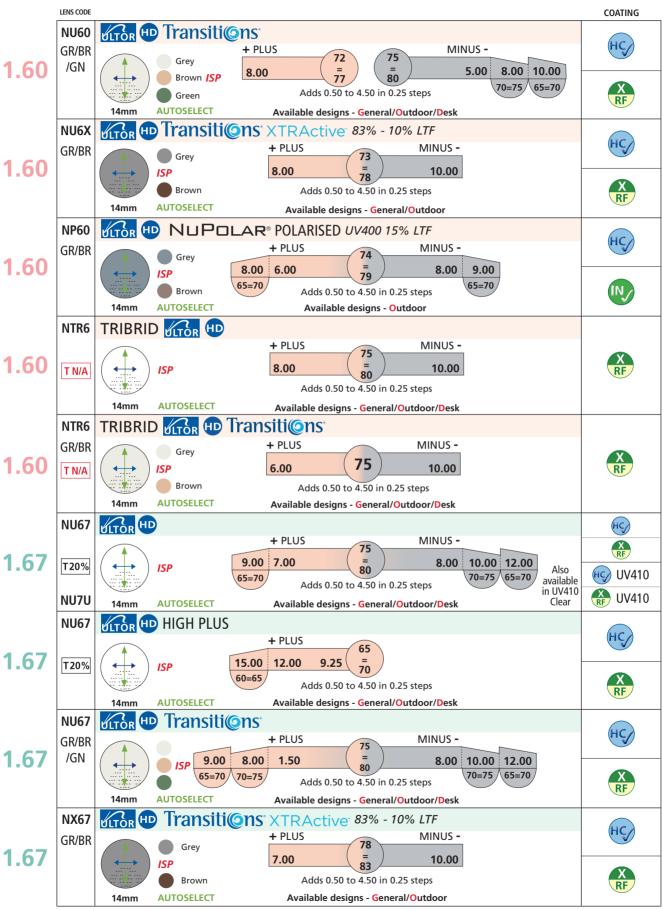
- ULTOR AVAILABILITY -



AUTOSELECT - CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

◆ Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.

- ULTOR AVAILABILITY -

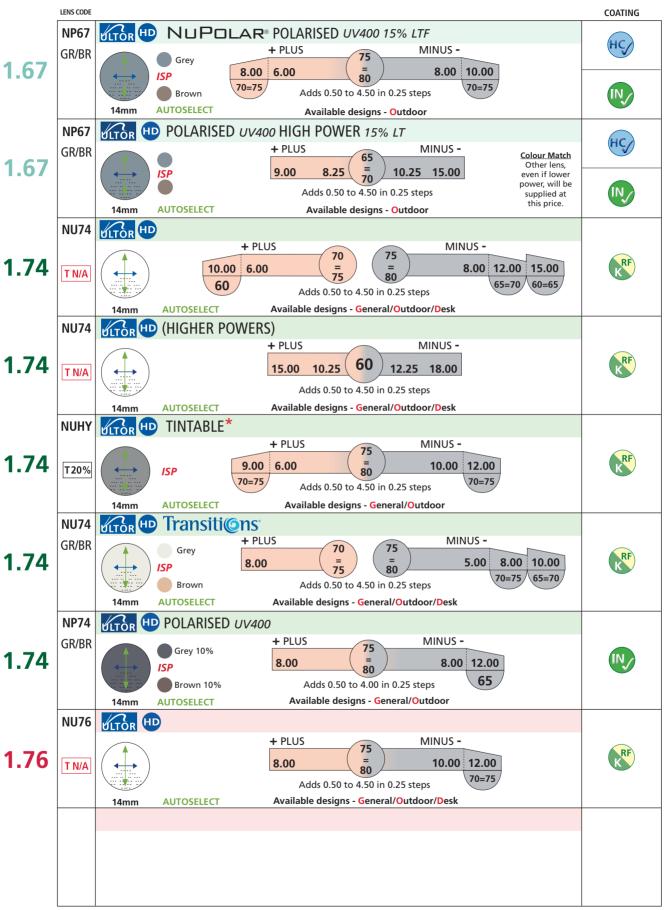


AUTOSELECT - CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

◆ Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.

*Note: Tints available on this product from 80% to 20% LTF - price excludes tint cost.

- ULTOR D AVAILABILITY -

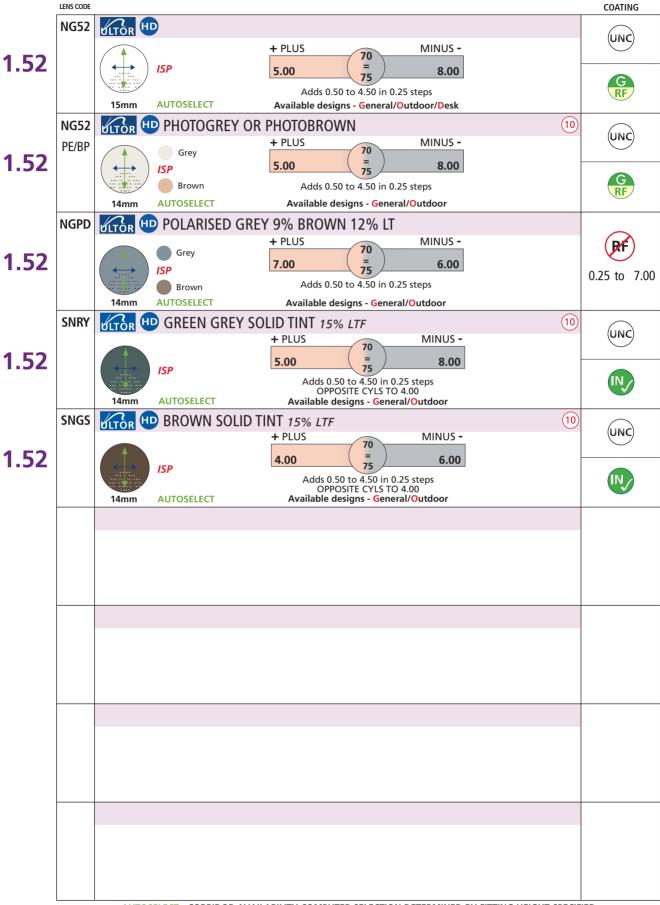


AUTOSELECT - CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

◆ Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.

*Note: Tints available on this product from 80% to 20% LTF - price excludes tint cost.

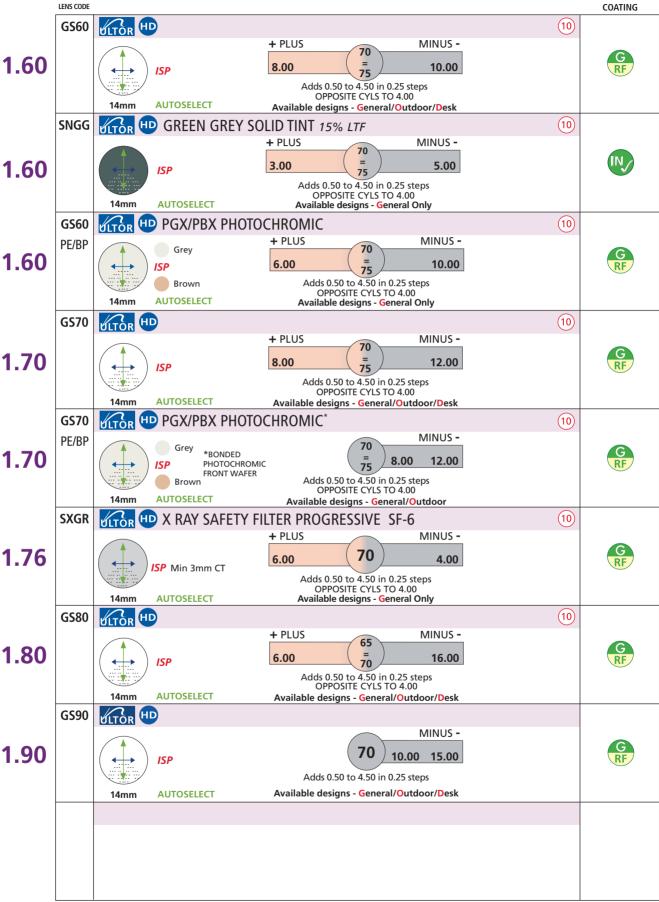
- ULTOR @ GLASS* AVAILABILITY -



AUTOSELECT - CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

←→ Variable reading inset - 0 to 4.00mm in 0.50mm steps available.

- ULTOR @ GLASS* AVAILABILITY -



AUTOSELECT - CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

→ Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.







Right Eye Effective Diameter Chart Left Eye Viewed from front NB: In practice the engraving lettering shown will be reversed (engraved from the back surface) R 20N 20 20 25 25 30 30 35 Up & Down Limits

Lens Marking Layout

General

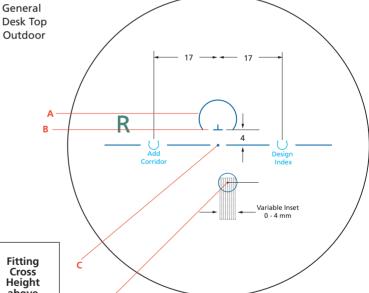
Add is sho	own as:			Index is shown	as:	Designs:
+0.50	05	+3.00	30	1.50 CR39	50	"G" = Genera
+0.75	07	+3.25	32	1.53 Trivex	53	"D" = Desk To
+1.00	10	+3.50	35	1.56	56	"O" = Outdo
+1.25	12	+3.75	37	1.59 Polycarb	59	
+1.50	15	+4.00	40	1.60	60	
+1.75	17	+4.25	42	1.67 1.74	67 74	
+2.00	20	+4.50	45	1.74	76	
+2.25	22	+4.75	47	1.70	,,	
+2.50	25	+5.00	50	Corridor Design	n Opti	ons:
+2.75	27			"XS" = Extra	Short	
				"S" = Short		
				"M" = Medi	um	

^{*}Higher additions may be possible - see page 85.

Ultor HD Corridor Designs

Corridor Length* (from PRP to top of NV checking circle)	Full Progression Length (from start of progression to top of NV circle)	Minimum Fitting Height (from lowest tangent top of bottom rim)	Minimum Frame Depth	Fitting Cross Height above PRP
6mm XS	10mm	14mm	22mm+	+4mm
7mm	11mm	15mm	23mm+	+4mm
8mm S	12mm	16mm	24mm+	+4mm
9mm	13mm	17mm	25mm+	+4mm
10mm M	14mm	18mm	26mm+	+4mm
11mm	15mm	19mm	27mm+	+4mm
12mm L	16mm	20mm	28mm+	+4mm

"L" = Long



- Permanent engraved marks
- Removable ink markings

Right eye uncut viewed from front

- A: far vision zone
- B: fitting cross 4 above PRP
- C: prism reference point (PRP)
- D: near vision zone



^{*}AUTOSELECT - COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

Advanced Digital Design Progressive

SENTOR







SENTOR ® Outdoor

This **SENTOR** Digital progressive family represents the flexibility of Free-form design, blended with prescriber's individual patient data to create a customised lens surface specific for every wearer. Each point on the lens surface is calculated to provide the best possible visual quality and performance.

SENTOR truly a blend of optical performance and personalisation.

- 2 user life style options: General Wear or Outdoor
- 7 Autoselect corridor lengths from 14mm minimum fitting height in 1mm increments
- INDIVIDUAL Right & Left Distance and Reading Monocular PDs

NC design to Prescribed Distance Rx (compensated reading) or Optional Fully Compensated Rx Calculation using these parameters

Pantascopic Tilt Angle•
Frame Wrap (face) Angle•
VERTEX Distance•
Near Working Distance•
Optical PDs, Distance and Near
Fitting Height
Frame Shape Details



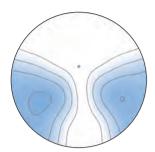
AUTOSELECT - when designing to eye shapes we will automatically select the most appropriate progression length. You do not need to specify unless you require a specific channel length.

• additional measurements submitted when ordering.

When only partial data is presented the design will revert to average values for those remaining unspecified

Orders for SENTOR with no specific mention of design will be supplied as GENERAL WEAR except for POLARISED/DRIVEWEAR lenses, which will be provided in OUTDOOR design.







A comfortable general wear lens for both new and experienced wearers

Characteristics

Balanced for all distances. Far and near vision zone are both optimised for the most accurate combination of quality and comfort. Excellent all-purpose design, smooth transition between distance and near.

User Key Points

All-purpose use with good balance between different visual regions. Ideal general performance design for new or inexperienced (nervous) wearers. Wide near field.

- SELECT INSET 0 to 4 in 0.5mm steps or changes automatically with Rx
- SPECIFY or leave it to us to Autoselect corridor lengths
- Available in 7 corridor lengths
- Minimum fitting height 14mm

Optional Personalisation

If additional individualisation is required please provide us with:

- Pantoscopic tilt
- BVD Trial and spectacle distances
- Frame wrap angle
- Near working distance

SENTOR 'G'

Visual comfort with easy adaption.







For those **physically** on the move - extra wide & clear far vision

Characteristics

Extra wide distance vision zone for optimised distant vision, near field is more than adequate for everyday near vision.

User Key Points

Uses mainly the far vision zone while working, moves quickly and often. Exemplary lens for experienced PAL wearers with **panoramic** clarity in the distance zone.

- SELECT INSET 0 to 4 in 0.5mm steps or changes automatically with Rx
- SPECIFY or leave it to us to Autoselect corridor lengths
- Available in 7 corridor lengths
- Minimum fitting height 14mm

Optional Personalisation

If additional individualisation is required please provide us with:

- Pantoscopic tilt
- BVD Trial and spectacle distances
- Frame wrap angle

SENTOR 'O' Distance with Panoramic clarity

- SENTOR ID AVAILABILITY -



AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

←→ Variable reading inset - 0 to 4.00mm in 0.50mm steps available.

If measured please state at time of ordering otherwise standard inset values apply.

- SENTOR (ID) AVAILABILITY -

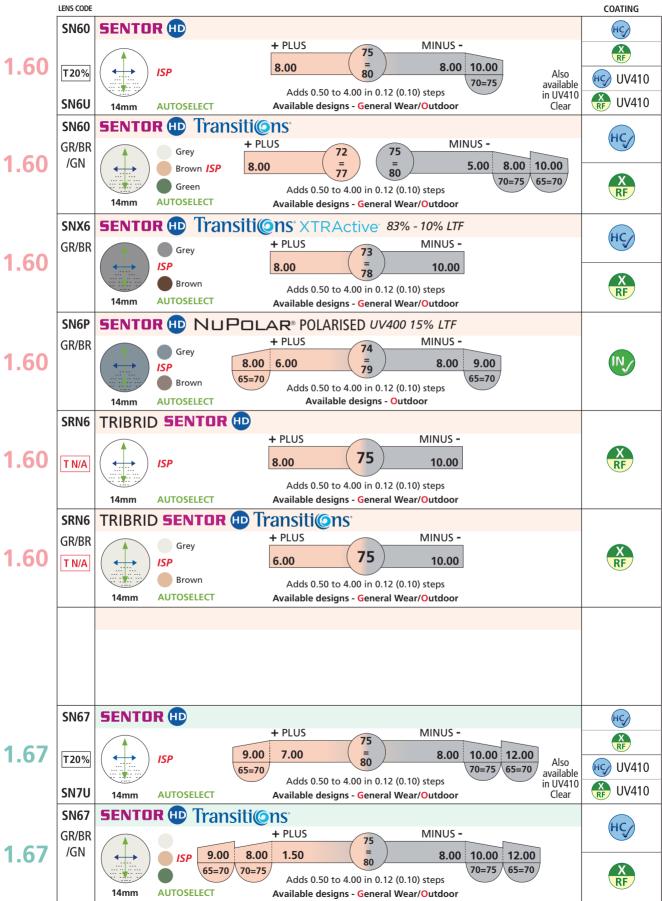


AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

A Variable reading inset - 0 to 4.00mm in 0.50mm steps available.

If measured please state at time of ordering otherwise standard inset values apply.

- SENTOR D AVAILABILITY -

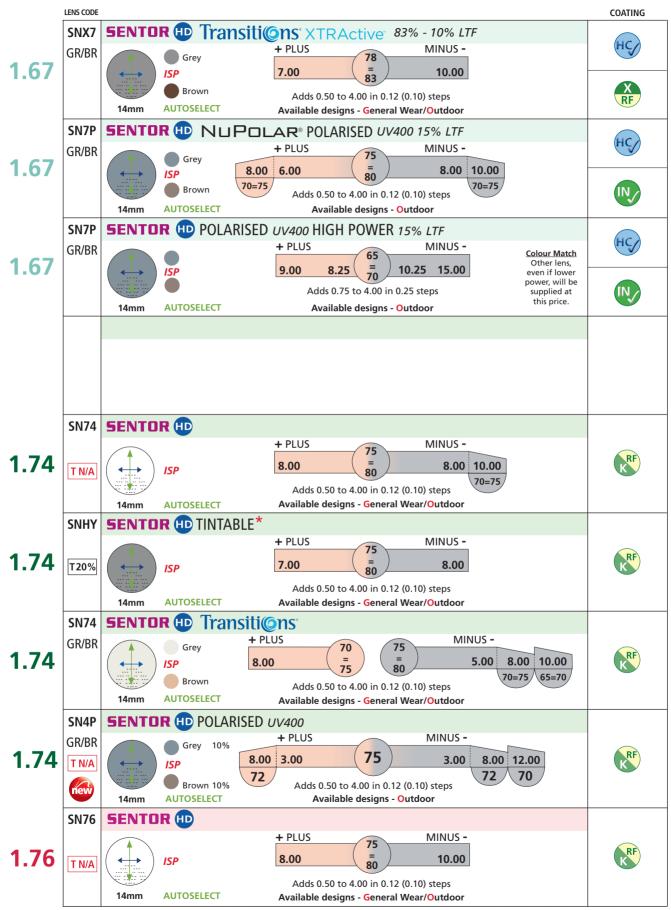


AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

← Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.

^{*}Note: Tints available on this product from 80% to 20% LTF - price excludes tint cost.

- SENTOR D AVAILABILITY -



AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

◆ Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.

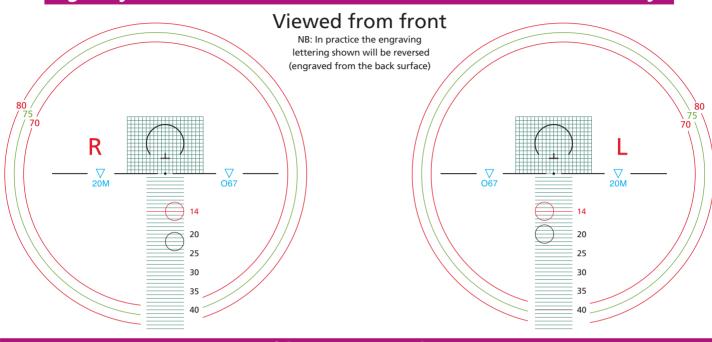
^{*}Note: Tints available on this product from 80% to 20% LTF - price excludes tint cost.







Right Eye Effective Diameter Chart Left Eye



Lens Marking & Engravings Layout

+0.12 (0.10) addition steps - As above but **101**, **121** etc.

A Add Design Index Variable Inset 0 - 4 mm

Sentor SG & SO Corridor Designs

Corridor Length* (from PRP to top of NV checking circle)	Full Progression Length (from start of progression to top of NV circle)	Minimum Fitting Height (from lowest tangent top of bottom rim)	Minimum Frame Depth	Fitting Cross Height above PRP
6mm XS	10mm	14mm	22mm+	+4mm
7mm	11mm	15mm	23mm+	+4mm
8mm S	12mm	16mm	24mm+	+4mm
9mm	13mm	17mm	25mm+	+4mm
10mm M	14mm	18mm	26mm+	+4mm
11mm	15mm	19mm	27mm+	+4mm
12mm L	16mm	20mm	28mm+	+4mm

*AUTOSELECT - COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

- •Permanent engraved marks
- •Removable ink markings

Right eye uncut viewed from front

A: far vision zone

B: fitting cross 4 above PRP

C: prism reference point (PRP)

D: near vision zone

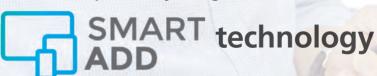






SCREEN A new progressive lens specifically designed for mobile users

incorporating



Improves visual experience when using electronic devices.

Reading from screen displays becomes easier and more comfortable.

Inner Surface Progressive



DISPENSING NOTE

Fit as regular PPL procedure.
Excellent Distance vision with enhanced Intermediate and Near

29 ordering options 1.50 index \rightarrow 1.74



- SCREEN @ AVAILABILITY -

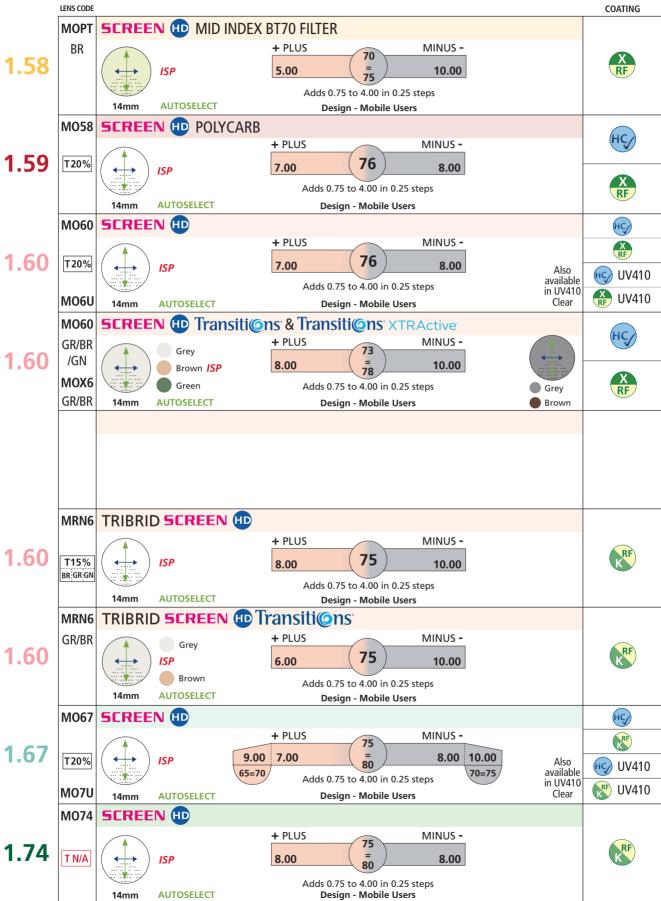


AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

←→ Variable reading inset - 0 to 4.00mm in 0.50mm steps available.

If measured please state at time of ordering otherwise standard inset values apply.

- SCREEN @ AVAILABILITY -



AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

←→ Variable reading inset - 0 to 4.00mm in 0.50mm steps available.

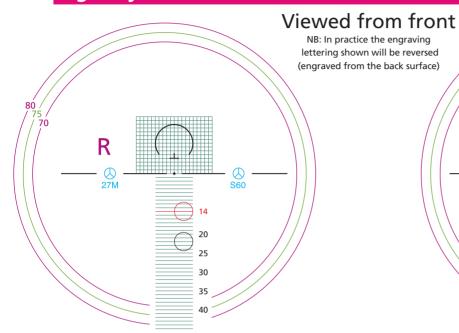
If measured please state at time of ordering otherwise standard inset values apply.

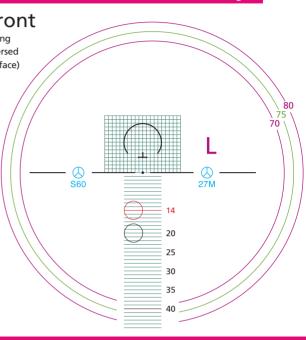






Right Eye Effective Diameter Chart Left Eye





Lens Marking & Engravings Layout

Add is sh	own as:	Index is show	n as:	Designs:
+0.50	05	1.50 CR39	50	"S" = Screen
+1.00	10	1.53 Trivex	53	
+1.25	12	1.56	56	
+1.50	15	1.60	60	
+1.75	17	1.67	67	
+2.00	20	1.74	74	
+2.25	22	1.76	76	
+2.50	25			
+2.75	27	Corridor Design	Options:	
+3.00	30	"XS" = Extra Sl	nort	
+3.25	32	"S" = Short		
+3.50	35	"M" = Mediur	n	
+4.00	40	"L" = Long		
+0 12 (0 10	n) addition	n stens -		

+0.12 (0.10) addition steps - As above but **101**, **121** etc.

Add Design Index Variable Inset 0 - 4 mm

Screen Corridor Designs

Corridor Length* (from PRP to top of NV checking circle)	Full Progression Length (from start of progression to top of NV circle)	Minimum Fitting Height (from lowest tangent top of bottom rim)	Minimum Frame Depth	Fitting Cross Height above PRP
6mm XS	10mm	14mm	22mm+	+4mm
7mm	11mm	15mm	23mm+	+4mm
8mm S	12mm	16mm	24mm+	+4mm
9mm	13mm	17mm	25mm+	+4mm
10mm M	14mm	18mm	26mm+	+4mm
11mm	15mm	19mm	27mm+	+4mm
12mm L	16mm	20mm	28mm+	+4mm

*AUTOSELECT - COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

- Permanent engraved marks
- •Removable ink markings

Right eye uncut viewed from front

A: far vision zone

B: fitting cross 4 above PRP

C: prism reference point (PRP)

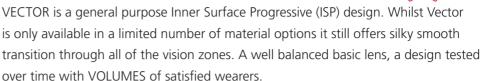
D: near vision zone













🔟 '**G**' General Wear

Characteristics

A general wear, all round use inner surface design. Non-compensated distance. Available in 3 corridor lengths with automatic designation, dependent on fitting height and frame depth, using Norville exclusive Autoselect to a minimum fitting height of 15mm. Those wishing an extra short corridor may specify Vector XS - 11mm minimum fitting height.

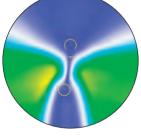
Maximum prism 3.0∆



User Key Points

The inner surface progressive design offers quick adaption for all, increasing the overall visual field of the patient. Reducing distortion, whilst maximising image quality to provide a sharper, clearer image at all distances.

Vector offers great value combined with great optics, an important start point in your dispensing portfolio.



VECTOR EXTRA SHORT



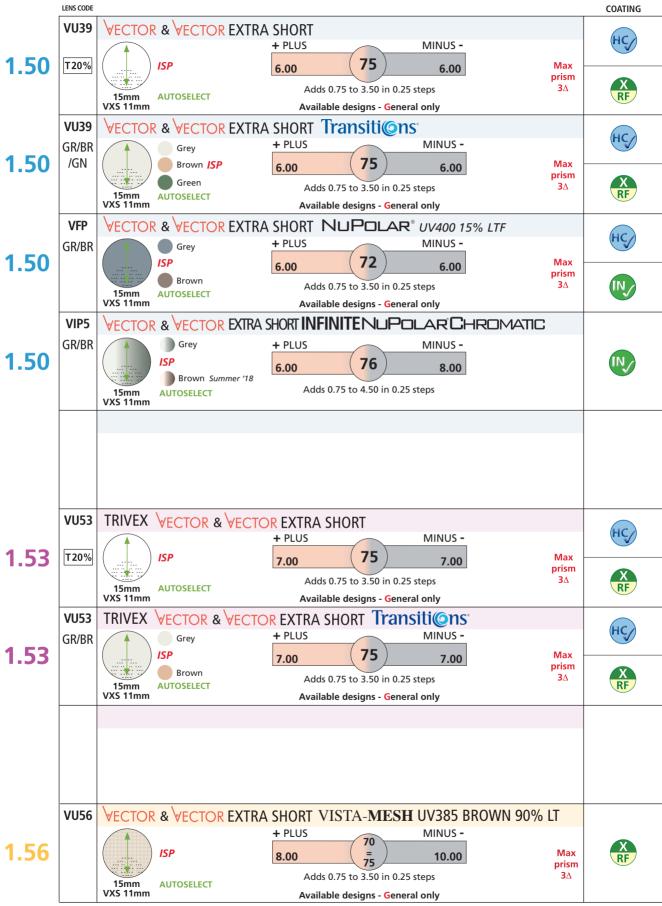
🔟 '**X**' Extra Short

The shortest minimum fitting height - 11mm - across the Norville free-form ranges. Vector XS has been especially designed to accommodate very shallow fittings, however, please note this is the minimum possible.



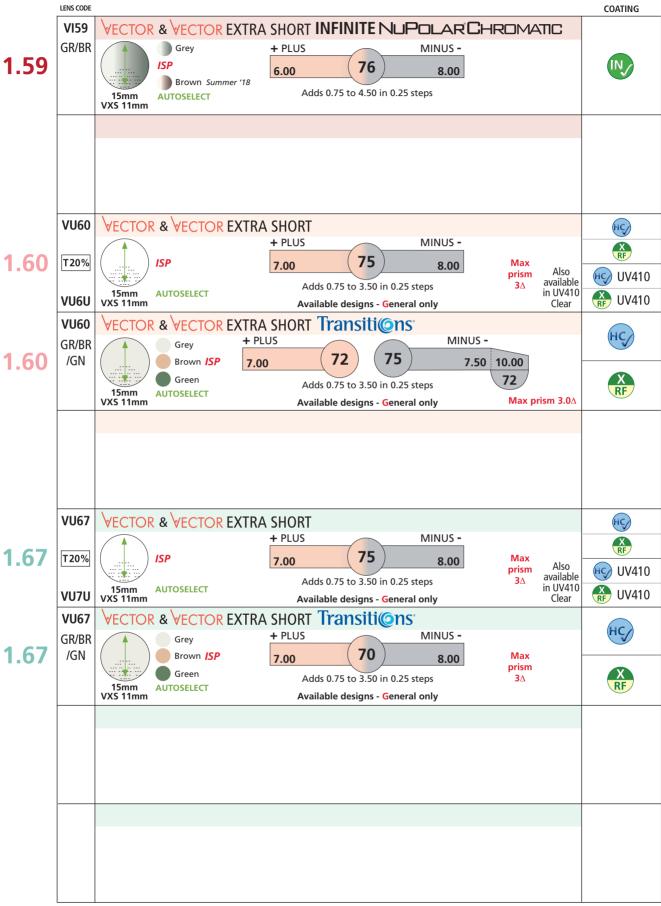


- VECTOR D AVAILABILITY -



AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

- VECTOR W AVAILABILITY -



AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

- VECTOR ID AVAILABILITY - MINERAL

	LENS CODE		COATING
1.523	VG52	+ PLUS MINUS - 1SP 6.00 **BOOK** MINUS - 8.00	G
1.523	VG52 PE/BP	Adds 0.75 to 3.50 in 0.25 steps VECTOR & VECTOR EXTRA SHORT HD PGX / PBX PHOTOCHROMIC Grey + PLUS MINUS - 5.00 Brown Adds 0.75 to 3.50 in 0.25 steps	G
1.60	VG60	VECTOR & VECTOR EXTRA SHORT HD + PLUS MINUS - 15mm VXS 11mm AUTOSELECT Adds 0.75 to 3.50 in 0.25 steps	G
1.60	VG60 PE/BP	FOR AUTOSELECT WECTOR EXTRA SHORT HD PGX / PBX PHOTOCHROMIC H PLUS MINUS - 15mm AUTOSELECT Adds 0.75 to 3.50 in 0.25 steps	G
1.70	VG70	# PLUS MINUS - # PLUS MINUS - # 15mm AUTOSELECT Adds 0.75 to 3.50 in 0.25 steps	G
1.80	VG80	VECTOR & VECTOR EXTRA SHORT HD SP	G
1.90	VG90	MINUS - 15mm VXS 11mm AUTOSELECT Adds 0.75 to 3.50 in 0.25 steps	G
		TOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPLITER SELECTION DETERMINED BY FITTING HEIGH	

AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

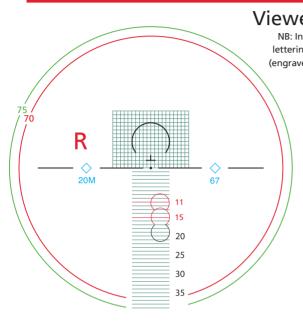


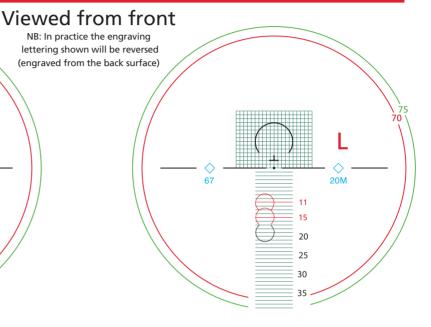


VECTOR & VECTOR EXTRA SHORT

Inner Surface Progressive

Right Eye Effective Diameter Chart Left Eye





Lens Marking Layout

Add is shown as:		Index is show	n as:
+1.00	10	1.50 CR39	50
+1.25	12	1.53 Trivex	53
+1.50	15	1.56	56
+1.75	17	1.60	60
+2.00	20	1.67	67
+2.25	22		
+2.50	25		
+2.75	27		
+3.00	30		

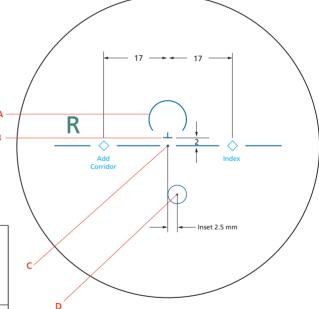
Corridor Design Options:

"XS" = Extra Short
"S" = Short
"M" = Medium
"L" = Long

Vector & Vector XS Corridor Designs

Corridor Length* (from PRP to top of NV checking circle)		Full Progression Length (from start of progression to top of NV circle)	Minimum Fitting Height (from lowest tangent top of bottom rim)	Minimum Frame Depth	Fitting Cross Height above PRP
6mm	XS	9mm	11mm	21mm+	+2mm
*8mm	S	12mm	15mm	23mm+	+2mm
*10mm	M	14mm	17mm	25mm+	+2mm
*12mm	L	16mm	19mm	27mm+	+2mm

*AUTOSELECT ONLY



- Permanent engraved marks
- •Removable ink markings

Right eye uncut viewed from front

A: far vision zone

B: fitting cross 2 above PRP

C: prism reference point (PRP)

D: near vision zone



+3.25

+3.50

32

35

REMEDIAL Progressive

RESOLVE





A progressive lens for those who claim:

- "I tried a progressive once"
- "I can't get on with those lenses"
- "I've always had bifocals"
- "You'll never get me in one of them"



'**G**' General Wear

Characteristics

NEW Super soft general wear design, offering even more natural vision than previously. Specifically positioned for first time wearers. Non-compensated distance design or available by request as a fully compensated design.







RESOLVE • Natural Visual Experience

Characteristics

General use progressive with extra smooth transition between wide visual fields and minimal lateral astigmatism.

Ideal for previous wearers with unsatisfactory experiences and those non-adapt bifocal wearers. Effortless vision for all distances. For clients 35 years and upwards.

User Key Points

General wear daily use.
Immediate adaption.
Minimum lateral astigmatism.
Good balance between fields.

Individual personalisation data can be provided or otherwise will default to standard values:

• Pantascopic Tilt Angle 7°

• BVD 12mm

Wrap Angle 5°

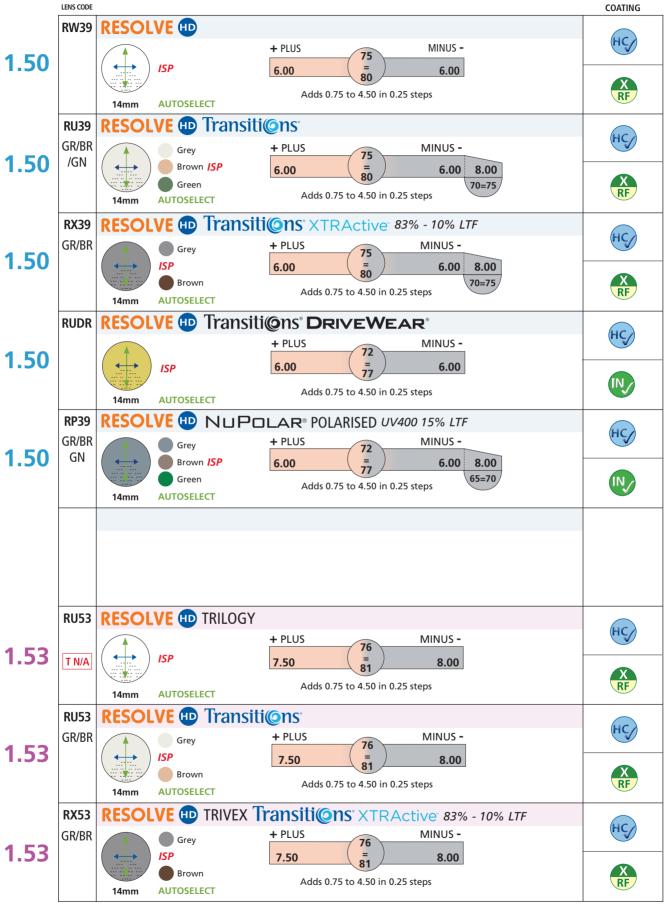
• Standard Inset 2.5 or Variable as RX



AUTOSELECT - when designing to eye shapes we will automatically select the most appropriate progression length. You do not need to specify unless you require a specific channel length.

REMEDIAL Progressive

- RESOLVE @ AVAILABILITY -



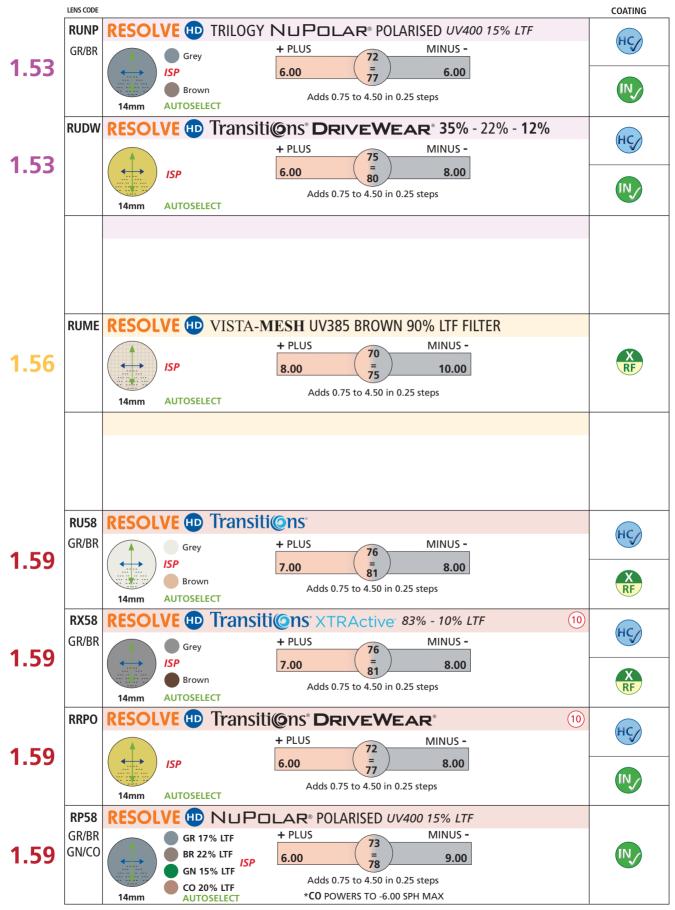
AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

← Variable reading inset - 0 to 4.00mm in 0.50mm steps available.

If measured please state at time of ordering otherwise standard inset values apply.

REMEDIAL Progressive

- RESOLVE ID AVAILABILITY -



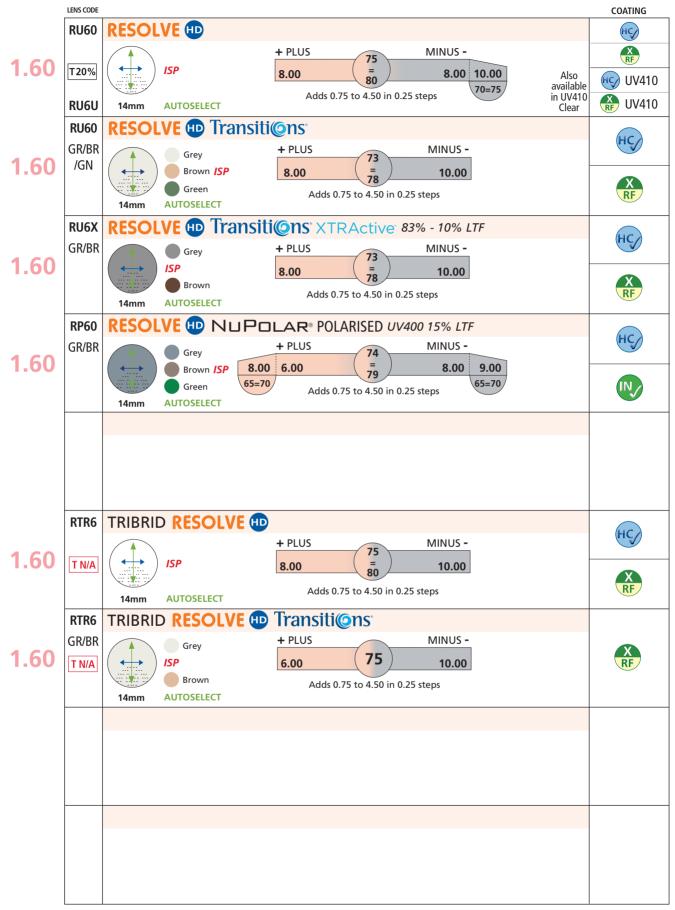
AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

← Variable reading inset - 0 to 4.00mm in 0.50mm steps available.

If measured please state at time of ordering otherwise standard inset values apply.

REMEDIAL Progressive

- RESOLVE @ AVAILABILITY -



AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

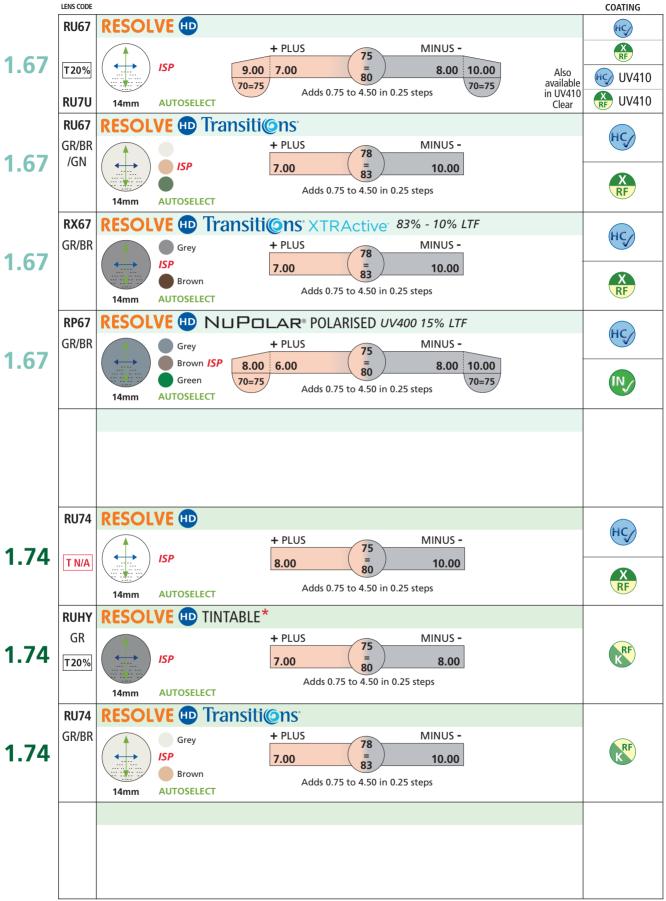
^{←→} Variable reading inset - 0 to 4.00mm in 0.50mm steps available.

If measured please state at time of ordering otherwise standard inset values apply.

^{*}Note: Tints available on this product from 80% to 20% LTF - price excludes tint cost.

REMEDIAL Progressive

- RESOLVE D AVAILABILITY -



AUTOSELECT - SHORT AND LONG CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

← Variable reading inset - 0 to 4.00mm in 0.50mm steps available.

If measured please state at time of ordering otherwise standard inset values apply.

^{*}Note: Tints available on this product from 80% to 20% LTF - price excludes tint cost.



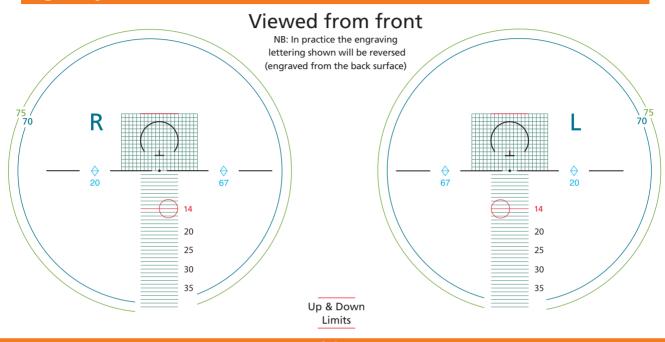


Left Eye



Inner Surface Progressive

Right Eye Effective Diameter Chart



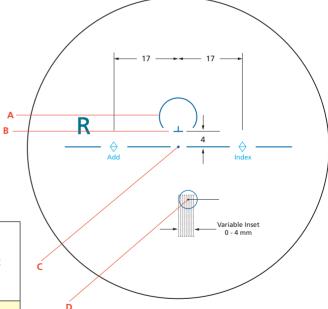
Lens Marking Layout

Add is sho	own as:			Index is shown	as:
+0.75	07	+2.75	27	1.50 CR39	50
+1.00	10	+3.00	30	1.53 Trivex	53
+1.25	12	+3.25	32	1.56	56
+1.50	15	+3.50	35	1.59 Polycarb	59
+1.75	17	+3.75	37	1.60	60
+2.00	20	+4.00	40	1.67	67
+2.25	22	+4.25	42	1.74	74
+2.50	25	+4.50	45		

Resolve HD Corridor Design

Corrid Length (from PRI top of N checking c	1* P to IV	Full Progression Length (from start of progression to top of NV circle)	Minimum Fitting Height (from lowest tangent top of bottom rim)	Minimum Frame Depth	Fitting Cross Height above PRP
6mm	XS	10mm	14mm	22mm+	+4mm
7mm		11mm	15mm	23mm+	+4mm
8mm	S	12mm	16mm	24mm+	+4mm
9mm		13mm	17mm	25mm+	+4mm
10mm	M	14mm	18mm	26mm+	+4mm
11mm		15mm	19mm	27mm+	+4mm
12mm	L	16mm	20mm	28mm+	+4mm

^{*}AUTOSELECT - COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED



- Permanent engraved marks
- •Removable ink markings

Right eye uncut viewed from front

A: far vision zone

B: fitting cross 4 above PRP

C: prism reference point (PRP)

D: near vision zone



FAEEWAY HD



Drivers

For those "at the wheel" presbyopes, FREEWAY progressive has some very specific design features. Distance vision has been enhanced to provide the wearer with the perfect view of the road. Provides complete visual comfort over long driving hours whilst ensuring easy transition to intermediate for looking at dashboard instrumentation, with provision of a condensed reading area with the slightly undercorrected addition powers for when near spotting is required.

Driving demands clear vision over varied distances: far distance, road ahead, directional signage, mirror usage and closer dashboard checks. FREEWAY provides dynamic vision prioritising far and intermediate with reduced astigmatism. FREEWAY has been designed to facilitate 180° lateral gaze across distance viewing. Drivers are essentially eye movers and FREEWAY's design takes this into account.

Especially adapted for professional drivers: cars, trucks, planes, trains, earth-moving equipment, rickshaws or bicycles - FREEWAY is their lens.







Also golfers



FREEWAY ••• - Driving progressive

Characteristics

Wide, clear far vision that enhances the visual experience while driving.

Wide corridor for comfortable dashboard reading.

Fully compensated optimised lens that provides the highest optical quality in every gaze direction. Low values of unwanted astigmatism.

Near zone area for occasional use.

User Key Points

Uses the far and inter zones while driving, reads occasionally. For 8 base wrap designs see SPORTPAL.

Specific INSET values can be requested.

If additional individualisation is desirable please provide.

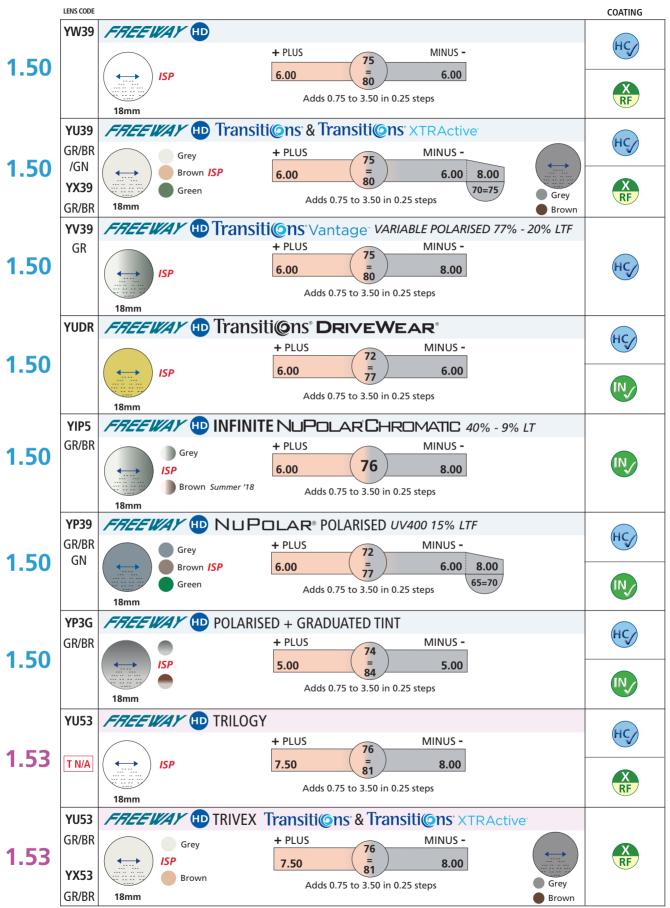
Otherwise designed with these standard values:

12° • Pantascopic Tilt Angle BVD 14mm 5° Wrap Angle

Standard Inset Variable as RX

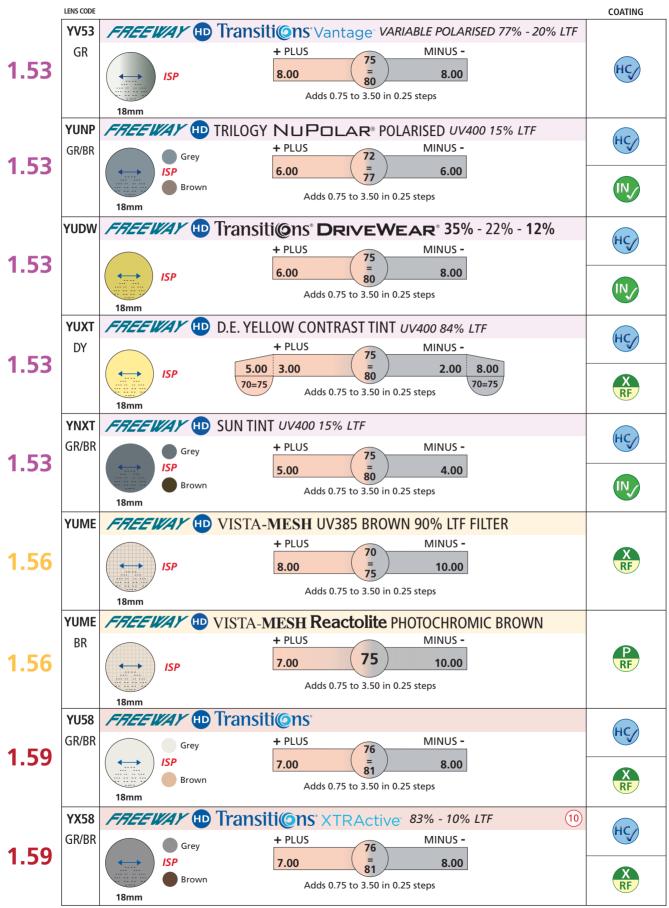
The lens for professional drivers who require an addition power.

- FREEWAY D AVAILABILITY -



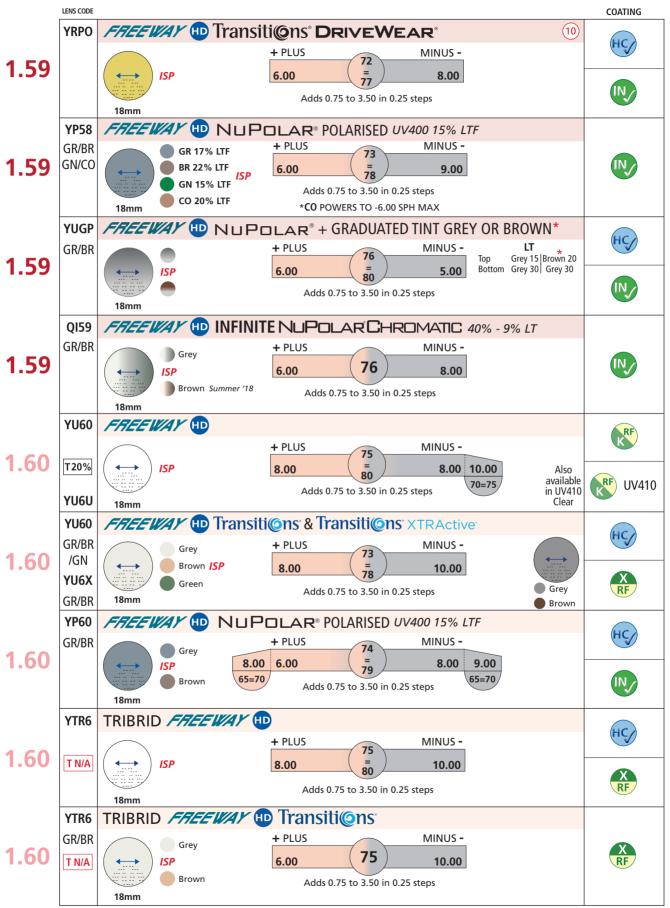
→ Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.

- FREEWAY D AVAILABILITY -



◆ Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.

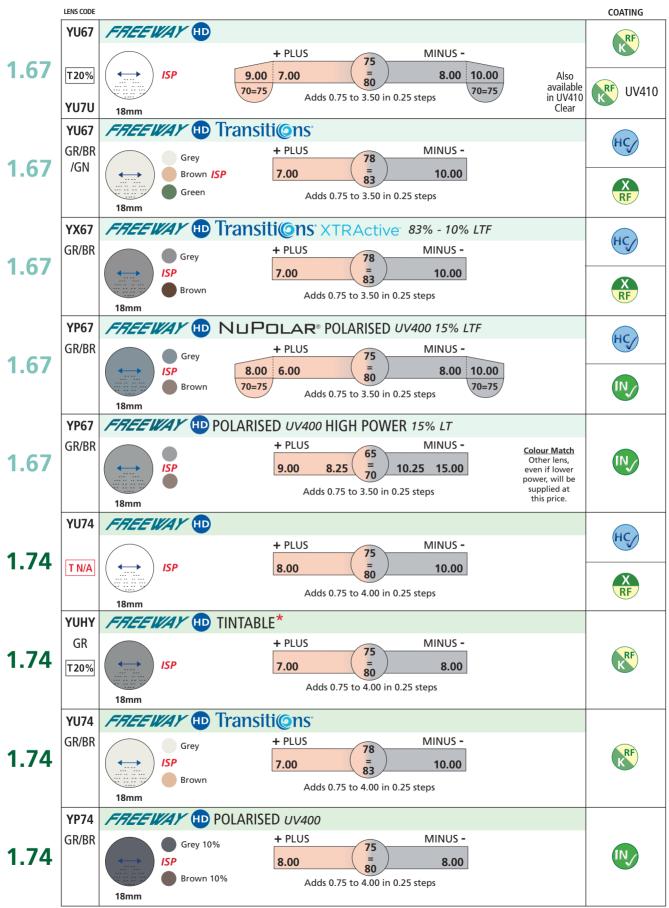
- FREEWAY D AVAILABILITY -



→ Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.

^{*}Note: Tints available on this product from 80% to 20% LTF - price excludes tint cost.

- FREEWAY D AVAILABILITY -



← Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.

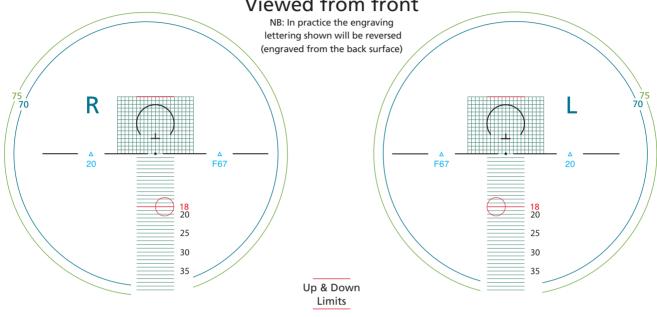






Inner Surface Progressive

Left Eye Right Eye Effective Diameter Chart Viewed from front NB: In practice the engraving lettering shown will be reversed

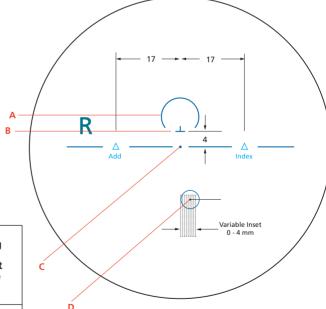


Lens Marking Layout

Add is shown as:		Index is shown	as:
+1.00	10	1.50 CR39	50
+1.25	12	1.53 Trivex	53
+1.50	15	1.56	56
+1.75	17	1.59 Polycarb	59
+2.00	20	1.60	60
+2.25	22	1.67	67
+2.50	25	1.74	74
+2.75	27		
+3.00	30		
+3.25	32		



Corridor Length (from PRP to top of NV checking circle)	Full Progression Length (from start of progression to top of NV circle)	Minimum Fitting Height (from lowest tangent top of bottom rim)	Minimum Frame Depth	Fitting Cross Height above PRP
10mm	14mm	18mm	26mm+	+4mm



- Permanent engraved marks
- •Removable ink markings

Right eye uncut viewed from front

A: far vision zone

B: fitting cross 4 above PRP

C: prism reference point (PRP)

D: near vision zone



+3.50

35

SPECIALIST Administrator Progressive

Bureau 🖷



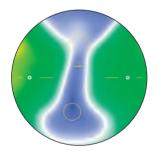


For those work station administrators, Bureau progressive lenses have some very specific design factors. Essentially close and near vision design for keyboard and screen users but with the availability of an excellent intermediate with limited distance field enabling fuller lens flexibility than just a simple office degressive two focus lens design. Smooth transition between zones.

High definition achieved through Digital Ray-Path technology. Oblique astigmatism reduced.

Especially useful for older indoor professionals, executives, administrators, doctors, bank counter staff, teachers and dispensing opticians: anyone whose work is predominantly near and close vision, yet with the flexibility for attending meetings and presentations.







Bureau • - Administrator Progressive

Characteristics

High placement of intermediate gives 25% of total add power at the pupil with a small but respectable top area for far vision, an easy to access near vision area considerably wider than a general wear progressive. Fit as a standard progressive with fitting cross set at pupil centre.

User Key Points

Indoor users design. Clear vision all distances. Far wider near and intermediate compared to general wear progressives. Specify as regular progressive e.g.

additions +1.00 to +3.50. Specific INSET values can be requested.

Bureau is a non-compensated design.

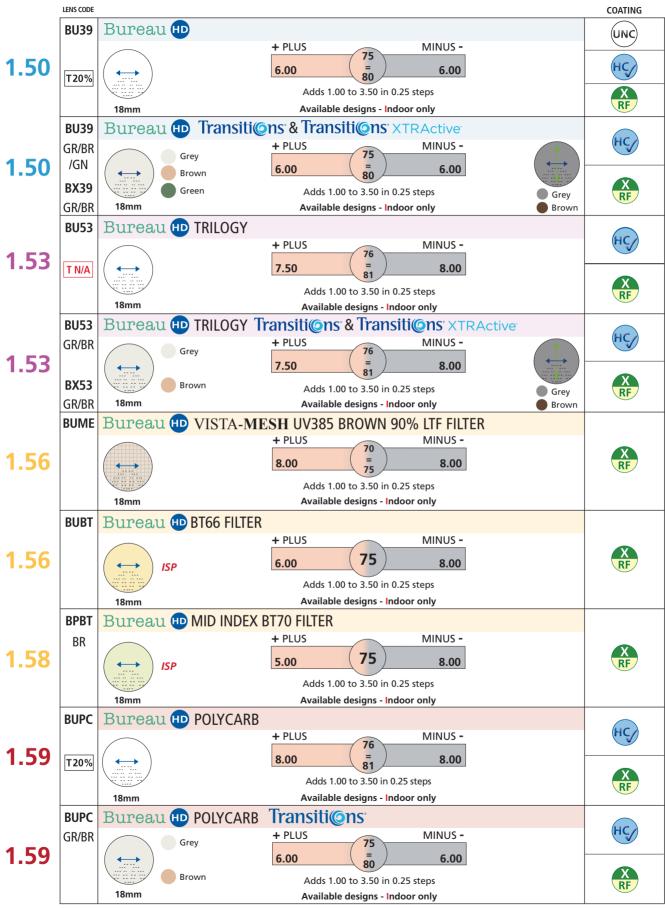
PS. DISPENSING TIP

For Dispensing Opticians' own use in practice working with patients fit 2mm higher.

*Bureau not recommended for driving.

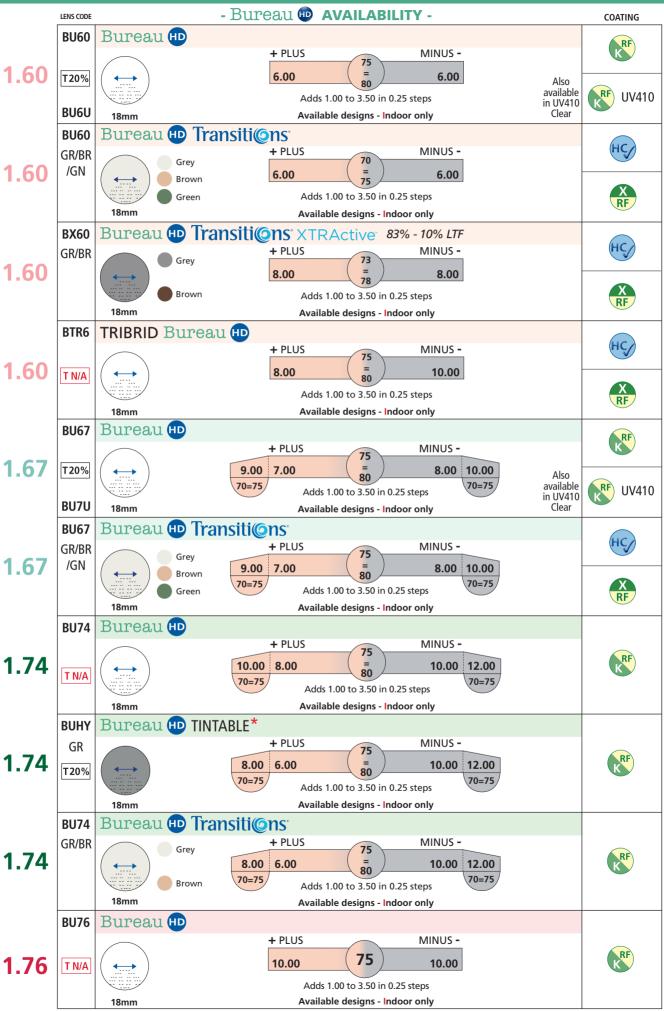
SPECIALIST Administrator Progressive

- Bureau D AVAILABILITY -



◆ Variable reading inset - 0 to 4.00mm in 0.50mm steps available. If measured please state at time of ordering otherwise standard inset values apply.

SPECIALIST Administrator Progressive

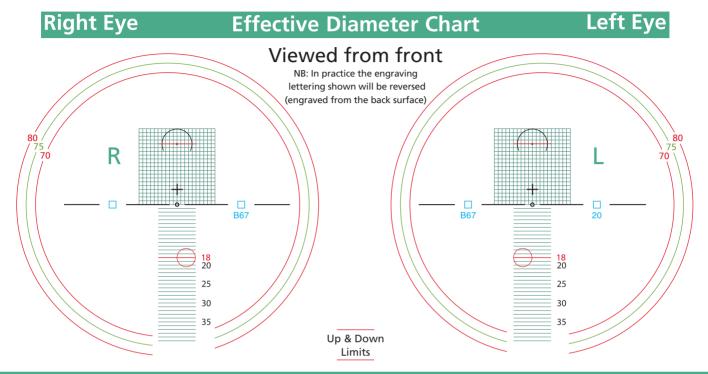






Bureau 🖷

Inner Surface Administrator Progressive

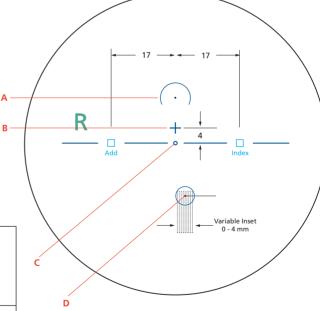


Lens Marking Layout

Add is s	hown as:	Index is shown	as:
+1.00	10	1.50 CR39	50
+1.25	12	1.53 Trivex	53
+1.50	15	1.56	56
+1.75	17	1.59 Polycarb	59
+2.00	20	1.60	60
+2.25	22	1.67	67
+2.50	25	1.74	74
+2.75	27	1.76	76
+3.00	30		
+3.25	32		



Daread TID Corndor Design					
Corridor Length (from PRP to top of NV checking circle)	Full Progression Length (from start of progression to top of NV circle)	Minimum Fitting Height (from lowest tangent top of bottom rim)	Minimum Frame Depth	Fitting Cross Height above PRP	
10mm	14mm	18mm	28mm+	+4mm	



Permanent engraved marks

•Removable ink markings

Right eye uncut viewed from front

A: far vision zone (note: Check at 12mm up from MRP)

B: fitting cross 4 above PRP (MRP)

C: prism reference point (PRP)

D: near vision zone (note: Check at 13mm down from PRP)



+3.50

SIMAGE ®

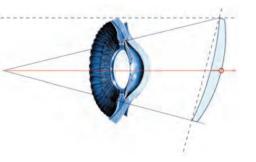


An alternative progressive design philosophy that is both uncomplicated - yet very visually effective. Based on the proven **IMAGE** traditional front surface progressive design with its comprehensive 15 option product range. Rather than a traditional spherical or toric inner lens surface finishing curves, a computer designed wavepath tracked across both lens surfaces using 40,000 calculation points creates a beautifully tuned free-form inner design for high visual performance.

SIMAGE HD software cleans up those oblique aberrations enabling clearer vision over all zones. Upgrade clients' vision to this optically supercharged solution.

Everyday Wear







Characteristics

A very modern interpretation of **front surface Image** progressive finished with an **inner surface HD** digital design finish.

Ideal for those traditional front surface design progressive wearers.

Increasing fields of view in all sections, especially laterally, reduce unwanted astigmatism.

A best of "both lens worlds" design option.

User Key Points

Wide clear distance, unrestricted peripheral.

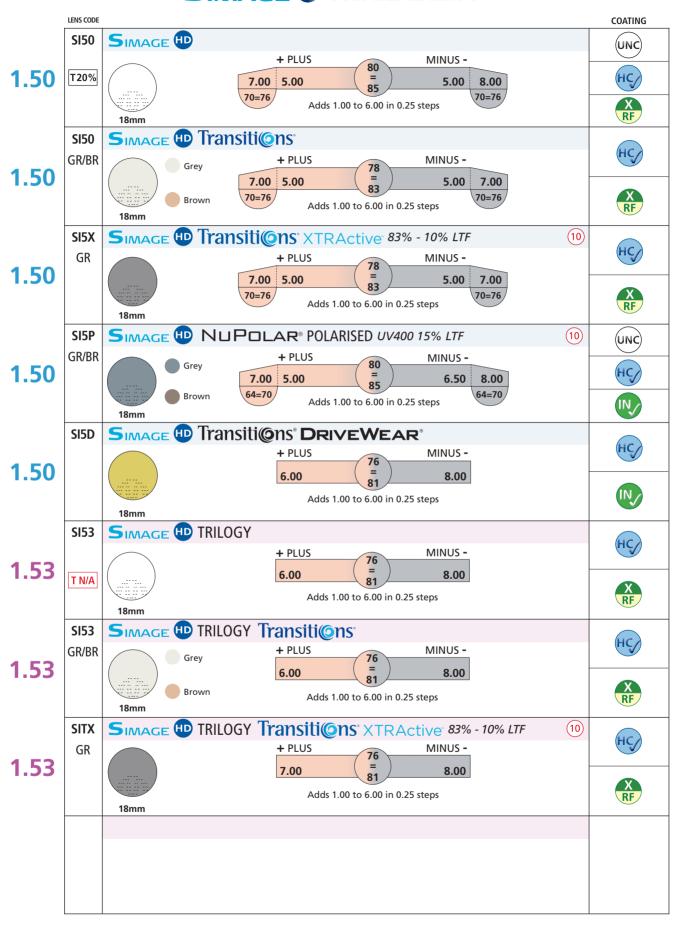
Stabilised inter & near zones across all adds.

Higher levels of vision clarity achieved through HD finishing.

Ability to provide wider field and higher additions.

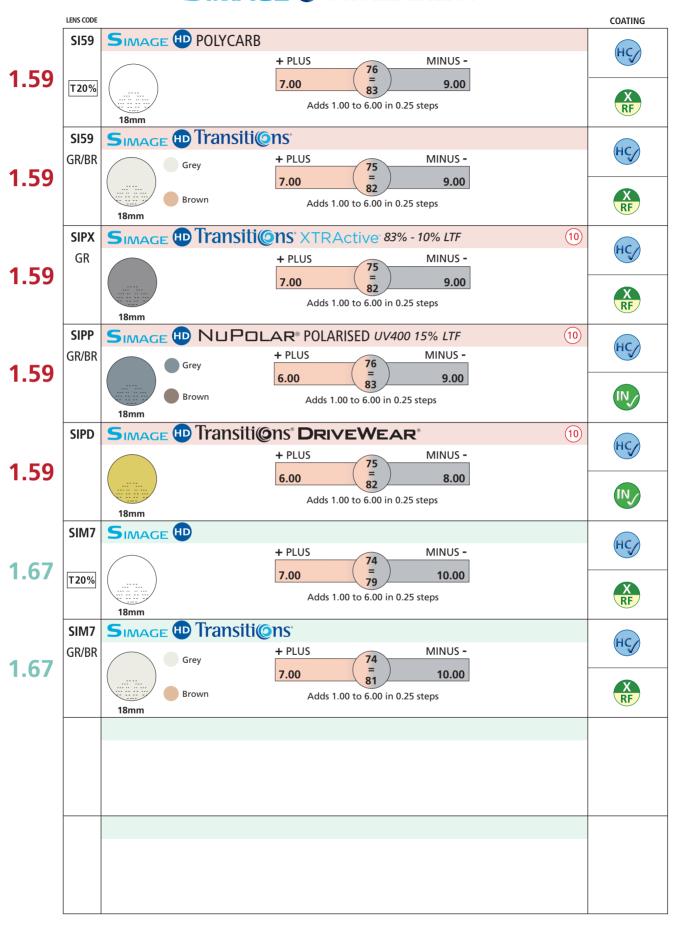
ENHANCED Front Surface Progressive

- SIMAGE P AVAILABILITY -



ENHANCED Front Surface Progressive

- SIMAGE AVAILABILITY -







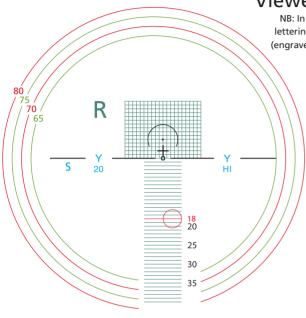
SIMAGE (19)

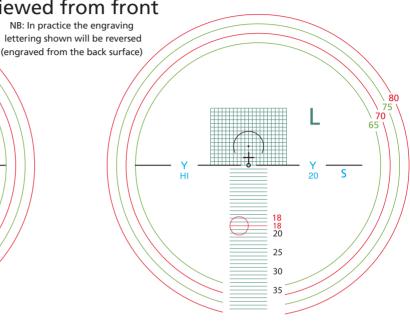
Right Eye

Effective Diameter Chart

Left Eye

Viewed from front NB: In practice the engraving





Semi-visible Identification Markings

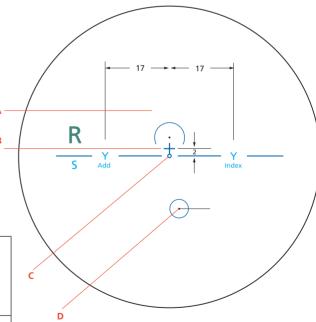
Lens Marking Layout

Material

Hard resin and polycarbonate	_Y
Trilogy	_7
1.67	_Y
	HI

SIMAGE HD Corridor Design

			_	
Corridor Length (from PRP to top of NV checking circle)	Full Progression Length (from start of progression to top of NV circle)	Minimum Fitting Height (from lowest tangent top of bottom rim)	Minimum Frame Depth	Fitting Cross Height above PRP
10mm	14mm	18mm	26mm+	+2mm



- Permanent engraved marks
- •Removable ink markings

Right eye uncut viewed from front

A: far vision zone

B: fitting cross 2 above PRP

C: prism reference point (PRP)

D: near vision zone





HIGH BASE





IDEAL for sports eyewear and sunglasses required with a reading addition. The same high definition Ultor optics of the progressive digital focus design can be calculated into a **plus eight base wrap design.** This can also incorporate (when given) changes in back vertex distance, wrap angle (sometimes called dihedral angle or face angle) and the tilt angle plane of the lens front from the natural vertical viewing distance.

When calculated, these data create a compensated Rx for central axis of view. The compensated Rx equation affects the point of gaze and corrects off-axis errors. This, combined with digital design, provides full width corrected vision across the lens.

Available in many fixed tints, Transitions and Polarised options, SPORTPAL opens a new field of opportunities for lifestyle dispensing.

Ordering SPORTPAL compensated progressive lenses:



- **Essential information:** Patient's full prescription
 - Optical centres & heights, as required
 - Wrap angle (Dihedral)
 - Pantoscopic angle (Tilt)
 - Frame wrap angle
 - BVD trial and actual distance
 - Base curve

* IMPORTANT NOTE: SPORTPAL lenses can only be manufactured when this data is provided. *





🔟 '**S**' Sportpal

OUTDOOR DESIGN ULTOR

Large far vision - limited reading

Characteristics

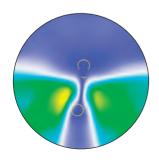
Large and wide distance vision zone for optimised far vision.

User Key Points

Uses mainly the far vision zone while working, moves quickly and often. Reads occasionally.



- INSET 0 to 4 in 0.5mm steps
- Autoselect corridor lengths x7
- Minimum fitting height 14mm
- XXL design technology for larger diameters adding 20mm to largest available blank size

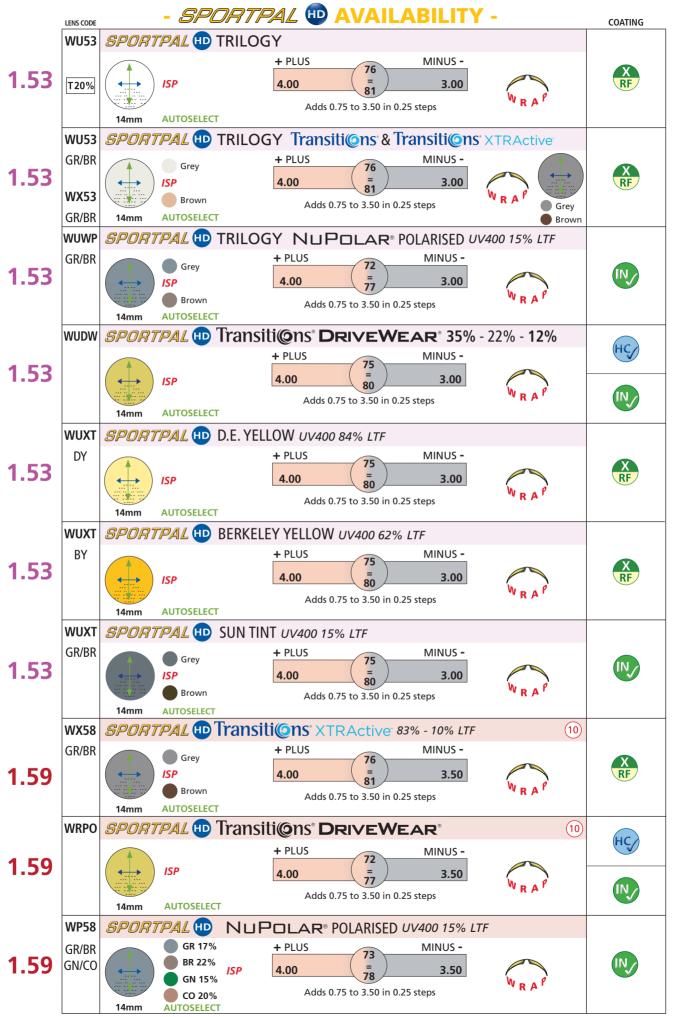


Autoselect x7

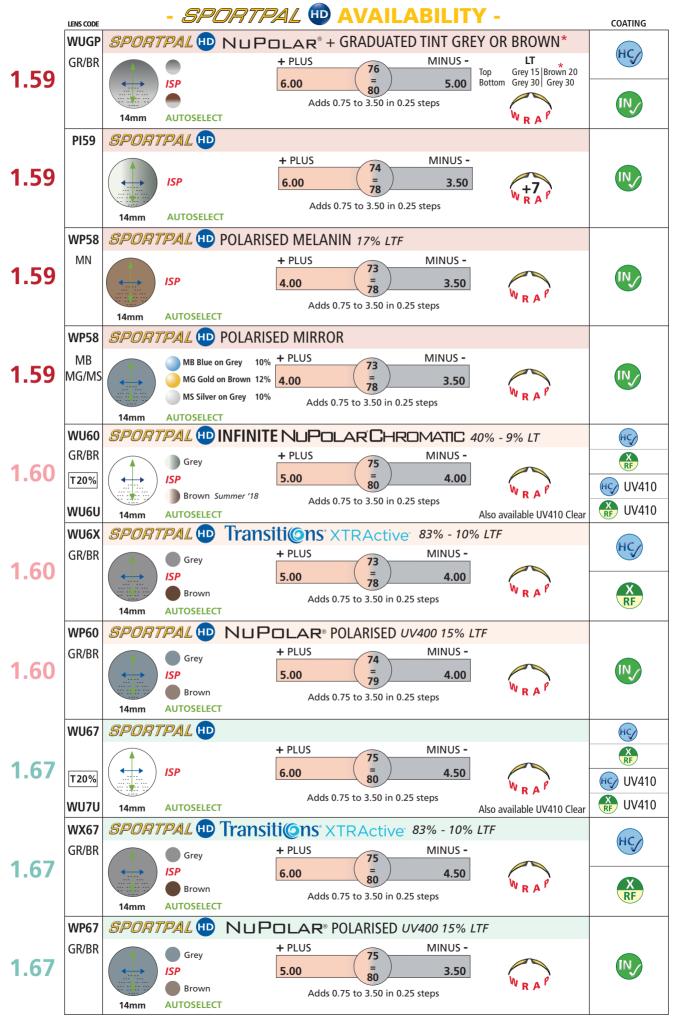
Minimum 12mm

NOTE: Higher powers can be produced in blended edge design - see page 85

Digital Design Inner Surface Progressive



Digital Design Inner Surface Progressive



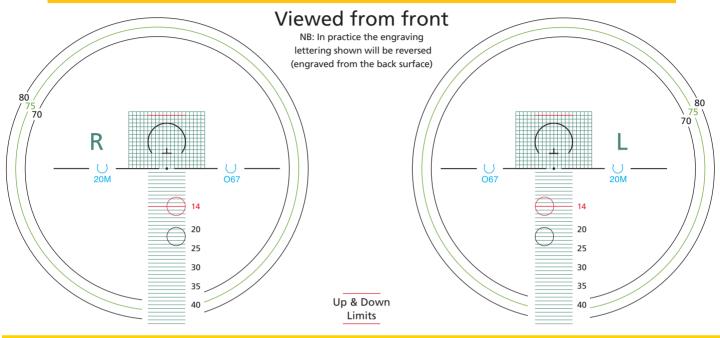






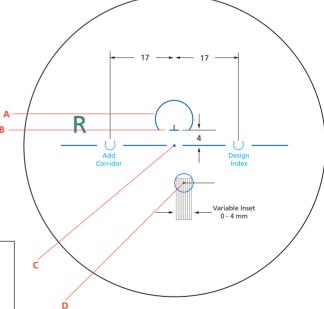
Inner Surface Progressive

Right Eye Effective Diameter Chart Left Eye



Lens Marking Layout

Add is shown as:		Index is shown	Index is shown as:		
+1.00	10	1.53 Trivex	53	"O" = Sportor	
+1.25	12	1.59 Polycarb	59		
+1.50	15	1.60	60		
+1.75	17	1.67	67		
+2.00	20				
+2.25	22				
+2.50	25	Corridor Desig	n Optior	ns:	
+2.75	27	"XS" = Extra	Short		
+3.00	30	"S" = Short			
+3.25	32	"M" = Medi	um		
+3.50	35	"L" = Long			



Sportpal HD Corridor Designs

Corridor Length* (from PRP to top of NV checking circle)	Full Progression Length (from start of progression to top of NV circle)	Minimum Fitting Height (from lowest tangent top of bottom rim)	Minimum Frame Depth	Fitting Cross Height above PRP
6mm XS	10mm	14mm	22mm+	+4mm
7mm	11mm	15mm	23mm+	+4mm
8mm S	12mm	16mm	24mm+	+4mm
9mm	13mm	17mm	25mm+	+4mm
10mm M	14mm	18mm	26mm+	+4mm
11mm	15mm	19mm	27mm+	+4mm
12mm L	16mm	20mm	28mm+	+4mm

^{*}AUTOSELECT - COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

- Permanent engraved marks
- •Removable ink markings

Right eye uncut viewed from front

A: far vision zone

B: fitting cross 4 above PRP

C: prism reference point (PRP)

D: near vision zone









Glass may be the older ophthalmic lens material but adding HAWK, a brand new circa '18 lens design, enables it to become the hardest - clearest progressive option available anywhere. This all-seeing combination is ideal for either larking about or spot on viewing.

When clients are looking for the highest optical standards - HAWK guarantees all round sharp vision.







🔟 '**G**' All Day Wear

Characteristics

Constantly advancing technology and on-going vision research are conjoined to present a Premium Design of the highest resolution.

Non-compensated distance inner surface free-form progressive, or available as fully compensated, either using average data figures or ones you provide at the time of ordering.

User Key Points

All functions daily use. Easy adaption. Clarity of all-round vision Minimal aberrations

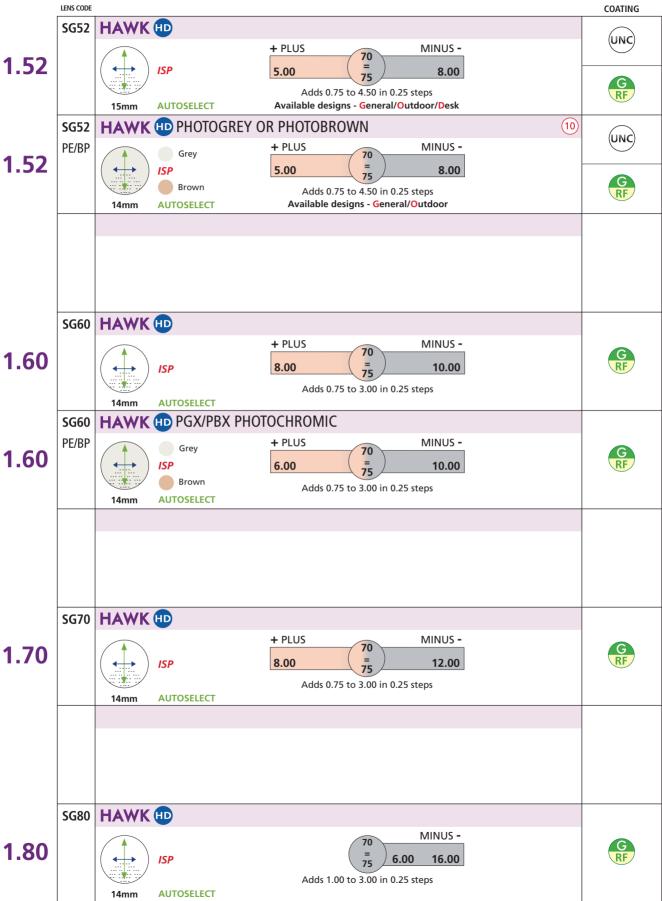
Individual personalisation data provided by you or default to standard optimisation values:

7° Pantascopic Tilt Angle BVD 12_{mm} Wrap Angle 5° Standard Inset 2.5

PS. DISPENSING TIP

Think gritty jobs. Indoors and outside. Dentists, Farmers

- HAWK AVAILABILITY -



AUTOSELECT - CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

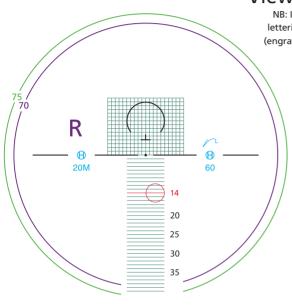


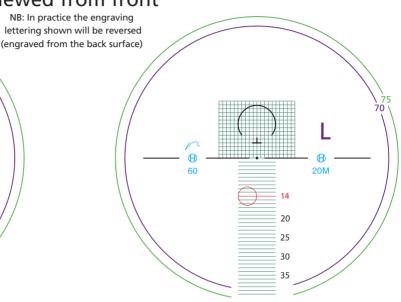




Right Eye Effective Diameter Chart Left Eye

Viewed from front





Lens Marking Layout

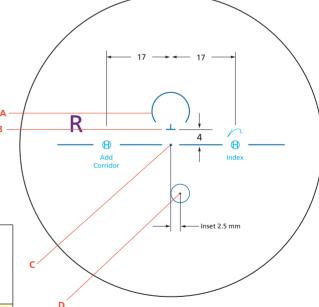
Add is shown as:						
+0.50	05	+3.00	30			
+0.75	07	+3.25	32			
+1.00	10	+3.50	35			
+1.25	12	+3.75	37			
+1.50	15	+4.00	40			
+1.75	17	+4.25	42			
+2.00	20	+4.50	45			
+2.25	22	+4.75	47			
+2.50	25	+5.00	50			
+2.75	27					

Index is shown	as:
1.523	52
1.60	60
1.70	70
1.80	80

Hawk HD Corridor Design

TidVVK TID Comdon Design									
Corridor Length* (from PRP to top of NV checking circle)		Full Progression Length (from start of progression to top of NV circle)	Minimum Fitting Height (from lowest tangent top of bottom rim)	Minimum Frame Depth	Fitting Cross Height above PRP				
7mm	S	10mm	15mm	23mm+	+4mm				
9mm	M	12mm	17mm	25mm+	+4mm				
11mm	L	14mm	19mm	27mm+	+4mm				

^{*}AUTOSELECT - COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED



- Permanent engraved marks
- •Removable ink markings

Right eye uncut viewed from front

A: far vision zone

B: fitting cross 4 above PRP

C: prism reference point (PRP)

D: near vision zone









New design tuned for today's changing driving environment. As ever, clear far vision with increasing intermediate zone segment needs for dashboard instrumentation and navigational systems. The lens can also be used for general everyday wear.



'**D**' Driving progressive

For "at the wheel" presbyopes, **PRODRIVE** progressive delivers some specific design features. Distance vision has been sharpened, whilst ensuring easy transition to enhanced intermediate for looking at dashboard instrumentation.

Driving demands clear vision over rapidly changing distances.

PRODRIVE lenses are strongly recommended with RF coatings - more contrast, lower glare.







Characteristics

Very wide distance providing clear far vision and side mirror viewing combined with wide intermediate for comfortable instruments reading. Dual availability as non-compensated lens for distance with optimised reading that provides the highest optical quality in every gaze direction or fully compensated for distance and reading when individualisation data offered.

Low values of unwanted astigmatism. Short progression design. Near zone area for occasional use.

User Key Points

Uses the far and inter zones while driving, reads occasionally. RF coating minimises reflections. Enhanced eye comfort.

If additional individualisation is desirable please provide.

Otherwise designed with these standard values:

Pantascopic Tilt Angle

BVD 12mm

• Wrap Angle

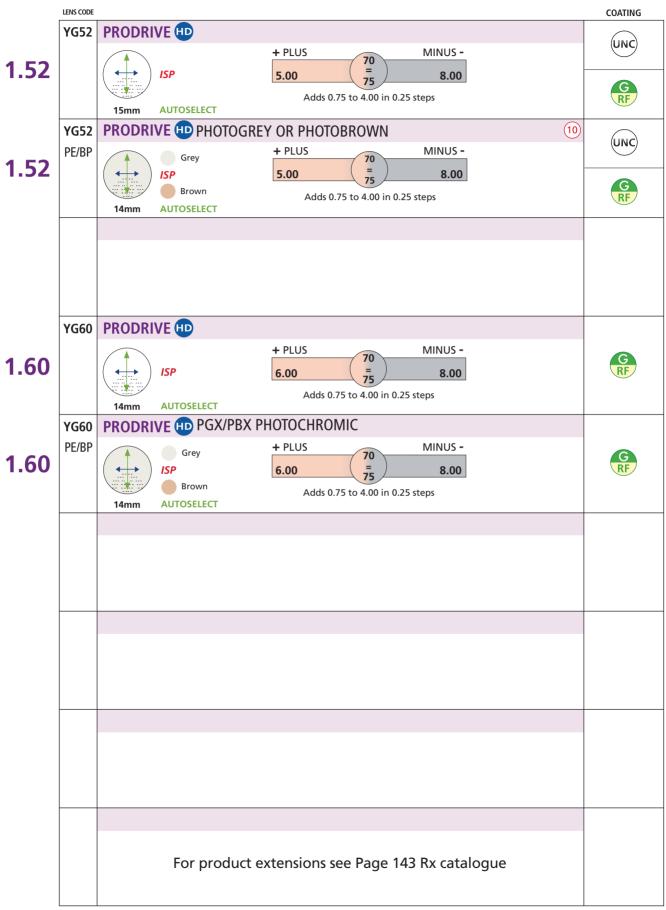
Variable as RX

Standard Inset

7°

5°

- ProDrive AVAILABILITY -



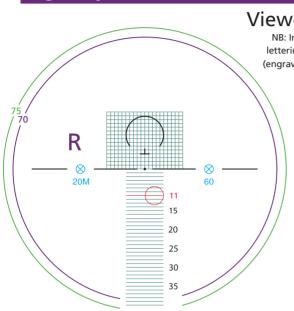
AUTOSELECT - CORRIDOR AVAILABILITY COMPUTER SELECTION DETERMINED BY FITTING HEIGHT SPECIFIED

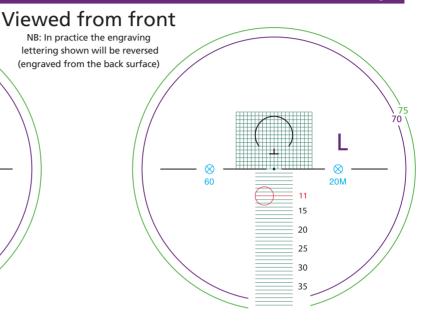






Right Eye Effective Diameter Chart Left Eye





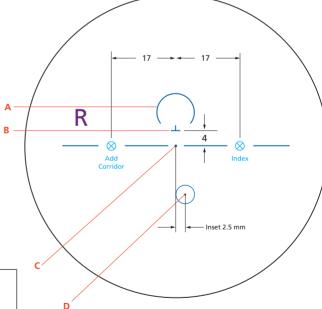
Lens Marking Layout

Add is shown as:						
+0.50	05					
+0.75	07					
+1.00	10					
+1.25	12					
+1.50	15					
+1.75	17					
+2.00	20					
+2.25	22					
+2.50	25					
+2.75	27					
+3.00	30					
+3.25	32					
+3.50	35					
+3.75	37					
+4.00	40					

Index is shown	as:
1.523	52
1.60	60

ProDrive Corridor Design

Corridor Length* (from PRP to top of NV checking circle)	Full Progression Length (from start of progression to top of NV circle)	Minimum Fitting Height (from lowest tangent top of bottom rim)	Minimum Frame Depth	Fitting Cross Height above PRP
11mm M	14mm	17mm	25mm+	+4mm



- Permanent engraved marks
- •Removable ink markings

Right eye uncut viewed from front

A: far vision zone

B: fitting cross 4 above PRP

C: prism reference point (PRP)

D: near vision zone



NORTOR - SV Digital Design

NORTOR-SV

Digital Design
High Definition
lenses bringing
unsurpassed
vision to
your patients

DESIGN

Combining two modern technologies, computing power and free-form manufacturing, has enabled the single most significant design change in ophthalmic lenses for fifty years.

NORTOR (ID) - perfect power in every direction

HIGH DEFINITION SPECTACLE LENS TECHNOLOGY

PRESCRIBING

Ideal for ALL single vision corrections but particularly beneficial for higher plus or minus prescriptions, specially higher cylinders.

Base Curve

Specific base (front) curves can be specified to meet the needs of the lens curve matching the curvature of the frame design, e.g. sunglass wraps. On many occasions using today's stock lenses results in a poor curve match to that of the spectacle frame design. Specifying a particular base curve is fine as the NORTOR design software corrects its optics accordingly. Compatible with any index ophthalmic material. Clear vision in every direction, oblique astigmatism substantially reduced.



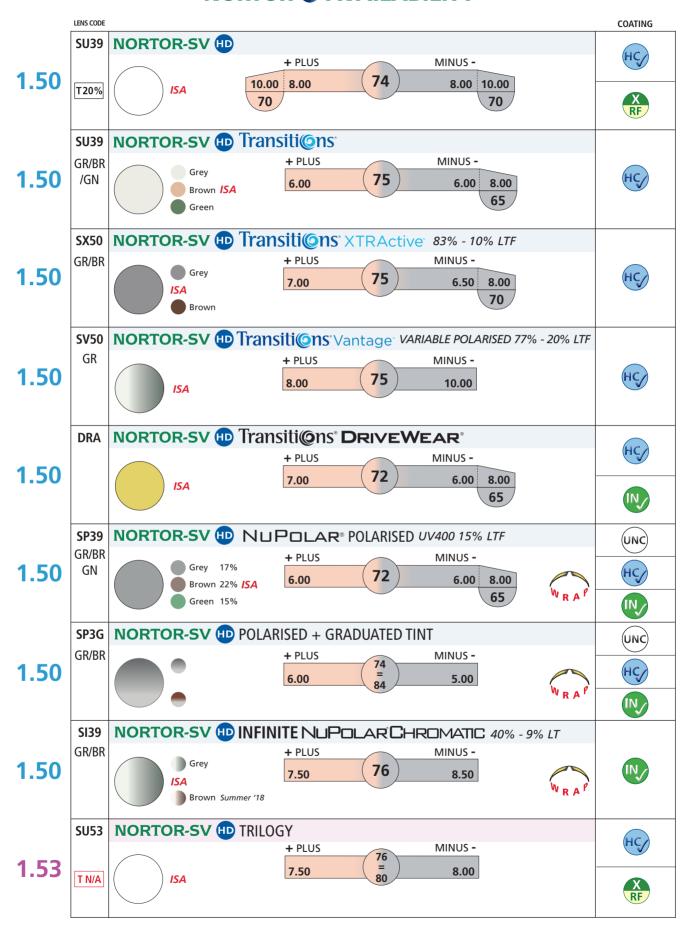
Plus 8 base wrap prescription sun lenses. We recommend glazing by Norville for a superb bevel finish. Your specification of wrap angle and / or pantoscopic tilt angle will trigger the calculation of a compensated prescription, which will also result in additional decentration or prism. Available in Polarised form, Transitions and Transitions XTRActive. (Further info page 71)

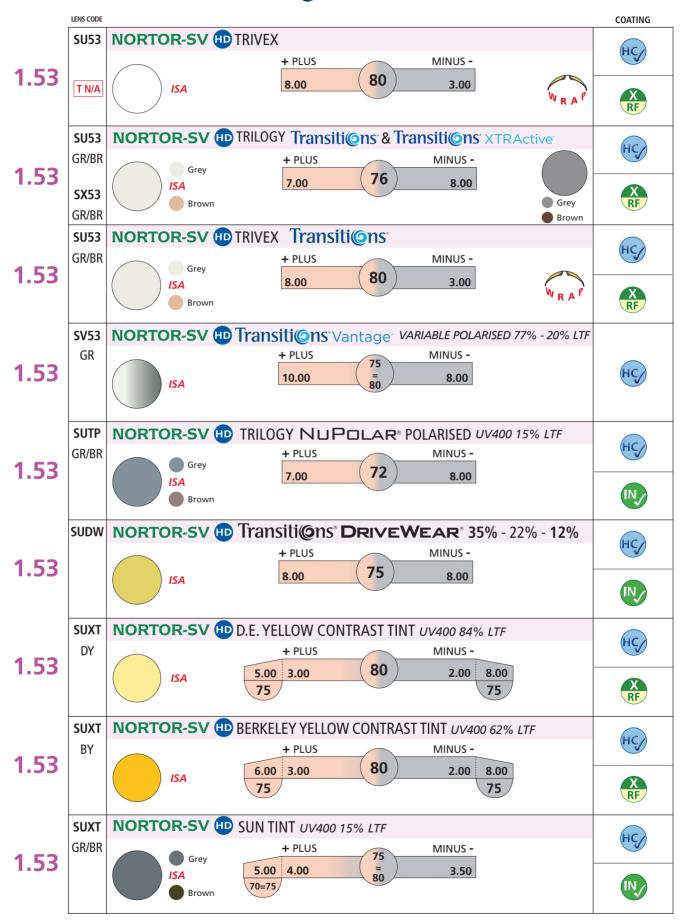


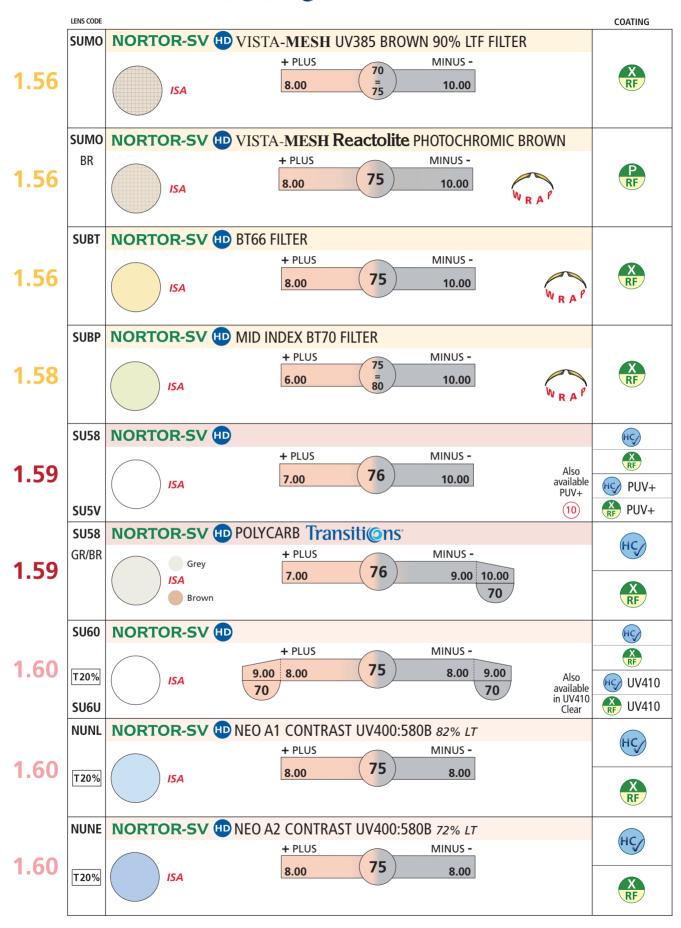
HIGH PERFORMANCE OPHTHALMIC SINGLE VISION LENSES

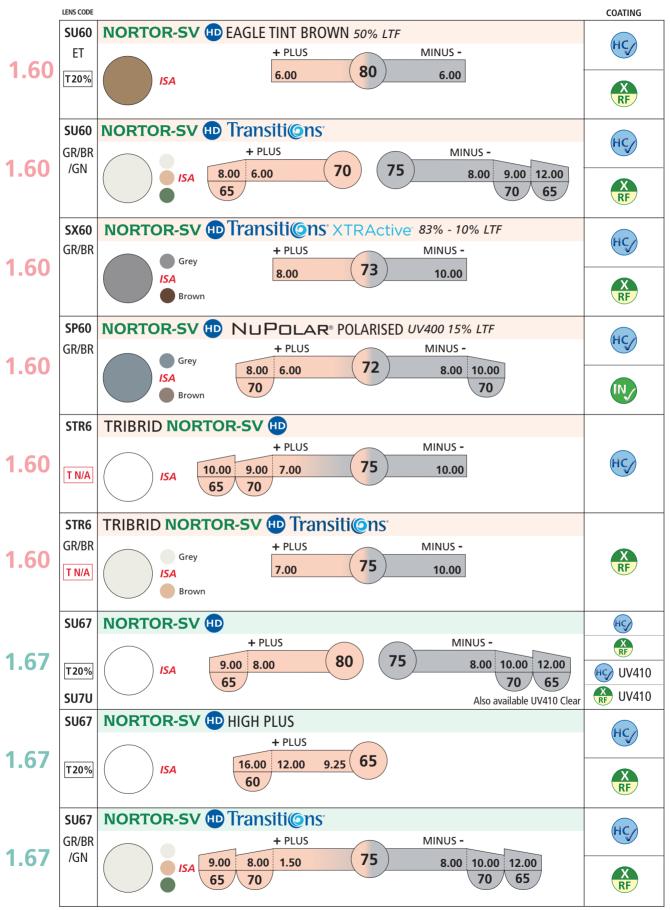
PS. PRESCRIBER'S HOT TIP

Vertical centration instruction is important for atoral designs.

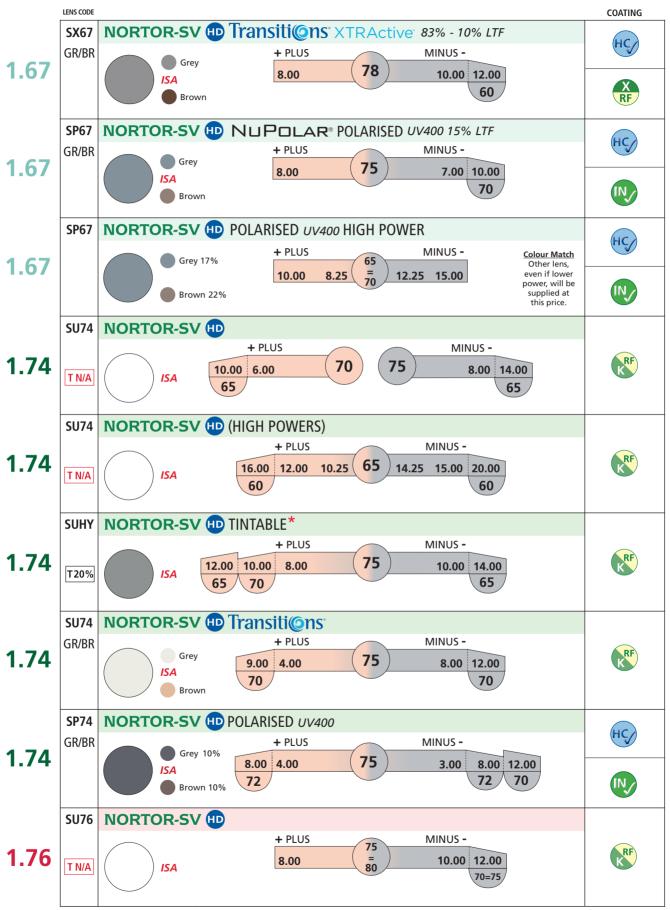






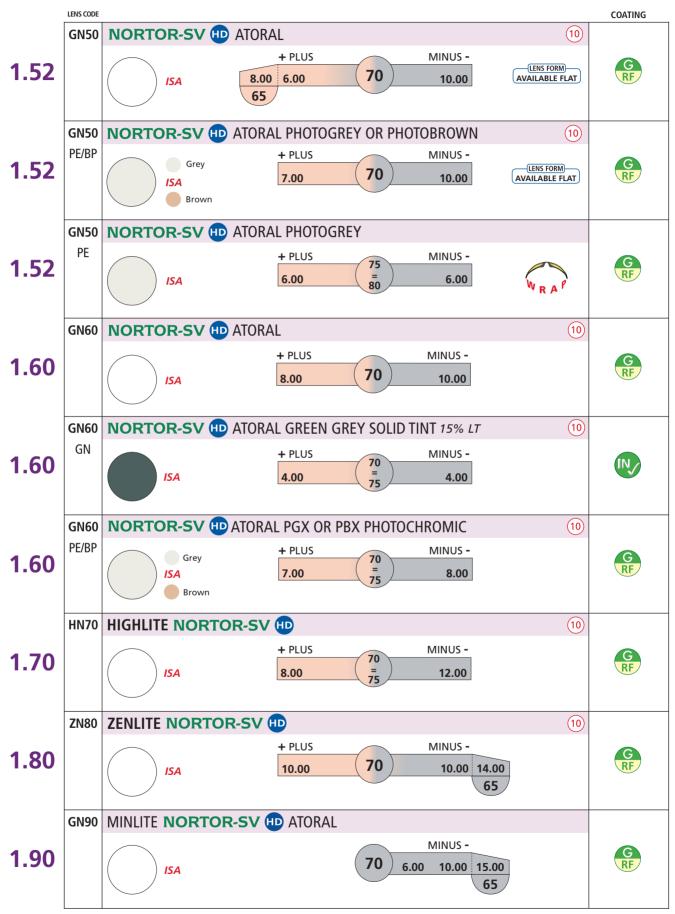


^{*}Note: Tints available on this product from 80% to 20% LTF - price excludes tint cost.



^{*}Note: Tints available on this product from 80% to 20% LTF - price excludes tint cost.

- NORTOR GLASS* AVAILABILITY -



*All NORTOR mineral is produced by our Northern European Partner Lab to identical software designs.

SPORTOR-SV nd

HD-SPORTS



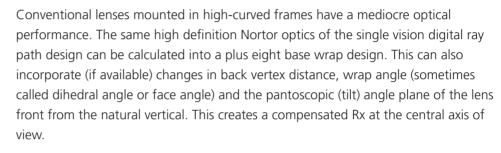


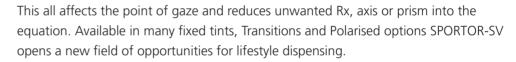


SPORTOR-SV III

Maximum optical performance for any frame.

Norville's descriptor of NORTOR HD but modified to a +8.00 base lens blank or other wraparound base curve.

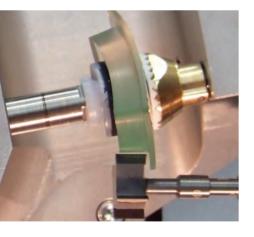






Ordering SPORTOR-SV HD:

- Patient's full prescription
- Optical centres & heights, as required
- Lens base curve
- Wrap angle
- Pantoscopic angle
- BVD trial and actual distance

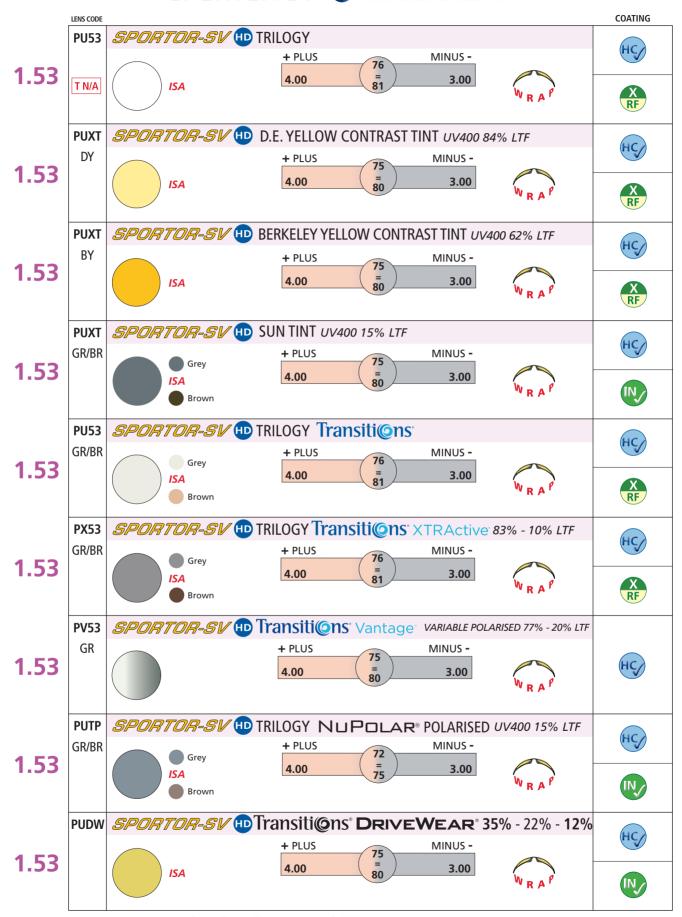


Gloucester Sports Wraps & Specialist Rimless Centre

Installation of unique profiling computercontrolled milling and bevelling machine capacity at Gloucester, now enables hitherto impossible bevels to be achievable. Contact Norville Gloucester for all your sports wrap & specialist rimless requirements.



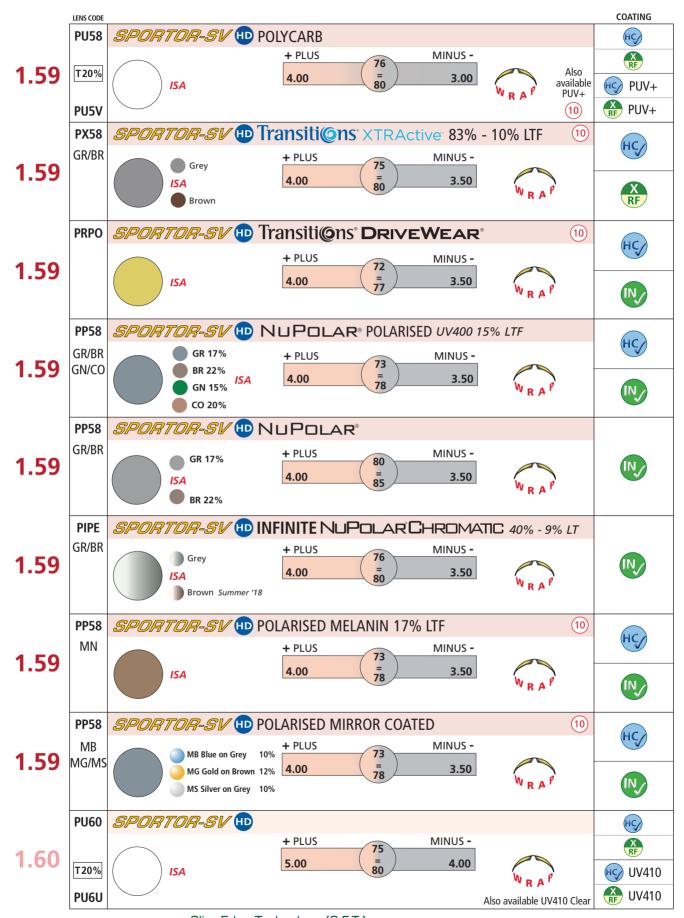
- SPORTOR-SV (D) AVAILABILITY -



^{*} All SPORTOR-SV lens forms also available as Slim Edge Technology (S.E.T.) Atoral design central 50mm with freeform edge blend to reduce substance.

Digital Design Inner Surface Atoral SV

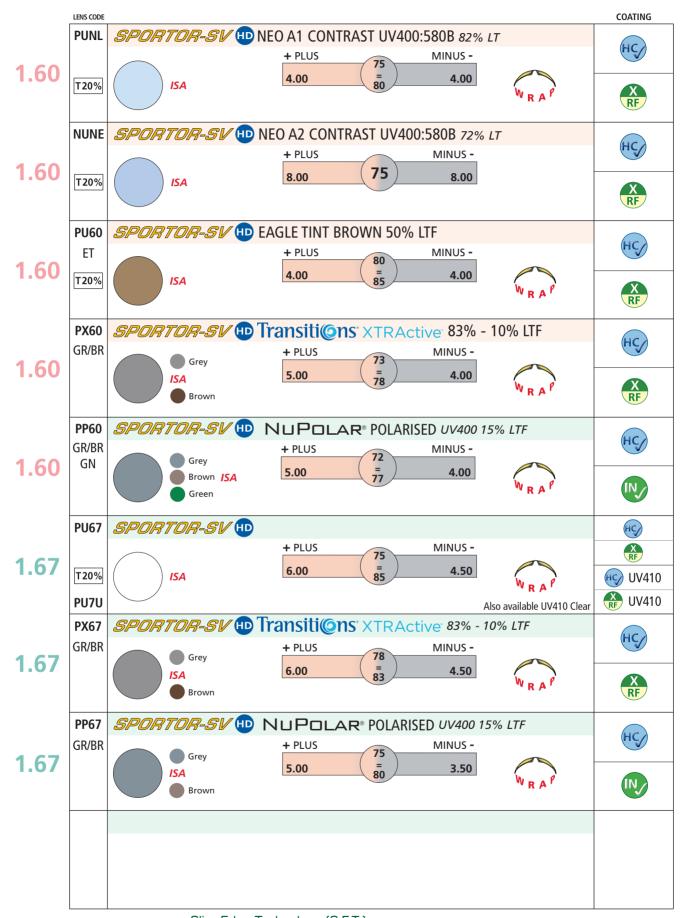
- SPORTOR-SV (D) AVAILABILITY -



^{*} All SPORTOR-SV lens forms also available as Slim Edge Technology (S.E.T.) Atoral design central 50mm with freeform edge blend to reduce substance.

Digital Design Inner Surface Atoral SV

- SPORTOR-SV (D) AVAILABILITY -



^{*} All SPORTOR-SV lens forms also available as Slim Edge Technology (S.E.T.) Atoral design central 50mm with freeform edge blend to reduce substance.





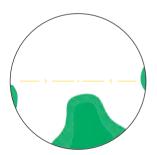
Booster New Generation digital design single vision lens for pre-presbyopia patients 25 to 40 years.

Those working for long periods at close fixed distances are only too aware that **visual fatigue** can set in: common symptoms of eye pain,dryness, gritty red eyes. It has been shown that the provision of a small plus area in the lower lens field can alleviate this. Norville has termed its lens **Booster**. Applicable to any lens material although we highly recommend this with Vista-Mesh, offering office workstation users even further advantages.

Booster power portion is available in three additive powers, +037 ("A"), +062 ("B"), or +087 ("C") depending on the accommodative needs of your patients.

Ideal for avid users of mobile phones and other digital hand-held gadgets.

Not to be overlooked, **every Booster design incorporates Digital HD** lens design for better all round sharper vision.



Fitting:

- Order as if for standard distance
 SV correction
- Use mono PDs as if for PPL
- Advise pupil centre position (height) otherwise we fit on HCL
- Remember to specify Booster "A", "B" or "C"

Lens Marking

Booster lenses are marked with two inward facing arrow heads representing the horizontal reference line. The material index is marked under the nasal > arrow head, and the additive power, A, B or C under the temporal < arrow head.

Booster is set as for any other SV lens, however glazing technicians need to remember that the lens must be located with its Booster element at its **lower portion**.

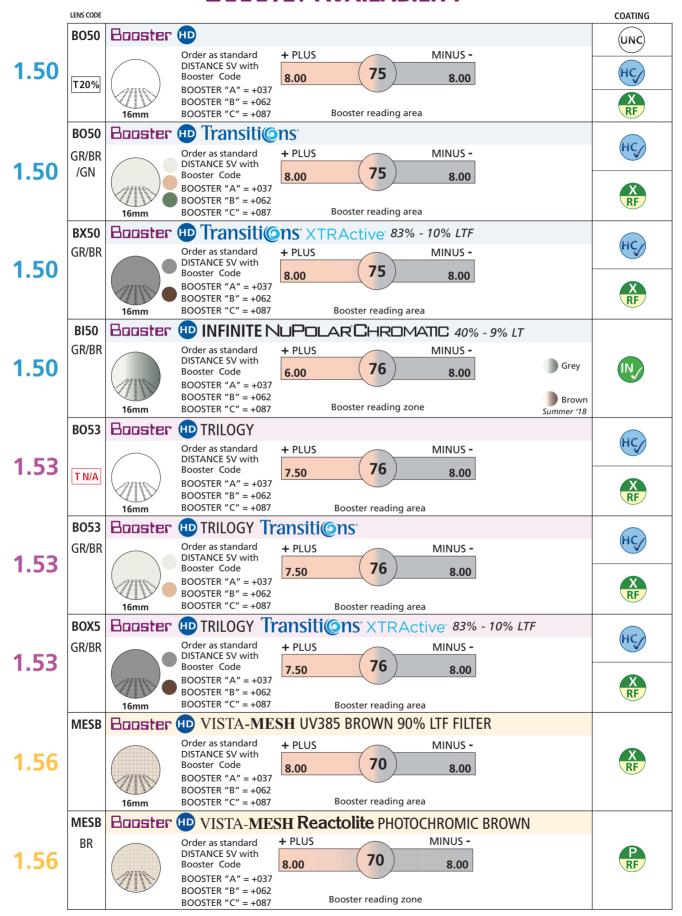
User Key Points

- Widest clear distance, unrestricted peripheral.
- Stabilised inter & near zones across all adds.
- Higher levels of vision clarity achieved through HD finishing.

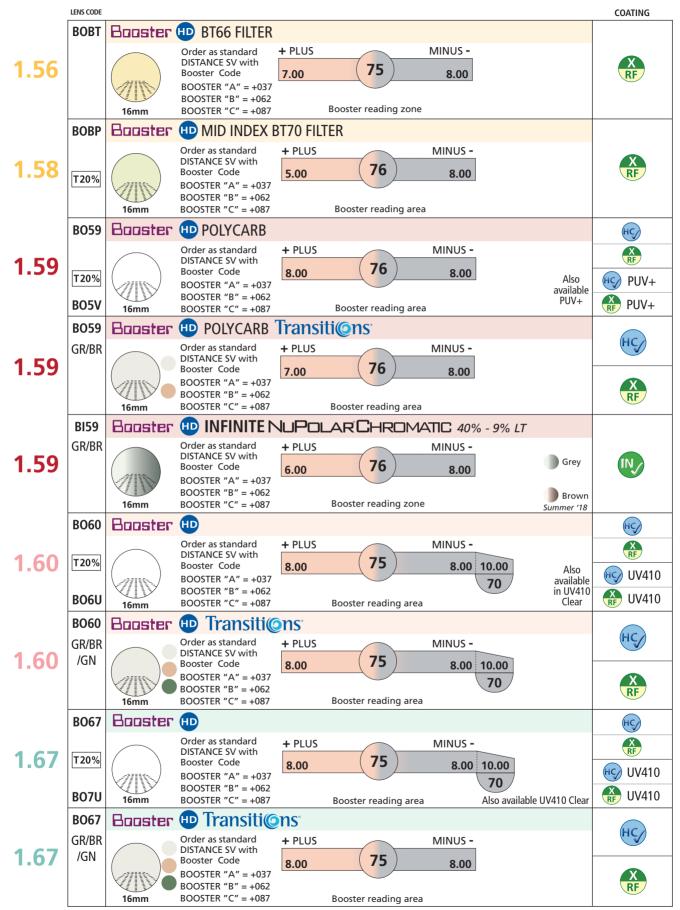
Bespoke Booster

To recap: a Booster "power portion" can be specified to any surfaced single vision lens category (see ophthalmic lens catalogue).

- Booster AVAILABILITY -



- Booster AVAILABILITY -



^{*}Note: Tints available on these products from 80% to 20% LTF - price excludes tint cost.

- Booster AVAILABILITY -

	LENS CODE						COATING
	BO74	Booster	HD				
1 74			Order as standard DISTANCE SV with	+ PLUS		MINUS -	RF
1.74	T N/A	(-7/IX\- <u>-</u>)	BOOSTER "A" = +037	10.00	(75)	10.00	K
		16mm	BOOSTER "B" = +062 BOOSTER "C" = +087		Booster reading area		
	BO74	Booster	Transiti@	ns°			
4 74	GR/BR		Order as standard DISTANCE SV with	+ PLUS		MINUS -	RF
1.74		//III	Booster Code BOOSTER "A" = +037	10.00	75	10.00	K
		16mm	BOOSTER "B" = +062 BOOSTER "C" = +087		Booster reading area		
	ВОНҮ	Booster	TINTABLE*				
4 - 4			Order as standard DISTANCE SV with	+ PLUS		MINUS -	DE
1.74	T20%		Booster Code BOOSTER "A" = +037	10.00	(75)	10.00	K
		16mm	BOOSTER "B" = +062 BOOSTER "C" = +087		Booster reading area		
		Iomm	BOOSIER C = +087		booster reading area		
	BO76	Booster					
	БОЛО		Order as standard	+ PLUS		MINUS -	
1.76	T N/A		DISTANCE SV with Booster Code	10.00	75	10.00	KRF
	I N/A		BOOSTER "A" = +037 BOOSTER "B" = +062				
		16mm	BOOSTER "C" = +087		Booster reading area		

^{*}Note: Tints available on these products from 80% to 20% LTF - price excludes tint cost.

- Boster MINERAL AVAILABILITY -

	LENS CODE				COATING
	BG52	Booster	HD		
			Order as standard DISTANCE SV with	+ PLUS MINUS -	
1.523	T N/A		Booster Code	8.00 (70)	G
	I IV/A	// \\\\	BOOSTER "A" = +037 BOOSTER "B" = +062		
		16mm	BOOSTER "C" = +087	Booster reading zone	
	BG60	Booster	(ID		
			Order as standard	+ PLUS MINUS -	
1.60			DISTANCE SV with Booster Code	8.00 (70)	RF
	T N/A	///IW	BOOSTER "A" = +037		
		16mm	BOOSTER "B" = +062 BOOSTER "C" = +087	Booster reading zone	
	BG60	Booster		OR PHOTOBROWN	
	PE/BP		Order as standard	+ PLUS MINUS -	
1.60	1 1 1 1		DISTANCE SV with Booster Code	70	G
1.00	T N/A	//I\\	BOOSTER "A" = +037	8.00 8.00	RF
		16mm	BOOSTER "B" = +062 BOOSTER "C" = +087	Booster reading zone	
		1011111	20031211 C = 1007	3 · · ·	
	BG70	Booster			
	Бало	Dunate	Order as standard	+ PLUS MINUS -	
1.70			DISTANCE SV with	70	G
1.70	T N/A	(<i></i>	Booster Code BOOSTER "A" = +037	8.00 10.00	RF
		46	BOOSTER "B" = +062	Booster reading zone	
		16mm	BOOSTER "C" = +087	booster reading zone	

^{*}Note: Tints available on these products from 80% to 20% LTF - price excludes tint cost.



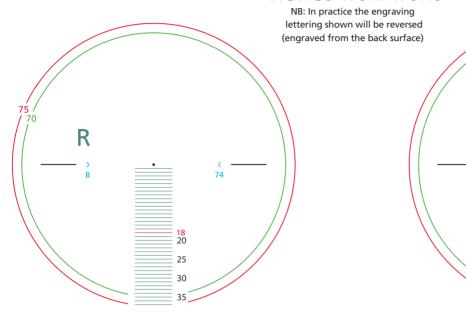


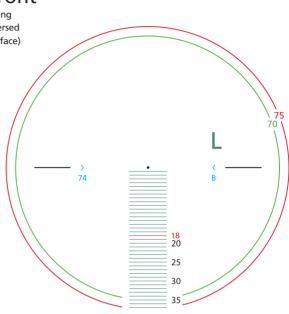


Inner Surface Single Vision (Pre-presbyopia)

Right Eye Effective Diameter Chart Left Eye

Viewed from front

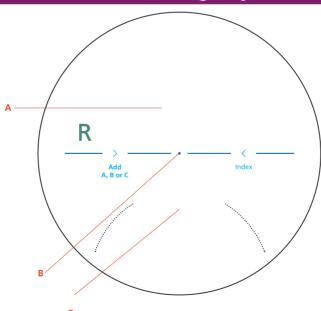




Lens Marking Layout

index is sno	ovvii as:
1.50 CR39	50
1.53 Trivex	53
1.56	56
1.59 Polyca	rb 59
1.60	60
1.67	67
1.74	74
1.76	76

Indox is shown as:



- Permanent engraved marks
- •Removable ink markings

Right eye uncut viewed from front

- A: far vision
- **B**: fitting cross coincident with prism reference point
- C: near vision area





VERSATILE - Two-Focus Degressive

Using an old fashioned one-focus reading lens has the inconvenience of not providing intermediate vision, causing the wearer to adjust for the various distances required for today's electronic environment and constantly to remove their spectacles. The **Versatile degressive** lens is a **two-focus reading lens** with a negative power degression, giving the wearer that versatility of vision that they used to enjoy. Versatile degressives are produced using progressive production technology. Not to be confused with occupational progressive (a 3-focus lens) differentiated by featuring a range of plus additions.

Versatile degressives have a lesser (minus) power in their upper portion. For those spectacle wearers with failing accommodation for near then degressives are the complete answer. For **intermediate and near**, not just for computer users, but all those troubled by ageing vision; particularly useful for trades persons (e.g. painters, electricians) needing to achieve closer work distances, health professionals etc. This is an all round lens for home office and work use.

These lenses are suitable for all presbyopic patients: early presbyopes who do not like their distance vision being blurred and those older presbyopes who have lost their accommodation.

This lens can be regarded as either a static or dynamic lens. The static is for users that just require inter and near. For example, high amount of computer use. For these people use the lower degressions, e.g. a +1.75 reading use -0.75 degression. Dynamic is for people who have a more mobile requirement, such as a PA, librarian or someone working on a till. For these people a +1.75 reading would be better with a -1.25 degression. The unique Norville Versatile Degressive Set allows easy Px assessment of their requirements without incurring any re-orders.

Thousands of potential users haven't yet been introduced to this immensely useful lens form by their Optician. As an example, Transitions Versatile degressives are just great for site surveyors and others on outdoor construction projects. Potential uses are extensive, from deep mines to deep space, wherever ageing human eyes need to respond to close detail. The various Versatile designs are formed by digital design and free-form lens production (excepting clear CR39 version).

Versatile lenses improve the posture of bifocal or progressive lens wearers constantly dealing with computer terminals, reducing neck or shoulder pain.

Free-form Versatile lenses have the following identifying markings:



─-125

to identify horizontal line and top/bottom (degressive power to bottom). Material (*other than CR39) indicated by 60 = 1.60 index, 67 = 1.67 index, etc. Norville Versatile is available in nine degressive (minus) powers -0.50, -0.75, -1.25, -1.50, -1.75, -2.00, -2.25 and -2.50. Norville can produce Versatile in any index, material or tint (see page 62).

This lens product is hugely beneficial to both practice and patient. Versatile is available in most lens materials in the ophthalmic lens price list but where not as standard can be individually specified as **bespoke dispensing**.

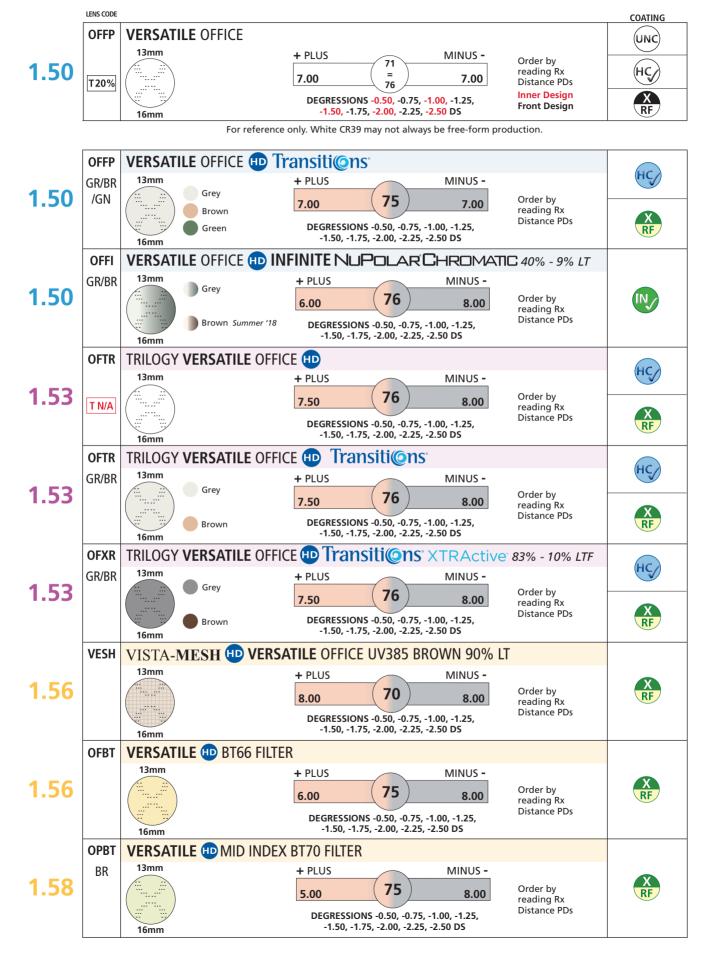




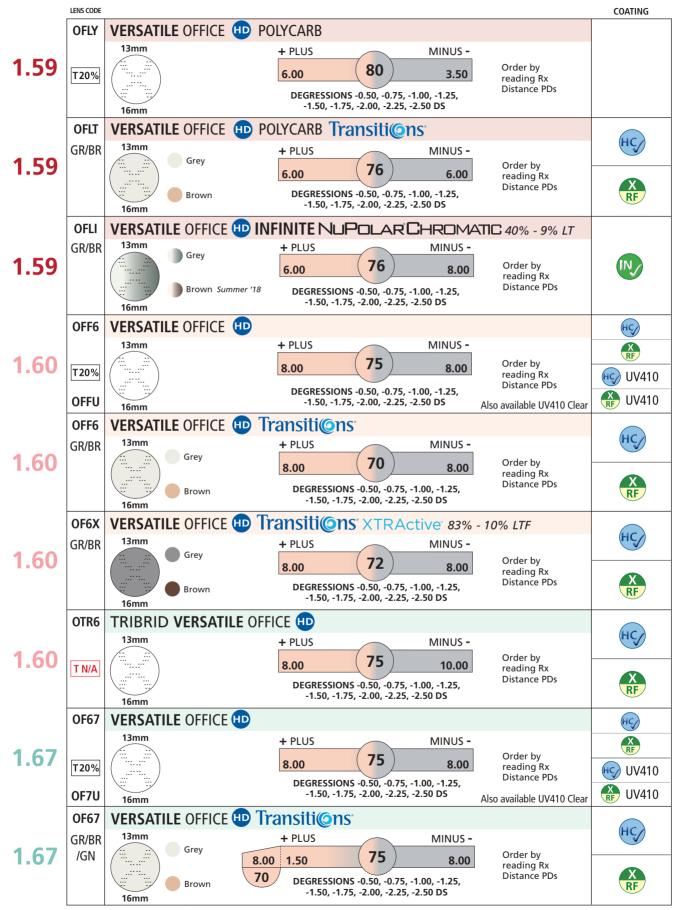


Versatile Fitting Set









^{*}Note: Tints available on these products from 80% to 20% LTF - price excludes tint cost.



	LENS CODE				COATING
	OX67	VERSATILE OFFICE ID Tra	ansiti@ns° XTRActive° 83% - 1	0% LTF	
	GR/BR	13mm	+ PLUS MINUS -		HC
1.67		Grey	7.00 (78)	Order by	
		Brown	DEGRESSIONS -0.50, -0.75, -1.00, -1.25,	reading Rx Distance PDs	X
		16mm	-1.50, -1.75, -2.00, -2.25, -2.50 DS		RF
	OF74	VERSATILE OFFICE HD			
		13mm	+ PLUS MINUS -		
1.74	T N/A	(11111111111111111111111111111111111111	8.00 (75)	Order by reading Rx	KRF
	I WA		DEGRESSIONS -0.50, -0.75, -1.00, -1.25,	Distance PDs	
		16mm	-1.50, -1.75, -2.00, -2.25, -2.50 DS		
	OFHY	VERSATILE OFFICE HD TIN	TABLE*		
4 7 4		13mm	+ PLUS MINUS -		, DE
1.74	T20%		8.00 (75) 8.00	Order by reading Rx	KRF
			DEGRESSIONS -0.50, -0.75, -1.00, -1.25,	Distance PDs	
		16mm	-1.50, -1.75, -2.00, -2.25, -2.50 DS		
	OF74	VERSATILE OFFICE Tr	ansiti@ns [*]		
4 74	GR/BR	13mm	+ PLUS MINUS -	Order by	RE
1.74		()	8.00 (70)	reading Rx	RF
		Brown	DEGRESSIONS -0.50, -0.75, -1.00, -1.25, -1.50, -1.75, -2.00, -2.25, -2.50 DS	Distance PDs	
	0.650	16mm			
	OG52	VERSATILE OFFICE ID MIN			
1.52		MINERAL	+ PLUS MINUS -	Order by	G
1.52	T N/A	(IVIIIVLIVAL	8.00 (70)	Order by reading Rx	RF
		16mm	DEGRESSIONS -0.50, -0.75, -1.00, -1.25, -1.50, -1.75, -2.00, -2.25, -2.50 DS	Distance PDs	
	OG52		OTOGREY OR PHOTOBROWN MINER	2.4.1	
	PE/BP	VERSATILE OFFICE WE THE	+ PLUS MINUS -	VAL .	
1.52	ו ביטו	Grey	70	Order by	G
1132			0.00	reading Rx Distance PDs	NF
		16mm	DEGRESSIONS -0.50, -0.75, -1.00, -1.25, -1.50, -1.75, -2.00, -2.25, -2.50 DS		
	OG60	VERSATILE OFFICE HD MIN	VERAL		
			+ PLUS MINUS -		
1.60	T NI/A	(in the second s	8.00 (70)	Order by	RF
	T N/A		DEGRESSIONS -0.50, -0.75, -1.00, -1.25,	reading Rx Distance PDs	
		16mm	-1.50, -1.75, -2.00, -2.25, -2.50 DS		
	OG60	VERSATILE OFFICE HD PHO	OTOGREY OR PHOTOBROWN MINER	RAL	
	PE/BP	Grey	+ PLUS MINUS -		
1.60		()	8.00 (70)	Order by reading Rx	RF
		Brown	DEGRESSIONS -0.50, -0.75, -1.00, -1.25,	Distance PDs	
		16mm	-1.50, -1.75, -2.00, -2.25, -2.50 DS		
	OG70	VERSATILE OFFICE HD MIN			
4 70			+ PLUS MINUS -		G
1.70	T N/A	(8.00 (70)	Order by reading Rx	RF
			DEGRESSIONS -0.50, -0.75, -1.00, -1.25,	Distance PDs	
		16mm	-1.50, -1.75, -2.00, -2.25, -2.50 DS		

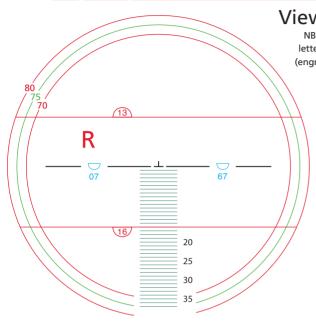
 $[\]mbox{*}\mbox{Note:}$ Tints available on these products from 80% to 20% LTF - price excludes tint cost.

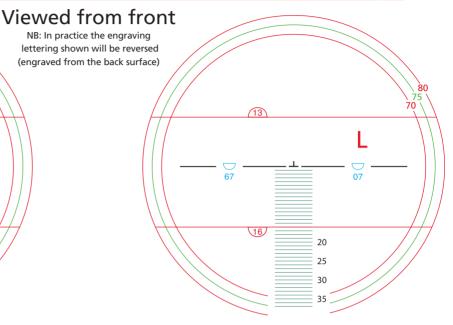






Right Eye Effective Diameter Chart Left Eye





Lens Marking Layout

Degressio	n is shown as:	Index is shown	as:
-0.50	05	1.50 CR39	50
-0.75	07	1.53 Trivex	53
-1.00	10	1.56	56
-1.25	12	1.59 Polycarb	59
-1.50	15	1.60	60
-1.75	17	1.67	67
-2.00	20	1.74	74
-2.25	22		
-2.50	25		

Ordering Versatile:

Order by **Reading** prescription and state **Minus** degression value required, either -0.50, -0.75, -1.00, -1.25, -1.50, -1.75, -2.00, -2.25 or -2.50. State **Distance PD** and **Pupil Heights**.

Note: As a rule of thumb the degression value is approximately 0.50 less than the reading add.

Versatile Design

Minimum Fitting Height (from lowest tangent top of bottom rim)	Minimum Fitting Height (from top rim)	Minimum Frame Depth	Fitting Cross Height above PRP
Min 16mm	Min 12mm	28mm+	0mm
from PRP to bottom	PRP to top		fit to pupil centre

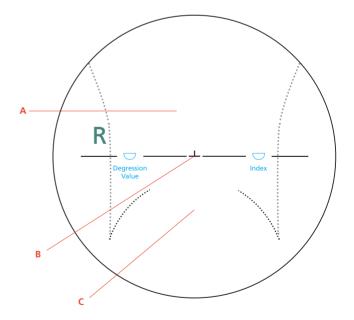
TO VERIFY POWER MEASURE IN

LOWER READING AREA (NOT DISTANCE).

Special Note: The clear (or tinted) CR39 range carries different markings.

*CR39 only markings: +

-125



- Permanent engraved marks
- •Removable ink markings

Right eye uncut viewed from front

A: inter degression

B: fitting cross on PRP and prism reference point

C: near vision - power check point



Manufactured in our Gloucester UK Laboratories

SLIM EDGE TECHNOLOGY (S.E.T.)

Recreational & Cosmetic Reduced Edge Programme



Slim Edge Technology

Reduced Edge Blend - Minus & Plus Rxs

New free-form lens processing technology enables the reduction of lens edge substance by creating a subtle blend-off edge effect. In minus Rxs this physically removes the outer edge curve then blend polishes over. This reducing concatenation of curves effects a very useful thickness reduction whilst avoiding a visible rimmed lenticular bowl.

Particularly clever with plus lenses, where creating a steeper minus curve just at the edge means that it becomes a thicker edge, which then enables a further reduction of centre substance to again achieve that original edge substance as specified for glazing. SET is generally based around a 50mm clear central zone, although this can be altered both larger and smaller.

Whilst the most effective way to reduce edge thickness (negative power lenses) is always to specify the highest index, having done just that any further edge reduction will only be achieved by smaller eye sizes or lesser decentration.



Regular spherical curves



CR39 +8.00 base, -4.00 DS

Same lens as above but SET



S.E.T. wrap CR39 +8.00 base, -4.00 DS

- Sportor optics design but with Slim Edge Technology.
- Unique technology reduces both plus and minus lens thickness.
- Edge and centre reduction achieved with Slim Edge Technology.

This circular bowl edge reduction process can be applied to

ULTOR SPORTPAL NORTOR SPORTOR-SV

Available in plus or minus Rx powers.

(previously coded RECRE)

PS. PRESCRIBER'S HOT TIP

We have noted some phenomenal outcomes vis -13.00 Ultor Transitions into an upswept frame & -8.50 mirrored sunspec lenses into an Aviator shape!

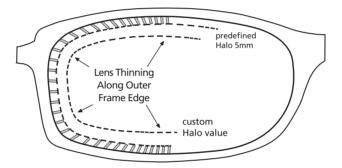
Slim Edge Technology

Nortor - Sportor Shape Blend

Modern technology enables the exact frame shape to be input along with the lens power information to simultaneously output a blended periphery design enabling cosmetic edge reduction. Remarkably this is equally effective on plus powers as it is on minus. Available to any Nortor, Sportor or SportPAL lens design in any index. Shape edge blend should be visually indiscernible to the user as only 5mm of extreme edge is involved although super shape blend, involving deeper edge blending (reducing visual field) is available to special instruction.

Blend Width

- Standard blend width is predefined by the software at 5mm.
- Nevertheless we can further increase this design blend width when requested.
- Blend width and final edge thickness of the lens are directly related.
- Compatible with any Nortor material.



The wider the blend, the thinner the lens will be, but it will reduce the optimum visual region.

Combining this with Nortor enables the best of two worlds: fine optics over the available area of the lens plus the advantage of thinner edge or centre substances. This result is an optical and cosmetic win, win.

Whilst the upside is considerably thinner edge appearance the downside is reduced clear aperture. With spectacles fitted closer, with the Px a head turner any blinkers effect can be minimised.

The key to Px acceptance is their desire to obtain cosmetics over visual perfection. Head turners will find little issue, except when reversing the car!



Resin Super Lenti - High Minus Solutions

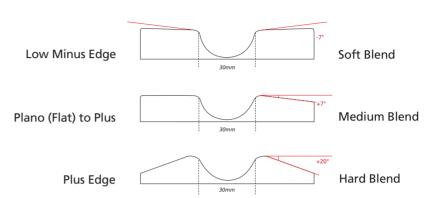
Resin Super Lenti - VARIABLE BLENDED APERTURES

By cutting and polishing lower minus curves, or a plano flattening curve, to around that of the vertical spectacle frame aperture dimension, e.g. 32-35-40mm, the edge thickness (ET) considerably reduces to an average of 50% edge thickness reduction. The visibility of the blend can be modified by specifying the flattening blend.



Index	mm
1.60	5.9
1.67	5.2
1.74	4.7

^{*}Calculated to regular working centre thickness (CT)



The clear vision centre aperture can be varied in diameter on demand.

Lenses with spheres, cylinders (virtually no limits) and reading additions (ULTORs) can be achieved.

The optical surface produced, even at extreme powers, is an atoral design not just spherical/toric i.e. HD optical surface. No engraved markings.

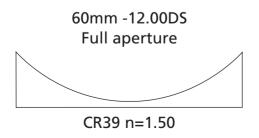
Range chart

	Max. Minus				
Material	1.50 index	1.60 index	1.67 index	1.74 index	
Clear	-16.00	-18.00	-20.00	-28.00	
Transitions	-	-18.00	-18.00	-25.00	
Transitions XTRActive	-	-18.00	-18.00	-	

Higher Minus Powers and Larger Eye Sizes



The larger the diameter and higher the minus power naturally the thicker the edge substance (ET).

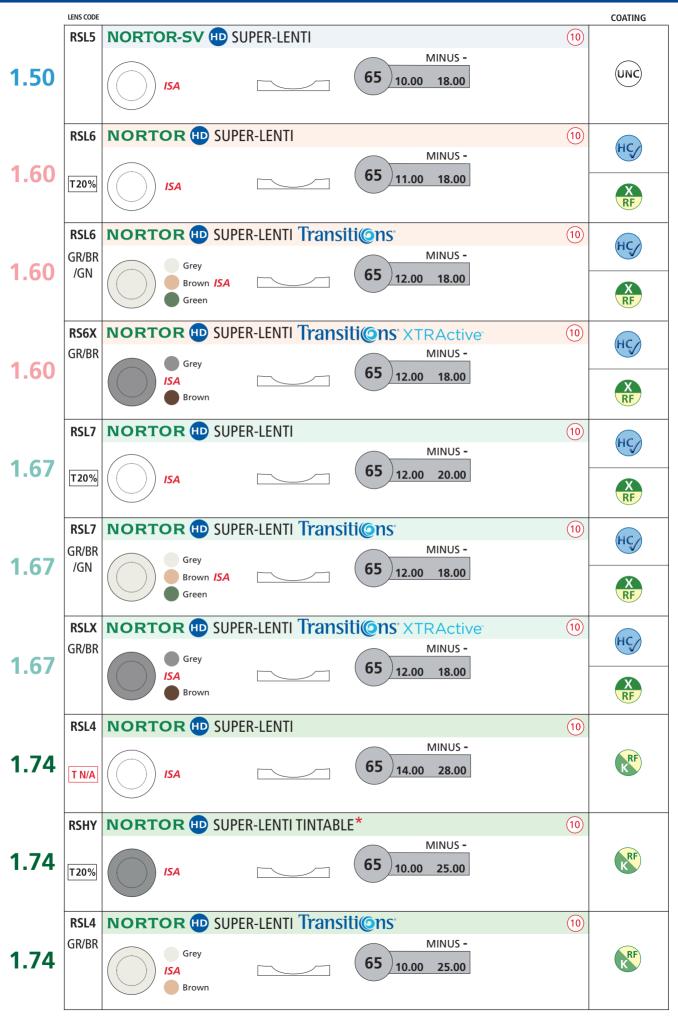




-12.00 ET at 60mm* full aperture

Index	mm
1.50	14.8
1.53	13.2
1.59	11.9
1.60	11.8
1.67	10.3
1.74	9.2

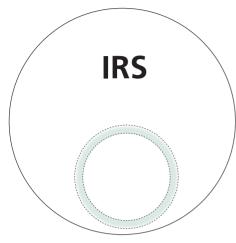
Resin Super Lenti - High Minus Solutions



^{*}Note: Tints available on this product from 80% to 20% LTF - price excludes tint cost.

HD IRS Bifocal RD28 Seamless

Digital Free-form Bifocal



Available 15 to 50mm segments*

Adds +0.50 to 6.00

2.5mm blend

Fit 3mm below pupil

WIDE HD distance

and near visual

No oblique astigmatism

* where no size stated 28mm supplied

Ironically, in the style of those old glass solid bifocals (segments on the concave inside surface), free-form manufacturing allows us to produce a round segment bifocal design. But there the similarity to old style bifocals ceases! As with inner surface progressive designs, that **segment also incorporates any cylindrical element!** Who would have ever thought a cylindrical power round segment addition would be possible? Traditionally, these would have been spherical additions with the cylinder power on the opposite convex lens surface.

Also, because blended designs are free-form they have the added advantage of atoral curve correction for HD vision right across the full lens and beyond the segment limits.

Norville's HD bifocals coded IRS (invisible round segment) can be supplied in most resin lens materials. We have selected a number of materials **normally unavailable** in bifocal lens form (see following pages). However, we can produce other combinations, which you may wish to specify under those **bespoke** free-form options (see page 101). IRS can be supplied in <u>any round segment size</u> from 15mm to 50mm.

Bespoke range

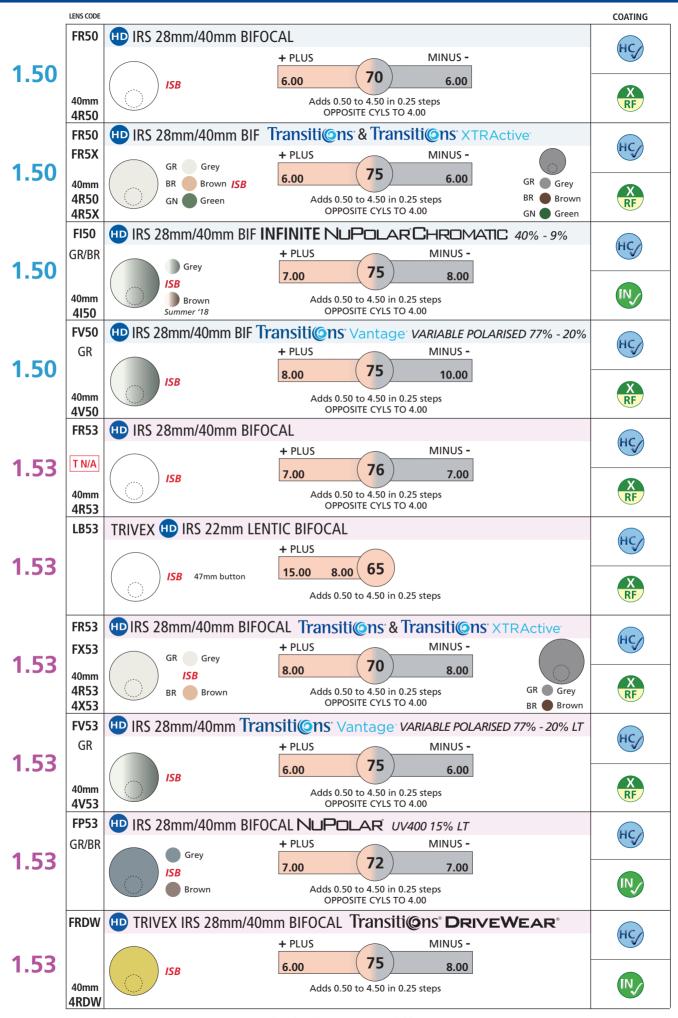
All lens materials can be ordered as an IRS bifocal option.

Larger blank diameters than those listed can be achieved by physically decentring the seg position laterally at the time of production.

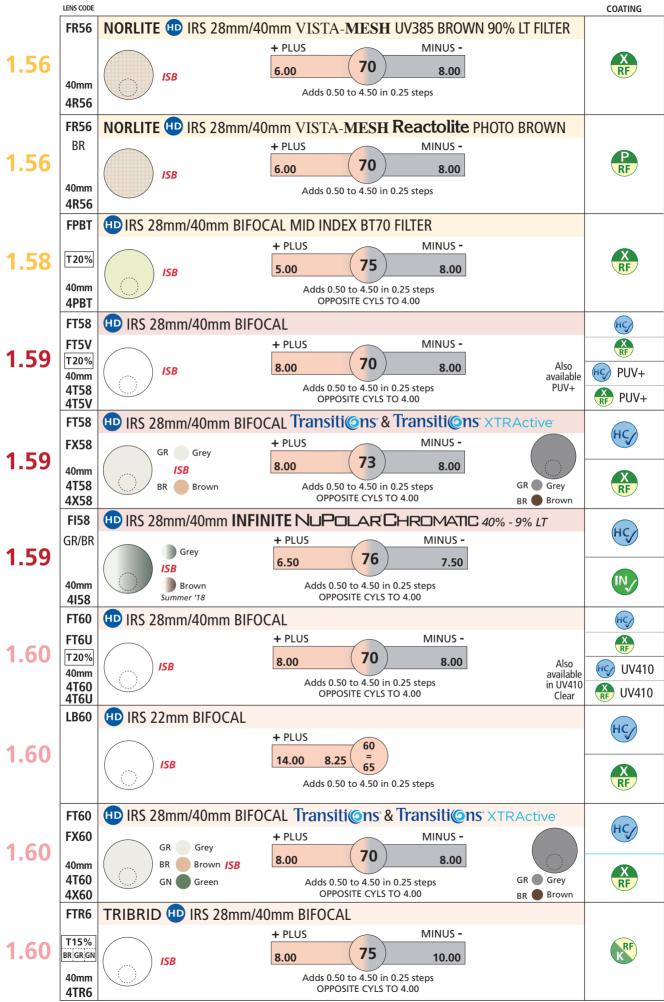


Lens Marking Chart Left Eve Right Eye NB: In practice the engraving lettering shown will be reversed (engraved from the back surface) R 20 20 25 25 Permanent engraved marks 30 30 Removable ink markings Inset 2.5mm As viewed from front

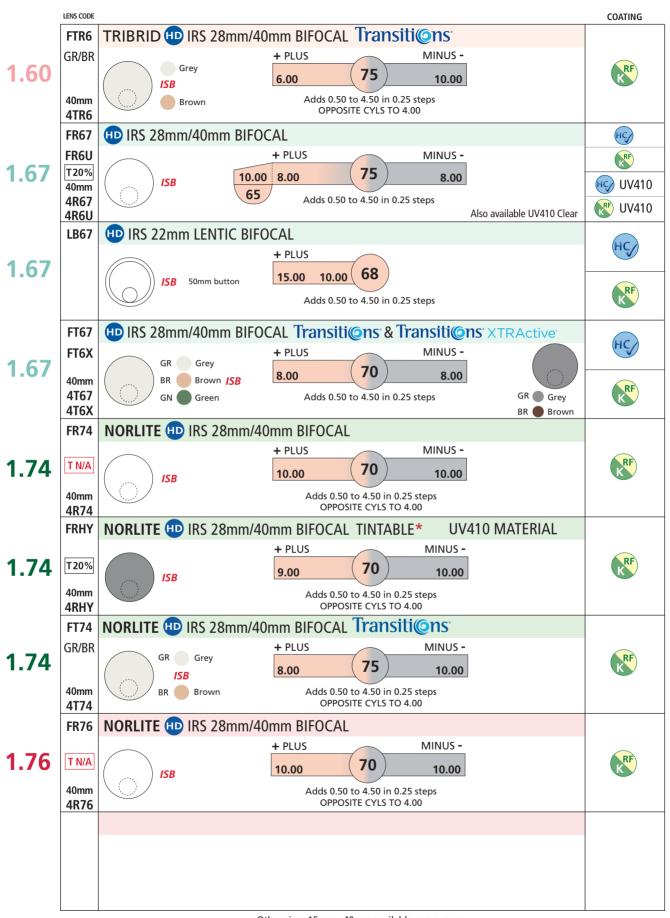
HD IRS Bifocal RD28/40 Seamless



HD IRS Bifocal RD28/40 Seamless

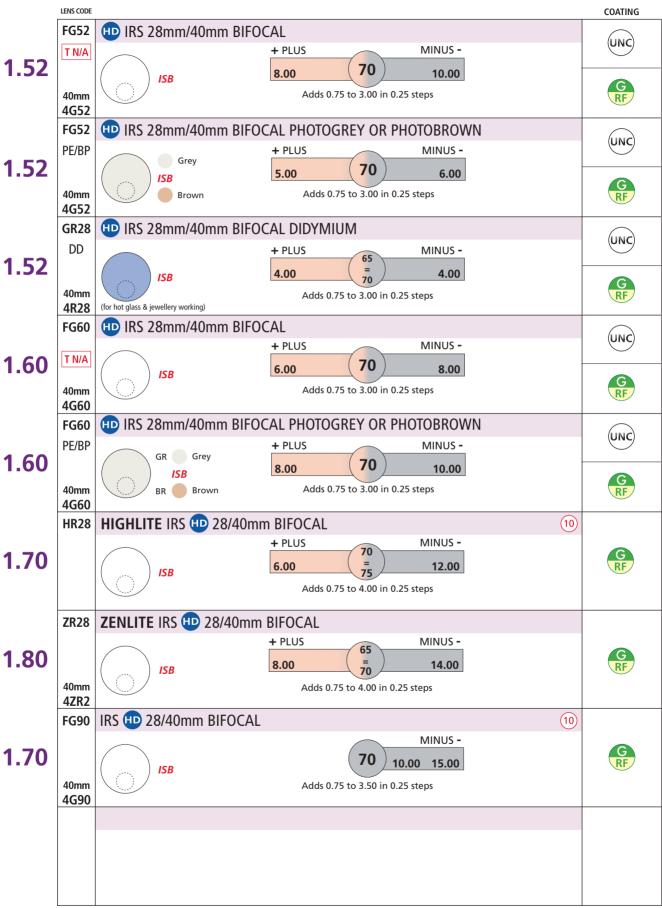


HD IRS Bifocal RD28/40 Seamless



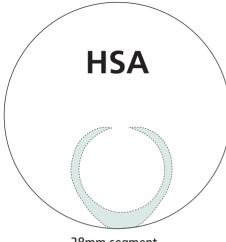
Other sizes 15mm - 40mm available same range. *Note: Tints available on this product from 80% to 20% LTF - price excludes tint cost.

HD IRS Bifocal RD28/40 Seamless MINERAL



Other sizes 15mm - 40mm available same range. *Note: Tints available on this product from 80% to 20% LTF - price excludes tint cost.

Digital Free-form Multifocal No Image Jump



28mm segment
Hybrid Smart Add - HSA
NEW 21stC HD Free-form approach
to bifocal design.
Can be a fully compensated
personalised design.
Eliminates upper visible dividing line.
No image jump from distance to
reading as with traditional round
bifocals.

Recommended to provide near PD values when ordering.

H for Hybrid.

A blended multifocal design that goes a stage further than the regular IRS bifocal. Modified "H" design removes the segment top to replace it with a "progressive" style blend. This is a hugely significant design change as the lens alters to a no-jump prism design similar to a D segment bifocal, resulting in prism base up instead of down at the reading point.

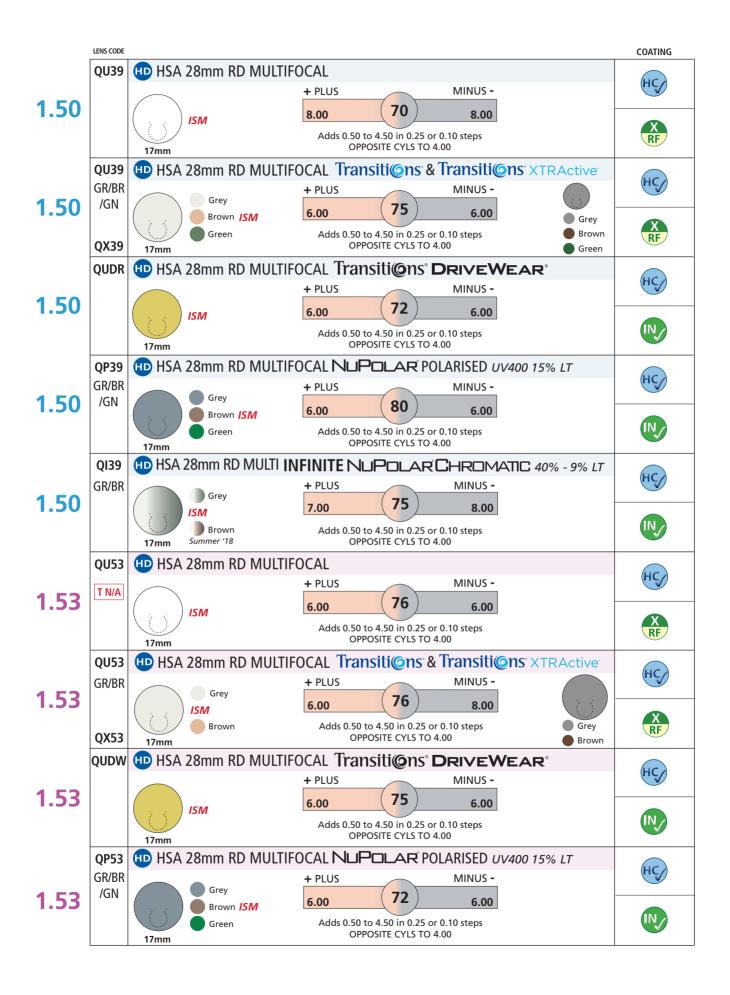
To achieve this extra blend material is parked at the sides of the bifocal.

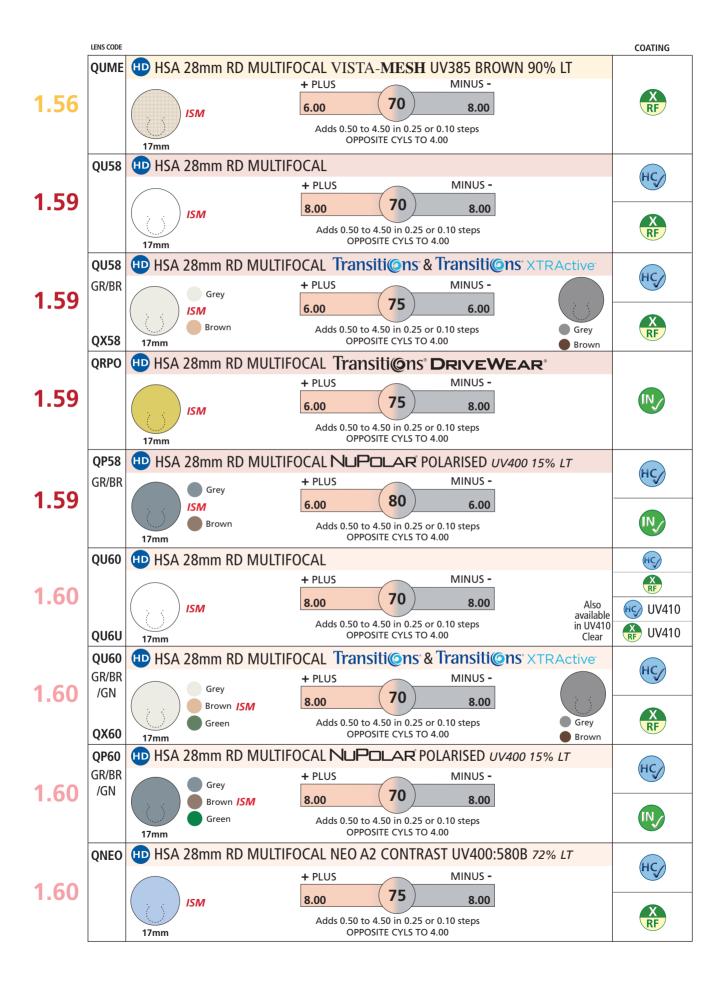
HRS is essentially a blend between a bifocal and a multifocal; it may prove a stepping lens for convinced bifocal wearers to accept fuller multifocals.

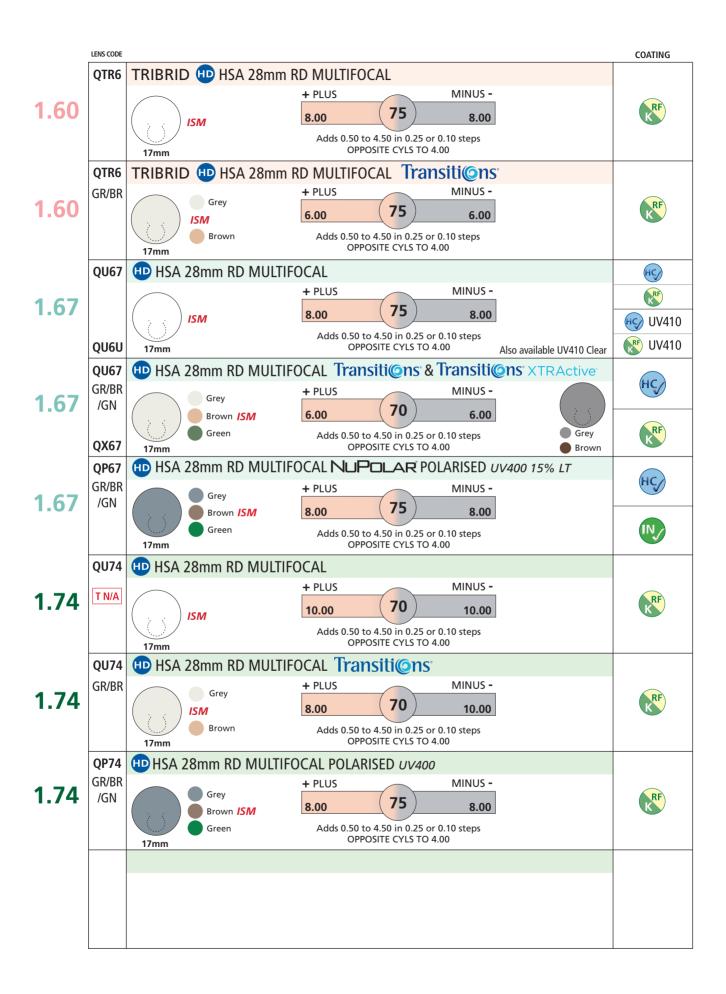
	ŀ	HS/	1		PLANO			IRS		
	m/m		Prism		DISTANCE		Prism		m/m	
	10	•	0.0	\			0.0	•	10	\
Above	5	•	0.0				0.0	•	5	Above
··· HCL····	0	-+-	0.0				0.0	+	0	····HCL·····
Below	5	•	0.51	Prism		Prism	2.5↓	•	5	Below
	10	•	1.31	up /	+2.50	down	2.0↓	•	10	
	15	•	2.61		Additions		1.0↓	•	15	
					Additions					



Left Eye Right Eye Lens Marking Chart NB: In practice the engraving lettering shown will be reversed (engraved from the back surface) R 20 20 25 25 Permanent engraved marks 30 30 •Removable ink markings Inset 2.5mm As viewed from front







Bespoke Free-form

AN EXCITING NEW WORLD

2018 UPDATE

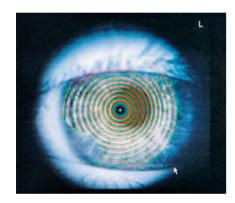
Bespoke Free-form

There may be many occasions when you desire to "supercharge" your client's vision yet the lenses you wish to use are not shown within our regular listing as digital HD design options. No problem – you can specify a **Bespoke Free-form solution**. Norville will then apply an enhanced high definition vision solution to your preferred lens choice (any choice!) using exactly the same high quality point focus digital calculations.

It's simple – rather than use conventional inside surface lens finishing with its 19th C standard spherical or toric curves, we will upgrade the design using an Atoral digital curve designed, calculated and produced with free-form lens surfacing technology for point focal accuracy across its **entire** lens surface.

This HD technology can be applied to any existing lens type or material, so upgrading the quality of its optics. Just add the words "HD digital free-form" – HD to the lens form, e.g. S728 Trifocal, **HD digital free-form** and we will do the rest.

We are now reaching the next frontier



As the eye views through different areas of the cornea, due to nature's imperfect lens surface, variable vision outcomes become apparent. Different areas of the cornea are used for distance and reading vision and it is very likely that varying cylinder powers and axis will be recorded at those differing principal points.

No longer is this an issue for lens producers! Free-form enables us to provide, combined in one lens surface, two varying cylinder powers and axis options. Conjoined, may not be the best description, dual or double C/A perhaps DCAS lens the more apt. Please challenge us as we attempt to fulfil your requirements.

Dual cylinder power and axis

Nortor single vision and progressive

Instruments such as the Visionix L80 Wavefront enable the refraction to 0.01D both distance and reading. That this results in unequal outcomes is of little concern when a matching spectacle lens is achievable.

A number of proven options are listed on the following pages (see Bespoke pages of Rx catalogue - resin page 120 & page 143 for mineral - for a costing guide).

Do contact us to discuss further possibilities.

Extra Large - Extra Small

The other great area of NEW BESPOKE is we can make lenses larger (page 96) or smaller (page 102) than was ever possible before.

Distinctly Yours

Where volume justifies the set-up time you can adapt your own lens engravings - post-codes - passwords - to be micro engraved onto the free-form lens surfaces.

Bespoke Atoral - adding the HD factor

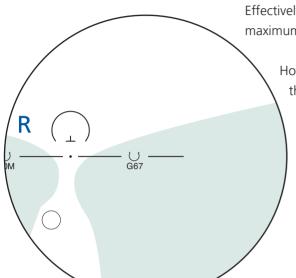
ULTOR SPORTPAL

XXL

The Norville Group is pleased to announce the largest progressive lens diameter ever!

Digital Free-form

Our free-form design team have come up with a solution for the patient who wants their prescription to that large sunspec or frame no matter what.



Effectively, we can produce XXL lenses up to **20mm** larger than the regular stated maximum lens blank diameter.

However, one word of warning - the ED of the lens shape needs to be just less than the maximum available blank size, i.e. lens blank diameter has to be at least 2mm larger than the ED diameter of the frame we are glazing.

Available in most Ultor lens materials, including Transitions and NuPolar.

NORTOR VVI SPORTOR-SV

Norville offers the XXL process in Nortor atoral HD single vision as well for all those larger sunspec and oversize acetates.

Digital Free-form

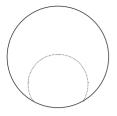
If you find the regular lens size availability too small just state Nortor XXL and let us do the rest. Please remember that although we decentre your patient's centres in the correct place we cannot take responsibility for the additional edge substance that can be a by-product of XXL frame choice, i.e. the larger the lens blank effective diameter the greater the lens thickness.



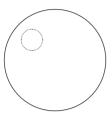
We can usually increase the lens effective diameter by a maximum of 20mm, so a 75mm to 95mm!

So many "previously impossible to glaze" prescriptions can now become possible using Norville's unique XXL technology.

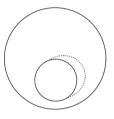
Bespoke HDRD, COMBIPAL



35mm Seg



15mm Sea



Double Decker

INVISIBLE ROUND SEGS (IRS)

This design gives additional opportunities for bespoke lens supply beyond the regular published options.

Seg Size

IRS (ID) RD can be created in any round segment diameter from 15mm to 50mm.
HRS (ID) RD can be created in any material as a 28mm round no-jump segment design.

Seg Position

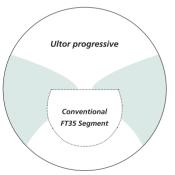
Especially the smaller 15mm spot seg can be displaced latterly - vertically anywhere around the lens you specify. Being an "invisible" design no-one is likely to notice its placement except the wearer!

"Double Deckers"

Placing one seg over the other (on different sides of the lens of course!) enables higher additions to be obtained. As an example, one patient required +12.00DS with +5.00 add: the current Omega bifocal, available just to a +3.50 add was boosted by creating an additional +1.50 add on the inside surface thus reaching the +5.00 addition required.

Additions

+0.50 to +6.00 in IRS and HRS Negative value adds possible - e.g. segment for +0.75 add bifocal +1.00 lowest listed, produce -0.25 segment on the inside surface.



ComBiPal Flat Top (BP50)



ComBiPal Crescent (BP40)

COMBIPAL

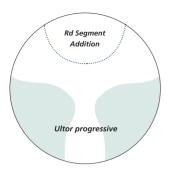
The Best of Both Worlds - ComBiPal

We take a bifocal semi-finished (seg on the front) and then create a low add progressive on its inner surface by which technique we have far wider fields of view than is possible from a normal full addition PPL design.

This technology is particularly advantageous with higher additions. The reading fields of view in a +3.50 add conventional front surface progressive, whatever design, are fairly minimal.

Putting a first time progressive wearer into a higher addition is unlikely to meet with visual acclaim! But carrying the higher addition power split on the front segment and a lower progressive addition on the inner maintains reasonable fields of view even when +4.00 additions or higher – hence ComBiPal, an inner progressive design of lower add power "carved" onto a higher addition bifocal semi-finished blank.

PILOTOR & OCCUPATIONAL



Pilotor (UP50)

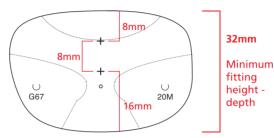
OUTER SURFACE SEGMENT

INNER SURFACE ULTOR

PILOTOR UP & DOWNS

The original Essilor design long discontinued, its revival now made possible through free-form technology. In essence, a bifocal segment placed high up in the spectacle frame for intermediate use to read dials and gauges. In an earlier age, this may well have been called "librarian lens".

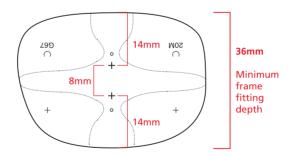
Inverting a regular bifocal lens blank of any available seg size (usually RD 40), we place an Ultor progressive surface onto its lower concave surface. This would also be achievable with a trifocal lens blank for someone who needed variations in upper focusing distances!



UP50 Design Measurements

PILOTOR DOUBLE PPLS

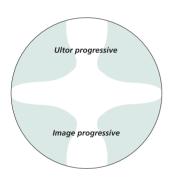
Double progressive designs, with both an up and down progressive surface. This is achieved by inverting a front surface progressive semi-finished blank (Image) and, as explained for the Pilotor, forming an inside free-form progressive surface opposite to its usual distance position, remembering of course to leave a sufficient WIDE window for a distance vision portion. Available in any index, white, Transitions or NuPolar materials.



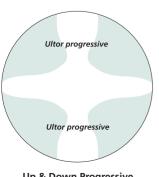
UPD Design Measurements

Auto-PILOTOR

The very latest in free-form design software technology enables the production of an upside-downside double progressive design, <u>both</u> on the same side of the lens i.e. inner surface. Now available with <u>different additions</u> top & bottom.



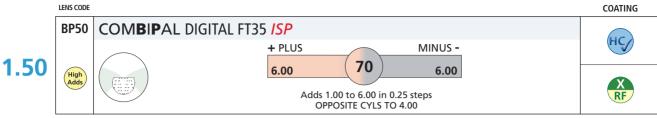
Up & Down Progressive
OUTER IMAGE
INNER SURFACE ULTOR



Up & Down Progressive
Double Inner Surface (UPDA)

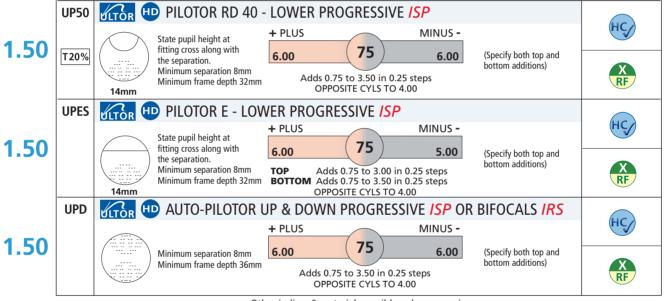
Occupational + Clinical ULTOR

COMBIPAL



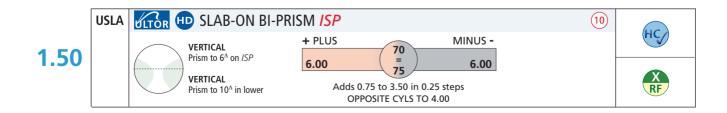
Other indices available - see Bespoke

PILOTOR "Up & Down" Vision Solutions



Other indices & materials possible - please enquire

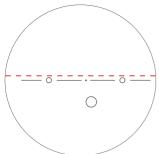
Vertical Prism Solutions



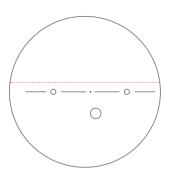
Many Other Indices, Bespoke Combinations and Options Available

Free-form HD Bi-Prism

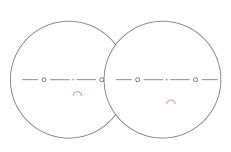
Vertical Prism Options Progressive Lens Designs



Soft Blend - 3 up or to demand



Sharp line - as specified



Odd Corridor Lengths

Max $\frac{3}{4}^{\Delta}$ reduction

signs We should today really be discouraging the use of the words slab-off, now

We should today really be discouraging the use of the words slab-off, now deprecated by BSI, for **Bi-Prism**, which, of course, slab-offs are! However, now we can physically **slab-on** as well as **slab-off** prism perhaps this original term is still the more appropriate terminology!

The New World of Free-form HD Bi-Prism (Slab-Off)

The extraordinary outcome of free-form technology is how it has completely changed the technical aspects as now we can add prism, as well as subtract prism. So rather than all the prism, say 3^{Δ} in just one eye, we can now split the prism correction between both, i.e. $1\frac{1}{2}^{\Delta}$ B up and $1\frac{1}{2}^{\Delta}$ B down. This has the advantage of more gently addressing the physical band of prism ridge-change. That previous slab sharp line, sometimes as distinctive as an E style bifocal line, can now become an invisible blend line. A further advantage where previously we needed to say to you $1\frac{1}{2}^{\Delta}$ was the minimum prism value achievable, now feel free to obtain $\frac{1}{2}^{\Delta}$ or $\frac{1}{2}^{\Delta}$ bi-prisms! So with no restrictions on prism values, lens type or materials, it's over to you to prescribe comfortable vision, especially to those newly troubled by anisometropia, e.g. one eye cataract surgery.

Our new free-form software and production process splits any correcting prism between both eyes i.e. base up / base down. However, we can still supply the traditional approach with all the correcting prism worked base up in just the one eye only, but due to those higher prism values the interface blend line disruption is likely to be more noticeable (wider) by the Px.

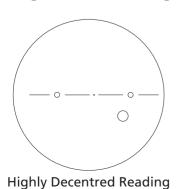
At the same time, this service also converts a previous basic spherical or toric optical surface to one of the new world of atoral corrected optics for HD all-round vision.

Whilst a bi-prism (slab-off) generally just corrects the vertical imbalance, a prism controlled outcome will endeavour to show prescribed or zero prism at N.V.P. position.

All the above are soft blend line bi-prisms either slab-ons or slab-offs. It is possible to use the CR39 slab-on (base down prism reading), which is a sharp line design (think of E style). By using different prism values R&L eyes we can effect a prism controlled (vertically) outcome at the NVP. This product is currently only available in CR39, whilst all soft blends can be achieved in any index.

Some much smaller values, up to $\frac{3}{4}$, of vertical prism imbalance can be corrected by using varying corridor length progressive designs.

Horizontal Prism Options Progressive Lens Designs



BASE IN & OUT PRISM READING ONLY

Obtained through excessive insetting Limited to lower prism values $11/2^{\Delta}$ to 2^{Δ} prisms

Warning: This option has not proven as successful as we had hoped.

The user may miss the intermediate channel to reading area which also may become too restricted due to its excessive lateral displacement, notwithstanding a number of Pxs are happily wearing this design. The calculation process can be a little hit and miss!

Free-form Bespoke Options

New technology brings with it new issues whose solutions have to be re-learnt. Digital design and free-form production are immensely complex. Fast Evolving Lens Technology (F.E.L.T.) is the apt description.

Nortor HD Fitting information

All free-form digital designs are aspheric point focus so it is important the optical centre of the lens design is matched to Px's pupil - viewing position. For HD single vision vertical centration should also be recorded. Take the time to face fit the frame before noting fitting measurements. Truly the best vision you've ever dispensed!

Free-form progressives NV fitting

After many years of fitting regular progressives with fixed insets it would appear specifiers have lost the habit of recording near PDs. Please re-engage with reading PDs as all HD free-form progressives can be designed with variable inset measurements.

Prism Corrections & Higher Cylindrical Powers

Whilst we haven't as yet collected clinical feedback, the theory calculations would indicate that a prism lens manufactured within a free-form lens exhibits higher optical performance than regular (traditional) production methods. We can incorporate up to 5^{Δ} of worked prism correction into a CR39 lens and, as the index of the lens material increases, then up to 12^{Δ} is achievable.

MAXIMUM PRISM

for HD digital products

Refractive Index	Total Combined ∆
1.50 - 53	$5^{\scriptscriptstyle\Delta}$
1.60	8^{Δ}
1.67	10∆
1.74 - 76	12∆

Higher values possibly attainable subject to available blank thickness

MAXIMUM CYLS

for HD digital products

Refractive Index	Highest Cylinder
1.50 - 53	6.00DC
1.60	7.00DC
1.67	8.00DC*
1.74 - 76	10.00DC*

^{*}Subject to available blank thickness

MAXIMUM ADDITIONS

for HD digital products

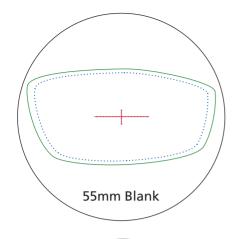
In addition to CombiPal (page 97) +6.00 adds, and Simage, (page 50) +6.00 adds, we are working with +8.00DS to extend high add ULTORs.

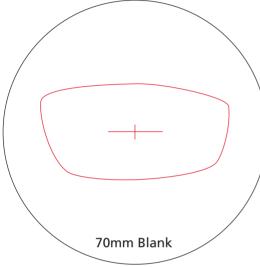
Contact us for over +4.50 add ULTOR options (depends on distance Rx).

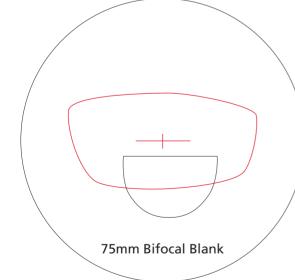
PLEASE ASK

Pages 119 - 122 & 141 - 143 of our RX lens catalogue indicate Digitally Surfaced Bespoke & Supplementary Charges. Many other lens material forms are available even when we do not actively list them!

Free-form is GREEN - Free-form is Freedom







Norville is delighted to report that free-form lens production has enabled considerable **greening** of Rx lens production processes.

- Smaller lenses = less waste & less material
- Reduced water usage
- Reduced electrical usage.

And most significantly, the move away from cadmium-based blocking metals

• Less hazardous materials

There are always new areas for achievement and we are looking at ways (any!) that plastic powder waste might be recyclable.

Small is Good, Small is Green

Over the last 50 years, with the advent of CR39 and resin lenses, we have moved entirely to round lens blanks but very seldom do you actually have a round eye frame to fit them into. Look how much waste a 50mm eye size produces and a 46mm even more even when using a small 55mm blank.

Nowadays, we do have a range of stock lenses from 75mm round to 55mm round but, with surfaced semi-finished. Rather than keep that many diameters in stock, the manufacturers go for large only, so many lenses have only one choice of large blank diameter.

Free-form enables Small

The free-form process is perfect for small lenses, for non-round lenses even frame shaped lenses.

In Rx lens surfacing, small means THIN

The modern miracle of free-form production coupled with high index materials with the magic of slim edge thinning (S.E.T.) software results in ophthalmic lenses of unbelievable appearance.

As long as we have all the key information elements Rx + decentration + eye shape we can make anything!

Ultor Progressive Lenses From 80mm size to 20mm size

And no longer do they need to be round lens production. Many combinations of higher power vertical axis settings are far neater when oval shaped.



Actual sizes

This process can be applied to all progressive and single vision Nortor - Sportor free-form production.

Free-form production technology enables **FREEDOM**



Lens Placement Markings

Laser Engraving

As you can well imagine, free-form lens production employs a veritable baggage train of QA checks and support, essentially so as this is very sophisticated production outcomes.

An important sequence in the process is to laser engrave those semi-visible reference marks to allow identification of design, type of material and any other individual specification changes.

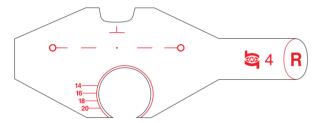
There can often be issues of too faint – too bold marking. When you consider that these marks are cut in after polishing but before tinting, hard coating and vacuum coating you might imagine how their visibility may alter!

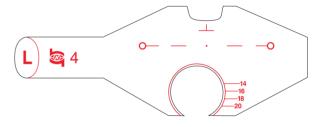
There are two types of laser employed in this service. CO₂ and Eximer lasers, the latter is of the type used in Lasik eye surgery and the type we have just upgraded to in early 2017 with to date very satisfactory outcomes as it produces a neater mark than those from a CO₂ laser. A very expensive operation to achieve micro semi-visible lens markings.



Glazed PPL

All glazed PPL orders will be despatched with Norville "huff" decals (avoids using chemicals for yellow mark clean off and the resulting tide mark which then flows into the frame rims!). These can be used as vision "training" decals, emphasising the area of patient use for distance and reading.





Uncut PPL

Rxs are despatched with removable ink markings as example below, printed in yellow.



As uncut lens customers will then use these yellow ink marks as their glazing reference line, it is extremely important to ensure these are accurately applied.

Humans working at this all day are prone to alignment errors! so an automatic sensor to spot those engraved marks and correctly align the inking efforts is used.



Explanation of Progressive Lens Measurements



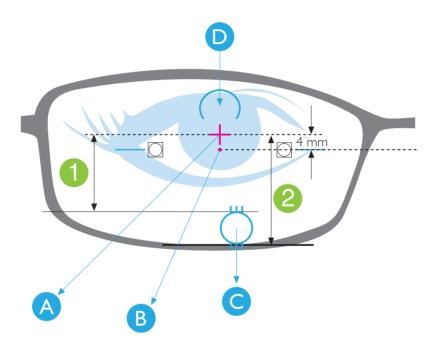
1 Progression Length:

Vertical distance between the pupil centre and the start of the near vision (where 90% addition is reached).



Minimum Fitting Height (MFH):

Minimum distance from the pupil centre to the lower tangent of the lens periphery.

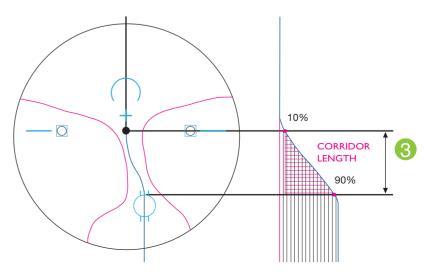


- A Fitting Cross + Major Reference Point (MRP)
- Prism Reference Point (PRP)
 mid point between horizontal engravings
- Near Reference Point (NRP)
- Distance Power Reference Point (DRP)

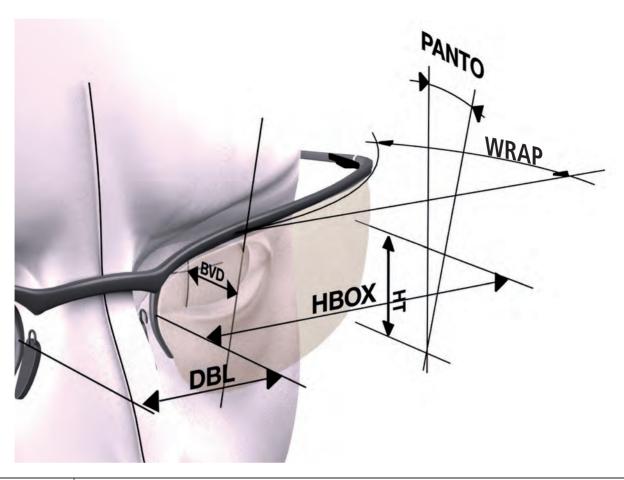
3

Corridor Length:

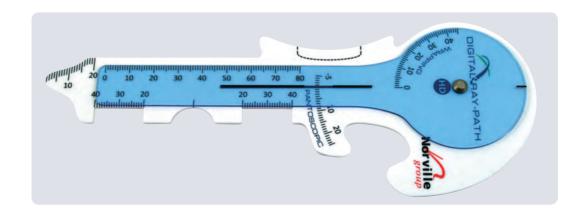
Distance between the point starting at 10% of the addition and ending at the point where 90% of the addition is.



Calculation Parameters



MPD	Monocular Pupillary Distance
HT	Vertical Pupil Height measured from the lower boxed tangent
HBOX	Horizontal Boxed Lens Size of Frame
DBL	Distance Between Lenses
VBOX	Vertical Boxed Lens Size
PANTO	Pantoscopic Tilt Angle
WRAP	Wrap Angle
BVD	Back Vertex Distance
NWD	Near Working Distance



Personalization Key - For use with HD progressive lenses - available free.

Prescribed Power v Compensated Power

Compensated prescriptions for "as worn" positions

Due to the expansive capacity of modern computers, previous calculations considered too demanding can now be digested in seconds. Previous to this, refraction Rxs were never corrected for the "as worn" conditions other than assumed "allowances".

Today those fitting values can be accurately measured and input alongside Rx lens details into the computer lens design programme, so those +5.00DS and -5.00DS lenses when corrected for actual tilt (panto) angle, wrap angle and BVD. In this example, using 12°, 12° and 12mm, we can note the compensated lens powers recalculated to those which will still result in the original **prescribed Rx** at the cornea. Remember this is just a recalculation of the lens power which will give the correct outcome ±5.000DS held vertically in a trial frame close to the eye. without doing this then the lens power would be incorrect!

PRESCRIBED Rx (CR39)

R +5.00 DS L -!

L -5.00 DS

COMPENSATED Rx (CR39)

R +4.88 -0.36 139° L -4.45 -0.41 46°

Prescribed Power

Prescribed Power is the given prescription. Conventional lenses are calculated to yield this power when being measured on a lensometer. However, when the wearer is looking through different points of the lens oblique aberrations appear, reducing the wearer's visual acuity.

This is the entry level of technology that only considers a fixed, non-tilted lens i.e. power as given.

This method is based on a pure geometrical conception of the lens: mixing curved surfaces, the lens will provide final wearers with the "given" power in a central gaze direction.

As an outcome, the final lens is not optimised (compensated). Distance Power and Addition are unchanged as "given Rx".

Prescribed Power

- ► Traditionally straightforward
- Powers easy to measure and compare to prescription
- ► Variable Inset: Automatic and manual
- ► Freedom in base curve selection

SPECIAL NOTE

ALL NORVILLE DESIGNS can be ordered / supplied in your preferred options
NOTHING IS COMPULSORY!

Compensated Power

This is the newest technology in lens computation that includes any changes in Rx, caused by positional alterations resulting from the final fitting spectacles, by comparison with the trial frame or refractor head Rx.

Based on three key frame fitting measurements pantoscopic tilt angle, frame wrap angle and back vertex distances distance between curves and back surface of the lens.

Compensated Power

- ► The lens will read a different power when measured on a lensmeter
- ► When this is beyond BSI tolerances this will be printed and advised see below
- ► VARIABLE INSET automatic & manual free-form base curve selections

Compensated lenses will display both the Prescribed Power and the Compensated Power. The Compensated Power is the one that has to be checked on the lensometer for quality inspection.

L	Sph +1.00	Cyl -2.00	100°	Add 2.75	Prescribed
					Power
Compensated	Sph +1.12	Cyl -1.98	86°	Add 2.71	
Power				_	

Free-form Production Control

SURFACE MAPPING

Before the final step of lens inking (page 8x) the lens has been checked, not just for conformity with the ordered specification, but with the design parameter matching that particular lens style.

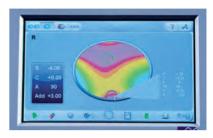
Its actual lens topography is ascertained by a mapper which by means of a computer overlay the actual is mapped to the original design specification.

Colour lens maps have become more common as a means of identifying progressive surfaces.



Visionix VX40

Provides a great general mapping view of glazed spectacles - at a glance will spot an upside down or lopsided progressive.



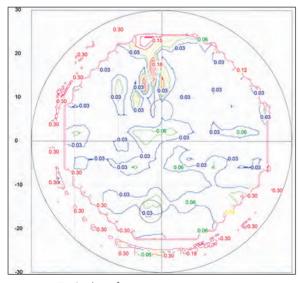


A&R Mapper

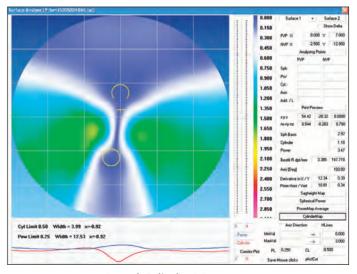
The technical "bee's knees" will electronically provide a comparison against the design criteria to that actually produced and will analyse if this is within acceptable limits.







Typical surface error contour map



Actual Cylinder Map







Communication Network

All Norville regional locations are directly linked from the Gloucester Hub switchboard. Individual and branch dialling codes will still connect to your dialled location.

Gloucester (Hub laboratory)

Service House, Magdala Road, Gloucester GL1 4DG Phone: 01452 528686 • Fax: 01452 411094

Email: rxsales@norville.co.uk

Bolton

Folds Road, Turner Bridge, Bolton BL1 2TU Phone: 01204 381224 • Fax: 01204 388906

Email: bolton@norville.co.uk

Edinburgh

Grange Road, Houstoun, Livingston, Nr. Edinburgh EH54 5DE

Phone: 01506 434261 • Fax: 01506 431851

Email: livingston@norville.co.uk

Harrogate

Chatsworth Road, Harrogate, N. Yorks HG1 5HX Phone: 01423 567533 • Fax: 01423 525327

Email: harrogate@norville.co.uk

Seaham

Unit 6A, Chevychase Court, Seaham Grange Estate, Seaham SR7 OPR

Phone: 0191 523 8023 • Fax: 0191 523 8024

Email: seaham@norville.co.uk

Direct Computer Link - EDI - contact IT Department, Gloucester

Overnight Courier

Couriers travel overnight between all Norville regional locations so your orders can be sent via any laboratory for internal transfer to Norville Specialist Centres.

NORVILLE LOCATIONS

Specialist Technical Skills

Diving and Swimming Goggles Gloucester
Frame Repairs & Solders Harrogate
Franklin Splits Livingston & Seaham
Free-form Manufacturing Gloucester
Hoya Livingston & Harrogate
Lindberg/Specialist Rimless All Locations
Polycarbonate Bolton
Presto LVA Livingston & Seaham

Online Ordering www.norville.co.uk



The Norville Group Magdala Road Gloucester GL1 4DG Tel 201452 528686 Fax: 01452 411094 Email: sales@norville.co.uk

