

1 CE Credit

Making Single-Vision a High-Definition Opportunity

By Dr. Richard Kapash, Augen Optics USA

It seems that free-form or digitally surfaced lenses are discussed everywhere you look today in the trade journals. However, they are usually describing a new enhancement to progressive lenses. This course describes a larger opportunity for this technology and an easy way for opticians and their labs to provide “high-definition” lenses—lenses made using free-form technology and resulting in better vision in single-vision designs. First, why should we provide better vision opportunities for the single-vision wearer? And if we do, what lenses are available that can achieve high definition performance? To answer this we need to review the single-vision population segment and the opportunity to improve patient satisfaction and increase practice growth using specially designed single-vision lenses.

THE SINGLE-VISION LENS MARKET

The average age of the U.S. population is young in comparison to

the populations of Europe and Japan. Moreover, it is quite stable (Fig. 1). This may be surprising to many since most population discussions in optics have centered on aging Baby Boomers and the lenses that best meet their needs for near and intermediate tasks. What is often forgotten is the fact that America has a relatively

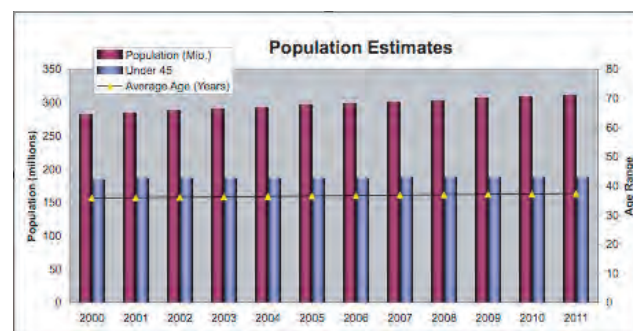


Fig. 1 Note the large population under 45, average age is about 38

young immigrant population made up of families and their young children. As a result, individual and chain retail practices have a large single-vision customer base and the market for single-vision lenses continues to increase. In addition, a pair of single-vision readers for the presbyope, especially seniors, is typically recommended (Fig. 2).

Single-vision lenses represent a real opportunity for all practices and, in fact, on average make up about half of all the patients seen in all offices across the U.S. So it only makes sense that providing new solutions in single vision is a better way to compete and differentiate your business. Think about how many single vision patients you have in your office every day, every year.

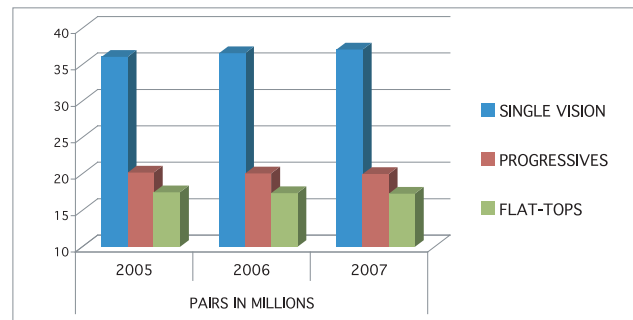


Fig. 2 - SV usage had increased about 3% since 2005

Release Date: June 2008

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Learning Objectives:

Upon completion of this program, the participant should be able to:

1. Define and understand the opportunity for the large single-vision market in the U.S.
2. Learn how vision in a single-vision lens can be further enhanced by asphericity used selectively in the two principal lens meridians.
3. Understand how to use a semi-finished single-vision lens blank that includes cast-in double asphericity as a standard choice for the astigmatic patient.

Faculty/Editorial Board: Dr. Richard Kapash, Augen Optics USA

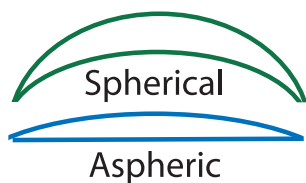
Credit Statement: This course is approved for one (1) hour of CE credit by the American Board of Opticianry (ABO). Course # SJMI081-1

This CE is also available online at www.2020mag.com

Please check with your state licensing board to see if this approval counts toward your CE requirement for relicensure.

ASPHERIC AND DOUBLE ASPHERIC LENSES

The opportunities for single-vision aspheric lenses are relatively well known. Aspheric lenses improve the cosmetics of a pair of glasses by using surface curves that are flatter centrally and progressively flattened (in plus prescriptions) as one moves from lens center to edge. The result is lenses that are thinner overall than the same prescription in standard spherical lenses with steeper curves.



This thinning and flattening reduces the magnification of the wearer's eyes as seen through the lens by others, as well as the world the wearer sees, and when specifically controlled ensures peripheral vision is optimized to be equal to or better than the peripheral vision in standard "best form" spherical design lenses. For the wearer, this results in lenses that look better and perform better since the world they see is closer to natural size. In addition, the lenses provide a larger clear field-of-vision through the window of the lens frame, since magnification of objects seen through the lens has been neutralized.

However, modern aspheric semi-finished lens blanks are rotationally symmetrical—that is, within a base curve, there is only one amount of asphericity and it is the same in all meridians for all prescriptions for which the lens blank is intended. Therefore, prescriptions with cylinder corrections (for astigmatism) have only one meridian corrected by the asphericity. For patients with astigmatism, the resulting areas of clear vision are improved most significantly in the sphere power meridian of the prescription. The cylinder meridian would not have the correct asphericity due to the difference in power and the field of clear vision in that meridian would be reduced when compared to the other meridian.

If the ability to aspherize the power in the cylinder meridian was also possible, then the field of clear vision in both meridians would be further improved and you would be able to offer the same quality of vision to the full range of single-vision wearers, including those with high prescriptions. This is, in fact, the case for lenses called double aspheric.

These lenses have two different amounts of asphericity on the same surface, located 90 degrees apart.

Only a few manufacturers cast finished lenses with an atoric back surface (dif-

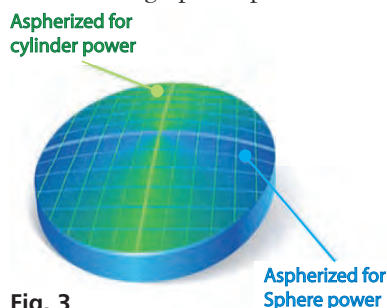


Fig. 3

ferent asphericity in each meridian) and these have been typically limited to 1.67 high-index lenses. Another option is to free-form the back surface of the lens with the correct asphericity for each power, but this approach is as yet very limited in availability.

A unique and patented solution is to use the Double Aspheric lens from Augen Optics. It is available to your laboratory as a front surface, double aspheric, semi-finished lens blank in Trivex and 1.56 high-index (Fig. 3). Your laboratory only needs to grind the back surface to create the prescription in the same way it now supplies any Rx back to you.

HOW OFTEN WOULD THE DOUBLE ASPHERIC SOLUTION BE NEEDED?

In an analysis of prescriptions received by the laboratory, as many as 46 percent of the cylinder prescription distribution is equal to

Percent Cylinder Prescriptions

- Sphere to -0.50D cyl
- $\geq -0.75D$ cyl

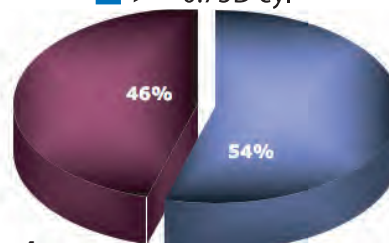


Fig. 4

or more than 0.75 diopters (Fig. 4). That suggests there is a large opportunity in the way one might order aspheric lenses. For spherical prescriptions or low cylinders, lenses would be ordered as "aspheric." For cylinder prescriptions with values of 0.75 and more, a double aspheric is a better choice for delivering clearer vision with wider fields of view to patients with higher cylinder Rx's. With the Augen Optics Aspheric/Double Aspheric lens series, the correct aspheric design for the prescription is predetermined by the base curve, so you aren't required to make that determination when ordering the lens.

A PRACTICE-GROWING OPTION

Practice or business growth can be interpreted in a number of ways. For example, improve wearer satisfaction by providing better vision and business should grow. Increase the average lens selling price while watching the cost of eyewear dispensed and profits go right to the bottom line. If both happen, then the overall practice or business grows and as opticians recognize their successes, they use the lenses that support these strategies more consistently.

The single-vision market provides a unique opportunity to grow your business with lenses that deliver increased wearer satisfaction at a reasonable cost. The lens market is large and growing, and

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makes up a real part of every office's patient base. In fact, for many offices or chain retail locations, the customer demographics are significant in the number of younger patients seen. Therefore, the aspheric/double aspheric lens is an ideal product whose benefits are worth promoting to patients.

By using aspheric and double aspheric designs as your primary dispensed single-vision lenses, you can give your patients a better-looking pair of glasses while delivering improved optics, even for high prescriptions. For the patient's budget, aspheric and double-aspheric lenses are the logical step before free-form, preparing the patient for the option of customized single-vision lenses via direct surfacing as that becomes part of the regular products available from your laboratory. Double aspherics are the practical way to guide your customers to a better quality product and a good option for the full range of astigmatic patients.

AUGEN CENTURION SERIES ASPHERIC/DOUBLE ASPHERIC LENSES

In the aspherics category, Augen Optics introduces the Centurion Series Aspheric and Double Aspheric single-vision lenses. The lenses allow wearers to see with increased clarity in all viewing directions. In a unique and patented design (US 7,111,937 B2), the Centurion Series Aspheric lens is optimized for prescriptions with no or low cylinders (0.00 to -0.50 cylinders), while the Double Aspheric corrects both principal meridians simultaneously for cylinders of 0.75D and above. In both cases, the molds are digitally surfaced to produce high-definition lenses of increased precision.

To provide patients with wider fields of natural vision and improve the appearance of their eyewear and overall looks, switch spherical and low cylinder prescriptions to aspheric designs, and cylinder prescriptions of 0.75D and more to double aspheric designs. The laboratory will choose the correct lens blank based on the prescription—and the doctor and dispenser will deliver a lens that better meets the wearer's needs.

Remember, aspheric lenses use flatter base curves, allowing for better cosmetics with thinner centers in plus prescriptions. The

asphericity is controlled to deliver the peripheral clarity the patient enjoyed in standard form lens designs. In minus-prescription aspheres, the periphery gets steeper for better peripheral vision with the additional benefit of reduced edge thickness.

Here's what it means. If a standard spherical design lens is ordered, the lab will choose the correct lens from that design's base curve selection chart. For example, an Rx of R +2.50 sphere and L +2.50 - 1.50 x 180 would normally be processed on a 6 base lens using a standard steeper best form design. The same base curve would be used for both lenses (Fig. 5).

The spherical base curve in a traditional design delivers clear vision for only a small portion of the prescriptions in the central area of this portion of the chart. For the prescriptions with higher powers and cylinders, the patient has increased blur and distortion when the eye moves away from center. The Centurion Series is unique because it provides two kinds of aspheric lenses to correct this problem by gradually aspherizing the curve toward the edges of the lens along one or two meridians. For every Rx, there is an easy solution to deliver better-looking lenses that can also deliver excellent vision.

In the above prescription, the Centurion lenses ordered would use an aspheric for the right lens and double aspheric for the left, as follows. The right lens would be delivered as an A5.00 base aspheric lens, the left as an AA5.00 base double aspheric (Fig. 6). In this way, each lens corrects for cosmetics and vision based on the prescription.

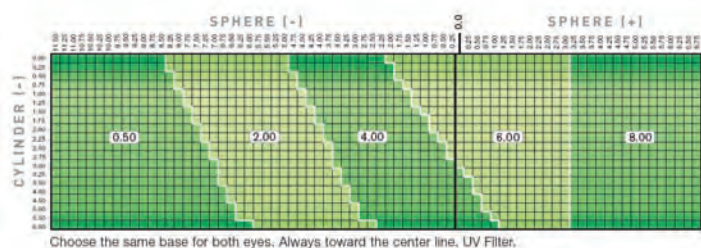


Fig. 5, Spherical design SV

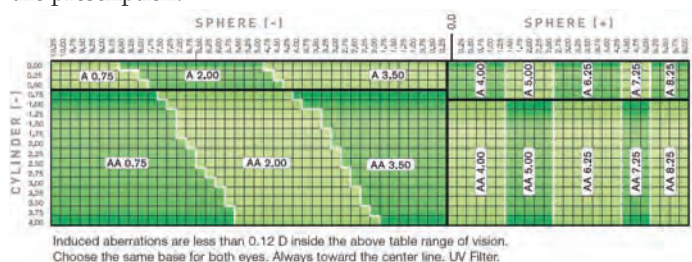


Fig. 6, Aspheric and Double Aspheric design SV

With this type of solution, all prescriptions are automatically corrected so the cylinder and sphere errors are kept to a minimum. The design series uses asphericity in a way ensuring that out to a 30-degree rotation (about 15mm in either direction from center) errors are limited to 0.12D (distortion and astigmatic error). This ensures that vision remains crisp and the field is large. It also allows dispensers to have the same expectation of performance from prescription to prescription (Fig. 7 and 8). Also, compare the two lens base curve selection charts. Note there are

Making Single-Vision a High-Definition Opportunity

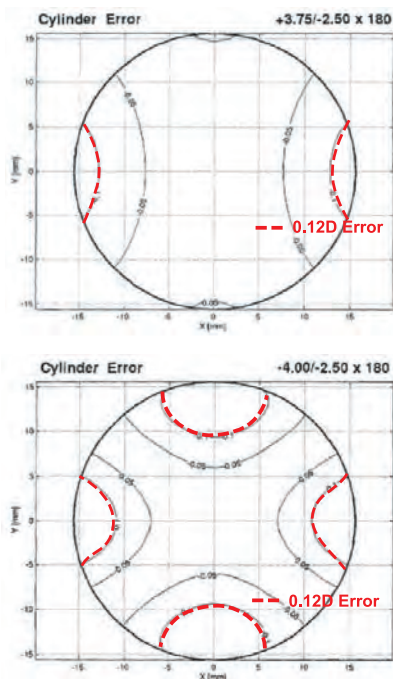
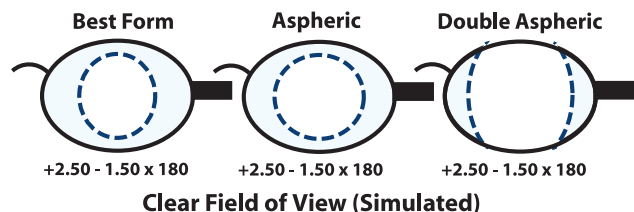


Fig. 7



Fig. 8

more than three times the base curve designs for the same range of prescriptions. In this way, the area of clear vision is ensured.

Simulating the effect in the frame, a wearer with the high +2.50 - 1.50 x 180 Rx clearly has a wider field of view in the double aspheric design.

The Double Aspheric lens is specifically designed for prescriptions with medium to high cylinder and is aspherized separately along two meridians. One meridian compensates for sphere power while the other compensates for cylinder power, resulting in a lens that provides wide, clear viewing zones in all directions. In a patented mathematical plan, a digital cutting process creates a surface of parallel contours of error correction. From the patent, "An atoric surface is formed such that the coordinate lines are parallels..." which is different from the radial aspheres of other designs. In this way, they

lend themselves to create astigmatic surfaces in spectacle lenses. These "dual aspheric cylinder" surfaces create a 0.33D cylinder on the front and provide aspheric front surface cylinder to increase the range of Rx's with dual meridian correction. This is an opportunity for the laboratory as well as the ECP. The Centurion Series single-vision lens designs result in less distortion and clearer vision not only side-to-side, but top to bottom as well. In another simulation, the viewer sees the image lines straighter and undistorted.

THE FINANCIAL SIDE

Improving a patient's vision and the look of their glasses benefits the patient and can add revenue and improve practice growth. For example, consider bundling the availability of either Trivex or 1.56 with its automatic asphericity and deliver a better product at a higher ASP. In this way, both the office and the patients win.

In many managed vision care plans, asphericity as well as higher index or Trivex options are a paid benefit. Use the patient's benefit to pay for the basics and deliver a better pair of glasses they can now afford.

AVAILABLE WHEN NEEDED

Available in plastic, Trivex, new Trivex Transitions VI, 1.56 high index and SunSensors +, the Augen Centurion Series ensures all patients can get an aspheric or double aspheric lens when needed. Having both material and design flexibility ensures that the best vision and looks can be delivered at all times.

Also, remember all quality lens designs are further improved with anti-reflective coating, which ensures that the vision delivered is as crisp as intended.



CONCLUSION

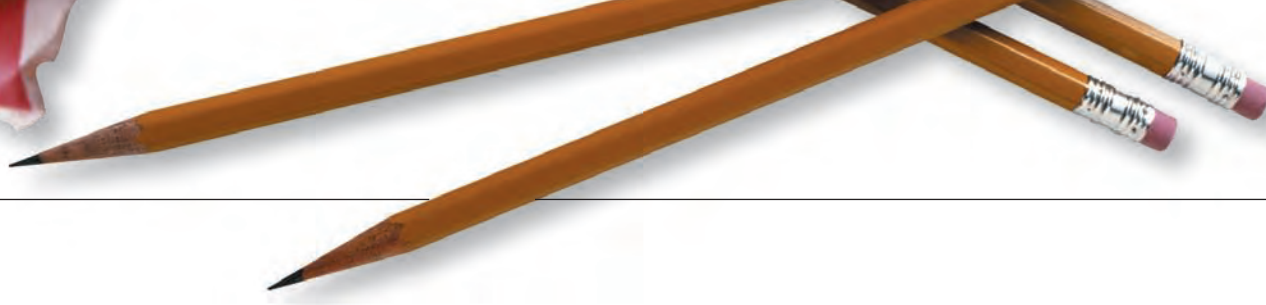
The large U.S. single-vision market represents a waiting opportunity for every office. Consider the use of aspheric and double aspheric lenses as a way to grow both patient satisfaction and your bottom line through consistent delivery of wider, clearer vision to single-vision wearers.

New Centurion Series Aspheric and Double Aspheric lenses from Augen Optics provide better-looking eyewear and better vision to the full range of single-vision patients, especially astigmatic patients with high prescriptions.



Self-Assessment Examination

1. All of the following are true except:
 - a. The average age of the U.S. population is young in comparison to Europe and Japan
 - b. The average age is less than 40
 - c. The average age is changing rapidly
 - d. Most branded optical products have centered on the aging Baby Boomers
2. What percent of the people that bought eyewear in 2007, bought single-vision lenses?
 - a. 30 percent
 - b. 26 percent
 - c. 50 percent
 - d. 40 percent
3. Aspheric lenses provide the following benefit:
 - a. Plus lenses are flatter and thinner
 - b. There is reduced magnification
 - c. They create a larger clear visual field
 - d. All of the above
4. Which of the following describes the limitation of aspheric lenses that is experienced by high-cylinder Rx wearers?
 - a. The same amount of asphericity is present in all meridians in a particular base curve
 - b. Only one meridian is corrected by the asphericity
 - c. The cylinder meridian would not have the correct amount of asphericity
 - d. All of the above
5. All of the following are ways to better correct each Rx meridian in single-vision lenses except:
 - a. Use back surface atoric stock (finished) lenses
 - b. Use Double Aspheric lenses from Augen Optics
 - c. Use 1.67 aspheric single vision
 - d. Order an optimized back surface free-form single-vision lens
6. About how many potential Rx wearers might benefit from a double aspheric?
 - a. 25 percent
 - b. 50 percent
 - c. 75 percent
 - d. 100 percent
7. The Centurion Aspheric and Double aspheric design series is:
 - a. Unique and patented
 - b. Optimized for prescriptions with no or low cylinders (0.00 to -0.50 cylinders)
 - c. Optimized for cylinders of 0.75D and above
 - d. All of the above
8. In a Double Aspheric lens:
 - a. Both principal meridians are corrected simultaneously
 - b. Only the sphere power is corrected
 - c. The molds are digitally surfaced for increased precision
 - d. A and C
9. When Centurion lenses are ordered:
 - a. Convert the prescriptions to aspheric form and order
 - b. Use spherical equivalents
 - c. The laboratory will choose the correct lens blank for dual meridian correction
 - d. Convert the prescription to the near prescription and range
10. The asphericity used ensures that vision out to _____ degrees is corrected.
 - a. 15 degrees
 - b. 20 degrees
 - c. 25 degrees
 - d. 30 degrees
11. The correction out to about 15mm uses a limit of _____D for induced distortion and astigmatism.
 - a. 0.30D
 - b. 0.20D
 - c. 0.12D
 - d. 0.012D
12. When peripheral errors are corrected using the right asphericity, the results for the wearer are:
 - a. A wider field-of-view in the sphere meridian
 - b. A wider field-of-view in the cylinder meridian
 - c. A more natural image size
 - d. All of the above
13. The way that the Double Aspheric is created uses:
 - a. Parallel coordinate lines
 - b. Radial aspheres
 - c. Monocular surfaces
 - d. Binocular congruence
14. When patients can experience vision and cosmetic benefits:
 - a. Products that deliver these benefits are worth more
 - b. The products that deliver these benefits can add revenue and improve practice growth
 - c. The products that deliver these benefits can be bundled with other materials or photochromics to deliver a better product at a higher ASP
 - d. All of the above
15. Availability of a product in a variety of lens materials:
 - a. Makes the product more attainable by more patients
 - b. Can meet almost any budget
 - c. Allows more prescriptions to be made the best they can look
 - d. All of the above
16. In the Centurion Series, Double Aspheric lenses are used for all the following Rx's except:
 - a. Plano - 0.50 x 90
 - b. +3.25 - 1.25 x 180
 - c. -3.00 - 0.75 x 45
 - d. -0.50 - 2.25 x 90
17. Which of the following enhance the way aspheric and double aspheric lenses provide wearer benefits:
 - a. Anti-reflective coatings
 - b. Photochromics
 - c. Tints for outdoor use
 - d. All of the above
18. Thinking premium lenses is as much an opportunity for _____ as for progressive wearers.
 - a. The large U.S. single-vision market
 - b. High-add wearers
 - c. All presbyopes
 - d. None of the above
19. In the Centurion Series, Aspheric lenses are used for all the following Rx's except:
 - a. Plano - 0.50 x 90
 - b. -3.25 - 0.25 x 180
 - c. +3.00 sphere
 - d. -0.50 - 1.25 x 90
20. The Centurion Series uses _____ to better correct prescriptions.
 - a. More than three times the base curves
 - b. Tuned asphericity in both principal meridians
 - c. Parallel lines of atoricity
 - d. All of the above



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Mail to: Jobson OptSC, PO Box 488, Canal Street Station, New York, NY 10013.

This program is supported by an unrestricted educational grant from **Augen Optics USA**

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1 = Excellent 2 = Very Good 3 = Good 4 = Fair 5 = Poor

Rate the effectiveness of how well the activity:

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Profession: ☐ Optician ☐ Contact Lens Fitter ☐ Other

By submitting this answer sheet, I certify that I have read the lesson in its entirety and completed the self-assessment exam personally based on the material presented. I have not obtained the answers to this exam by any fraudulent or improper means.

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