

Visx CustomVue vs. LadarVision Custom Cornea vs. Zyoptix vs. Allegretto Comparison Chart ©

	Visx CustomVue	LadarVision Custom Cornea	Zyoptix	Allegretto
Name Detail	CustomVue Wavefront Laser Diagnostic and Ablation. Also known as CustomVue and Visx CustomVue System.	Alcon LadarVision 4000 Custom Cornea (TM) Wavefront Laser Diagnostic and Ablation, also known as Custom Cornea, Ladar Vision and Alcon Laser.	Zyoptix Wavefront Laser Diagnostic and Ablation, also known as Bausch and Lomb Technolas 217z.	Allegretto Wave Excimer Laser by WaveLight Laser Technologie AG, also known as Allegretto Wavefront Optimized Laser Ablation.
Corrective Uses	Correction of astigmatism, farsightedness, high levels of nearsightedness (up to 14 diopters), and Higher Order Aberrations (HOA).	Nearsightedness (up to 8 diopters), farsightedness, astigmatism, and HOA	Nearsightedness (up to 8 diopters), farsightedness, astigmatism, and HOA	Nearsightedness, farsightedness, astigmatism, and HOA
Procedure Length	Total procedure time: 15-30 minutes per eye.	Total procedure time: 15-30 minutes per eye.	Avg. treatment time 30-90 seconds per eye. Total procedure time: 15-30 minutes per eye.	Avg. treatment time: 10 seconds per eye. Total procedure time: 15-30 minutes per eye.
Procedural Notes	Is a wavefront-guided ablation for use in performing LASIK and PRK. Variable spot scanning beam 0.65 mm - 6.5 mm. Creates a precise digital report of the corneal surface from patient's wavefront evaluation, which is used by the computer to guide the laser in shaping the cornea.	Is a wavefront-guided ablation for use in performing LASIK and PRK. Small spot scanning beam less than 1 mm. Uses an excimer laser to shape corneal tissue. Creates a precise digital report of the corneal surface from patient's wavefront evaluation, which is used by the computer to guide the laser in shaping the cornea.	Is a wavefront-guided ablation for use in performing LASIK and PRK. Scanning spot beam less than or equal to 2 mm. Creates a precise digital report of the corneal surface from patient's wavefront evaluation, which is used by the computer to guide the laser in shaping the cornea.	Is a wavefront-guided ablation for use in performing LASIK and PRK. Scanning spot beam 0.95 mm. 240 Hz eyetracker sampling rate. 4-8 ms reaction time. Treats pupils 6mm - 8mm. Produces smoothest corneal surface of all lasers.
Healing & Recovery	2 days – 1 week; faster than LASEK. Allowed to drive 1-3 days after surgery.	2 days – 1 week; faster than LASEK. Allowed to drive 1-3 days after surgery.	2 days – 1 week; faster than LASEK. Allowed to drive 1-3 days after surgery.	2 days – 1 week; faster than LASEK. Allowed to drive 1-3 days after surgery.
Benefits	25 times more precise than non-wavefront methods. Produces better vision correction than glasses or contacts. Wavefront diagnostics can determine if refractive surgery is contraindicated, if wavefront is required or excessive. Measures high order aberrations (HOA). Personalized per each eye's unique correction need.	25 times more precise than non-wavefront methods. Creates a precision cut to shape the cornea. Less increase in higher order aberrations than other ablation procedures. Produces better vision correction than glasses or contacts. Wavefront diagnostics can determine if refractive surgery is contraindicated, if wavefront is required or excessive. Measures high order aberrations.	25 times more precise than non-wavefront methods. Produces better vision correction than glasses or contacts. Wavefront diagnostics can determine if refractive surgery is contraindicated, if wavefront is required or excessive. Measures high order aberrations.	25 times more precise than non-wavefront methods. Treats a larger area of the cornea than some other excimer lasers. Laser ablation pattern is optimized with wavefront derived data. Less increase in higher order aberrations than other ablation procedures. Improves not only refractive error but contrast, sharpness and perception.

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Potential Drawbacks	More expensive than traditional LASIK.	More expensive than traditional LASIK.	More expensive than traditional LASIK.	More expensive than traditional LASIK. Not FDA approved for wavefront-guided custom LASIK treatments.
Indications for Procedure	Need for: Integrated wavefront, eye tracking, unique wavefront analysis, no pupil dilation, treatment up to -6.00 diopters w/cylinder up to -3.00 diopters for nearsighted astigmatism, up to +3.00 diopters w/cylinder up to +2.00 diopters for farsightedness w/ or w/o astigmatism.	Need for: Integrated wavefront, fast even laser application, up to -7.00 diopter nearsightedness, refractive error - .50 diopters and up to -4.00 diopters astigmatism.	Need for: Integrated wavefront, fast even laser application, up to -7.00 diopters nearsightedness w/up to -3.00 astigmatism and refractive error less than or equal to 0.5 diopters.	Need for: Integrated wavefront, fast even laser application, precision correction of refractive error and correction of contrast sharpness and perception, up to -12 diopters nearsightedness w/up to -6 diopter astigmatism. Up to +6 diopters farsightedness w/up to +5 diopters astigmatism.
Contraindications to Procedure	Cannot under-correct to create proper monovision outcomes, collagen vascular disease, connective tissue disease, thin cornea, age under 18 or over 40, poor vision, outside correctable range, unstable prescription, vision changes within two years, eye disease or abnormality, diabetic retinopathy, cataracts, glaucoma, ocular hypertension, autoimmune disorders, medications such as steroids or immunosuppressants, pregnancy, nursing, hypertension, keratoconus or other irregularly shaped cornea, large pupils, dry eye, Herpes Simplex of the eye, prior eye injury, corneal scarring, naturally elevated HOA, patients taking either Accutane (isotretinoin) or Cordarone (amiodarone hydrochloride).			
RISKS	The Eye Surgery Education Council (ESEC) reports less than 1% experience serious problems if proper screening is done and an experienced laser eye surgeon performs the procedure, and 3-5% experience less serious problems that are correctable, there are NO reports of blindness resulting from LASIK or LASEK surgery, possibility of complications if the flap (created by surgical cutting) is not thick enough or of proper diameter, Diffuse Lamellar Keratitis (DLK, infiltrates beneath the LASIK flap) can cause inflammation and scarring and must be treated with antibiotics and steroids, infection can lead to loss of vision, irregular astigmatism and double vision can result from not centering the laser correction properly (decentered ablation), halos or starbursts when looking at lights which are minimized with wavefront LASIK, incomplete corrections may occur, undercorrections can be retreated while overcorrections may require using glasses or contact lenses, erosion of the epithelium may occur, dry eye, infection, keratectasia, weakened bulging cornea may occur, the surgeon may cut the flap too thickly, the alcohol used in the procedure may kill epithelial cells, loss of visual acuity after procedure, corneal scarring, eyelid droop, chronic discomfort and inability to tolerate contact lenses may also result.			
HOW TO AVOID PROBLEMS	Find a surgeon with thousands of procedures of experience. Exams to include routine eye exam, slit-lamp, fundus, corneal thickness, topography and pupillometry, and a Shirmer test. Follow instructions carefully after surgery. Request wavefront diagnostics or a reason why this is not recommended. Replace old makeup and don't use for several days after surgery. Avoid strenuous exercise for 1 week. Avoid contaminated water for at least 1 week, including seawater, lakes, swimming pools, spas, etc. Avoid rubbing eyes for 2 weeks.			

Acronyms not clarified in the chart include:

- BCV = Best Corrected Vision
- BCVA = Best Corrected Visual Acuity (same as BCV)
- DLK = Diffuse Lamellar Keratitis
- HOA = Higher Order Aberrations
- LOA = Lower Order Aberrations
- ASA = Advanced Surface Ablation (Used in PRK and LASEK)
- ICL = Implantable Contact Len
- IOL = Intra-Ocular Lens.

Per the Council for Refractive Surgery Quality Assurance (CRSQA) Standards for refractive surgery:

- Minimum of 90% of patients achieve at least 20/40 uncorrected vision.
- Minimum of 50% of patients achieve at least 20/20 uncorrected vision.
- Minimum of 85% of patients achieve within 1± diopter of target.
- Minimum of 50% of patients achieve within 0.5± diopter of target.
- Maximum of 3% of patients experience complications unresolved by 6 months postop.
- Maximum of 0.5% of patients experience serious (vision-threatening) complications at 6 months post op requiring extensive maintenance or invasive intervention.